MASTER PLAN + REEXAMINATION REPORT

LAND USE | OPEN SPACE | MOBILITY | STORMWATER | FACILITIES | HISTORIC | ECONOMIC

PRINCETON NJ
MASTER PLAN
NOVEMBER 30, 2023

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PRINCETON NJ MASTER PLAN

+ REEXAMINATION REPORT

Prepared for the:

Municipality of Princeton

Adopted:
November 30, 2023

Consultant Team:

Clarke Caton Hintz
Architecture
Planning
Landscape Architecture

SGB SUSAN G. BLICKSTEIN, LLC
PLANNING • POLICY • RESEARCH

JGSCGroup

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A signed and sealed copy is available at the Municipal offices.

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1.0 INTRODUCTION AND STATEMENT OF OBJECTIVES, PRINCIPLES, ASSUMPTIONS, POLICIES, AND STANDARDS

Introduction

1.1 What is a Master Plan?

A community's Master Plan guides a Municipality's growth and development and informs its zoning, land use decisions, and infrastructure. The New Jersey Municipal Land Use Law requires that all master plans include a statement of assumptions, principles and policies, goals and objectives, and standards upon which decisions about the physical, economic, and social development of the Municipality are based. Section 1.0 articulates the vision for Princeton, assumptions that underpin the Master Plan, and the goals and objectives the Master Plan intends to achieve through each plan element.

WHAT IS A REEXAMINATION REPORT?

This Plan also constitutes a Master Plan Reexamination Report, which is a periodic review of past assumptions and policies related to land use as required by the Municipal Land Use Law. Together with the Master Plan, the Reexamination Report will guide future growth in ways that enhance the Municipality's strengths and advance its vision. Accordingly, this Plan begins with a new set of assumptions, and a new set of goals and objectives based on those assumptions.

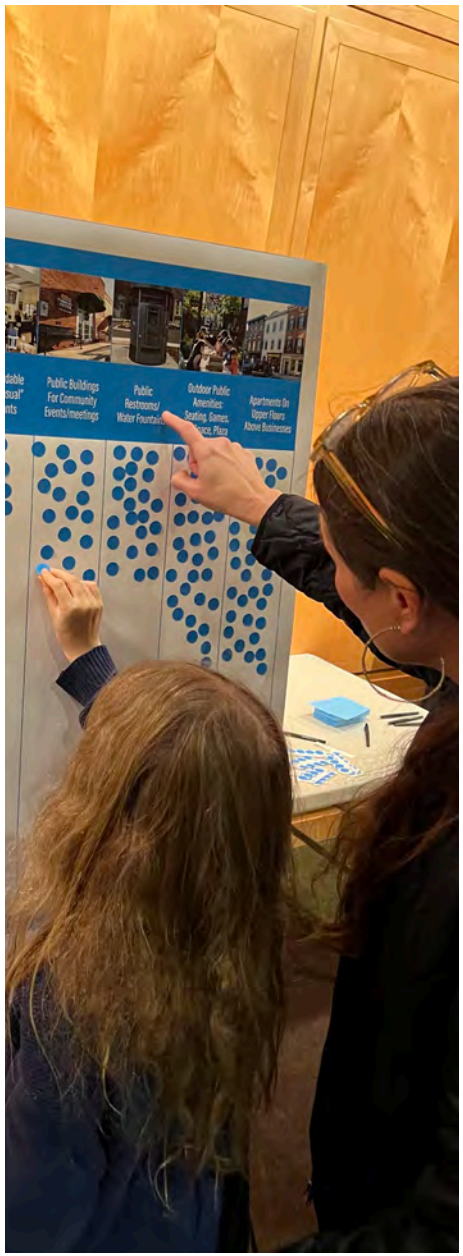
FOUNDATION OF THIS PLAN

The assumptions and resulting principles and policies in this Master Plan represent a departure from many of the policies expressed in the 1996 Community Master Plan for the former Borough and Township of Princeton. The 2013 merger that formed the Municipality of Princeton has combined a compact, walkable center that expressed a desire to maintain its "small-town" feel with a larger, lower-density community that had developed based on a more suburban growth pattern. The population of the combined Princeton now exceeds 30,000, and, after several years during which the Municipality has grown very little, it is projected to grow by 10% or more over the next five years. Additionally, Princeton University, the Municipality's largest employer, also has plans for continued growth.

New policies will need to be put in place to welcome and accommodate this growth in a way that maintains and enhances every resident's quality of life, provides equitable access to all the benefits the Municipality has to offer, minimizes unanticipated negative consequences, and maximizes the opportunity for every resident and business to thrive.

AERIAL PHOTO

Source: Princeton Online GIS Service



1.2 Public Outreach

This section of the Master Plan summarizes the public outreach efforts that were undertaken during the planning process, and presents the major findings that informed various parts of the Master Plan.

OUTREACH TIMELINE

- March-April 2022: Initial kick-off meeting, Steering Committee established, Engagement Hub launched
- April 2022 and ongoing: Public Steering Committee meetings
- Spring 2022: Economic-development interviews with key stakeholders (63 interviews)
- Spring and Fall 2022: Student economic development survey (500 responses)
- Summer 2022: Resident/visitor economic development survey (3,778 responses)
- Autumn 2023: First Community Visioning Survey (896 responses)
- Summer 2022 through Summer 2023: Presentations and feedback at 15 meetings of various boards, commissions, and committees, as well as community groups
- November 2022: First Open House (250 attendees)
- Spring 2023: Technical interviews with Municipal staff, other stakeholders
- Spring 2023: Second Community Visioning Survey (1,494 responses)
- Spring-Summer 2023: Steering Committee Sub-committee meetings to review and provide input on draft Plan elements (22 meetings)
- Summer 2023: Listening sessions throughout the Municipality (8 presentations and 2 tabling sessions at other events)
- September 2023: Second Open House (200 attendees)
- October 2023: Presentation to Planning Board at public informational meeting

Emails about the Master Plan and the various opportunities for the public to be involved were sent regularly to Princeton's approximately 6,000 newsletter subscribers and more than 50 Princeton-based community organizations. In addition, flyers about the Community Visioning Survey that included information on the Engagement Hub were left at more than 100 local businesses and posted in various public places such as bus stops.

ENGAGEMENT HUB

Public outreach consultant Susan G. Blickstein LLC designed a digital engagement hub for the Master Plan project, which launched in late spring 2022. On the hub, engage.princetonmasterplan.org, interested parties could find general information about master plans and the master planning process, a calendar of events, a library of reports and promotional materials, videos of public events. and information about the individuals and organizations leading the master planning effort. An email sign-up form was also available, and when the two Community Visioning surveys were live, they were available via links on the engagement hub. A link to the hub was posted on the Municipality's main website.

SURVEYS

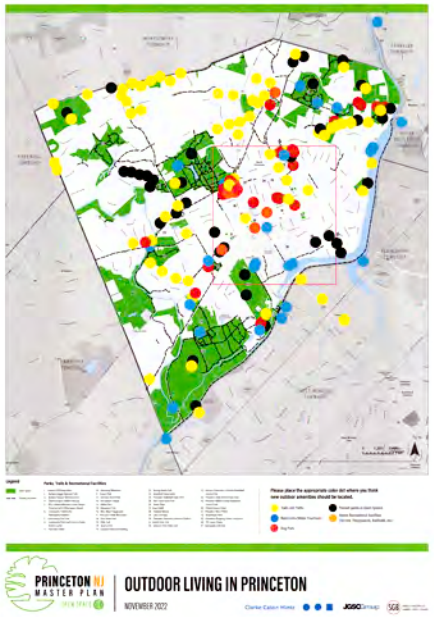
Three online surveys were deployed during the planning process.

Economic Development Survey

An economic development survey, conducted by downtown economic development expert JGSC Group, sought to provide insight on how both visitors and residents spend money in Princeton. The survey was deployed during July and August 2022, and received more than 3,700 responses, among the highest response rates for any such survey conducted by JGSC during its 35-year history. Based on this response rate, the survey had a 1.6% margin of error. The municipality also deployed a version of the survey in Spanish, the responses to which are included in the 3,700+ total responses. In the spring and fall of 2022 JGSC deployed a separate survey for students at Princeton University and Princeton Theological Seminary, in order to understand better how students contribute to the Princeton economy. The student surveys received more than 500 responses.

The consumer survey was available via a dedicated URL, and was promoted via signs placed strategically along Princeton's primary roadways. Additional promotion was done via signage at municipal locations and in merchants' store windows, Facebook and Instagram ads targeted to accounts within a certain radius of Princeton, social media posts, and email publicity to and by various community groups. The municipality promoted the Spanish-language version of the survey to targeted community groups, and the student surveys were promoted within the respective institutions.

A summary of findings from these surveys and other outreach efforts is included in the Key Findings section below. Details of the findings may be found in JGSC's report, which is included as an appendix to this Master Plan.



Community Visioning Survey I

The first Community Visioning survey was deployed in mid-September 2022 and remained open until the first week in November. Its goal was to identify the key issues and priorities in the community, to be sure the Master Plan addresses them. The survey received 896 responses.

The survey was available on the Master Plan project's public engagement hub. The hub offers translation into various languages via Google Translate. The Municipality led the promotional efforts for the survey, including publicity via the Municipality's regular email newsletter and to specialized email lists for local community groups, posts on its social media accounts, press releases and letters to the editor, a paid advertisement in a local newspaper, trilingual flyers posted and left in more than 100 strategic locations throughout the Municipality, and presentations at 10 community meetings and events.

Community Visioning Survey II

The second Community Visioning survey was deployed between mid-May and mid-June 2023, and was intended to receive more detailed feedback on specific questions and issues that surfaced in the responses to the first Community Visioning survey and in discussions with the Steering Committee. The second survey received 1,494 responses.

The second survey was also available on the engagement hub for the project. As it did with the first survey, the Municipality led the promotional efforts for the second survey, following a similar promotion strategy to the one used for the first survey.

Detailed reports of the findings from both Community Visioning surveys may be found as appendices to this section.

ECONOMIC STAKEHOLDER INTERVIEWS

JGSC Group conducted interviews with 32 people or groups of people representing key economic stakeholders in the community – business owners, commercial property owners and developers, public officials, and community leaders. An additional 31 interviews were conducted specifically with local merchants. Interviews were conducted in person, via phone or via videoconference.

All stakeholders were asked the same seven open-ended questions focused on the nature of commerce in the Municipality, the retail and business mix, opportunities and challenges, and their vision for the future. Local merchants were asked eight open-ended questions specifically to do with running a retail business in Princeton, including sales trends, where customers came from, and opportunities and challenges. The findings from both sets of interviews are detailed in the JGSC report.

PUBLIC EVENTS

Open House I

The first Open House was conducted in late November 2022. Its purpose was to provide more information about a Master Plan and the process for drafting and adopting one, and to engage in discussion about the key issues that were identified in the first Community Visioning survey. The Municipality led promotional efforts for the Open House. More than 250 people attended.

The format focused on collecting more information on community preferences in four key areas: Housing, Downtown, Open Space/Recreation, and Community Mobility. There was a station for each topic, with interactive boards or maps that invited participants to indicate their preferences for various things. A general information board greeted attendees as they walked in and, for context, provided some basic trend information about current conditions in the Municipality. In addition to the interactive exercises, attendees could provide more detailed feedback on comment cards, color-coded for each of the four topic areas.

A detailed report on the Open House is appended to this plan.

Open House II

The second Open House was conducted in late September 2023, and provided an introduction to the major themes, assumptions, and goals on which the Master Plan would focus. More than 200 people attended, and visited information stations focused on Open Space and Recreation; Land Use and Zoning; Mobility; Economic Development; and Historic Preservation.

Listening Sessions

The Municipality conducted 10 listening sessions in September 2023, both virtually and at various locations throughout the Municipality, with 223 attendees providing feedback in several key areas of the Master Plan, including land use, mobility, and historic preservation. Overall comments included a desire for increased economic diversity in Princeton, preservation of the character of residents' existing neighborhoods, and greater connections between land use and sustainability, affordability, and historic preservation.

More specific feedback is included in the Key Findings section.

Community Group Presentations

Representatives from the Municipality made informational presentations at 15 community group meetings and events as well as to Boards, Commissions and Committees of the Municipal government to provide information on the master planning process and on various elements of the new Master Plan.

KEY FINDINGS

Residents appreciate a diverse, walkable town with abundant amenities.

The top two characteristics that respondents to the first Community Visioning survey cited as what they liked most about Princeton are the ability to walk to various destinations, and the variety of shops, restaurants,

and arts and cultural opportunities available to them. Ensuring the continued health of Princeton's downtown was the most important development-related concern respondents had. When asked what they would like to see more of, respondents asked for more outdoor dining and more street trees, parks, plazas, benches/seating, and open spaces in the downtown.

At the first Open House, residents were asked to vote on what they thought was needed in order to ensure a vibrant, thriving, diverse downtown. The top vote-getter was more apartments above businesses, followed by more outdoor amenities, including seating, games, art spaces, and/or a public plaza. Close behind those was a desire for more outdoor dining options.

Economic development discussions during the Listening Sessions focused on concern about regulations having a greater negative impact on small businesses than large corporations, on better coordination of incoming business types, and on concerns about long-term storefront vacancies. Attendees acknowledged that an increase in the permitted number of liquor licenses in the Municipality would support desired uses like a music venue, comedy club, or bowling alley. Additionally, attendees expressed a desire for expansion of, and continuity in, wayfinding and informational signage, to make navigation easier as well as to enhance character and branding consistency for the Municipality.

Princeton needs more housing, especially at lower price points.

When asked in the first Community Visioning survey what they found most challenging about living in Princeton, the top answer was the high cost of living. Expanding middle-income and affordable housing opportunities were key development-related aspirations among respondents. The most-cited types of family housing respondents would like to see more of are single-family homes on small lots and multi-family buildings with fewer than 10 units. Attendees at the Listening Sessions also expressed a desire for development of multiple forms and types of housing.

At the first Open House, attendees were asked to place dots of different colors on a map, indicating where they would prefer to see different kinds of housing developed. The preference for two- to four-family homes was Municipality-wide. In addition, certain locations were highlighted for possible larger apartment buildings, and the Nassau Street area and Harrison Street areas were identified as appropriate locations for additional smaller housing development on the floors above commercial uses.

The second Community Visioning survey asked for more details about which mechanisms for creating new housing respondents would prefer to see the Municipality implement. Responses were almost evenly distributed among the options: permitting subdivision of some single-family homes into multiple units; easing the process for subdividing large single-family lots to allow a home to be constructed on each smaller lot; easing regulations governing the development of accessory dwelling units; increasing permitted building heights in some areas to allow for an additional floor of apartments; and reducing off-street parking requirements for new housing if parking demand can be met in other ways. In that survey, small apartment buildings and townhomes were also most frequently identified as appropriate development for the now-vacant Butler Tract off Harrison Street.

The natural environment is a treasured asset.

Among the issues respondents to the first Community Visioning survey noted that the Master Plan must address, preserving the Municipality's existing forest, woodland and wildlife habitat and protecting its environmental quality and natural resources ranked as the most important. The overwhelming majority of respondents, when asked what outdoor amenities were most important to them, listed trails and multi-use paths.

Participants at the Open House reinforced this preference, noting on an interactive map where they would like to see connector trails, as well as where they would like to see amenities such as dog parks, tot lots, water fountains and restrooms.

In the second Community Visioning survey, in response to a question about what should be included in a potential redevelopment of the TPC Jasna Polana golf course, most responses favored Jasna Polana remaining as an open space/recreational amenity. Open space was also prioritized for any potential redevelopment of Westminster Choir College, behind only the opportunity to continue to use that property as a school facility. Noting that these properties are particularly large in area, respondents were allowed to select multiple options and the aforementioned preferences may be one of a mix of uses on each site.

Car traffic is a problem.

Traffic congestion was cited in the first Community Visioning survey as the second-biggest challenge to living in Princeton behind affordability, and when asked what issues the Master Plan must address, the problem of pedestrian and cyclist safety ranked second behind protection of environmental resources. The fear of increased traffic congestion was the top concern expressed when respondents were asked about the impacts of proposed new development in the Municipality. Despite this, respondents indicated that a personal automobile is the way they get around the Municipality most frequently, followed closely by walking. Respondents indicated they would walk or bike more if those modes were as safe and convenient as driving.

Attendees at the first Open House were asked to note on individual maps where they wanted to see transportation and mobility improvements. Improvements for cyclists were noted most often, and safety and access to amenities were the most-frequently mentioned concerns.

The maps present visually the individual streets where attendees most want to see pedestrian and bicycle improvements.

Additionally, attendees had the opportunity to note where improvements in transit would be most beneficial. The most common request was for greater transit frequency and shorter journey times, followed by better connectivity to key destinations such as the downtown, the Shopping Center, the train station, Princeton Junction, and medical facilities. Many of these destinations are already served by existing local transit services; however, in the second Community Visioning survey, only 7% of respondents said they have used the Muni Bus since it returned after the pandemic, and fewer than 3% of respondents said they use it regularly.

Mobility concerns expressed during the Listening Sessions focused on enhancing the ability to get around the Municipality without the need for a car, the ability to use alternative modes of transportation to reach public transportation, and providing more mobility options for children to get to school.

Historic preservation is important, and should be easier.

Historic preservation feedback at the Listening Sessions focused on the importance of and desire for design guidelines for all of the Municipality's historic districts, to reduce the costs of review and expedite the approval process for certain types of projects. Attendees were also interested in grants or incentives for upkeep being made available to owners of historic properties, and expressed a desire for the Office of Historic Preservation to elevate historic preservation through a focus on highest priorities. As with feedback related to economic development, attendees interested in historic preservation also want standardized signage for historic assets in the Municipality.

Problems are also opportunities.

When asked in the first Community Visioning survey what opportunities they were most excited about for Princeton in the coming decade, the top four responses focused on downtown vitality, better mobility, greater housing diversity and affordability, and increased open space. This Master Plan attempts to articulate ways to capitalize on all these opportunities while at the same time mitigating any potential negative impacts.

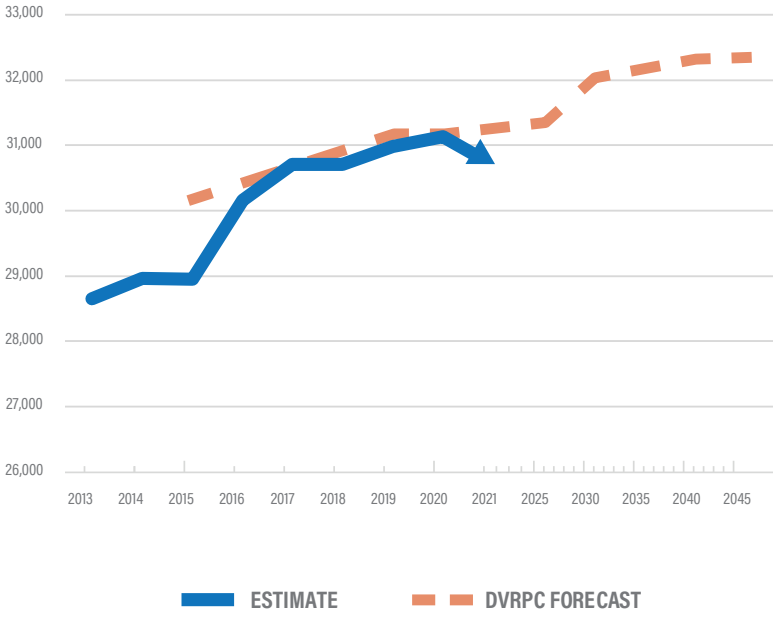
1.3 Demographics

POPULATION

The American Community Survey estimated Princeton's population in 2021 at 30,717.[1] Since 2010, Princeton's population has grown 6.2%, more than the 5.3% growth in New Jersey overall. However, much of that growth took place between 2015 and 2017; between 2017 and 2020 the population grew at a much slower 1.4%, and a population drop between 2020 and 2021 brought the total back to 2017 levels. The Delaware Valley Regional Planning Commission, the federally designated Metropolitan Planning Organization that includes Princeton in its jurisdiction, estimated in 2016 that by 2045 the Municipality's population will grow to 32,360, a 5.3% increase from 2021. (It should be noted that DVRPC's estimate predates Princeton's affordable housing Settlement Agreement, which is projected to bring approximately 1,100 new housing units to the Municipality by 2025.)

When these growth numbers are broken out more specifically by age cohort, it becomes clear that high school and college-age adults make up a significant portion of Princeton's population, as would be expected. Residents aged 45 and older make up 36.3% of the total population. The number of adults aged 25 to 44, the age range that typically includes children under 18 in the household, is a much smaller 19.5% of total population, as the population chart below shows.

Princeton Population Change and Forecast
2013-2045



Sources: ACS 5-Year Estimates; Delaware Valley Regional Planning Commission (DVRPC)

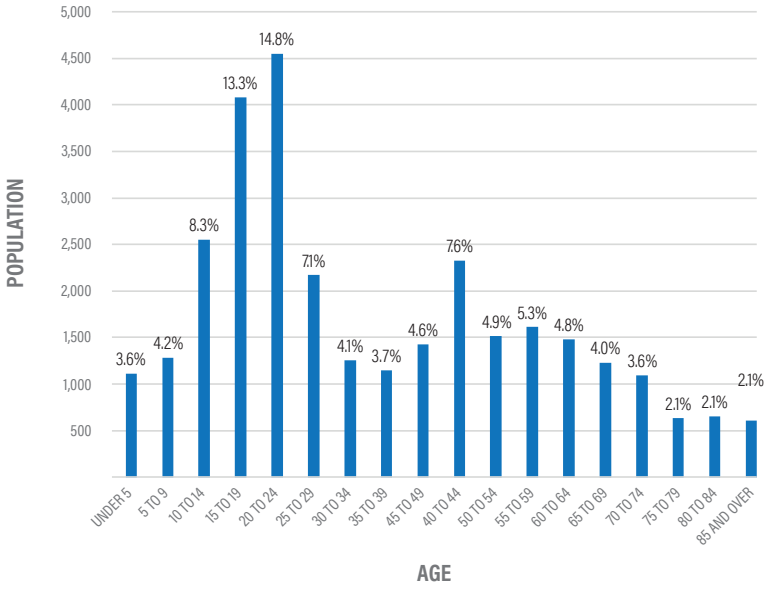
1 *The 2020 census reported a population of 30,681.*

RACE & ETHNICITY

The consolidated Princeton has gotten more diverse since 2010, with, most notably, an increase of 3.3 percentage points in the number of residents who identify as Asian-American, an increase of 1.1 percentage points in the number who identify as Black or African American, and an increase of 2.9 percentage points in the number of those who identify as two or more races. The portion of Princeton's total population that identifies as other than White increased by 8.3 percentage points. The percentage of those who identify as Hispanic or Latino of any race also increased, from 5.2% to 6.3%.

Princeton Population by Age

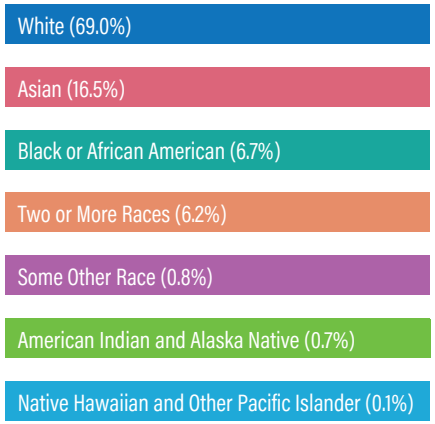
2021

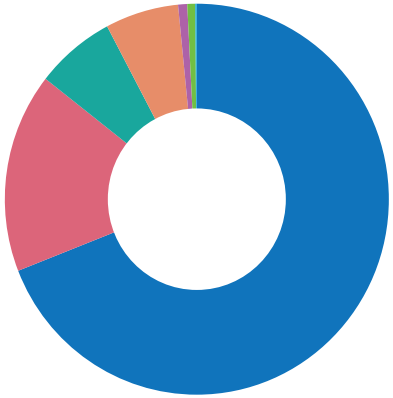


Sources: ACS 5-Year Estimates 2017-2021

Princeton Population by Race

2021

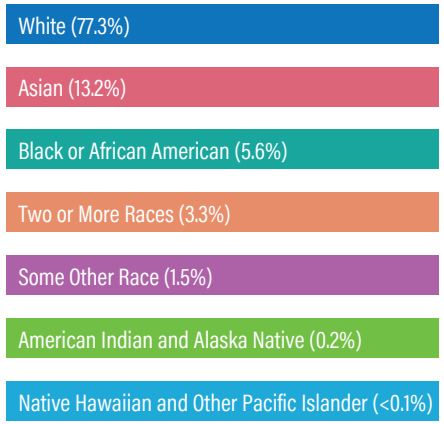


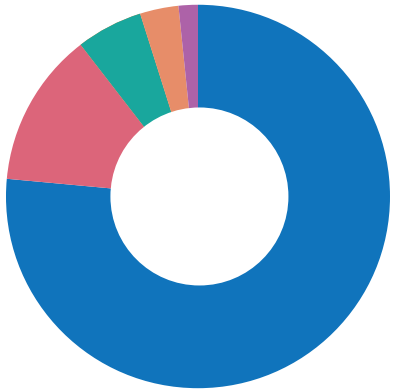


Sources: ACS 5-Year Estimates 2017-2021

Princeton Population by Race

2010





Sources: ACS 5-Year Estimates 2006-2010

HOUSEHOLDS AND HOUSING

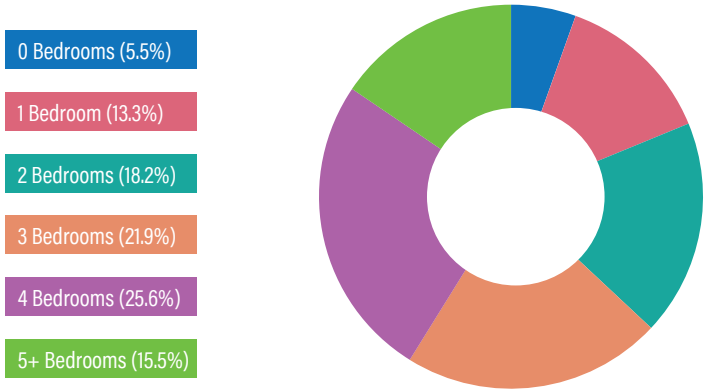
Of Princeton's 10,236 housing units, almost 75% are one- and two-family homes. More than half were built before 1960, and almost 25% were built prior to 1940. Almost two-thirds have three or more bedrooms, and the trend since 2013 has been toward larger homes: The portion of the Municipality's housing stock that has three bedrooms has dropped 20%, from 27.3% of all units to 21.9% of units, while the portion that has four or more bedrooms has grown 12.6%, from 36.6% of all units to 41.2% of all units.

In 2022, owner-occupied units represented 58.6% of all occupied units in the Municipality. The 2022 median value of an owner-occupied unit was $903,000, up from the 2020 median of $872,400. In 2021, almost 90% of owner-occupied homes in Princeton had a value of $500,000 or more, and only 5.1% were valued at less than $300,000.

In 2022, renters occupied 41.4% of occupied units in the Municipality. The median gross rent in 2022 was $2,498, up sharply from the 2020 median gross rent of $1,704 and higher than the 2022 statewide median rent of $1,749.

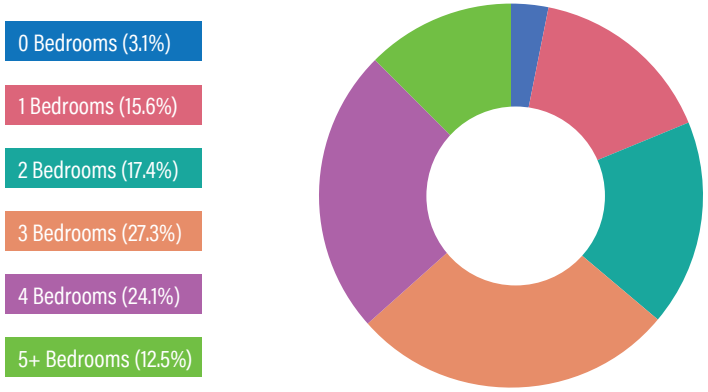
As discussed in greater detail in the Economic Development Element of this Plan, there are few job categories where a worker earning the average salary can afford the median rent in Princeton, and there are no job categories where the average salary is sufficient to purchase a home at the median value.

Princeton Housing Stock by Bedroom Count
2021



Sources: ACS 5-Year Estimates 2017-2021

Princeton Housing Stock by Bedroom Count
2013



Sources: ACS 5-Year Estimates 2009-2013

DOES THE HOUSING FIT THE HOUSEHOLD?

In 1940, the average size of the American family was 3.76 people. In 2021 the average family size in the U.S. was 3.13 people, and in Princeton a slightly higher 3.21 people. The average household size in Princeton was 2.69 people. And yet, as noted above, the biggest change in housing stock between 2013 and 2021 is the increase in homes with four or more bedrooms.

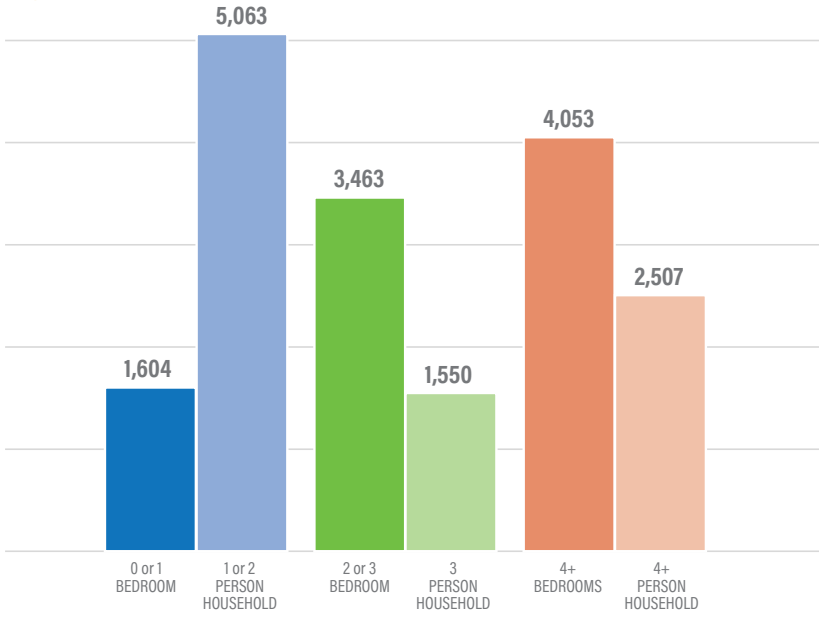
Both family and household size in Princeton have grown slightly since 2013. Does the growth in the number of larger homes mirror these changes, or has it caused them? Smaller households may be unable to find housing that suits their needs and may not see any prospect for that to change, thus perhaps being forced either into housing that is larger than their requirements or out to a nearby municipality that has a greater diversity of housing stock. Whichever the reason, Princeton is left with a significant mismatch between housing stock and household profile.

Households that are "over-housed" may incur excessive costs associated with that housing. And, as noted in the Economic Development Element of this Master Plan, households that can't find suitably sized housing in Princeton that they can afford – who, in this case, as discussed above, tend to be those just starting careers and families – are forced to look elsewhere, depriving Princeton of a cohort in their prime working and spending years.

A fuller discussion of Princeton's demographics and housing stock may be found in the Housing Element of this Master Plan.

Size of House vs. Size of Household

2021



Bedrooms vs. Household size

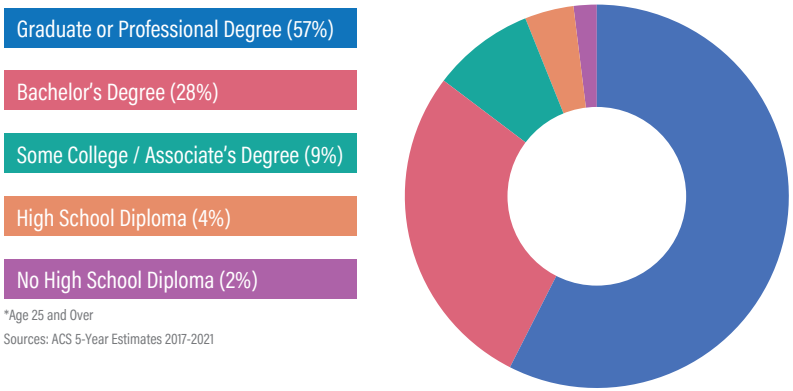
Sources: ACS 5-Year Estimates 2017-2021

EDUCATION

More than 85% of Princeton residents aged 25 or older have a bachelor's degree or higher, approximately twice the State average, with two-thirds of degree recipients holding graduate degrees. A full 98% have at least a high school diploma. While this is unsurprising in a municipality with world-class institutions of higher learning, it highlights the shortage of local workers available to fill jobs that do not require a post-secondary education.

Princeton Educational Attainment

2021



*Age 25 and Over

Sources: ACS 5-Year Estimates 2017-2021

PRINCETON BY THE NUMBERS[2]

- Population under 18: 6,120 (19.9%)
- Population aged 18 and over: 24,597 (80.1%)
- Population aged 18-64: 20,374 (66.3%)
- Population aged 65 and over: 4,223 (13.7%)
- Population that are U.S. citizens: 27,936
- Percent of population born outside the United States: 28.8%
- Employed residents: 11,343
- Median household income: $165,149
- Median family household income: $239,534
- Median non-family household income: $70,625
- Percent of residents living in poverty: 5.9%
- Percent of children under 18 living in poverty: 1.2%
- Percent of residents aged 65 or older living in poverty: 9.7%
- Percent of renters paying $2,000 or more per month in rent: 50.7%
- Percent of renters paying $3,000 or more per month in rent: 28.2%
- Percent of residents aged 15 or older who are married: 44.5%
- Percent of residents aged 15 or older who have never married: 47.1%
- Percent of households with own children under 18: 35.5%
- Percent of employed Princeton residents who are:
  - Employees of private companies: 53.9%
  - Self-employed in their own incorporated business: 4.0%
  - Employed by private not-for-profits: 27.6%
  - Local, state, and federal government workers: 7.7%
  - Self-employed in own not incorporated business, or unpaid family workers: 6.8%
- Employed Princeton residents commute to work by:
  - Driving alone: 37.0%
  - Carpool: 4.7%
  - Public transportation: 8.4%
  - Walking: 20.3%
  - Cycling: 2.8%
  - Taxicab, motorcycle, or other means: 0.8%
  - Work from home: 26.0%

2 *Unless otherwise noted, information comes from the American Community Survey 2021 5-year estimates*

1.4 Vision

Princeton will be a vibrant, growing, and welcoming community with a diverse mix of land uses that accommodate a broad variety of needs, housing ample and diverse enough to accommodate all who want to live here, a robust transportation system that de-prioritizes cars, ample open space and recreation opportunities, first-class community facilities that serve and protect all stakeholders, a diverse and growing local economy that leverages but is not solely dependent on Princeton University, and an unrivaled quality of life for all residents.

THE PRINCETON OF THE FUTURE WILL BE:

- Liveable, beautiful, healthy, and accessible
- Diverse, inclusive, and equitable
- Rich in community facilities and services
- Historic
- Unique, vibrant, and internationally recognizable
- Economically strong and adaptable
- A global center for educational achievement
- Sustainable, resilient, and carbon neutral
- Affordable to households of all income levels

1.5 Assumptions

Princeton will welcome new growth. Residential growth will infuse new life into the downtown and into the Princeton Shopping Center area. Local businesses will grow accordingly. Princeton will use this Master Plan to coordinate growth intelligently across the Municipality.

Princeton's reputation as a global center for educational achievement will continue. Princeton University will continue to make Princeton a strong regional employment center that attracts a highly educated, high-earning workforce. The Municipality's partnership with the university will continue to broaden and deepen, enabling both parties to capitalize on opportunities for growth.

Princeton's quality of life and "quality of place" are the result of a unique concentration of key durable assets, and these assets will not be sacrificed. These assets include top-tier educational resources, outstanding public services, a broad array of cultural amenities, abundant open space and recreational facilities, a world-class retail district, and unique and extensive historic resources. These assets act as a magnet for businesses, visitors, and residents.

Princeton needs more housing, and the current housing shortage adversely affects many aspects of life in the Municipality, including traffic, parking, and economic growth. The Municipality is committed to enabling the development of more housing, particularly "missing middle" housing accessible to smaller households. This housing will be primarily within the downtown, the area surrounding it and the Princeton Shopping Center.

There will be increasing, and sometimes conflicting, demands on Princeton's sidewalks, streets, and roads. Growth in traffic and parking demand, in a "delivery culture" for both food and goods, in demand for space for non-vehicular transportation, and in demand for outdoor dining, will all exert increased pressure on sidewalk, curb, and roadway space.

The changing climate will continue to present an urgent threat, and its effects will land disproportionately on vulnerable communities. The municipality will need to increase resiliency, conserve critical resources, reduce greenhouse gas emissions from both buildings and vehicles, increase sustainable power and mobility options, mitigate the adverse health effects of rising temperatures, minimize the dangers and impacts of increasingly frequent severe weather and flooding, harden critical facilities and utilities that must remain operational during public emergencies, support adaptive reuse of buildings, and mitigate the disproportionately adverse effects that climate change will have on vulnerable populations.

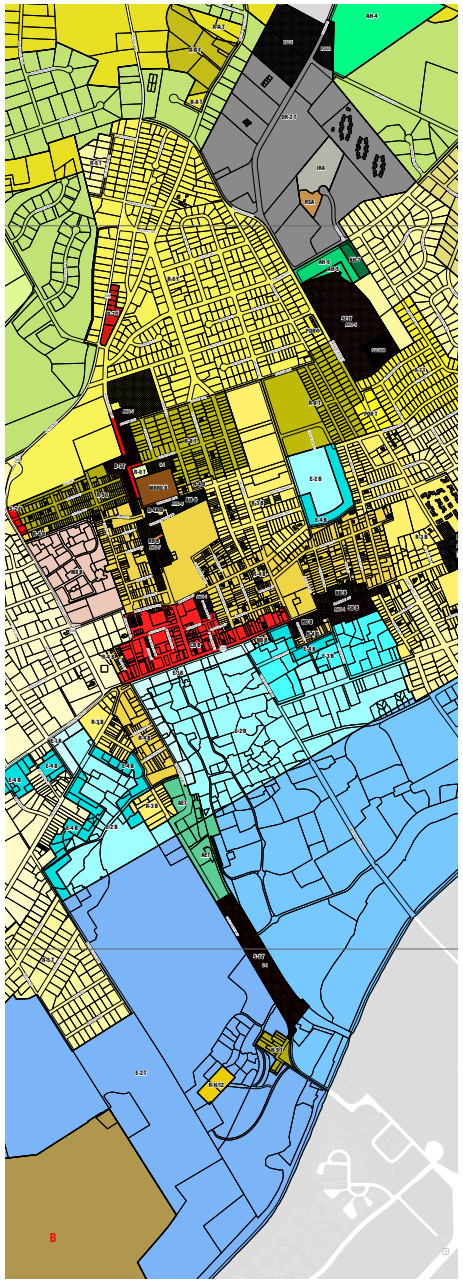
Princeton is committed to providing equal and equitable access to its opportunities and amenities. This commitment encompasses the distribution and arrangement of land uses, access to housing, employment, education, and all the many amenities Princeton has to offer. Expanding access for all will not mean limiting access for any.

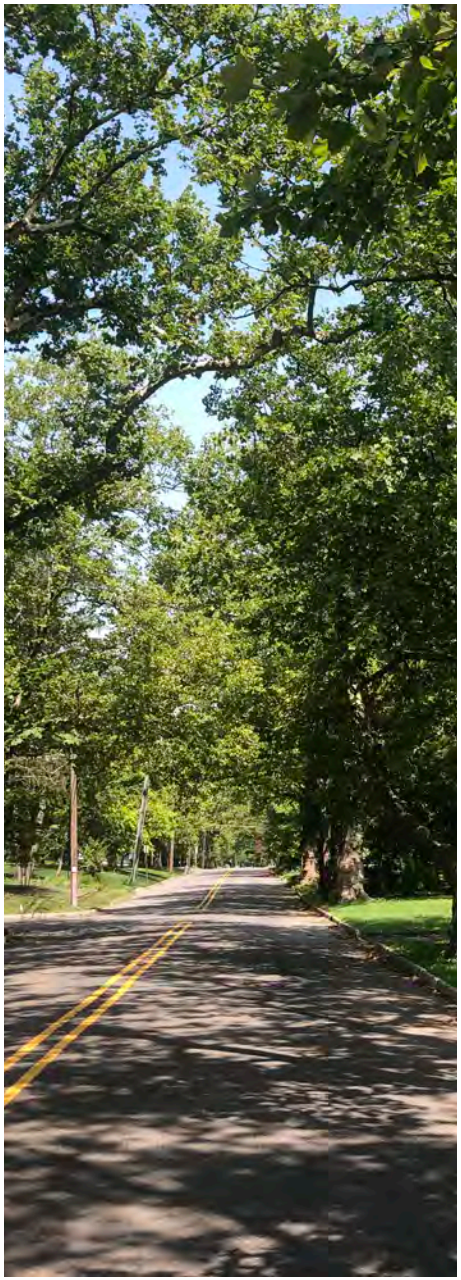
1.6 Goals

The goals listed below correspond to each element of the Master Plan and the recommendations contained therein. Each element is listed in the order in which it appears in the Municipal Land Use Law (N.J.S.A. 40:55D-28), which governs the preparation and implementation of a municipality's Master Plan.

LAND USE GOALS

1. **Create a unified zoning ordinance** for the Municipality of Princeton.
2. **Enhance the existing pattern of land use** by focusing higher residential density within and around the downtown and in mixed-use centers and maintaining progressively lower densities outside of the downtown.
3. **Remove barriers to increased residential density** in appropriate residential, commercial and mixed-use districts to promote housing affordability, a greater variety of housing types and dwelling sizes to better fit a spectrum of household sizes and income levels, while balancing other goals of the Master Plan such as historic preservation and neighborhood scale.
4. **Consider ways of using housing density to advance broad community goals** and the public interest.
5. **Provide greater opportunities for economic development** by expanding permitted uses within the downtown, commercial and mixed-use districts that reflect the future direction of the market.
6. **Reduce the cost of development and increase investment** by streamlining review, permitting, and approval procedures.
7. **Protect and restore environmentally sensitive features and natural resources** by steering new development away from existing natural features and into developed areas and maintaining and enhancing buffers to sensitive features.
8. **Improve resiliency to climate change and natural hazards** by managing and regulating flooding and stormwater, protecting critical facilities necessary for evacuation and sustaining the community during a natural disaster, and reducing vehicle miles traveled in favor of walking, biking, and transit ridership.
9. **Protect and preserve designated historic districts and sites** by ensuring that development follows local and national preservation guidelines.
10. **Implement the terms of the 2020 Amended Housing Plan Element and Fair Share Plan** to provide housing for eligible low- and moderate-income households.
11. **Begin identifying opportunities to create new affordable units in anticipation of the next round of affordable housing obligations in 2025,** and secure those affordable units whenever possible.



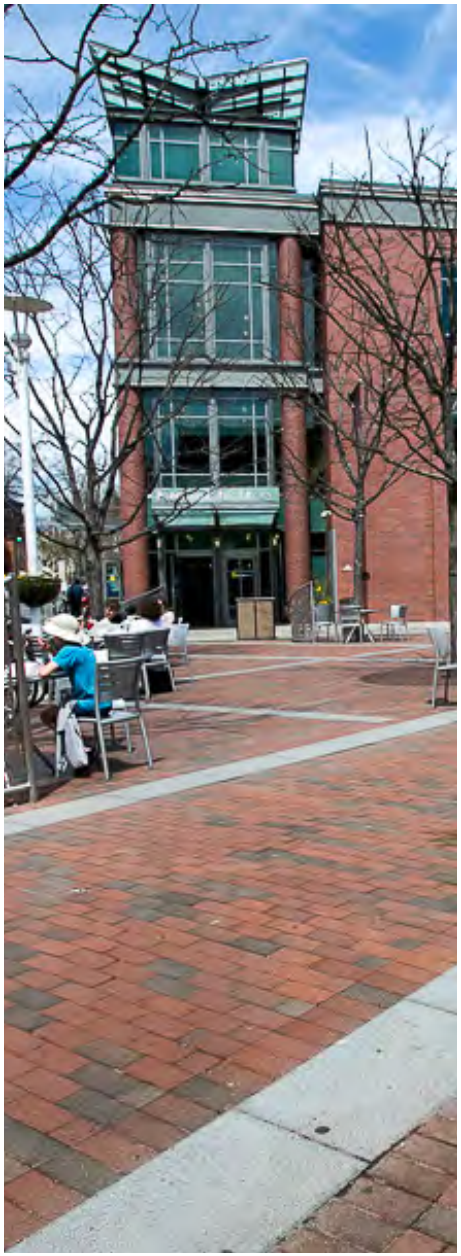


MOBILITY GOALS

12. **Ensure safe, abundant, and equitable transportation options** for all residents, visitors, and businesses.
13. **Reduce inbound commuting through the development of additional housing,** particularly in the downtown and immediate environs where most jobs are located.
14. **Encourage modal shift from single-occupancy vehicle travel to use of low- or zero-emissions mobility options** such as walking, cycling, shared transportation, transit, and micro-mobility options.
15. **Prioritize investments that connect neighborhoods to key destinations** such as community facilities, shopping centers, centers of employment and education, parks and open space, trails, major institutions, transit services, and the downtown.
16. **Develop one robust, integrated, and coordinated transit network,** and provide wayfinding signage and other communications to inform residents and visitors about all available transit services.
17. **Prioritize non-motorized transportation** through the development and maintenance of a robust network of sidewalks, dedicated bicycle lanes, and shared-use paths.
18. **Optimize usage of existing parking capacity,** particularly in the downtown, through timing, pricing and shared parking strategies.
19. **Restrict heavy commercial through-traffic** in the Municipality's business district, residential areas and on local streets.
20. **Manage curbside access** to minimize deliveries' disruption of street and sidewalk traffic.
21. **Integrate Complete Streets and Green Streets policies** into the design of mobility improvements.
22. **Maximize the resiliency of transportation infrastructure** that is vulnerable to flooding and other hazards.
23. **Collaborate on regional transportation initiatives** with State, County, and neighboring municipal agencies.
24. **Provide electric vehicle infrastructure that is accessible and equitably distributed** throughout the Municipality.
25. **Accommodate transportation accessibility needs** through infrastructure and services for people with disabilities.
26. **Improve the safety and comfort of vulnerable roadway users** through roadway improvements and regulations.
27. **Facilitate first-mile and last-mile connections to transit** through infrastructure and service improvements.

UTILITY GOALS

28. **Provide high-quality utility services** to all Princeton residents and businesses.
29. **Upgrade broadband and cellular service** so that both meet the standards of a world-class place to live and work.
30. **Ensure equitable access** to all utility services.
31. **Accommodate future growth** while minimizing any adverse impacts of expanded service and improving local conditions wherever possible.
32. **Increase capacity and harden infrastructure** in areas of the Municipality where future growth will occur.
33. **Improve efficiency** of all development projects, land uses, and public systems related to utility use.
34. **Maximize redundancy** in the provision of all utility services.
35. **Minimize waste,** including the generation of solid waste, wastewater, and byproducts of all utility services and municipal operations.
36. **Promote renewable energy** including solar and geothermal systems.
37. **Eliminate contributions to climate change** through management of greenhouse gas emissions and activities that accelerate the effects of climate change.
38. **Maximize climate resiliency** through utility infrastructure improvements that maintain service through climate change-related hazards.
39. **Continue to maintain and improve utility systems** to ensure uninterrupted service to existing users, maximize system capacity, and reduce the long-term cost of municipal ownership.
40. **Support New Jersey's Community Solar program** to bring lower energy costs to eligible households.
41. **Reduce stormwater runoff and flood risk** to make the built environment greener and more absorbent by removing impervious coverage where possible and managing stormwater close to where it falls.



COMMUNITY FACILITIES GOALS

42. **Provide high-quality municipal, educational, and cultural facilities** to meet the needs of Princeton residents.

43. **Promote and enhance the built environment of Princeton** through high quality design of public, educational, and cultural facilities.

44. **Reinforce Princeton's unique sense of place** as expressed in its network of public streets and spaces through creative placemaking, public art, and safe and welcoming pedestrian environments.

45. **Implement sustainable and green-building practices** at all municipal community facilities.

46. **Integrate renewable energy generation and utilization** into municipal and school facilities to the greatest degree feasible.

47. **Integrate green technology and sustainable design** into municipal and school facilities to the greatest degree feasible.

48. **Establish redundant energy systems** where feasible to allow community facilities to maintain operations during public emergencies.

49. **Develop emergency management plans** that allow community facilities to serve additional functions to protect public health, safety, and welfare during public emergencies.

50. **Provide outstanding public school facilities and plan for future school capacity** based on anticipated patterns and trends in the growth of households.

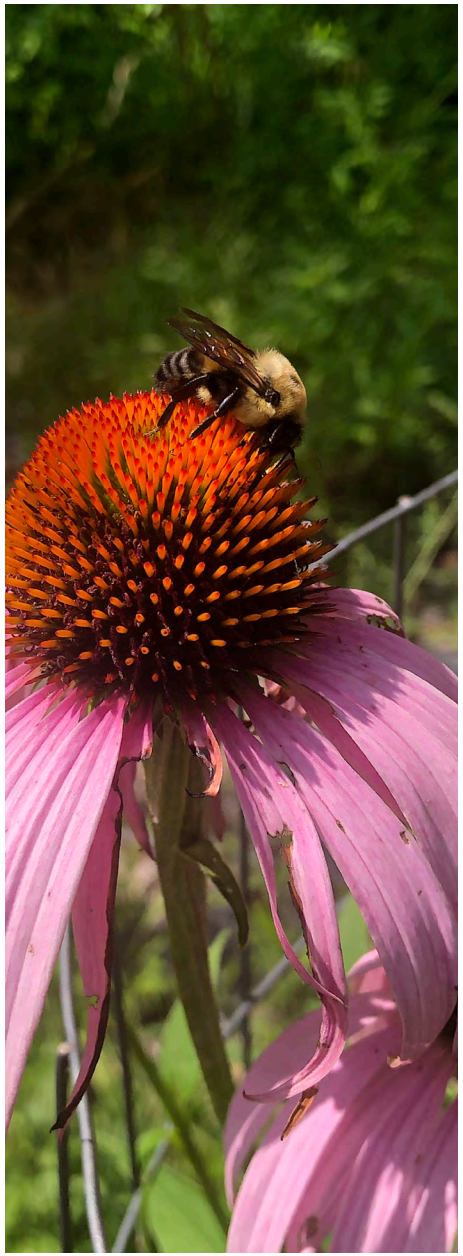
51. **Strategically locate new or expanded public school facilities** to maximize access and walkability.

NATURAL RESOURCE CONSERVATION GOALS

52. **Coordinate preservation and development to accommodate population growth** while preserving and enhancing natural resources.
53. **Guide growth away from natural resources** and into areas with existing or planned infrastructure.
54. **Limit disturbance of environmentally sensitive lands** such as steep slopes, floodplains, wetlands, critical habitat, and unique environmental features.
55. **Protect and restore water quality** for drinking, recreation, irrigation, and natural habitat.
56. **Remove and replace non-native plantings**, and protect and restore natural vegetation.
57. **Manage nuisance and invasive species** to protect native ecosystems and biodiversity.
58. **Preserve contiguous natural lands** to minimize habitat fragmentation and maximize the benefits of preservation.
59. **Preserve and enhance existing visual resources** such as scenic corridors, tree-lined streets, historic landscapes, open agricultural land, and woodlands.
60. **Retrofit urban areas to accommodate more green infrastructure,** enhanced vegetation, and resiliency to the effects of climate change.
61. **Foster stewardship and management** of already preserved lands and natural resources.

OPEN SPACE AND RECREATION GOALS

62. **Meet active and passive recreation needs** through easements, strategic and selective acquisitions, partnerships with appropriate entities, and optimization of existing assets.
63. **Develop criteria to guide the selective and strategic preservation of lands** for public open space and recreation opportunities.
64. **Develop a system of trails and open space linkages** to connect existing and proposed open space areas within Princeton and neighboring municipalities.
65. **Enhance accessibility of open space and recreation facilities** by prioritizing safe, convenient, and universal access regardless of age, ethnicity, size, income, ability, or disability.
66. **Provide low-emission access to open space and recreation facilities** through infrastructure linkages and amenities to support walking, biking, transit, and other car-free trips, and to avoid the necessity of adding new parking capacity.
67. **Integrate open space and recreation facilities** into private development.
68. **Promote stewardship** of Princeton's parks.
69. **Reduce the threats to natural landscapes** from pests, disease, and non-native invasive species.



ECONOMIC DEVELOPMENT GOALS

70. **Increase the percentage of workers who can live in Princeton** by expanding the range of housing and non-motorized transportation options in the Municipality.

71. **Enhance Princeton's role as a regional job center** that attracts a highly educated, high-earning workforce.

72. **Strengthen Princeton's commercial and mixed-use districts** and maintain the Municipality's position as a prestigious regional retail and dining destination.

73. **Increase engagement with Princeton University** in order to meet the University's commercial needs more effectively and embrace new growth industries that develop as an outgrowth of university research while also maintaining opportunities for non-university related business.

74. **Identify and develop new growth opportunities that will diversify Princeton's employment profile** and insulate the Municipality against the adverse effects of changing retail and office environments.

75. **Make particular efforts to expand life sciences' footprint** as a growing industry sector for which Princeton offers unique advantages.

76. **Reverse the trend of businesses and jobs moving out of the Municipality** by reducing the negative aspects of locating in the Municipality, including traffic congestion and lack of convenient parking.

77. **Reduce regulatory barriers to economic growth** in order to enable greater cooperation and joint planning with Princeton University, as well as to foster additional economic development in key growth sectors.

HISTORIC PRESERVATION GOALS

78. **Maximize the benefits of Certified Local Government status** for the Municipality from the state Historic Preservation Office.

79. **Amend the Historic Preservation Ordinance to satisfy state requirements** for Certified Local Government status.

80. **Continue to identify and document historic resources,** including buildings, structures, sites, cultural landscapes, roads, viewsheds and districts, especially those facing the greatest threats to their historical integrity.

81. **Maintain a framework for the review and regulation of protected historic resources** that is straightforward, transparent, and equitable, and consistent with State guidelines.

82. **Facilitate adaptive reuse and restoration** to accommodate growth and changing needs without substantial impact to the integrity of historic resources.

83. **Balance historic preservation efforts with the public interest** in smart growth, greater housing choice, sustainability, equity, and economic development.

84. **Prepare and promote user-friendly information** for public awareness and stewardship of historic resources, policies, and design guidelines.

85. **Encourage public participation** in historic preservation efforts, including the process of recommending properties to the National and State Registers of Historic Places.

86. **Ensure resiliency of historic structures** that are vulnerable to climate change-related natural hazards.

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2.0 LAND USE

Introduction

A land use plan informs a community's zoning. This Land Use Plan Element provides a framework that unifies and reconciles Princeton's zoning, which was split between the former Borough and Township. In general, this Plan Element strives for continued stewardship of the most cherished aspects of Princeton's community fabric, like neighborhood character, historic preservation, and open space, while accommodating growth, implementing sustainable development practices, and providing the lands and facilities necessary to serve residents, businesses, visitors, students, and workers. Additionally, this Plan Element addresses redundancies and conflicts in the zoning code that are the result of the consolidation of the former Borough and former Township in 2013.

2.1 Smart Growth, Resiliency, and Environmental Sustainability

Princeton has adopted a Green Building and Environmental Sustainability Element, which contains strategies for climate change resiliency in public and private development related to resource consumption, building systems, mobility, and sustainable development practices. The recommendations in the Green Building and Environmental Sustainability Element inform this and all other Elements of this Master Plan.

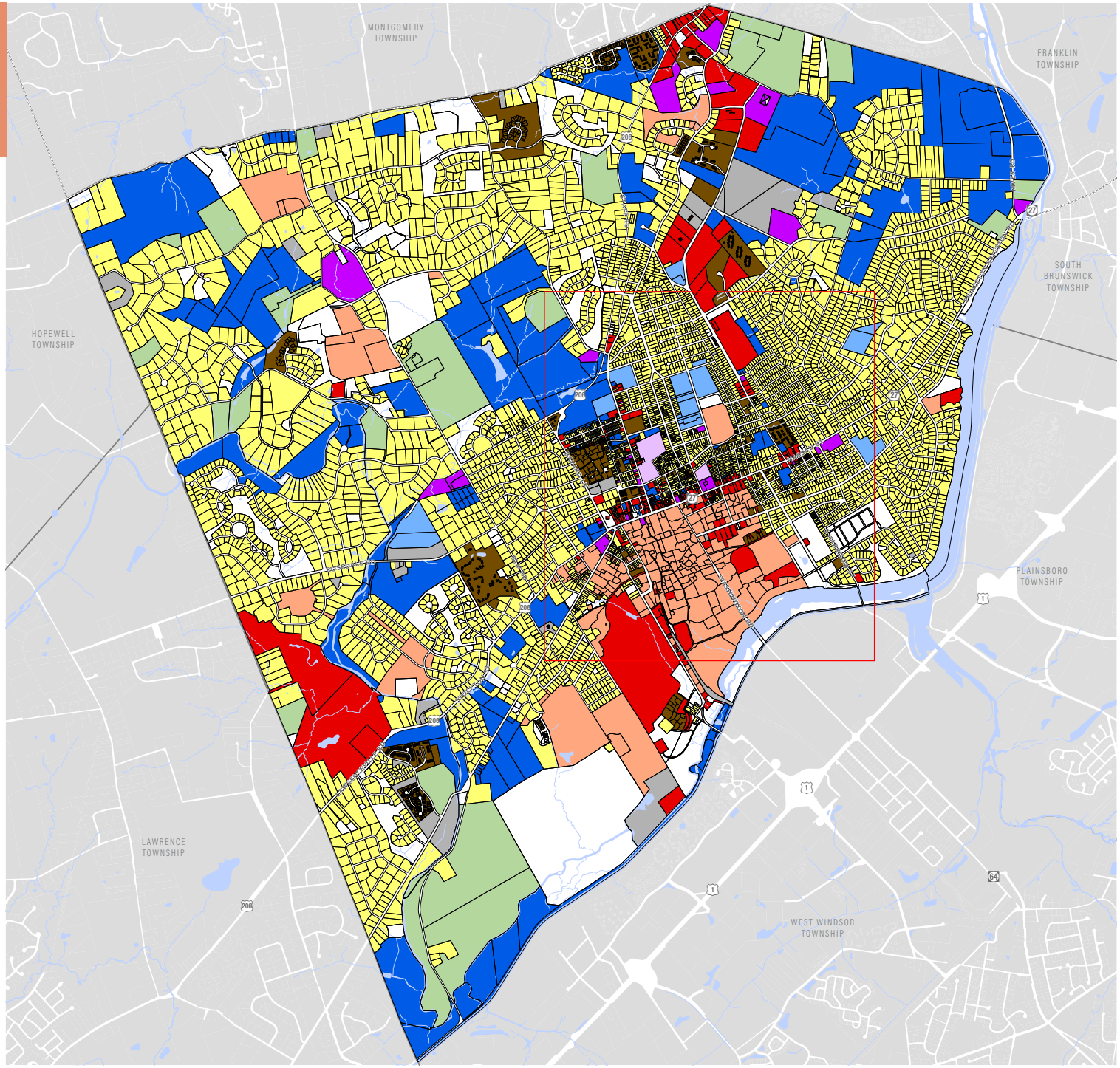
Through the implementation of this Land Use Plan Element and other Elements of the Master Plan, Princeton will continue to advance efforts towards smart growth, resiliency, and environmental sustainability to ensure adaptation to a changing climate, mitigation of human impact on natural systems, and preservation and restoration of natural resources for current and future generations.

Princeton will implement these principles through land use policies and regulations intended to provide for increased development in the most densely developed areas of the Municipality, where natural conditions such as forests, wetlands, flood hazard areas and surface water, are not extant. Within areas planned for additional growth, measures to mitigate impacts to surface and groundwater, and to strengthen the urban tree canopy, are incorporated. These areas also have the least exposure to natural hazards like flooding and wildfires. Conversely, within the areas of Princeton having the greatest extent of woodlands, stream corridors and steep slopes, this plan seeks to limit growth and promote strategic land preservation. This approach will conserve natural resources and limit density in areas that are projected to experience increased risk from climate change-related hazards. The Municipality is in the process of updating its Environmental Resources Inventory, which will provide greater detail to guide implementation of this Plan. Additional standards and recommendations for public facilities, utilities, and infrastructure will support greater resiliency to natural hazards and conservation of natural resources as reflected throughout various elements of the Master Plan.

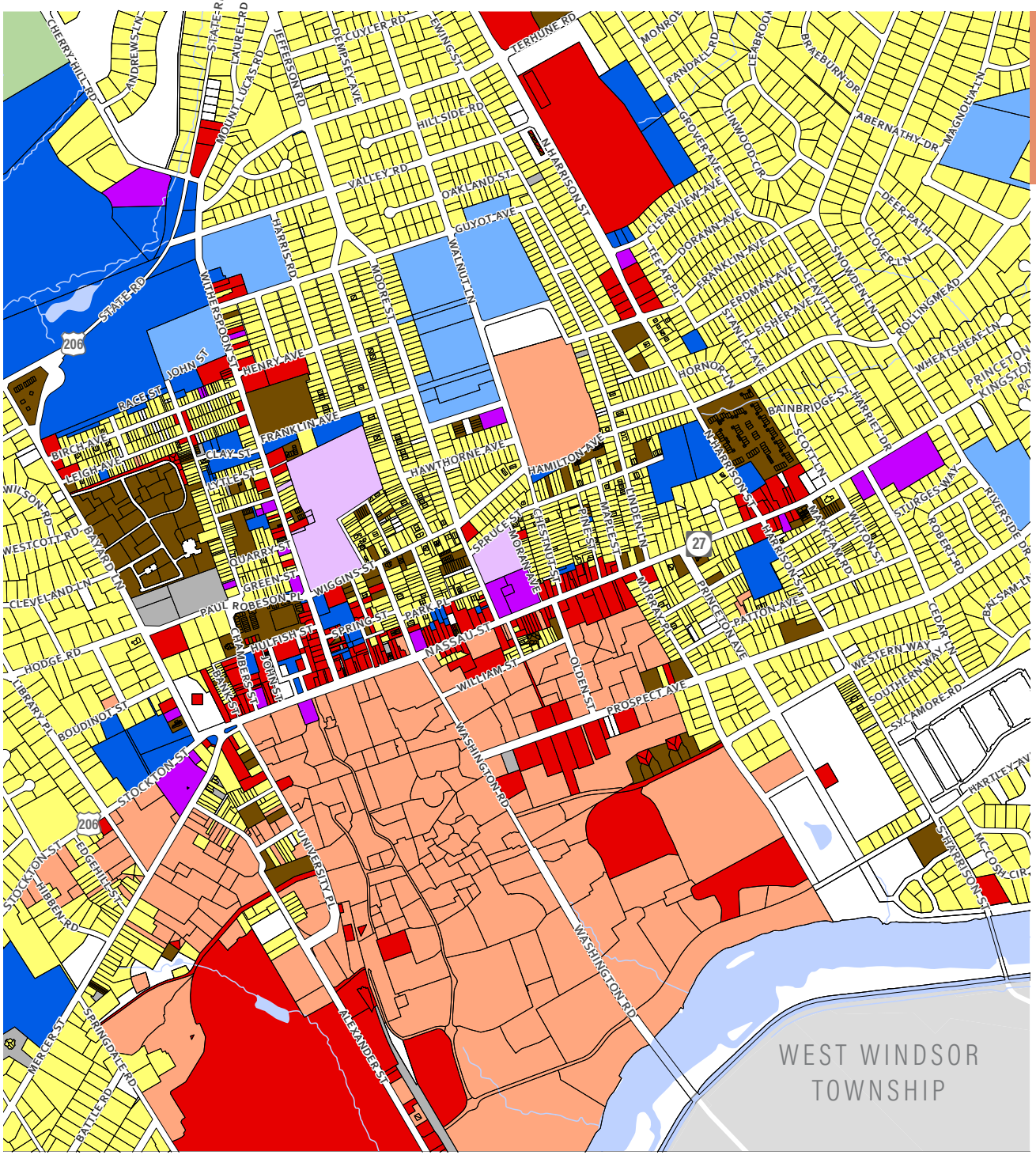
GENERALIZED EXISTING LAND USE

2.2 Generalized Existing Land Use

Existing land use in Princeton ranges from the mixed-use and higher-density center that comprises the downtown and Princeton University to the growing mixed-use node around the Princeton Shopping Center to the surrounding areas exhibiting relative lower-density single-family residential neighborhoods, intermittent institutional and educational uses, open space, parks and smaller commercial districts. The location, intensity and articulation of the various land uses reflects the Municipality's evolution over hundreds of years and have coalesced to form the highly desirable visual and spatial character that defines Princeton.



This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.



GENERALIZED EXISTING LAND USE DOWNTOWN

0 1,000 2,000 Feet

Existing Land Uses

- Residential (1-4 Family)
- Multi-Family Residential (5+ Units)
- Commercial
- Public School
- Other School
- Public Property
- Church & Charitable
- Cemeteries & Graveyards
- Other Exempt
- Vacant
- Farm

Note: The Generalized Existing Land Use mapping is based on tax assessment property class data titled "Princeton NJ Parcels 2020" and edited within data provided by the municipality to estimate on the ground conditions to the greatest extent possible. This map may not fully describe the exact use of a particular property. However, it does provide a snapshot of the arrangement of existing land uses with Princeton. The land use plan does not rely, solely, on this information but takes into account other factors that, together, form the basis of the plan. Any inadvertant erroneous information depicted on this plan will be accounted for as zoning regulations are developed.


Duplex - Jefferson Road


6 DU -Wiggins Street


5 DU - Wiggins Street

2.3 Existing Zoning and Density

Princeton's existing zoning is generally aligned with the existing land use patterns. However, due to the consolidation of the former Princeton Borough and Princeton Township in 2013, the zoning ordinance contains two sets of zoning regulations: one for lots within the former Borough and the other for lots within the former Township. In many cases, the separate regulations cover areas that should now have a single set of zoning standards. Additionally, there are many nonconforming properties that necessitate variance applications for even minor work. This places an undue burden on property owners, in terms of time and expense, creating obstacles to basic upkeep and improvement of existing homes – particularly for asset-limited, income-constrained homeowners.

In terms of residential density, Princeton ranges from small-lot, single-family homes on 3,000-square-foot lots, to single-family homes on four acres or more, and multifamily apartments having densities over 70 dwellings per acre. The patterns of density reflect the paradigm of smart growth, whereby the highest residential densities are in and around the historic downtown (and other mixed-use nodes) with progressively lower densities moving away from the center.

The intensity of development, in terms of floor area, coverage and building heights also reflects this framework.

Princeton's overall population density averages approximately 1,669 people per square mile. However, actual density varies widely: In the northern area of the Municipality, densities are below 1,000 people per square mile, while along the northern side of Nassau Street across from Princeton University, to approximately Leigh Avenue and Franklin Street, densities are as high as almost 10,000 people per square mile.

HOUSEHOLDS AND HOUSING

Of Princeton's 10,236 housing units, almost 75% are one- and two-family homes. More than half were built before 1960, and almost 25% were built before 1940. Almost two-thirds have three or more bedrooms, and the trend since 2013 has been toward larger homes: The portion of the Municipality's housing stock that has three bedrooms has dropped 20%, from 27.3% of all units to 21.9% of units, while the portion that has four or more bedrooms has grown 12.6%, from 36.6% of all units to 41.2% of all units.

ADDRESSING A NEED FOR HOUSING

There is a need for new homes in Princeton. The American Community Survey (ACS) estimated Princeton's population in 2021 at 30,717. The Delaware Valley Regional Planning Commission (DVRPC), estimated in 2016 that by 2045 the Municipality's population will grow to 32,360, a 5.3% increase from 2021. Princeton's affordable housing settlement is projected to bring approximately 1,100 new housing units to the Municipality by 2025, which was not contemplated in the DVRPC estimate. That suggests that the estimate of population increase may be higher than what DVRPC indicated in 2016.

Public engagement and feedback in open houses, surveys and listening sessions, conducted as part of this Master Plan update, showed strong consensus that significantly more housing affordable to middle-income people is desperately needed in Princeton, and should be located in walkable/bikeable areas, including the downtown.

This plan provides recommendations to increase the development of homes within the framework of the existing, highly-desirable community form.

Many of the existing residential, educational, and mixed-use zones permit the development of smaller residential unit types, including two-, three- and multiple unit buildings. However, existing regulations include requirements that act as roadblocks to the development of more, smaller dwelling types. These include graduated lot-size requirements based on the number of dwellings, sliding-scale floor area ratios, restrictive coverages and floor area ratios, and restrictive building heights. This Plan recommends that these requirements be reviewed and revised to remove restrictions, while ensuring development that is appropriate for the district context and character.

Off-street parking regulations are also a barrier to the creation of more dwellings. This plan recommends that off-street parking regulations be examined and reduced to the greatest extent possible.

Accessory Dwelling Units (ADUs) have been permitted as accessory to single-family detached dwellings in Residential (R) zones starting in 2020. Since then, a handful of ADUs have been created. The requirements for ADUs should be examined to encourage broader development in appropriate districts. This could include allowing ADUs on properties with more than a single-family detached dwelling, or changes to the spatial and bulk requirements.

Existing undersized lots often will require variance relief when making improvements to existing buildings, including modifications necessary to create additional dwelling units. The requirement to seek a variance from the regulations is time-consuming and costly, constituting a barrier to exactly the kind of development the Municipality wishes to incentivize. The zoning ordinance should be amended to create a "legacy" provision where appropriate, that would permit lawfully pre-existing undersized lots to develop/redevelop without the need to obtain variance approval. This should not be exclusive to residential zones.

DOES THE HOUSING FIT THE HOUSEHOLD?

In 1940, the average size of the American family was 3.76 people. In 2021 the average family size in the U.S. was 3.13 people, and in Princeton a slightly higher 3.21 people. The average household size in Princeton was 2.69 people. And yet, as noted above, the biggest change in housing stock between 2013 and 2021 is the increase in homes with four or more bedrooms.

Both family and household size in Princeton have grown slightly since 2013. Does the growth in the number of larger homes mirror these changes, or has it caused them? Smaller households may be unable to find housing that suits their needs and may not see any prospect for that to change, thus perhaps being forced either into housing that is larger than their requirements or out to a nearby municipality that has a greater diversity of housing stock. Whichever the reason, Princeton is left with a significant mismatch between housing stock and household profile, as shown below.

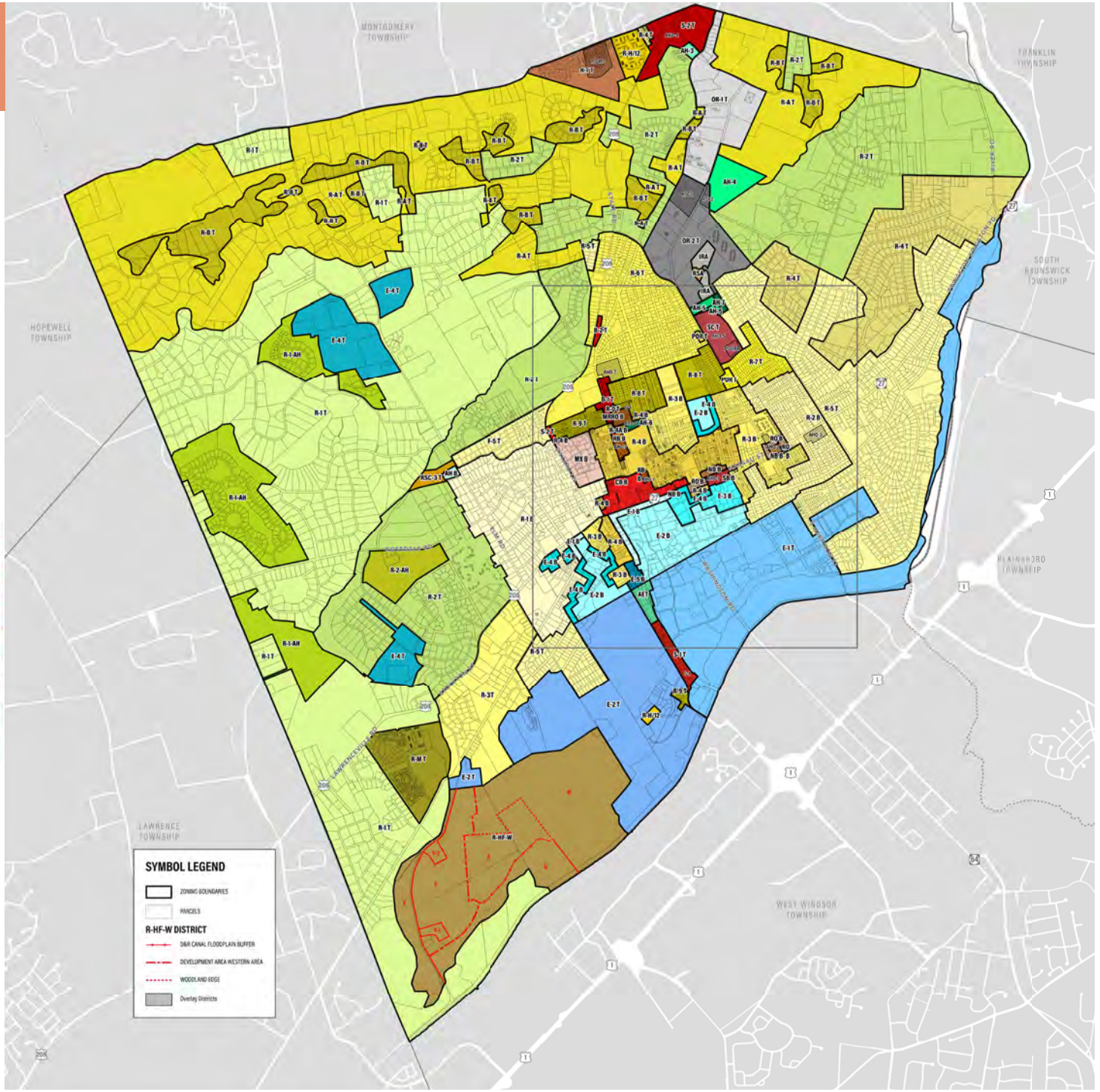
Households that are "over-housed" may incur excessive costs associated with that housing. And, as noted in the Economic Development Element of this Master Plan, households that can't find suitably sized


4 DU - Mercer Street


MF Apts 3.5 Stories - Prospect Ave.

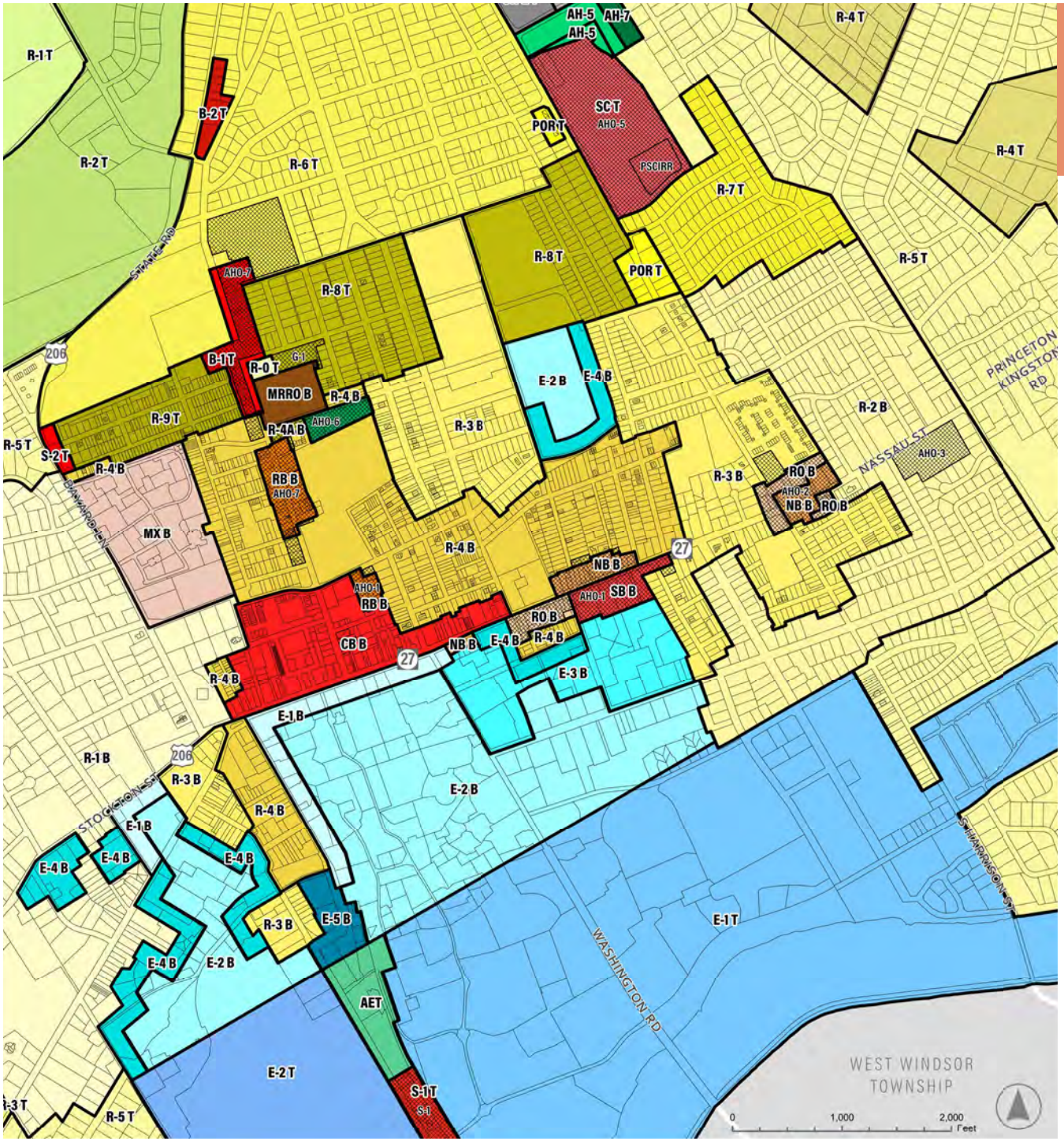

Apts. Over Shops - Nassau/Moore St.

EXISTING ZONING



Source: Municipality of Princeton

EXISTING ZONING DOWNTOWN



0 1,000 2,000 Feet

ZONES (Cont'd)

	SC T	SHOPPING CENTER

EDUCATIONAL

	E-1 B	EDUCATIONAL
	E-2 B	EDUCATIONAL
	E-3 B	EDUCATIONAL
	E-4 B	EDUCATIONAL
	E-1 T	EDUCATION & MULTI-FAM. DISTRICT
	E-2 T	EDUCATION & MULTI-FAM. DISTRICT
	E-4 T	EDUCATIONAL
	E-5 B	EDUCATIONAL
	AET	ARTS - ENTERTAINMENT - TRANSIT

CONSERVATION DISTRICT

	R-HF-W	RESIDENTIAL (SUBAREAS A-F2)
		Overlay Districts

LABEL	DESCRIPTION
G-1	G-1 OVERLAY DISTRICT
PSCIRR	PRINCETON SHOPPING CENTER INCLUSIONARY RESIDENTIAL REDEVELOPMENT
R-SMO	RESIDENTIAL SENIOR MARKET OVERLAY
RSC2	RESIDENTIAL SENIOR COMMUNITY OVERLAY
AHO-1	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-17)
AHO-2	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-17)
AHO-3	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-17)
AHO-4	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-18)
AHO-5	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-21)
AHO-6	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2020-25)
AHO-7	AFFORDABLE HOUSING OVERLAY DISTRICT (ORD. 2023-2)

Source: Municipality of Princeton

housing in Princeton that they can afford are forced to look elsewhere, depriving Princeton of a cohort in their prime working and spending years.

A fuller discussion of Princeton's demographics and housing stock may be found in the Housing Element of this Master Plan.

AGING IN PLACE AND DEVELOPING THE "MISSING MIDDLE"

New housing development in the Municipality has been constrained in recent years, resulting in increased housing costs and a shortage particularly of what is known as "Missing Middle" housing, affordable to groups like households just beginning their careers and families, workers needed to operate the town like teachers, service workers, and firefighters, or older residents who would like to age in place but downsize, all priorities that were evident from the economic development survey, the first visioning survey, and the November 2022 Open House.

Missing Middle housing is a concept that describes "a range of house-scale buildings with multiple units—compatible in scale and form with detached single-family homes—located in a walkable neighborhood."[1] Missing Middle building typologies, such as attached townhouses, duplexes, triplexes, fourplexes, and courtyard apartments, allow for subtle increases in density in ways that are contextual with existing neighborhoods and supportive of market-rate housing affordability.

1 *missingmiddlehousing.com*

SOURCE: Opticos Design, Inc.

Missing Middle housing options have long been seen as a solution to allow older residents to age in their community.[2] Recognizing the ability of Missing Middle housing and ADUs to meet the needs of older residents, AARP's Livable Communities project has made available guidance documents for their development.[3][4] However, more Missing Middle housing expands housing choices not just for older residents, but for everyone: An older resident who wants to divide their larger home into more than one unit, or who wants to construct an ADU, is able to realize an income from the additional unit while aging in place in a familiar home now better sized to their needs. A newly formed household, or a public service worker, can then rent the newly developed unit.

Allowing greater density by easing certain zoning restrictions will help provide new Missing Middle housing. The principles of Missing Middle Housing align with the priorities identified throughout the public engagement process. Princeton residents are generally interested in permitting more housing within and around the downtown, increasing flexibility to create ADUs, allowing single-family homes on small or undersized lots, allowing "tiny homes," and permitting the conversion of single-family homes into attached residential dwelling buildings. Together, these efforts can increase the availability of housing for middle income households.

Implementation of Missing Middle housing typologies will require spatial and form-based standards that provide a framework for successful integration of new development within the scale and form of existing residential neighborhoods.

VIBRANT AND VIABLE MIXED-USE CENTERS

The downtown, Princeton Shopping Center and other commercial and mixed-use nodes represent a vibrant constellation of uses for which Princeton is well known. Permitted uses within these districts are anticipated to be expanded to increase the range and number of commercial uses that reflect the current and future demand of residents and visitors. These may be more focused on "experience" rather than traditional business, to include dining, drinking, entertainment, recreation, and other business activities.

Increasing the number of homes within and around these mixed-use districts, particularly districts that are well served by transit such as the northern S-2 district and Alexander Street, will also contribute to increased commercial viability by increasing the immediate consumer market. Increasing the type of permitted uses as described in the previous paragraph would similarly contribute to increased commercial viability.

INTEGRATION OF USES THAT SERVE AS "THIRD PLACES"

A third place refers to places that are separate from the two usual social environments of home ("first place") and the workplace ("second place") but also provide an informal framework or opportunity for socialization. Examples of third places include churches, cafés, clubs, public libraries, gyms, bookstores, parks and plazas. These places provide opportunities for social interaction, civic

2 *Princeton is one of the first communities in the United States to be designated an Age-Friendly Community by the World Health Organization: extranet.who.int/agefriendlyworld/network/princeton/*

3 *www.aarp.org/livable-communities/housing/info-2019/accessory-dwelling-units-adus.html*

4 *www.aarp.org/livable-communities/housing/info-2022/missing-middle-housing.html*

engagement, and the establishment of a "sense of place." They are typically places where people choose to gather voluntarily, and are open to all. According to sociologists, a good third place results in feelings of comfort and being rooted within a community. The development of uses that constitute third places is recommended to contribute to the vibrancy and vitality of these districts.

STRENGTHENING PRINCETON AS A GLOBAL CENTER FOR EDUCATIONAL EXCELLENCE

Princeton University, along with other public and private schools, is among a unique collection of educational facilities within Princeton. The number of schools within Princeton, and the high regard in which they are held, play a role in the reputation, character and desirability of the Municipality. This Plan seeks to reduce or eliminate unnecessary regulation associated with the districts that include the various schools, including consolidation of the educational zones wherever reasonable and addressing the differentiation in these zones, which in essence created "buffer zones," through bulk and use standards, while also balancing these needs with those of the adjacent properties and particularly residential neighbors.

This Plan also recommends the elimination of minimum lot sizes for the zoning encompassing Princeton University, and recommends that lot coverage, building height, and setback standards be regulated on a campus-wide scale rather than by individual lot, with appropriate protections. The Municipality will continue its partnership with the University to streamline regulations while protecting the environment and community character.

Several existing educational uses and facilities are located within zone districts that do not include educational uses as permitted uses. This status can require trips to the planning board or zoning board, which may be expensive and time consuming, for conditional use approvals or use variance requests, even for minor improvements. This element recommends that those sites be evaluated individually to determine whether standards should be amended within the existing zones or whether new educational zones should be created to reflect the existing facilities.

CONSOLIDATION AND HARMONIZATION: BOROUGH AND TOWNSHIP ZONING

Although the former Princeton Borough and Princeton Township were consolidated in 2013, the zoning ordinance contains two sets of zoning regulations: one for lots within the former Borough and the other for lots within the former Township. This Plan provides guidance as to how the two sets of zoning regulations may be consolidated and reconciled, including recommended zone boundary changes as well as the appropriate standards by which to guide the consolidated zones.

2.4 Proposed Land Use

GROWTH THAT REINFORCES AND STRENGTHENS PRINCETON'S COMMUNITY FABRIC

While encouraging strategic increases in residential density in appropriate areas throughout the Municipality, this plan strongly discourages further growth in environmentally sensitive areas, or where there is not pre-existing infrastructure to support it.

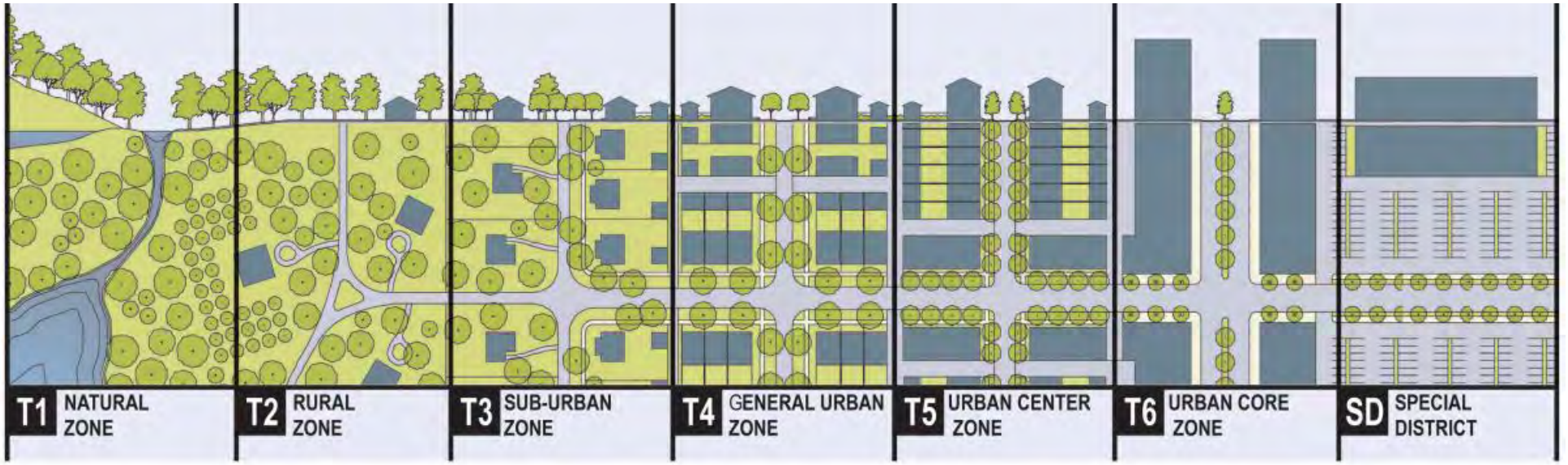
Allowing neighborhoods adjacent to the downtown and the Shopping Center to add "gentle infill" will bring more households of small and medium size within walking distance of mixed-use nodes and their myriad amenities, significantly reducing the need for individual car trips and the resulting traffic congestion. Such targeted growth will also benefit the downtown and Shopping Center economically by providing more patrons in close proximity, This approach will reinforce and strengthen Princeton's historic downtown and its neighborhood counterpart, the Princeton Shopping Center. As noted in the Economic Development element, increasing housing supply and diversity will also help to alleviate the constraints on job growth imposed by the need for workers to commute to their jobs in Princeton. This transit-oriented development will be supported by enhanced frequency and accessibility of transit services throughout the Municipality – especially along the Nassau, Witherspoon, Valley Road, and Harrison Street corridors, and near the Dinky – as contemplated in the Mobility Element and anticipated in the near future.

The Municipality's 2020 Housing Element and Fair Share Plan points out that fully 58.7% of its housing stock is single-family detached, and only 17.6% is in buildings of five units or more. Approximately 45.9% of Princeton's housing is currently renter-occupied. As is discussed further in the Demographics section of this Master Plan, these numbers demonstrate a marked shortage of one- and two-bedroom units compared to demand.

The increases in residential density recommended in this Plan Element bring with them several benefits to taxpayers, including, significantly, a lower cost per household to deliver various services, from street and road maintenance to garbage collection to utility costs. It should also be noted that, contrary to popular belief, an increase in rental or multi-family housing does not predicate a correspondingly large increase in the number of schoolchildren. According to a 2018 study done by Rutgers University,[5] new two-bedroom multi-family housing units (multi-family is defined as a structure containing five or more units) generate approximately 0.19 public-school children per unit, and one-bedroom units generate even fewer, while new single-family detached homes with four or five bedrooms, a growing percentage of all homes in Princeton, generate 0.85 public-school children per unit.

5 *bloustein.rutgers.edu/wp-content/uploads/2015/03/NJDM-updated-2018.pdf*

THE URBAN-TO-RURAL TRANSECT DIAGRAM



SOURCE: Duany Plater-Zyberk & Company

The urban-to-rural transect is an urban planning model created by the New Urbanist Andrés Duany.[1] The transect defines a series of zones that transition from sparse rural farmhouses to the dense urban core. Each zone is fractal in that it contains a similar transition from the edge to the center of the neighborhood.

LAND USE PLAN

The proposed land use plan reflects a center-based approach to growth. It is generalized, in that it represents a transect-type logic and is not a duplicate of the recommended zoning districts; rather it indicates the proposed locations of a series of land use categories. Within these categories, individual zoning districts may be delineated according to the existing characteristics of the area and the intended use, intensity and spatial standards. The plan is not intended to be strictly followed on a parcel-by-parcel basis and flexibility will be needed when creating zoning districts. It should also not be read to negate existing non-conforming structures, i.e. a townhome development in the Greenway Neighborhood area, and does not contemplate every type of land use, i.e. an existing retail store in a Neighborhood area. In short, these recommendations are based on the general characteristics of the underlying districts in terms of land use and lot sizes. It should also be noted that the development of zoning regulations warrants a detailed review of the spatial standards in each district to provide the most appropriate standards for each zone. Beyond harmonizing the code, the entirety of the code should be reviewed and updated to streamline and simplify regulations.

The plan indicates the following land use districts:

- Greenway Neighborhood
- Neighborhood
- Central Neighborhood
- Multi-Family Neighborhood
- Mixed Use (Residential/Non-Residential)
- Mixed Use Educational (Residential/Non-Residential/Education)
- Office-Research
- Education
- Conservation

RESIDENTIAL USES

The 2023 land use plan proposes to enhance the diversity of residential options available in Princeton. To meet the needs of a broad spectrum of residents of varying ages and incomes it provides for a variety of housing areas, sizes and types that respect and enhance the existing natural and built environment, create and enhance a sense of community, and blend into the surrounding neighborhoods. The intensities of these areas is to be used as a guide to increased opportunities and not intended to reduce existing permitted densities.

Generally, residential areas have been divided into four overall categories:

- **Greenway Neighborhood** areas are characterized by sensitive natural and cultural resources. These lands are generally less suitable for development than the Neighborhood and Central Neighborhood areas due to such factors as stream corridors, wetlands, steep slopes, and access to roads and utilities. Recommended density in these areas is one to two units per acre.
- **Neighborhood** areas are established neighborhoods characterized by some environmental constraints for future development and larger lot sizes than Central Neighborhood areas, that can support between two and eight units per acre.
- **Central Neighborhood** areas include single-family dwellings on small lots, two-family dwellings, townhouses, and multi-family housing, at densities between four and 20 units per acre. These areas are characterized by the relative absence of environmental constraints, the availability of utilities and services, including transit, and close proximity to the downtown business district and Princeton Shopping Center. Central Neighborhood areas are most appropriate for infill and transit-oriented redevelopment.
- **Multi-Family Neighborhood** areas include planned developments consisting of single-family dwellings on small lots, townhouses, and multi-family apartment buildings. Examples of Multi-Family Neighborhood areas include Griggs Farm, Copperwood, Princeton Community Village, Governors Lane, Merwick Stanworth, Washington Oaks and Thanet Circle.

COMMERCIAL AREAS

Princeton's commercial areas are located in the downtown business district and along transportation corridors such as State Road/Route 206, Harrison Street, Alexander Street and Bunn Drive. In general, commercial areas can be sorted into three categories: Mixed-Use (Residential/Non-residential), Mixed-Use (Residential/Non-residential/Education), and Office/Research.

- **Mixed-Use (Residential/Non-Residential)** areas are located in the downtown business district, the Princeton Shopping Center and State Road/Route 206 North. All three of these mixed-use nodes should incorporate a mix of retail, residential and office components. The residential component of these neighborhoods is an integral part of the balanced mix of land uses. Without a residential component, these neighborhoods would lose much of their vitality, particularly in the evening. Residential uses also contribute to physical safety once business hours end. Bulk and use standards should bolster vibrant, mixed-use residential/non-residential districts.

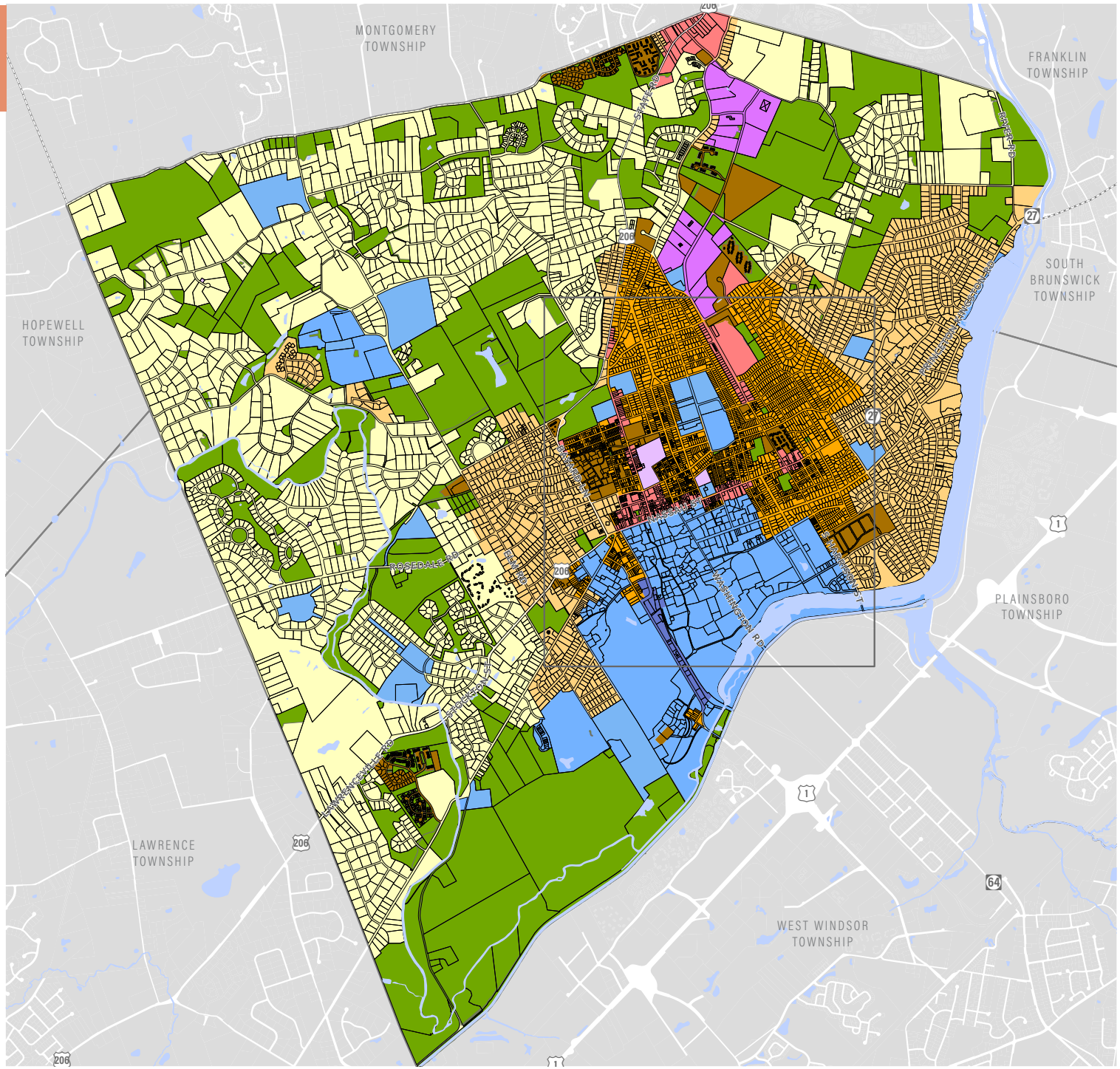
LAND USE PLAN

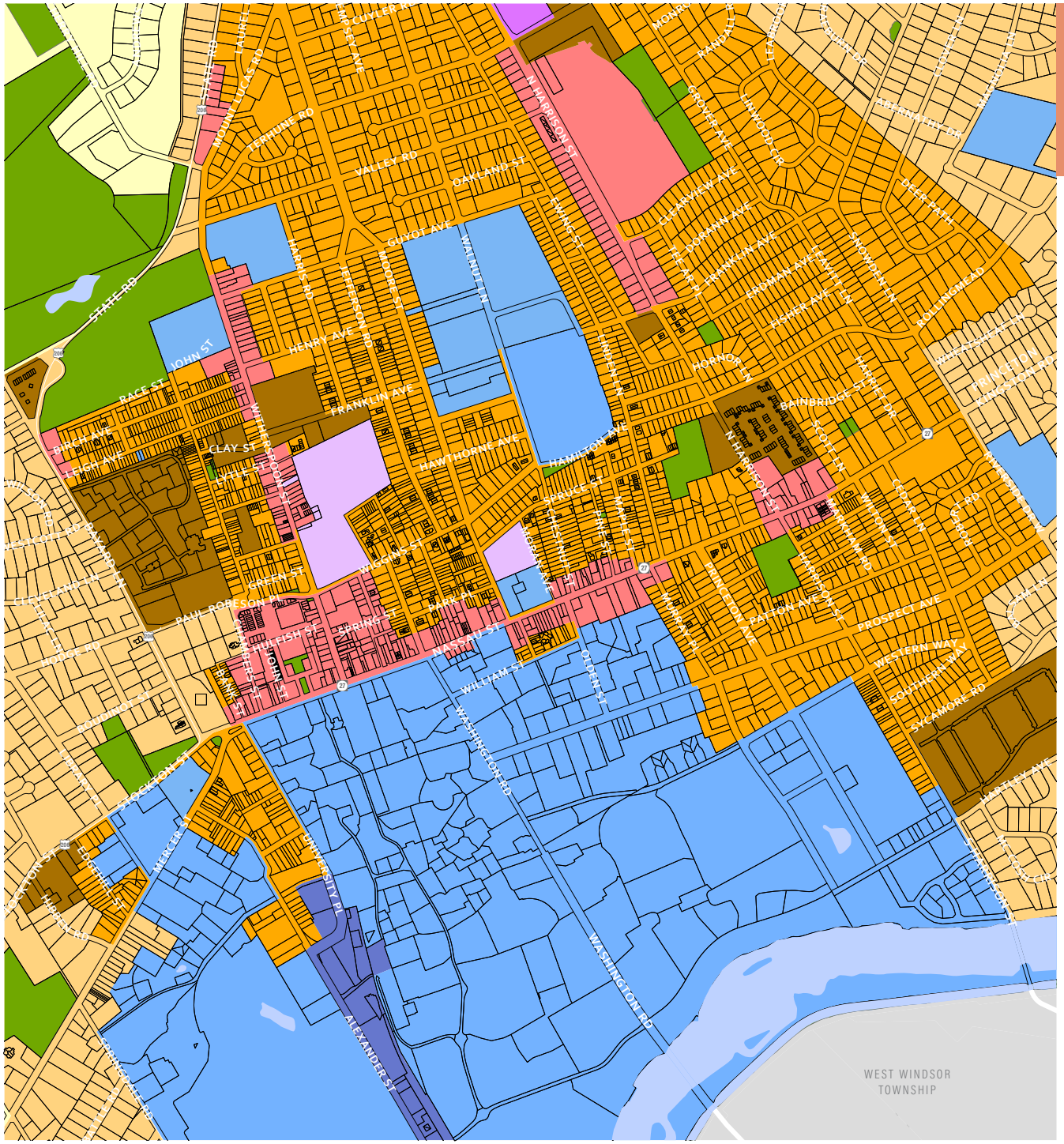
0 2,400 4,800 Feet

- GREENWAY NEIGHBORHOOD (1-2 UNITS/ACRE)
- NEIGHBORHOOD (2-8 UNITS/ACRE)
- CENTRAL NEIGHBORHOOD (4-20 UNITS/ACRE)
- MULTI-FAMILY NEIGHBORHOOD
- MIXED-USE (RESIDENTIAL/NON-RESIDENTIAL)
- MIXED-USE (RESIDENTIAL/NON-RESIDENTIAL/EDUCATION)
- OFFICE-RESEARCH
- EDUCATION
- CONSERVATION AND RECREATION
- CEMETERIES AND GRAVEYARDS

Note: As stated on page 40, this Land Use Plan map is generalized and indicates a series of land use categories, not individual zoning districts – which govern what could be developed on a parcel. These land use categories are simplified and based on the general characteristics of the underlying districts in terms of land use and lot sizes. A detailed review is needed to determine if and how any potential changes are made to standards for each zone based on the general guidance in this section. The ranges of dwelling units per acre in residential categories should be just one factor when making land-use decisions, alongside the vision, assumptions, goals and recommendations as described in this plan.

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.





LAND USE PLAN
DOWNTOWN

0 1,000 2,000 Feet

- GREENWAY NEIGHBORHOOD (1-2 UNITS/ACRE)
- NEIGHBORHOOD (2-8 UNITS/ACRE)
- CENTRAL NEIGHBORHOOD (4-20 UNITS/ACRE)
- MULTI-FAMILY NEIGHBORHOOD
- MIXED-USE (RESIDENTIAL/NON-RESIDENTIAL)
- MIXED-USE (RESIDENTIAL/NON-RESIDENTIAL/EDUCATION)
- OFFICE-RESEARCH
- EDUCATION
- CONSERVATION AND RECREATION
- CEMETERIES AND GRAVEYARDS

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

- **Mixed-Use Educational (Residential/Non-Residential/Education)** areas are located along the Alexander Street corridor. The presence of the Dinky station, McCarter Theatre and Princeton University's Lewis Arts Complex creates the opportunity for further development of this area with additional residential, educational, and commercial uses.
- **Office-Research** areas are in the northeast section of the Municipality along Bunn Drive. These areas are intended to offer a range of uses, from pure research to combinations of office and research depending upon the intensity of development allowed in the zone. This may be an area appropriate for the development of life science facilities.

EDUCATION USES

Princeton is enriched by the presence of renowned academic institutions within its boundaries, as well as high quality public and private schools. As identified in the 2009 Land Use Plan Element, there should be a balance between an institution's need for new facilities and its impact upon its neighborhood and the entire Princeton community. Use regulations for educational institutions should provide a reasonable degree of flexibility to account for changing needs and technologies. At the same time, zoning regulations should ensure that the scale, bulk, and mass of educational or institutional buildings do not overwhelm nearby residential neighborhoods, but rather establish orderly transition zones between the institutional campus and other uses in the community. Each educational institution has a unique and distinct campus in a unique and distinct neighborhood; thus zoning standards for each institution should be adjusted accordingly. For this reason, multiple Education zoning districts may be necessary.

2.5 Land Use Recommendations

1. **Consolidate and harmonize zoning districts of the former Borough and former Township as appropriate.** Harmonize and streamline zoning regulations into one code with consistent and appropriate requirements for bulk, use, and design that are compatible with existing conditions and the intended purpose of each existing district.
2. **Eliminate split-zoned lots and align zoning district boundaries with lot lines where reasonable, and update the zoning map accordingly.** Split-zoned lots complicate the interpretation and application of zoning regulations. Princeton has eliminated nearly all split-zoned lots along the former Borough-Township border with the adoption of a consolidated zoning map in December 2022, though some remain.
3. **Eliminate "sliding-scale" minimum lot size, floor area ratio and impervious coverage requirements** that are based on the number of dwelling units or type of use in the residential, educational and mixed-use districts. Create standards that are uniformly appropriate and applicable within districts.
4. **Favor more permissive and streamlined standards when consolidating and harmonizing former Borough and Township zones.** Updated zoning regulations should be easily reviewable, enforceable, and incorporate bulk standards that maximize opportunities for redevelopment and adaptive reuse in a manner consistent with the community's desired physical form.
5. **Identify and appropriately deed-restrict existing and new housing units that can contribute to satisfying the Municipality's Fourth Round affordable housing obligation.** While affordable-

housing obligations, or a methodology for calculating them, have not yet been determined, Princeton can begin to accumulate new affordable units throughout the Municipality that will contribute to Princeton's ultimate compliance with that obligation.

6. **Study permitting the conversion of large single-family homes into attached dwelling residential buildings, particularly in neighborhoods near transit stops or with existing off-street parking.** Conversions can help achieve market-based rental housing, housing diversity, smart growth principles, and historic preservation, particularly in areas surrounding the downtown. Many of these conversions exist in Princeton and pre-date zoning. This could be done through standard regulations or with conditional use standards, contextual with existing neighborhoods.

7. **Permit accessory dwelling units (ADUs) in additional zones, and adjust and streamline standards** for development of ADUs to encourage their development.

8. **Create legacy provisions to permit changes to lawfully existing nonconforming lots and buildings that do not exacerbate pre-existing nonconforming conditions.** This would reduce the cost and time for projects that would otherwise be beneficial to the community.

9. **Ensure that hotels and lodging are permitted uses** in commercial and mixed-use districts, where appropriate.

10. **Study the extent to which short-term rentals, like those on sites like Airbnb and VRBO, are reducing the availability of long-term rental housing in the Municipality** and establish an appropriate regulatory framework, including determining the potential applicability of the municipal hotel tax. As with many municipalities, Princeton has seen rapid growth in the use of residential properties as short-term rentals. Although rentals generally must be registered with the Municipality, Princeton currently has no specific regulations governing short-term rentals.

11. **Consolidate sign regulations of the former Borough and former Township** and create regulations and guidelines that provide the ability for educational institutions, businesses and other uses to create necessary messaging that is appropriate for the context, is integrated within architecture and site design, and promotes economic vitality within commercial districts.

12. **Consolidate the existing education zoning districts of the former Borough and former Township.** Eliminate conflicting or contradictory regulations and accommodate the originally intended purposes of the existing districts, such as transition zones and buffering of land uses, through standards.

13. **Evaluate existing schools and educational facilities for appropriate zoning.** Existing educational facilities that are not located within an educational zone should be reviewed to determine whether the current regulations are appropriate or should be revised, and whether the facility should be located within an educational zone.

14. **Reduce off-street parking requirements to the greatest extent possible** to reduce the burden of providing off-street parking on-site. Reducing off-street parking can reduce the erosion of

community fabric as expressed in building frontage and desirable landscape. The Mobility Plan Element provides specific recommendations for parking management and optimization.

15. **Consider developing and adopting design review guidelines or a Design Element of the Master Plan** to shape development to express Princeton's priorities. Include guidance related to architecture, landscape architecture, historic preservation, urban design, and other elements of design.

16. **Renew the Municipality's designation as a Regional Center** within the State Development and Redevelopment Plan.

17. **Increase building height in business and service districts** to accommodate increased residential development within mixed-use buildings.

18. **Prior to changes in development regulations, conduct detailed studies of key properties that have the potential for significant change.** Westminster Choir College, the Valley Road School site, Butler Tract and TPC Jasna Polana present complex questions regarding future use. Community survey responses to the question of future use of these sites indicated a preference for school use of the Choir College and Valley Road sites. Most responses favored Jasna Polana as open space. The Butler Tract was seen as a location for housing. (Noting that these properties are particularly large in area, respondents were allowed to select multiple options and the aforementioned preferences may be one of a mix of uses on each site. More detail is available in the Public Outreach section of this Master Plan.) Given the broad interests in these sites, each should be evaluated independently to determine future land use and whether changes to the zoning ordinance are warranted, possibly through the lens of the NJ Redevelopment and Housing Law.

19. **AHO-4 District Standards.** Amend the height limit in this overlay zone in the northern area of the Municipality off Route 206 by the Montgomery border to permit development up to four stories.

20. **B-1, B-2, and S-1 T District Standards:** Amend these former township zones (the B-1 and B-2 zones on Witherspoon Street and Route 206/ Mt. Lucas Road, respectively, and the S-1 T zone along lower Alexander Street south of the Dinky station) to remove regulatory roadblocks in order to promote mixed-use development that includes multifamily apartment dwellings in order to promote the development of walkable "nodes" outside of downtown.

21. **OR-2 Zone Standards:** Permitted uses in the OR-2 Zone on Bunn Drive, which is close to the growing Princeton Shopping Center area, should be expanded to include a more diverse matrix of commercial uses that address changing office market conditions while remaining compatible with the existing residential context.

22. **Downtown Zoning:** The "Downtown" zones include the CB Central Business, RB Residence Business, RO Residence Office, NB Neighborhood Business and SB Service Business. Regulations in these districts should be amended to promote the development of nonresidential uses to bolster a vibrant district, the creation and improvement of

commercial space, and the development of new residential dwellings within Princeton's downtown, while respecting and improving its historic nature. Recommended amendments include:

- Rename the CB Central Business District "Downtown District" to reflect its mixed-use character.
- Consider elimination of regulation of building height by stories (measure in feet).
- Eliminate minimum lot area requirements tied to the number of dwellings.
- Allow appropriately-scaled/sized penthouses to be developed above the maximum permitted building height.
- Reduce or eliminate minimum open space requirements to allow for buildings similar to existing ones.
- Reduce minimum yard requirements where appropriate, including areas inconsistent with current regulations.
- Simplify or eliminate maximum permitted floor area ratios in favor of bulk regulations (height and building coverage).
- Simplify or eliminate gross floor area limits on permitted uses.
- Reduce or eliminate off-street parking requirements.
- Reconsider the relevancy and need for regulations for Planned Commercial Developments.
- Include new permitted uses to promote economic development.
- Eliminate existing permitted uses that are outdated or in conflict with goals.
- Eliminate conditional use requirements for mixed-use/ joint occupancy uses.
- Incorporate recommendations from the Economic Development Plan Element to encourage Municipal/ university partnership for university uses in Princeton.

2.6 Recommended Zoning Boundary and Regulations

The following recommendations are intended to guide changes to Princeton's zoning map and land use ordinances, primarily related to the consolidation and harmonization of the former Borough and Township zones. They are also intended to provide relief to owners of existing nonconforming properties by eliminating the need to seek variances for improvements that are beneficial to the neighborhoods and the Municipality. They reflect a higher level of specificity than this Land Use Plan Element overall, but are aligned with, and are substantially consistent with, this Plan. These recommendations are based on the general characteristics of the underlying districts in terms of land use and lot sizes. However, the development of zoning regulations warrants a detailed review of the spatial standards in each district to provide the most appropriate standards for each zone. Beyond harmonizing the code, the entirety of the code should be reviewed and updated to streamline and simplify regulations. . Map _ identifies each recommendation below with respect to the current zoning map. The numbers on the map correspond to the numbers of the descriptions listed below.

1. **R-A Residence District Boundary:** The R-A T and the R-B T districts should be consolidated as the R-A Residence District. Zone boundaries that currently follow streams and other elements should be relocated to follow lot lines to eliminate "split-zoned" lots.
2. **R-1 B Residence District Boundary:** The R-1 B zone, generally located to the south of Mountain Avenue, west of Bayard Lane and extending south along Elm Road past Mercer Street, should be consolidated with the R-5-T zone located between Mountain Avenue and Wilson Road and the R-5 T zone to the south of Mercer Street.A portion of the R-2 Zone to the north of Mountain Avenue should be consolidated.
3. **R-3 B Residence District Boundary:** The abutting R-8 T and R-3 B zones south of Guyot Avenue should be consolidated.
4. **R-4 B Residence District Boundary:** The R-3 B and R-4 B zones to the east of Alexander Street and to the west of University Place should be consolidated.
5. **R-4 B Residence District Boundary:** The R-4 B zone west of Witherspoon Street, including the R-4 B zone along Leigh Avenue at Bayard Lane, should be consolidated with the abutting R-9 T zone.
6. **OR-1 T:** The OR-1 T zone on the east side of Mount Lucas Road north of the intersection of Herrontown Road should be changed to a residential district.
7. **Mount Lucas Road R-A T and R-B T District Boundary:** The existing R-A-T and R-B-T zones along the east side of Mount Lucas Road between Poor Farm Road and Campbell Woods way should be changed to a residential district more reflective of the existing properties.
8. **R-6 Residence District Boundary:** The R-5 T zone on the west side of Woodland Drive should be consolidated with the adjacent R-6 T zone.
9. **R-7 Residence District Boundary:** The R-2 B zone west of Snowden and north of Hamilton should be consolidated with the adjacent R-7 T zone.
10. **R-7 Residence District Boundary:** The R-5 T zone north of Sycamore, east of Harrison, and fronting

on Cedar, Harrison, Sycamore, Southern Way and Western Way should be changed to R-7.

11. **R-7 Residence District Boundary:** The R-5 T zone fronting on Wheatsheaf Lane and extending along Snowden to NJ Route 27 should be changed to R-7.

12. **R-8 Residence District Boundary:** The R-5 T zone west of Harrison and south of Western Way should be changed to R-8.

13. **POR Professional Office-Residence District Boundary:** The POR T district should be extended from its southernmost limit to include all the lots fronting North Harrison Street, along its west side, to the intersection of Terhune Road.

14. **E-1 Educational District (Princeton University) Boundary:** The E-1 B, E-2 B and E-1 T zones east of Alexander Street and south of Nassau Street, the E-3 B and E-4 B east of Alexander Street and south of Nassau Street, the E-4 B, E-2 B and E-2 T zones west of Alexander Street, east of Springdale Road and south of Mercer Street and the S-1 T zone on the east side of Alexander Street should be consolidated to create one district. The properties on Alexander Street currently zoned as S-1 T should be included in an underlying zone, with an overlay zone to permit commercial, educational, and multifamily development. The properties on the west side of Alexander Street, south of College Road, which are contiguous to the Educational zone, should be studied to determine whether they should be included in the Educational zone. Educational zone standards should be consolidated to regulate uses, bulk standards and other elements that were intended to be addressed through the differentiation of the original Educational zones and should be compatible with neighboring residential uses

15. **E-2 Educational District Boundary (Princeton Theological Seminary):** The E-1 B and E-2 B zones east of Library Place and south of Stockton Street should be consolidated. The standards should be revised to regulate use, intensity and bulk and that were intended to be addressed through the differentiation of the original two Educational zones.

16. **Campbell Woods:** Campbell Woods is a townhome subdivision built around 1996. It is in the OR-1 T zone and R-A T zones. Campbell Woods should be rezoned with appropriate standards.

17. **Governor's Lane:** Governor's Lane planned residential development should be rezoned (out of the OR-2 zone) and appropriate zoning standards should be created to reflect the existing developed conditions.

18. **RSC Residential Senior Community-2 Overlay Zone:** The RSC-2 zone is fully developed with the Copperwood development, which is no longer age-restricted. The RSC-2 should be a stand-alone zone and the underlying OR-2 zoning should be replaced by the RSC-2 zone.

19. **AH B Affordable Housing B Zone:** The AH B zone fronting on Elm Road and the adjacent RSC-3 T zone should be consolidated. This area is developed with the Princeton Community Housing-run Elm Court and Harriet Bryan House.

20. **AET Arts-Entertainment-Transit Zone:** The AET T zone should be consolidated with the E-5 Education zone along Alexander Street as the AET zone.

RECOMMENDED ZONING CHANGES AND REGULATIONS

Recommended Zone Boundaries

Existing Zone Boundaries

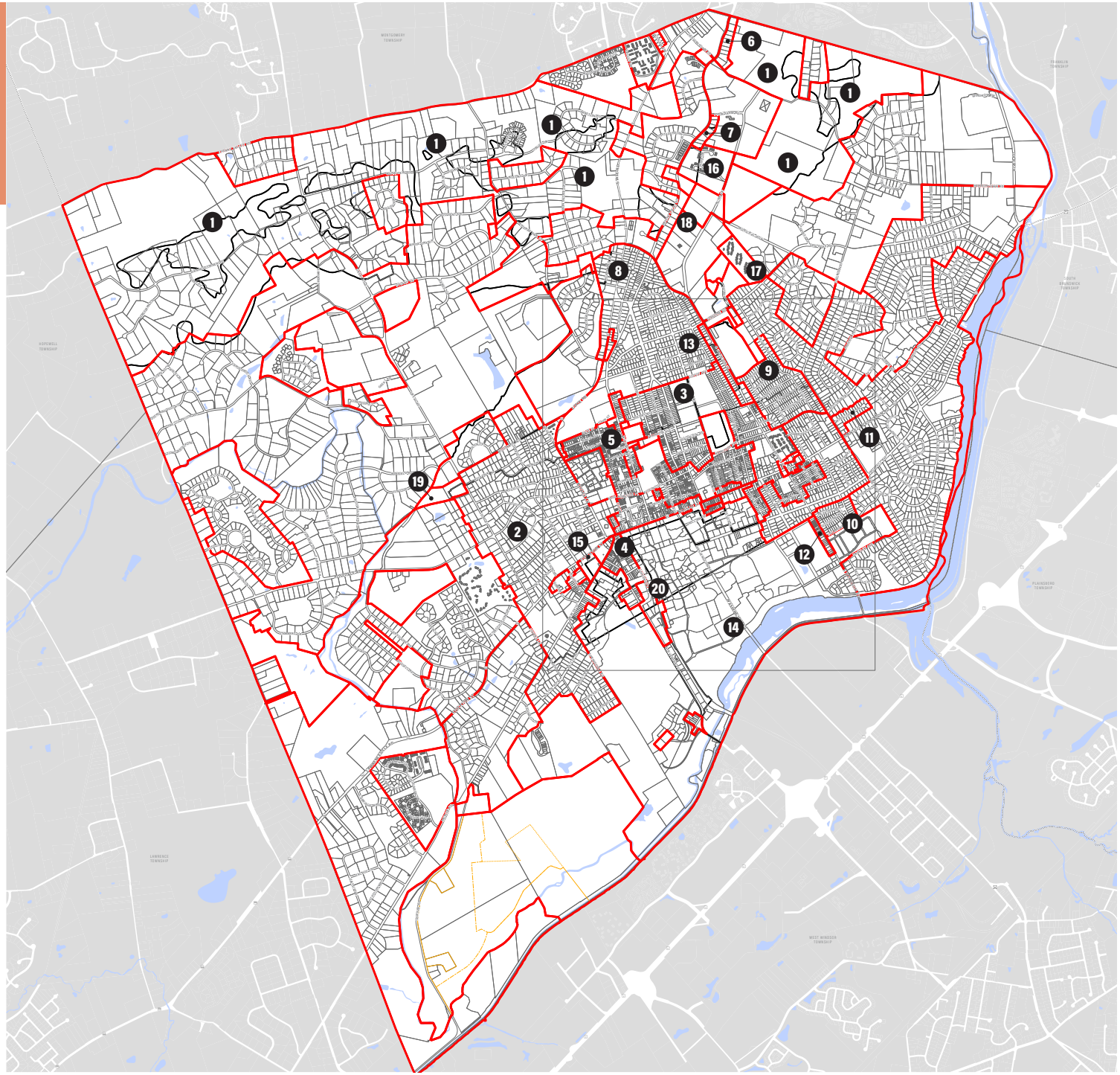
Parcels

R-HF-W DISTRICT

D&R CANAL FLOODPLAIN BUFFER

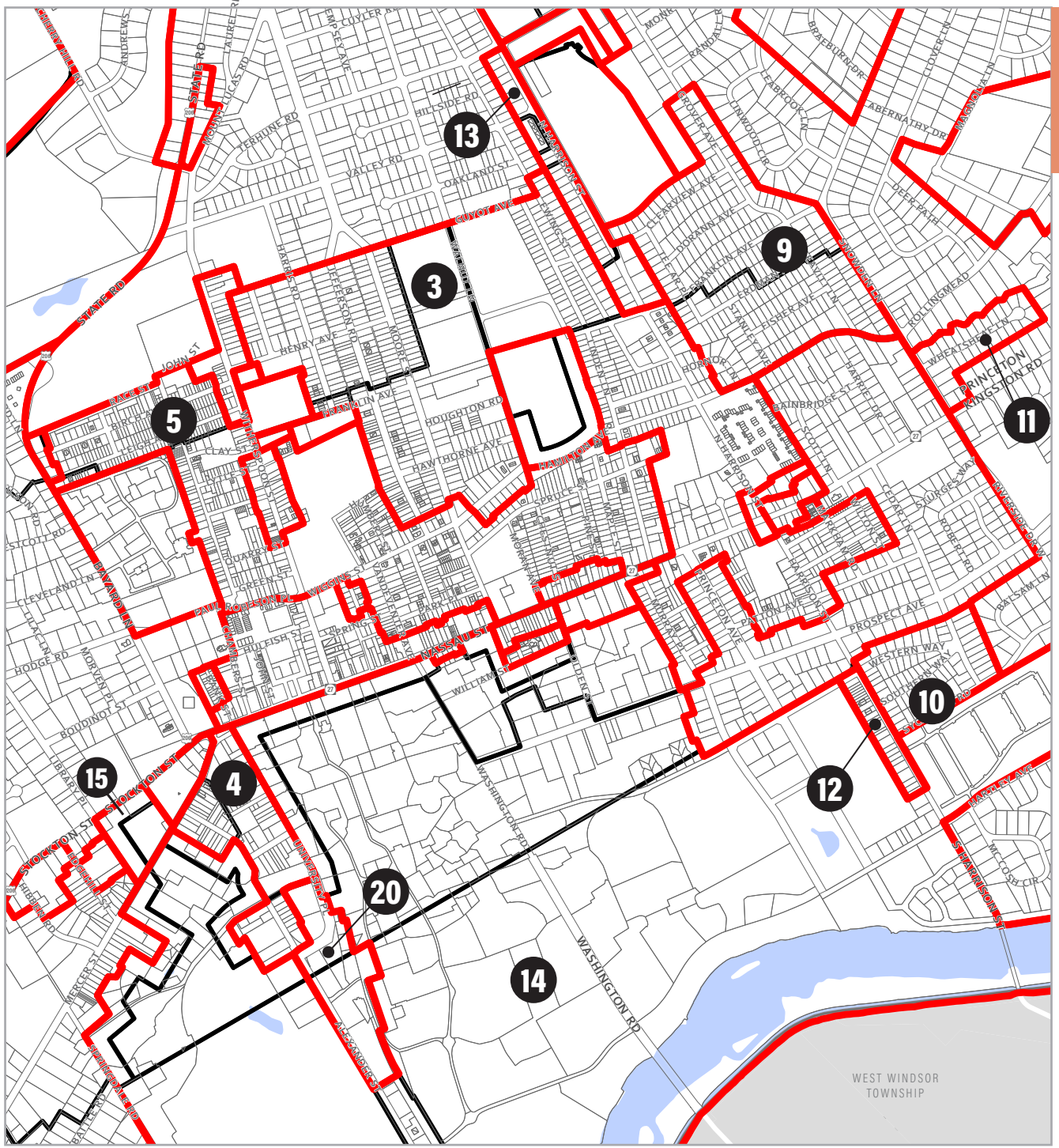
DEVELOPMENT AREA WESTERN AREA

WOODLAND EDGE



Sources:Municipality of Princeton (Parcels, Existing Zoning)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.



RECOMMENDED ZONING CHANGES DOWNTOWN

0 1,000 2,000 Feet

Recommended Zone Boundaries

Existing Zone Boundaries

Parcels

R-HF-W DISTRICT

D&R CANAL FLOODPLAIN BUFFER

DEVELOPMENT AREA WESTERN AREA

WOODLAND EDGE

Sources:Municipality of Princeton (Parcels, Existing Zoning)

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2.7 Climate Change-Related Hazard Vulnerability Assessment

This assessment considers natural hazard risks and recommends strategies to increase resiliency to each type of hazard. The findings of this assessment rely on data provided by the NJDEP Scientific Report on Climate Change, the 2021 Mercer County Hazard Mitigation Plan (HMP) Update, the United States Census Bureau, and Rutgers University.

CLIMATE-RELATED THREATS

Climate change-related threats and vulnerabilities will be relevant to all future development in Princeton, but they will be minimized to the greatest extent possible through the center-oriented, climate-resilient approach to development articulated throughout this Plan.

The 2021 Mercer County HMP identified 10 climate-related natural hazards and assigned ranks of Low, Medium, or High based on risk assessment, potential impacts, community response capacity, changing climate conditions, and input from each municipality. Table 2.1 provides each climate-related natural hazard ranking in Princeton per the Mercer County HMP.

As noted throughout the NJDEP Scientific Report on Climate Change, a warmer atmosphere is likely to exacerbate many of these hazards and create additional negative environmental impacts.[6]

Table 2.1: Princeton Hazard Rank (Mercer County HMP)[1]

Hazard	Risk
Hurricane/Tropical Storm	High
Severe Weather	High
Severe Winter Weather	High
Infestation and Invasive Species	High
Disease Outbreak	High
Drought	Medium
Flood	Medium
Nor'easter	Medium
Dam Failure	Medium
Wildfire	Low

1 Mercer County Hazard Mitigation Plan. Volume II. Section 9.10-24

6 *NJDEP Scientific Report on Climate Change, 2020*

HURRICANES, STORMS, AND SEVERE WEATHER

Severe weather poses a threat to all development in Princeton. Windstorms, thunderstorms, snowstorms, hail, lightning, extreme temperatures, and tornadoes are expected to increase in frequency, duration, and severity and will impose additional demands on the built environment. Climate change adaptation will require stricter standards for buildings and utilities to prevent damage and loss of life, property, and access to essential services such as transit and energy transmission.

Critical Facility Vulnerability: The County HMP identified several issues related to Princeton's exposure to severe storms, such as the lack of backup power systems at several community facilities including the Public Works Maintenance Building and public schools. Other critical municipal facilities, such as the municipal building and police station, do not comply with modern high-wind standards. Upgrades to these assets will be coordinated with the Community Facilities Plan Element and Utility Plan Element.

INCREASING TEMPERATURES

Increasing temperatures pose a threat to all development in Princeton. Higher temperatures will affect many aspects of the natural and built environment including existing ecology, energy use, public health, and overall quality of life. Public health implications include heat-related illness and reduced air quality, which can be lethal to predisposed populations such as older residents and individuals with respiratory conditions. Ecosystems will need to adjust and may require additional stewardship to sustain the environmental services they provide. Meanwhile, higher temperatures will also lead to greater demand for water, electricity, and air conditioning systems in warmer months.

Future build-out will necessitate greater implementation of strategies that counteract increasing temperatures in ways that advance public health and environmental sustainability. As Princeton continues to develop according to the Land Use Plan, it will mitigate the heat island effect of its urban areas by "de-paving" areas with excessive impervious coverage, expanding shade tree canopy coverage, and facilitating the development of green roofs to minimize solar heat gain.

DROUGHT AND PRECIPITATION

Drought and precipitation pose threats to all development in Princeton. Droughts and precipitation events are projected to increase in frequency and severity, creating the additional challenge of mitigating opposite extremes. More extreme drought and rainfall affect the viability of natural plant and animal communities, which may begin to adapt in a manner that changes the nature of these systems for the worse. These conditions also threaten the ability of sites, buildings, and other infrastructure to manage on-site the resulting increased stormwater and localized flooding unrelated to stream corridors. These conditions will drive the need to increase resiliency of building systems, transportation infrastructure, and the stewardship of natural areas and open space for increasing extremes of wet and dry weather conditions.

WILDFIRES

Wildfires constitute a minimal threat to future development in Princeton. Forests cover approximately 36% of Princeton's land area,[7] although Princeton's Community Forestry Plan indicates that, given the type of forest cover in Mercer County generally, and the abundant natural as well as man-made firebreaks, wildfire is not considered an overall high priority at this time.

While climate change may increase the currently low risk of wildfire in coming decades as high-heat days and droughts increase in severity and frequency,[8] the Land Use Plan anticipates new development to occur in areas that are already developed and currently have little to no forest cover. Further, expansion of Princeton's mature tree canopy will be achieved in tandem with the urban forestry and fire prevention strategies articulated in the Community Forestry Management Plan.

Critical Facility Vulnerability: The County HMP has identified six critical facilities in Princeton that are located within the High, Very High, or Extreme Wildfire Fuel Hazard Area, including three bridges, two dams, and one wastewater lift station.[9] However, the exact locations are not provided.

FLOODING

Flooding poses a threat to development in Princeton. While flooding is a natural occurrence, it will increase in frequency and severity in New Jersey and impact the built environment.[10]

To analyze flood risk, FEMA models riverine and coastal flooding through the National Flood Insurance Program (NFIP). Only riverine flooding is analyzed in this climate vulnerability assessment, as Princeton is not located along coastal or tidally influence waters.

Table 2.2 describes flood exposure to developed land area in Princeton. Approximately 5.3% of Princeton's developed land area is located within a floodplain. A cross-reference with FEMA NFIP maps reveals that much of this urban area consists of undeveloped portions of developed lots, such as landscaping, riparian buffer zones, and unimproved open space. Because this data reflects the current floodplain calculations, these values should be considered a slightly conservative estimate with respect to climate change and worsening flood conditions.

Table 2.3 summarizes flood exposure of natural and working lands in Princeton, which include wetlands, open space, agricultural lands, and forest. These lands provide valuable ecosystem services to the Municipality in the form of floodwater capacity, windbreaks, air and water purification, noise mitigation, recreational opportunities, groundwater recharge, and agricultural products.

7 *NJDEP Land Use / Land Cover 2015*
8 *NJDEP Scientific Report on Climate Change*
9 *2021 Mercer County Hazard Mitigation Plan. Volume I. Section 4.3.13-14.*
10 *Ibid.*

Table 2.2: Flood Exposure of Natural and Working Lands[1]			
Land Classification	Total Acres	Acres Exposed (% of Total)	
		1% Annual Chance of Flood	0.2% Annual Chance of Flood
Wetlands	1,150	103 (8.9)	114 (9.9)
Open Space[2]	1,833	116 (6.3)	149 (8.1)
Agricultural Lands	434	43 (9.9)	60 (13.8)
Forest	3,182	116 (3.6)	151 (4.7)

1 *Natural and Working Lands Exposure Snapshot, NJFloodmapper. Note that Land Classifications are not mutually exclusive.*

2 *Open space area according to data from Rutgers University Center for Remote Sensing and Spatial Analysis. All other land cover categories in the table are from the 2015 Land Use Land Cover dataset from NJDEP*

Table 2.3: Flood Exposure of Developed Area[1]			
	Total Acres	Acres Exposed (% of Total)	
		1% Annual Chance of Flood	0.2% Annual Chance of Flood
Developed Area	6,501	117 (1.8)	159 (2.4)

1 *Vulnerable Populations Exposure Snapshot, NJFloodmapper*

Critical Facility Vulnerability: Table 2.4 lists potential flood losses to critical facilities in Princeton as identified by the County HMP. These facilities include dams, bridges, wells, and wastewater pump stations. Many bridges, water pumps, and dams are inherently located within the floodplain due to their respective functions, and require individual engineering assessments to evaluate whether they are at risk of structural damage or service impact.

Floods also cause disruptions to transportation access. The Municipality will need to assess its bridges, roadways, and transit infrastructure on an individual basis with coordination of emergency operations planning efforts, as recommended by this Plan.

The County has included several cultural sites in its assessment of critical facilities such as recreational and religious institutions, although such facilities are generally unrelated to public health, safety, and essential municipal functions in Princeton.

INLAND FLOOD PROTECTION

On July 17, 2023, the New Jersey Department of Environmental Protection (NJDEP) published the final Inland Flood Protection Rule (IFP Rule), amending the Flood Hazard Area Control Act (FHACA) Rules, N.J.A.C. 7:13, and the Stormwater Management (SWM) Rules, N.J.A.C. 7:8 as they apply to future projects that the State classifies as major developments that are located in fluvial flood hazard areas. The overall objective is for new development to account for expected flood increases that are due to increasing rainfall severity.

The rule increases the required design flood elevation for habitable building space and critical equipment by two feet above the 100-year fluvial base flood elevations mapped by NJDEP, and by three feet above the 100-year fluvial base flood elevations mapped by the FEMA. The rule also allows an applicant to conduct its own flood mapping if there are disagreements between state and federal mapping, or no FEMA or NJDEP flood mapping exists. Additionally, the rules prohibit approval of a flood hazard area permit that does not meet applicable design and construction standards established under the Federal National Flood Insurance Program or New Jersey's Uniform Construction Code at N.J.A.C. 5:23.

Application of the new rule is anticipated to reduce vulnerability of new structures to future flooding.

DAM FAILURE

Dam failure poses a minimal threat to future development in Princeton. Increased rainfall associated with climate change could increase the risk of dam failure, requiring infrastructure assessment, improvements, and additional land use practices to mitigate loss. Structural failure of dams is a risk to buildings, critical facilities, and lifeline infrastructure within the downstream inundation zone and in extreme cases may cause loss of life. Further, these events can also cause significant harm to ecosystems and water quality, requiring major mitigation efforts beyond reconstruction.

The NJDEP classifies dams according to their hazard potential using several criteria established by the United States Army Corps of Engineers. According to the County HMP, there are four Class II

(Significant Hazard Potential) dams in Princeton: (1) Lower Mountain Lake Dam, (2) Regional Stormwater Detention Basin G Dam, (3) Smoyer Park Dam, and (4) Carnegie Lake Dam. Class II dams are those characterized by location near transient or day-use facilities, and whose failure would cause losses to critical facilities and access, public and private facilities, and environmental systems.

Although risk of dam failure is partially mitigated through state regulations, it can still occur at any time and without warning, and the effects of climate change can compound causal factors. Dam facilities may have been built without anticipation of future climate conditions such as increased frequency and severity of rainfall events. Resulting changes in the hydrology of dam systems – water volume, water movement, and soil inundation – may exceed design capacity and affect maintenance and longevity.

No substantive increase in the density or intensity of uses is planned for areas in the vicinity of existing dams. Therefore, the vulnerability of new development to dam failure is anticipated to be minimal.

INSECT-BORNE DISEASES

Insect-borne disease constitutes a threat to all future development in Princeton Increasing average annual temperatures and changes in humidity can equate to milder winters and greater susceptibility to insect-transmitted diseases throughout New Jersey. The increase in the number of growing days throughout the year is expected to increase tick and mosquito habitat, the speed and number of their growth cycles, and the length of the annual period in which they are active. As a result, an increase in insect-borne illnesses and diseases is expected and may require a combination of land use and pest management strategies as recommended by this plan.

BUILD-OUT VULNERABILITY

Current and future land use will not exacerbate vulnerability to natural hazards. The Land Use Plan anticipates most of Princeton's growth to occur within and around the downtown and the Princeton Shopping Center, where risk of climate-change related natural hazards is lower. Map _ illustrates the spatial relationship between the Land Use Plan and approximate risk of flood and wildfire as represented by flood hazard areas and forest cover, which are mapped separately in the Conservation, Recreation, and Open Space Plan Element.

Areas that are vulnerable to wildfire and flooding are primarily located in forested conservation areas and along stream corridors outside the downtown, downtown-adjacent districts, and the Shopping Center. Further, the map indicates many undeveloped portions of developed property in the Greenway Neighborhood land use category that may appear vulnerable but, as a result of land development standards and environmental regulations, do not contain buildings or other improvements located in these hazard areas. Build-out of the Municipality will not increase development intensities in these potential hazard areas and will require conformance to enhanced standards for climate resiliency as recommended throughout this Plan.

Other effects of climate change, such as severe weather, may be experienced more universally across Princeton. Such effects may have minimal relationship to the zoning plan but can be mitigated through the recommendations included throughout the Master Plan to make Princeton's

current and future development more resilient to a changing climate. In summary, these strategies include improvements to stormwater management, implementation of more resilient building systems and utilities, expansion of urban tree canopy coverage, and compliance with inland flood regulations.

VULNERABLE POPULATIONS

While everyone will be affected in some way by global climate change, certain populations may be disproportionately affected by changing climate conditions and natural hazards, and require special attention and coordination during emergency planning.

CRITICAL FACILITIES AND INFRASTRUCTURE

The manner in which FEMA classifies critical facilities may provide some guidance to the Municipality as it works to prioritize resiliency investments. FEMA defines critical facilities as all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired. FEMA has established four categories of critical facilities:

Category I: buildings and other structures whose failure would represent a low hazard to human life, such as agricultural buildings and storage facilities.

Category II: all buildings not specifically included in other categories.

Category III: buildings and other structures that represent a substantial hazard to human life in the event of failure. They include buildings with higher concentrations of occupants (i.e., where more than 300 people congregate in one area). These are typically educational facilities with capacities greater than 250 for elementary and secondary facilities, 500 for colleges and adult education facilities, or 150 for daycare facilities.

Category IV: essential facilities such as hospitals, fire and police stations, rescue and other emergency service facilities, power stations, water supply facilities, aviation facilities, and other buildings critical for national and civil defense.

2.8 Impact of Natural Hazards on Other Components and Elements of the Master Plan

This **Land Use Plan Element** forms the basis for the Municipality's land use regulations and strengthens the link between the climate change resiliency strategies of each element of the Master Plan, summarized below:

The **Community Facilities Plan Element** provides recommendations for improvement of public facilities with respect to increased climate resiliency and actions to support public services. This includes recommendations regarding alternative energy and power redundancy.

The **Conservation, Open Space, and Recreation Plan Element** recommends actions to protect and enhance the Municipality's natural and recreational resources in ways that coordinate stormwater management, tree canopy, and flood management with land preservation and habitat conservation.

The **Utility Plan Element** addresses climate resiliency of Princeton's critical utility systems such as energy, water, wastewater, solid waste, stormwater, and communications infrastructure. Recommendations include on-site power generation, a hardened electrical grid, and enhanced stormwater management.

The **Green Building and Environmental Sustainability Plan Element** contains strategies for climate change resiliency in public and private development related to resource consumption, building systems, mobility, and sustainable development practices. The recommendations therein are, in many ways, directly addressing these natural hazards.

The **Historic Preservation Plan Element** acknowledges that more severe weather and increases in flooding may damage historic properties within vulnerable areas, and it discusses the challenge of melding historic preservation with resilient energy, building and site development strategies.

The **Mobility Plan Element** and the recommendations therein may be affected by the need to adapt streets and other thoroughfares to changing hazards related to flooding. The Mobility Plan element recommends implementation of Green Streets and green stormwater infrastructure to make rights-of-way shadier, cooler, and more absorbent.

2.9 Consistency with Other Plans

Princeton will continue to implement policies that align with state and federal rules related to floodplain management, stormwater management, natural hazard mitigation, emergency management, and other efforts intended to protect life, property, and the economy from climate-related natural hazards. The Municipality will achieve this goal through amendments to the Municipal Code, future updates to elements of the Municipal Master Plan, and other policies with these goals in mind. Specifically:

The **Mercer County Hazard Mitigation Plan (HMP)** provides the foundation for assessment of climate change-related natural hazards within this Land Use Plan Element and recommendations for natural hazard mitigation and emergency management strategies. Princeton will continue to coordinate with the County on future updates to the HMP and advance climate change resiliency strategies throughout the Master Plan.

Princeton's **Municipal Stormwater Management Plan** is contained within the Utility Plan Element of the Master Plan. The stormwater plan establishes the Municipality's strategies for mitigating the quantity and quality of stormwater runoff and compliance with the minimum state requirements for new development, including the use of green infrastructure. This Land Use Plan Element provides recommendations to be implemented through coordination with municipal stormwater control ordinances and related development regulations.

As Princeton continues to develop floodplain management plans such as the forthcoming **Watershed Improvement Plan**, the findings and recommendations of this Land Use Plan Element will remain relevant and should be integrated or expanded upon as necessary.

The climate-related recommendations of this Land Use Plan Element are to be incorporated into Princeton's **capital improvement planning** with coordination and implementation of other elements of the Master Plan.

The findings and recommendations of this Land Use Element should be implemented and adjusted with coordination by the Princeton Department of Emergency Management and the development of the Municipality's **Emergency Operations Plan (EOP)**.

2.10 Climate Resiliency Recommendations

SEVERE WEATHER AND FLOODING

1. **Harden the electrical grid and increase on-site renewable energy generation among public facilities and private development.** The Utility Plan Element contains specific recommendations for resiliency improvements of critical facilities and infrastructure.

2. **Continue to enforce and revise the stormwater control ordinances to reflect NJDEP rules and best management practices for resiliency and green stormwater infrastructure.** The Utility Plan Element and Stormwater Management Plan provide further details and recommendations for enhanced stormwater resiliency.

3. **Require contextual use of native drought-tolerant and flood-tolerant plants.** Require appropriate plantings as part of the Municipality's land use and development standards to minimize resource consumption and maximize adaptation of vegetation as consistent with the Conservation, Open Space and Recreation Plan Element and Green Building and Environmental Sustainability Element.

4. **Mitigate urban heat island effect by maximizing vegetated cover and shade tree plantings in public spaces and along public streets.** Reduce retention of solar heat through vegetation, heat-reflective building materials, and natural shade cover.

5. **Enforce the Municipality's Floodplain Management/Watershed Plan,** and update it as necessary to remain current with state requirements.

6. **Protect and restore wetlands, floodplains, mature tree canopy, and vegetated cover** to maximize natural stormwater management and temperature control.

7. **Maximize urban tree canopy** to minimize solar heat gain and provide passive temperature control.

8. **Assess critical facilities and transportation infrastructure within flood hazard areas** to determine structural risks and access limitations associated with the effects of climate change in order to develop recommendations for increasing the resiliency of these facilities.

9. **Continue to coordinate** land use and development standards with stormwater and floodplain management strategies.

10. **Use the Princeton Climate Action Plan** to inform all elements of the Master Plan.

11. **Assign and promote community facilities as heating centers, cooling centers, and emergency shelters** to provide safe accommodations for vulnerable populations during extreme weather. Coordinate protocols with the Municipality's emergency operations plan (EOP) and potential non-municipal partners to protect public health and safety. The Community Facilities Element of this Master Plan discusses critical facilities in greater detail.

12. **Establish a streamlined administrative process to review and approve the raising of lawfully pre-existing nonconforming homes in compliance with increased base flood elevations.** Applicants seeking approval for compliance with flood regulations should undergo an administrative process to preclude the need for variance approval by the Zoning Board of Adjustment.

13. **Develop more stringent stream buffer requirements** to increase protections for stream corridors and floodplain capacity.

14. **Pursue additional preservation and restoration efforts to offset potential flood losses** in Princeton's urban area.

15. **Ensure resiliency of recreation improvements**to wetter conditions within flood-prone areas.

16. **Ensure that critical facilities have sufficient flood protections and backup systems installed** and maintain access through coordination with emergency responders and partnering agencies. In some cases, relocation of facilities or roads may be more feasible to maintain service and the efficient allocation of resources.

17. **Locate new community facilities away from floodplains** and low-lying areas.

WILDFIRE

18. **Use the Princeton Community Forestry Plan to inform all elements of the Master Plan.** The Shade Tree Commission and municipal arborist revise the Princeton Community Forestry Plan on a four-year basis to advance the stewardship of Princeton's tree canopy.

19. **Include in the Community Forestry Plan detailed strategies to address the effects of climate change** on Princeton's forests per this Element and the Conservation, Open Space and Recreation Plan Element.

20. **Provide appropriate urban forestry management strategies in the Community Forestry Management Plan** to mitigate loss of mature forest canopy. Significant loss of mature forest shade trees resulting from pests and disease may contribute to increased risk of wildfire.

21. **Make public buildings more resistant to fire.** Utilize materials for public buildings that are highly resistant to fire and manage sites to reduce the potential for fire to start or spread.

DAM FAILURE

22. **Limit new development within the downstream inundation zones of Class I and Class II dams,** and coordinate zoning and land use policy with the NJDEP Emergency Action Plan (EAP).

INSECT-BORNE DISEASE

23. **Manage overgrown vegetation and stagnant water** in parks, public spaces, and along sidewalks and trails to combat pest-borne diseases brought about by longer warm seasons, warmer winters and increased rainfall, all of which contribute to higher populations of ticks and mosquitoes, as well as more species of both.

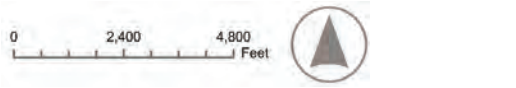
VULNERABLE POPULATIONS

24. **Ensure that all populations share the benefits of climate change resiliency efforts** and have a voice during implementation of this Plan regardless of privilege and means.

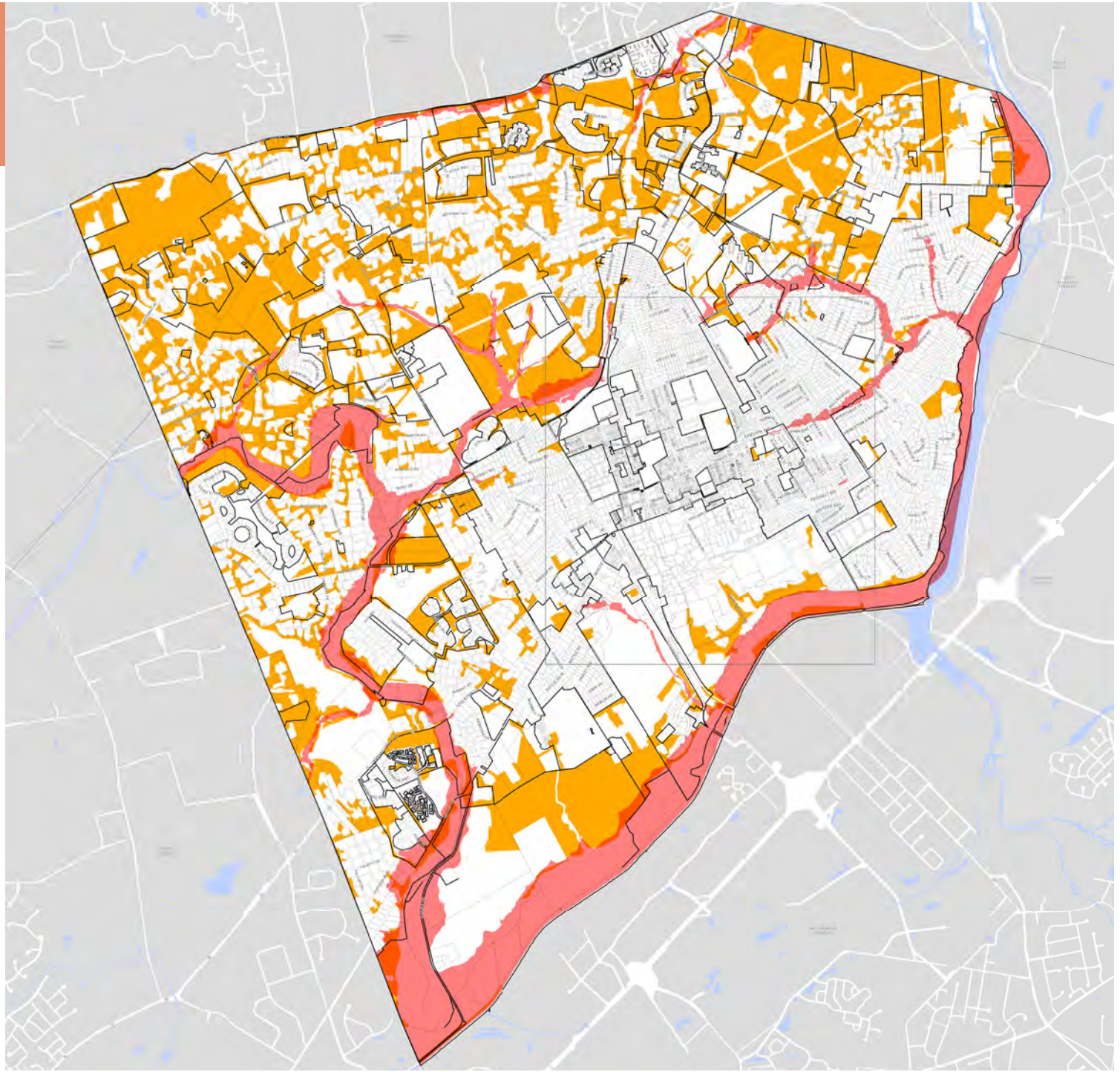
CRITICAL FACILITIES AND INFRASTRUCTURE

25. **Use the FEMA categories, along with an examination of the local need, to prioritize resources used to further the resiliency of critical facilities.** Include consideration of the relative vulnerability, the degree of community need/benefit, and the costs of additional resiliency measures.

CLIMATE CHANGE HAZARD VULNERABILITY



FLOOD HAZARD AREAS (CURRENT FLOOD RISK)
FOREST COVER (POTENTIAL WILDFIRE RISK)
LAND USE PLAN DISTRICT BOUNDARIES



Sources: FEMA (Flood Hazard Areas), NJDEP (Forest Cover), Municipality of Princeton (Parcels)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Table 2.4: Flood Exposure of Critical Facilities[1]			
Critical Facility	Facility Type	Flood Risk Exposure	
		1% Annual Chance	0.2% Annual Chance
Carnegie Lake Dam	Dam	Yes	Yes
364.13 - Poe Rd Over Harrys Brk	Bridge	Yes	Yes
330.3 - Mercer Rd Rt 583 Over Stony Brk	Bridge	Yes	Yes
364.3 - Snowden Ln Over Harrys Brk	Bridge	Yes	Yes
360.2 - S Harrison St Cr 629 Over Carnegie Lk (Stony Brk)	Bridge	Yes	Yes
360.1 - Washington Rd Rt 571 Over Carnegie Lk (Stony Brk)	Bridge	Yes	Yes
330.5 - Rosedale Rd Cr 604 Over Stony Brk	Bridge	Yes	Yes
330.1 - Alexander St Over Stony Brk	Bridge	Yes	Yes
330.2 - Quaker Rd Rt 533 Over Stony Brk	Bridge	Yes	Yes
364.15 - Locust Ln Over Harrys Brk	Bridge	Yes	Yes
331.1 - Alexander St Over Alexander Crk	Bridge	Yes	Yes
332.2 - Quaker Rd Rt 533 Over Stony Brk Trib	Bridge	Yes	Yes
335.4 - Cherry Hill Rd Over Mountain Brk Trib	Bridge	Yes	Yes
335.2 - Great Rd Over Mountain Brk Trib	Bridge	Yes	Yes
335.7 - Great Rd Over Mountain Brk	Bridge	Yes	Yes
337.1 - Pretty Brook Rd Over Stony Brk Trib	Bridge	Yes	Yes
361.2 - Cherry Hill Rd Over Cherry Run	Bridge	Yes	Yes
361.1 - Cherry Valley Rd Over Cherry Run	Bridge	Yes	Yes
362.2 - Herrontown Rd Over Van Horn Brk Trib	Bridge	Yes	Yes
364.1 - Snowdon Ln Over Harrys Brk Trib	Bridge	Yes	Yes
364.10 - Roper Rd Over Harrys Brk	Bridge	Yes	Yes
364.11 - Littlebrook Rd Over Harrys Brk Trib	Bridge	Yes	Yes
364.12 - Shady Brook Ln Over Harrys Brk Trib	Bridge	Yes	Yes
364.14 - Harriet Dr Over Harrys Brk	Bridge	Yes	Yes
332.3 - Mercer Rd Rt 583 Over Stony Brk Trib	Bridge	Yes	Yes
339.1 - Pretty Brook Rd Over Stony Brk Trib	Bridge	Yes	Yes
335.1 - Great Rd Over Mountain Brk	Bridge	Yes	Yes
330.7 - Rosedale Rd Cr 604 Over Stony Brk	Bridge	Yes	Yes
330.8 - Trail Over Stony Brk	Bridge	Yes	Yes

1 *2021 Mercer County Hazard Mitigation Plan. Volume II. Section 9.10-24*

Table 2.4: Flood Exposure of Critical Facilities[1]			
Critical Facility	Facility Type	Flood Risk Exposure	
		1% Annual Chance	0.2% Annual Chance
Stony Brook Well 4	Potable Water Well	Yes	Yes
Stony Brook Well 6	Potable Water Well	Yes	Yes
Stony Brook Well 8	Potable Water Well	Yes	Yes
Stony Brook Well 7a	Potable Water Well	Yes	Yes
363.3 - River Rd Cr 605 Over Millstone Riv Trib	Bridge	Yes	Yes
332.1 - Mercer Rd Rt 583 Over Stony Brk Trib	Bridge	Yes	Yes
363.4 - River Rd Cr 605 Over Millstone Riv Trib	Bridge	Yes	Yes
364.16 - Braeburn Dr Over Harrys Brk Trib	Bridge	Yes	Yes
335.9 - Westerly Rd Over Mountain Brk Trib	Bridge	Yes	Yes
Charles Rogers Wildlife Refuge	Park/Recreation	-	Yes
Grover Park Princeton	Park/Recreation	Yes	Yes
Mountain Lakes Holding	Park/Recreation	Yes	Yes
Turning Basin Park	Park/Recreation	-	Yes
Princeton Church Of Christ	Religious	-	Yes
SBRSA Pump St 1	Wastewater Lift Station	Yes	Yes
SBRSA Pump St 2	Wastewater Lift Station	Yes	Yes
All Saints Pump Station	Wastewater Lift Station	Yes	Yes
Mercer Road Pump Station	Wastewater Lift Station	Yes	Yes
Pretty Brook Pump Station	Wastewater Lift Station	Yes	Yes
Rosedale Pump Station	Wastewater Lift Station	-	Yes
Winfield Pump Station	Wastewater Lift Station	-	Yes
Harrison St Well 7	Potable Water Well	Yes	Yes
Harrison St Well 9	Potable Water Well	Yes	Yes
Harrison St Well 8	Potable Water Well	Yes	Yes
Stony Brook Well 2	Potable Water Well	Yes	Yes
Stony Brook Well 3	Potable Water Well	Yes	Yes
Alexander Road Bridge Over D&R Canal	Bridge	Yes	Yes
Washington Road Bridge Over D&R Canal	Bridge	Yes	Yes

3.0 MOBILITY

Introduction

The purpose of this Element is to establish overarching goals for Princeton related to transportation infrastructure and mobility and to integrate all prior transportation-related plans and studies relevant to achieving the Municipality's goals. This Mobility Plan Element will inform the Municipality's capital improvements, development and redevelopment standards, and decisions of municipal agencies.

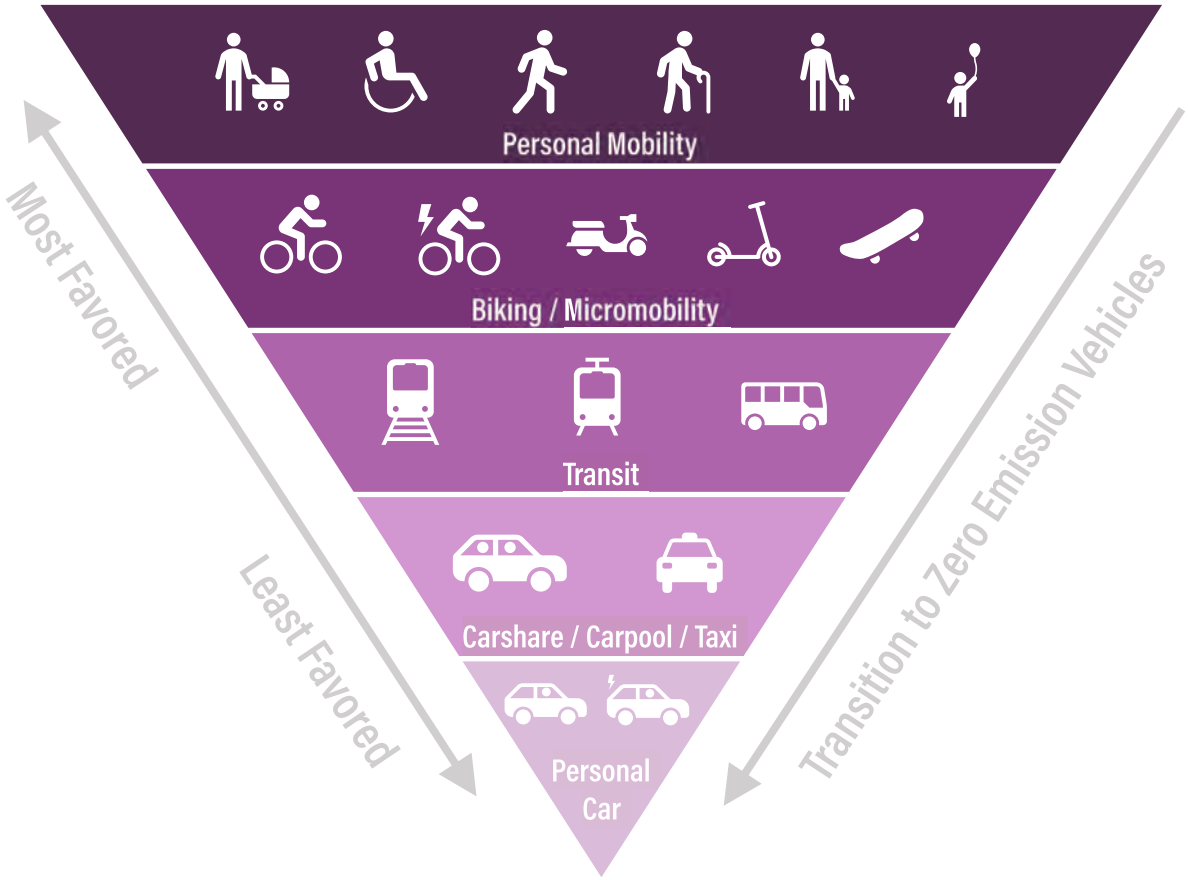
The principles of this plan will establish a filter through which all planning, design, and implementation of specific mobility improvements will pass and develop through their respective decision-making processes.

3.1 The Mobility Hierarchy

To achieve the goals of the Mobility Plan Element and other goals of the Master Plan, infrastructure and land use policies in Princeton will reflect a hierarchy that prioritizes walking, biking, transit, and other modes of transportation that are more ecologically, economically, and socially sustainable than single-occupancy gas-powered vehicles. This prioritization will inform infrastructure planning and land development policies to achieve lower emissions, more efficient development patterns, and a more connected, equitable, diverse, and resilient way of moving through Princeton.

3.2 The Street Network

Princeton recognizes that effective utilization of its street network requires a strategic balance of priorities. To respond to various factors such as climate resiliency, safety of all users, land use trends, and transportation equity, the Municipality will continue to identify the priorities and optimum functionalities for all of its streets, accounting for the relationship between land use and transportation. This ongoing process involves classifying the Municipality's streets according to their current functions and establishing a vision that supports their optimal uses.



FHWA FUNCTIONAL CLASSIFICATIONS

The Municipal Land Use Law requires a Mobility Plan Element to consider the Federal Highway Administration (FHWA) functional street and road classifications,[1] which represent one way to describe the hierarchy of a roadway system. The FHWA classifications are largely based on relative volumes of vehicular traffic as a way to distinguish various thoroughfares. Princeton has classified its roadway network using these categories.

Principal Arterials are higher-volume roadways that serve major activity centers, high-traffic corridors, and longer trip demands, and offer limited direct access to properties and cross streets. In Princeton these include:

- NJ Route 27 (Nassau Street)
- US Route 206 (Stockton Street, Bayard Lane, State Road)

Secondary Arterials are like principal arterials but distribute traffic to smaller geographic areas, accommodate trips of moderate length, and provide some access to adjacent properties with minimal extension into neighborhoods. In Princeton these include:

- Cherry Valley Road
- River Road (CR 605)
- Province Line Road (south of Rosedale Road)
- Mercer Street / Road
- Washington Road
- Alexander Street
- Harrison Street
- North Harrison Street
- South Harrison Street
- Great Road
- Elm Road (CR 604) (Rosedale Road to US Route 206)
- Rosedale Road (CR 604)
- Mount Lucas Road (Ewing Street to municipal boundary)
- Ewing Steet (US Route 206 to North Harrison Street)

1 *www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm*

Major Collectors provide both access and circulation in higher-density residential, commercial, and industrial areas, and distribute trips between arterials and local roads. In Princeton these include:

- Bunn Drive
- University Place
- Hodge Road
- Paul Robeson Place
- Wiggins Street-Hamilton Avenue
- Quaker Road (municipal boundary to Mercer Road)
- Mount Lucas Road (Valley Road to Ewing Street)
- Witherspoon Street

Minor Collectors serve property access and traffic circulation through lower-density residential and commercial areas with some extension into neighborhoods. Minor collectors typically have higher speeds and more signalized intersections than local roads. In Princeton these include:

- Snowden Lane
- Herrontown Road
- Mountain Avenue
- Terhune Road/Van Dyke Road
- Poor Farm Road
- Pretty Brook Road
- Lovers Lane
- Hutchinson Drive
- Prospect Avenue
- Library Place
- Riverside Drive
- Rollingmead to Littlebrook North to Magnolia Lane
- Stuart Road (from Great Road to Cherry Hill Road)
- Province Line Road (North of Rosedale Road)
- Valley Road
- Cherry Hill Road

Local Streets provide the greatest property access with limited capacity for through traffic and comprise the majority of the Municipality's roadways. Any road in Princeton not classified as an arterial or collector road is considered a local street.

ROADWAY DESIGN STANDARDS

Princeton has adopted the following design standards corresponding to each FHWA classification that it has assigned to its roadways (Table 3.1).

No changes are recommended to these spatial standards. However, they will be interpreted and implemented with flexibility to advance the Municipality's goals and recommendations for traffic calming, bicycle/pedestrian mobility, transit, Complete and Green Streets design, sustainability, and other functional and design priorities within rights-of-way.

Table 3.1: Spatial Standards by Functional Roadway Classification

Classification	Travel Lane Width	Shoulder Width	Parking Lane Width	Total Right of Way Width
Primary Arterial	10 - 12′	0 - 6′	8′	66′
Secondary Arterial	10 - 12′	0 - 6′	8′	50 – 60′
Major Collector	10 - 12′	0 - 5′	7 – 8′	50′
Minor Collector	10 - 12′	0 - 5′	7 – 8′	50′
Local Street	9 - 12′	0 - 4′	7′	50′

MOVING BEYOND FHWA CLASSIFICATIONS

As standardized designations used by federal and state transportation agencies, the FHWA classifications continue to have implications for funding and design functionality. However, these classifications primarily provide a sense of the roadway hierarchy for motorized traffic and thus do not reflect fully the adjacent land uses or the diversity of users of, and activities within, a street network. To allow greater flexibility of roadway use, these classifications should be regarded as a general reflection of the flow of traffic volume but not the primary standard for roadway function and design.

Princeton's streets must respond to an increasingly wide variety of users, vehicle types, priorities, and conditions that are not necessarily reflected in the FHWA classifications. To respond to these needs, greater consideration of the purpose and vision of each street is necessary.

NACTO STREET TYPOLOGIES

The National Association of City Transportation Officials (NACTO) advocates for a more comprehensive approach to roadway classification that reflects how an entire community, and not just motor vehicles, uses a roadway.[2] The Princeton Engineering Department has developed the following hybrid typologies, combining FHWA classifications with NACTO street typologies as examples to assist with further discussions for roadway improvements. The following images and descriptions of each street typology are illustrative and do not represent final concepts for Princeton's street network.

2 *NACTO. Urban Street Design Guide. nacto.org/publication/urban-street-design-guide/streets/*

Downtown Main Streets (FHWA Primary Arterials) are a blend of two NACTO typologies – a Downtown Two-Way Street merged with a Neighborhood Main Street. Downtown Main Streets are typically located in centers with high vehicular and pedestrian activity, with resulting parking and loading conflicts and high vehicle turning volumes. In Princeton, Nassau Street is the Municipality's Downtown Main Street.

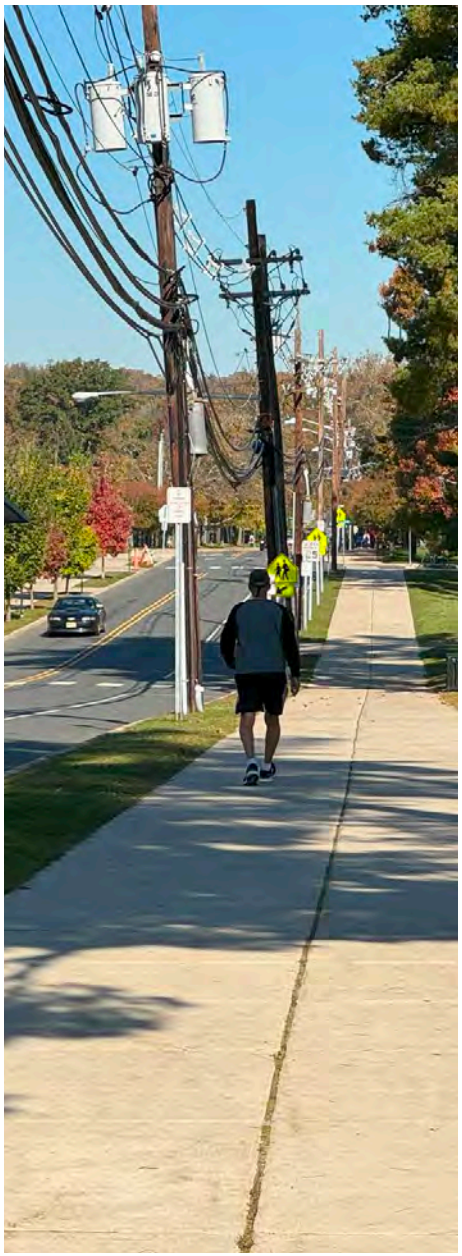
Neighborhood Main Street, NACTO Urban Street Design Guide

Commercial Shared Streets (FHWA Major Collector) include streets in commercial districts where infrastructure prioritizes pedestrian flow to support business activity and where vehicle traffic is primarily limited to essential trips and deliveries. In Princeton, Witherspoon Street south of Wiggins Street is a Commercial Shared Street.

Commercial Shared Street, NACTO Urban Street Design Guide

Suburban Thoroughfares (FHWA Primary and Secondary Arterials) are a step down from the NACTO Downtown Thoroughfare, which is a major street that connects neighborhood centers or runs through the downtown. Suburban Thoroughfares are the major through-streets that tend to carry traffic from outside a municipality into or through it. Potential Suburban Thoroughfares in Princeton include:

- Stockton Street
- Bayard Lane
- State Road
- Alexander Road/Street
- Elm Road
- Harrison Street
- Washington Road



Rural Thoroughfares (FHWA Secondary Arterials, Major and Minor Collectors) are similar to Suburban Thoroughfares but exhibit a more rural and low-density residential character and carry traffic longer distances through the Municipality. Potential Rural Thoroughfares in Princeton include:

- Mount Lucas Road
- Bunn Drive
- Cherry Valley Road
- Great Road

Neighborhood Streets (FHWA Minor Collectors) are a NACTO typology typified by the residential collector streets connecting neighborhoods to higher volume roadways like Nassau Street. In Princeton, Neighborhood Streets include streets such as:

- Valley Road
- Jefferson Road
- Moore Street

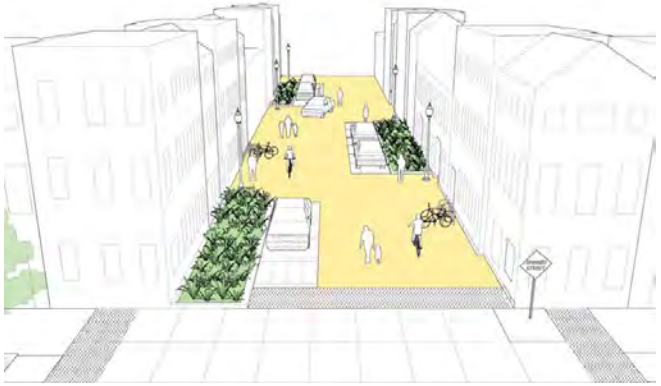
Neighborhood Street, NACTO Urban Street Design Guide

Downtown Two-Way Streets (FHWA Major Collectors) are a NACTO typology exemplified by such Princeton streets as Robeson-Wiggins-Hamilton and Vandeventer.

Neighborhood Main Streets (FHWA Major Collectors) are a NACTO typology that describes a nexus of neighborhood life, with high pedestrian volumes, frequent parking turnover, key transit routes, and bicyclists. In Princeton this would include Witherspoon Street north of Wiggins Street.

Residential Shared Streets (Minor Collectors) are another NACTO designation that allows for shared space between motor vehicles and bicycles. In Princeton, Residential Shared Streets could include:

- Franklin Avenue
- Terhune Road
- Walnut Lane
- Prospect Avenue
- Spring Street



Residential Shared Street, NACTO Urban Street Design Guide

Rural Residential Roads (Minor Collectors) are similar to the more urban Residential Streets, but in the more rural areas of the municipality. In Princeton, the following could be classified as Rural Residential Roads:

- Province Line Road (north of Rosedale Road)
- Herrontown Road
- Pretty Brook Road

THOROUGHFARE DESIGN POLICIES

In addition to functional classification typologies, Princeton intends to implement various design policies corresponding to different, but complementary, programs, including Complete Streets, Green Streets, and Safe Routes.

COMPLETE STREETS

Complete Streets are rights-of-way that are designed to enable safe use by users of all ages and abilities. The former Borough and former Township both adopted a Complete Streets policy by resolution in 2012, which the Municipality updated in 2019. The principles of the Municipality's Complete Streets resolution are included throughout this Mobility Plan Element and the Municipality will continue to apply them to all applicable roadway capital improvement projects.

GREEN STREETS

Green Streets provide green stormwater infrastructure within public rights-of-way. Features of Green Streets include street trees, bioswales, permeable pavement, vegetated curb bump-outs, and other improvements that capture rainwater and allow it to infiltrate into the soil rather than draining into the stormwater system.

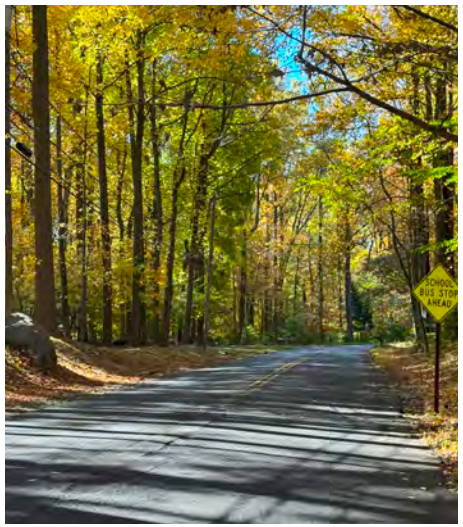
In addition to reducing stormwater runoff, Green Streets can provide other community benefits such as traffic calming, passive temperature control, and the beautification of public space. Due to the amount of space dedicated to public rights-of-way throughout the Municipality, Green Streets have potential to improve flood resiliency and adaptation to climate change.

SAFE ROUTES

Safe Routes is a movement dedicated to improving the safety and comfort of walking or biking to specific destinations such as schools, parks, and transit. Safe Routes solutions include infrastructure improvements that shape the built environment and programs to prioritize everyday trips that do not involve a car. Princeton has won awards for Safe Routes initiatives in the past and will continue to participate in Safe Routes programs to enhance its eligibility for grant-funded roadway improvement opportunities.

SAFE STREETS AND ROADS FOR ALL

Safe Streets and Roads for All is a federal grant program administered by the U.S. Department of Transportation to fund regional, local, and Tribal initiatives that prevent roadway deaths and serious injuries. Grants are available for planning, demonstration, and implementation of roadway safety action plans, such as Vision Zero action plans.



Princeton has established a Vision Zero Task Force that will develop recommendations for various traffic-calming design elements, will engage in public education and outreach, and ultimately will prepare a Vision Zero Action Plan following adoption of this Master Plan.

VISION ZERO

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all.[3] Vision Zero principles to guide the design and maintenance of mobility infrastructure in Princeton include:

- Protection of all users of the street, whether walking, rolling, riding a bike, riding a bus, or driving a car or truck;
- Safety takes priority over vehicle speed and volume as well as financial cost, both in design decisions and in maintenance operations;
- Protection of the most vulnerable road users in street design and funding decisions;
- Focus design on communities of concern, including people with limited private vehicle access, youth, seniors, people with disabilities, and those dependent on public transit;
- Focus on street design and engineering as the main means to ensure safe behaviors and discourage dangerous behaviors, in order to alleviate the need for enforcement; and
- Conduct direct education through street design with recognition that many drivers on Princeton's streets live outside Princeton.

Although these priorities serve different primary purposes, Princeton can implement the principles of each through joint efforts such as Complete and Green Streets and acknowledgement that greening within the right of way can also function to calm traffic or support non-motorized trips in tandem with Safe Routes and Vision Zero goals.

3 *Vision Zero Network, webpage, visionzeronetwork.org/about/what-is-vision-zero/*

3.3 Safety Improvements

The safety of all users of the circulation network remains the highest priority of the Municipality. In addition to the pedestrian and cyclist safety concerns noted in this Mobility Element, more than 40% of Open House attendees identified various intersections and corridors they believe are problematic or unsafe. The list below will inform additional studies and safety audits necessary to prioritize safety improvements based on available funding and municipal capacity.

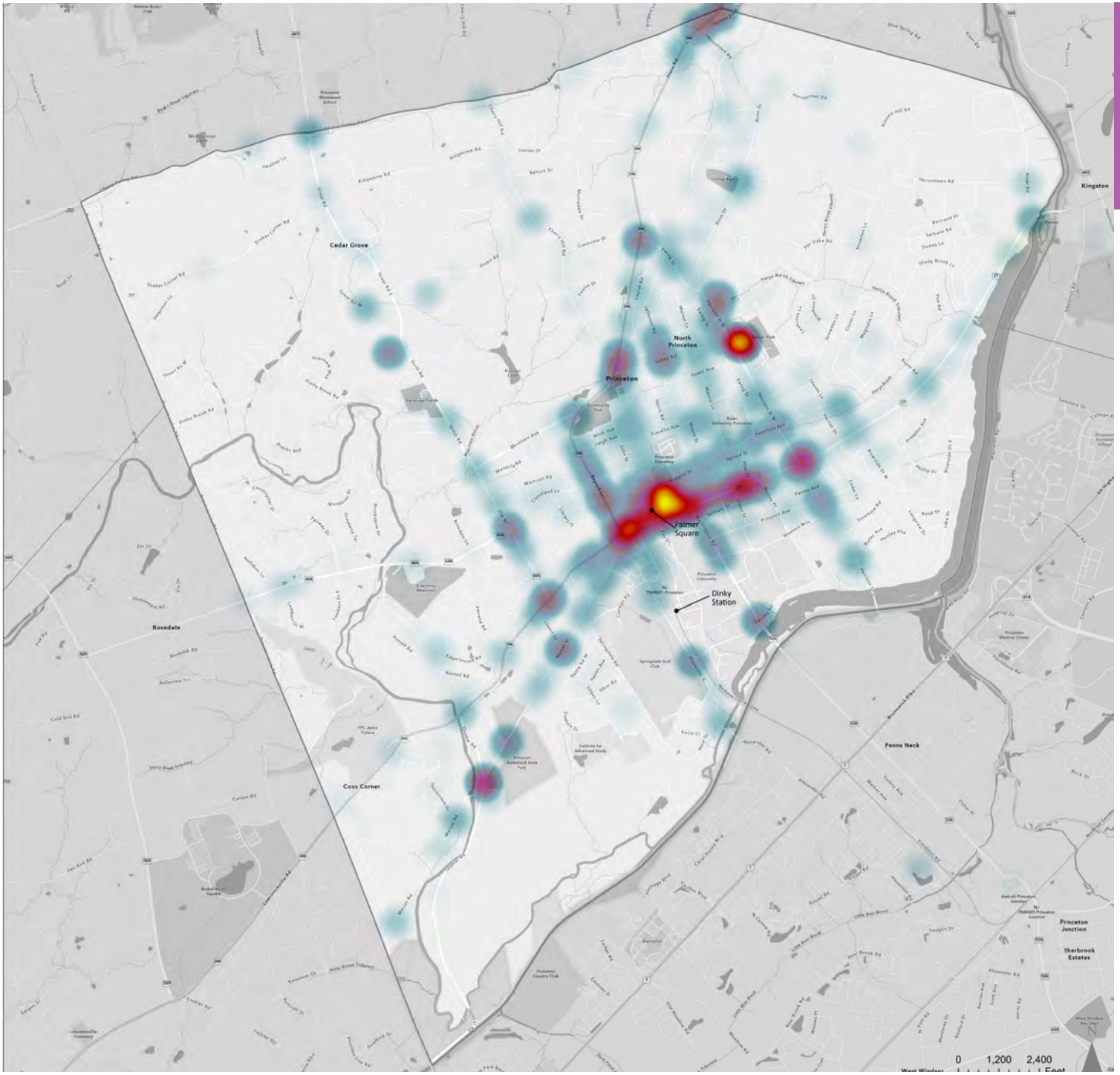
FOCUS INTERSECTIONS

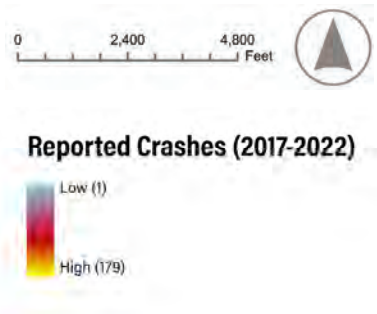
- Nassau Street / Bayard Lane / Mercer Street; (NJ Route 27 and US Route 206)
- Hamilton Avenue and N. Harrison Street
- Nassau Street (NJ Route 27) and Witherspoon Street;
- Hamilton Avenue and Moore Street
- State Road, Cherry Hill Road, and Mount Lucas Road;
- Canal crossings at Alexander Road, Washington Road (CR 571), and Harrison Street
- Faculty Road and Alexander Road
- Nassau Street and University Place

FOCUS CORRIDORS

- Nassau Street (NJ Route 27)
- Hamilton Avenue / Wiggins Street
- State Road / Bayard Lane / Stockton Street (US Route 206)
- Washington Road (CR 571)
- Witherspoon Street
- Mercer Street / Mercer Road

CRASH REPORT HEATMAP





Source: Princeton Police Department, GMTMA

ROADWAY CRASHES

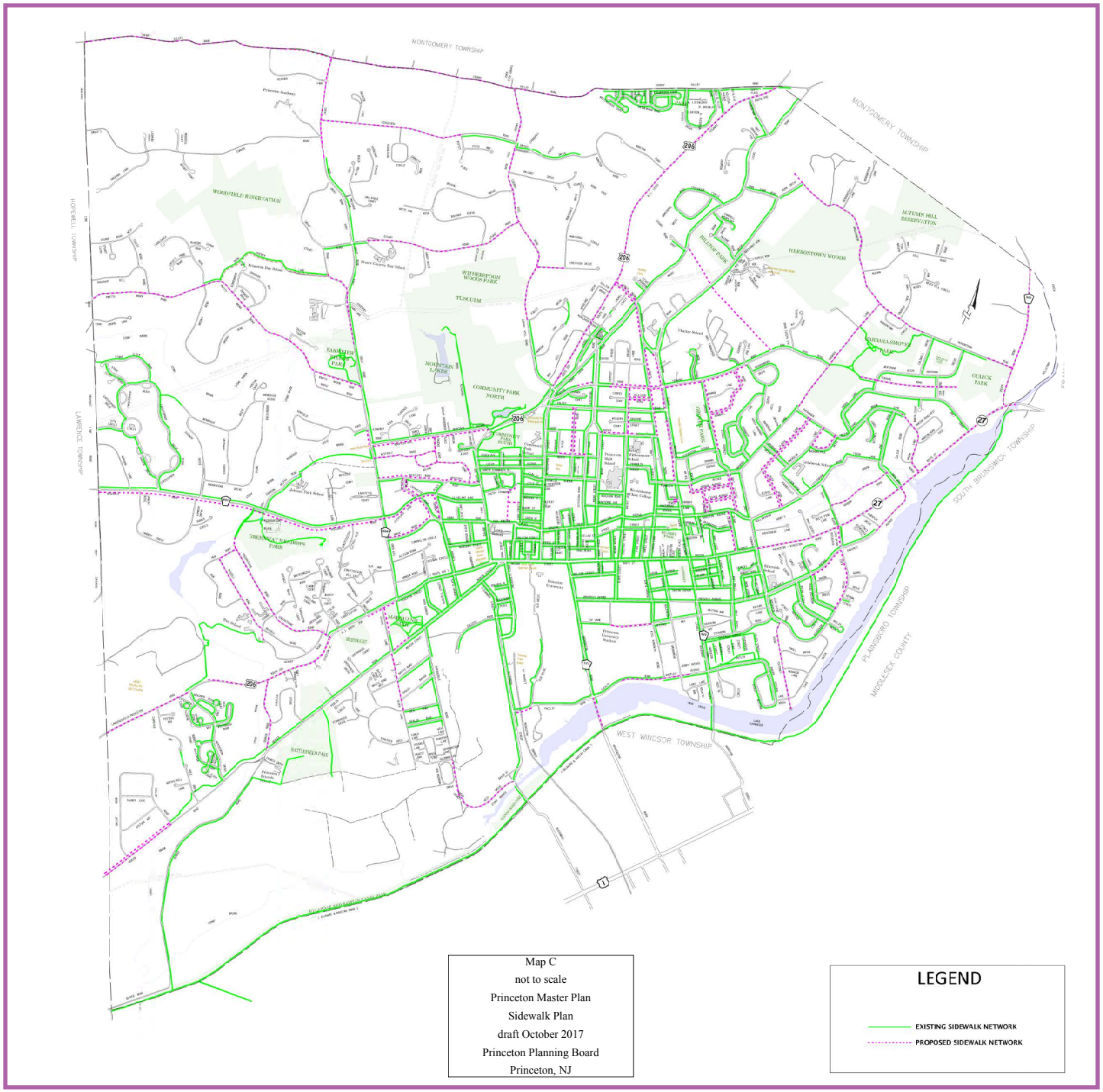
This map illustrates the distribution of reported crashes in the Municipality, mapped by intersection or street address, based on data from the Princeton Police Department and help plotting from the GMTMA. While the map provides a general idea of where recent crashes have been reported to law enforcement, further studies are necessary to determine the specific types of crashes and inform the type and location of appropriate safety improvements.

3.4 Pedestrian Mobility

Princeton has more than 80 miles of sidewalk. However, sidewalk connectivity varies significantly between denser central areas and more rural suburban areas. To address this disparity and strengthen pedestrian mobility throughout the Municipality, Princeton adopted a Sidewalk Plan (Map C) as part of the 2017 Circulation Plan Element that outlined a vision for a cohesive pedestrian network.

OFF-STREET PATHS

Addressing safety concerns from multiple perspectives helps to protect vulnerable users of the roadway while incentivizing more widespread adoption of non-motorized transportation. As noted during public engagement, insufficiencies in lighting and surveillance have led to public reluctance to use off-street paths after dark for both safety and wayfinding reasons, while residents also favor developing a more robust local and regional trail network.



3.5 Bicycle Mobility and Micro-Mobility

Princeton's existing bike network consists of approximately 24.5 miles of off-street paths and 10.8 miles of on-street shared lane markings, or sharrows. Public outreach has revealed a general perception of Princeton's bicycle network as fragmented and disconnected, affecting its safety and its utility as a viable mode of transportation. As reflected in prior plans, Princeton intends to develop its bicycle and pedestrian network to adhere to the so-called Five C's: Continuous, Connected, Convenient, Complete, and Comfortable.

BICYCLE NETWORK

Princeton commissioned a Bicycle Mobility Plan in 2017 and adopted the proposed network maps (Maps B1 and B2) and the Network Description of the proposed bicycle system (Appendix 11.5). Developing the community-wide bicycle network addressing the Five C's above and other principles of the Mobility Plan Element remains a high priority.

ELECTRIC BIKES

Advances in battery technology have led to increased usage of electric bikes, or e-bikes. E-bikes are faster than conventional human-powered bicycles, require less physical exertion, and increase the range of bicycle trips to the point that they are comparable to those of a motor vehicle. To achieve greater modal shift to bicycle use and reduce emissions and traffic congestion, Princeton will continue to support e-bikes as an alternative to car travel through the planning and design of its public infrastructure to protect e-bike users and the wider public.

3.6 Shared Mobility

Shared mobility options, such as car-shares, bike-shares, scooter-shares, and ride-shares, provide greater mobility choice and more efficient use of space. These shared transportation modes offer the potential to reduce traffic and demand for both on-street and off-street parking.

CAR-SHARE

Car-share services can help reduce the number of private vehicles contributing to demand for parking in the Municipality by providing a single vehicle shared among multiple drivers. Car-share vehicles free up space both in the roadway and on private property.

BIKE-SHARE

Bike-share services, particularly those that offer e-bikes and e-cargo bikes, can help reduce dependence on vehicles for short trips, thus helping to reduce greenhouse gas emissions and optimize urban space. The National League of Cities offers guidance for implementing a bike-share program, including education, strategic siting, provision of e-bikes, pricing strategies, and suggestions for funding.[4]

RIDE-SHARE

Ride-share services such as Uber and Lyft have become increasingly common alternatives to driving and continue to have potential to reduce traffic and parking demand in urban areas. Princeton can facilitate access to these services through curb management and encouraging the use of subsidies or memberships in the transportation demand management plans of major employers, large developments, and institutions.

4 *www.nlc.org/article/2022/06/03/bikeshare-solutions-for-small-cities-towns/*

3.7 Transit

Princeton has a variety of transit options offered by several public and private providers. The following maps show transit routes in Princeton.

There is widespread interest in expanded transit service with greater connectivity. Attendees at the November 2022 Open House expressed a desire for greater frequency of local transit service (including on weekends) and shorter journey times; better access to key destinations like schools, the downtown, Princeton Shopping Center, Princeton Station, Princeton Junction, medical facilities, northern Princeton, and parks; and better integration with other transit services. While many key destinations are already served by Princeton's transit offerings, low service frequency and a lack of readily available information may deter potential riders.

NJ TRANSIT PRINCETON BRANCH (THE DINKY)

NJ Transit operates a 2.7-mile electrified commuter rail line colloquially known as the Dinky, which runs between Princeton Station at the western edge of Princeton University to Princeton Junction Station in West Windsor Township. To address aging rail vehicles, declining ridership, and changes in land use and mobility demands, NJ Transit conducted a study in 2022 to explore potential alternative designs for the Dinky corridor.[5] Preliminary alternatives include replacement of the Dinky line with coexisting rights-of-way for a dual-purpose light rail line, bicycles and pedestrians, and a bus rapid transit system with potential expansion into other areas.

Continued assessment of alternatives to improve service on the Princeton Branch, including redesign of the Princeton Branch right-of-way for multi-modal service, is consistent with the goals of this Master Plan and has the support of the Municipality.

TIGER TRANSIT

Princeton University provides the Tiger Transit bus service, which offers a variety of routes and schedules that serve almost all the area south of Nassau Street, Princeton Station, Princeton Junction station, and destinations outside the Municipality across Route 1. All routes are free and open to the public, with some limitations related to trips originating from Princeton Junction. Service on routes to graduate housing facilities may be reduced during the summer when class is not in session. Connections to the Muni Bus, NJ Transit, and CoachUSA are available on Nasau Street. Although connections to other services may not be perfectly coordinated, most Tiger Transit routes operate every 15 minutes or better during peak hours, and on at least 30-minute frequency in off-peak periods.

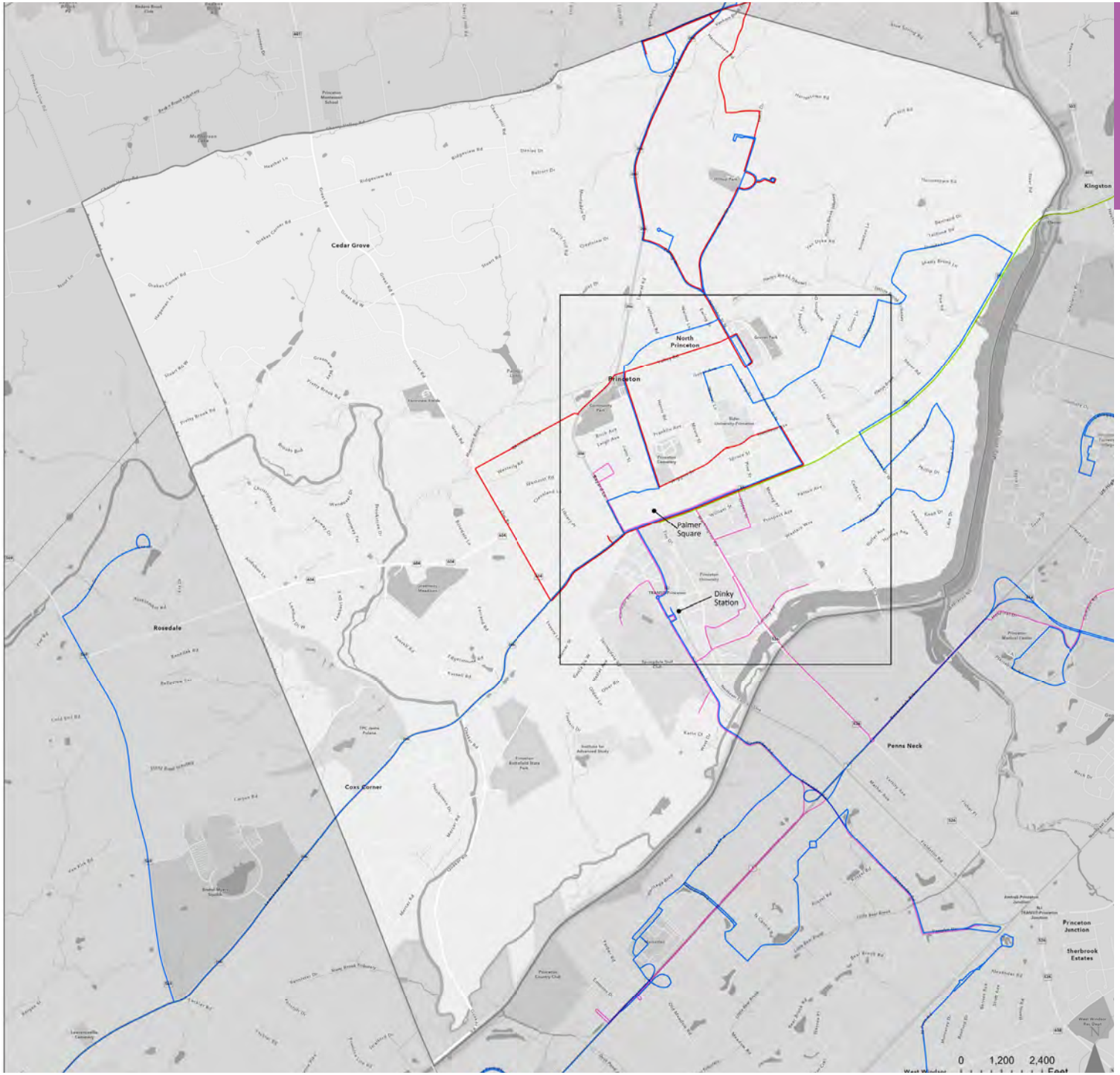
MUNI BUS

Prior to the 2020 COVID-19 pandemic, Princeton ran a free local mini-bus shuttle called the FreeB. The service was suspended during the pandemic and re-launched in 2021 as the Muni Bus.[6] Currently it serves a loop around the portion of the municipality north of Nassau Street, and a second loop beginning at the Princeton Shopping Center and continuing north to the municipal border. It connects with NJ Transit bus service at the

5 *www.njtransit.com/princetontransitway*

6 *www.princetonnj.gov/1212/Princeton-Municipal-Transit-Bus-Schedule*

EXISTING TRANSIT NETWORK



0 2,400 4,800 Feet

Bus Routes

- Princeton Muni Transit
- NJ Transit Bus Routes
- Coach USA / Suburban Transit
- Princeton University Tiger Transit

Sources: NJOGIS (NJ Transit), Municipality of Princeton (Muni Transit)

shopping center, and connections to other services can also be made along Nassau Street. In 2018, it logged 126 passenger trips per day.[7]

RIDEPROVIDE

RideProvide is a transportation service provided by the Greater Mercer Transportation Management Association (GMTMA). The program serves individuals aged 65 or older and adults who have vision impairments who are residents of Mercer County, Plainsboro Township and Montgomery Township. Eligible Princeton residents can schedule a ride with RideProvide through the Crosstown partnership program administered by Princeton Senior Resource Center (PSRC).[8]

CROSSTOWN

Crosstown is a door-to-door transportation service affiliated with RideProvide and managed by the PSRC. The service provides transportation access for residents 65 and older and adults with physical disabilities. Registered members can schedule a ride for any purpose, from any origin and to any destination in the Municipality, while priority is given to medical appointments at Penn Medicine Princeton Health and the Princeton Fitness and Wellness Center. The Municipality subsidizes ride fares and vouchers for eligible residents.[9]

NJ TRANSIT BUS

Two NJ Transit bus lines provide service in Princeton. Route 605 runs between Montgomery, Princeton and Quaker Bridge Mall, and Route 606 runs between Princeton, Mercerville and Hamilton.

NJ TRANSIT ACCESS LINK

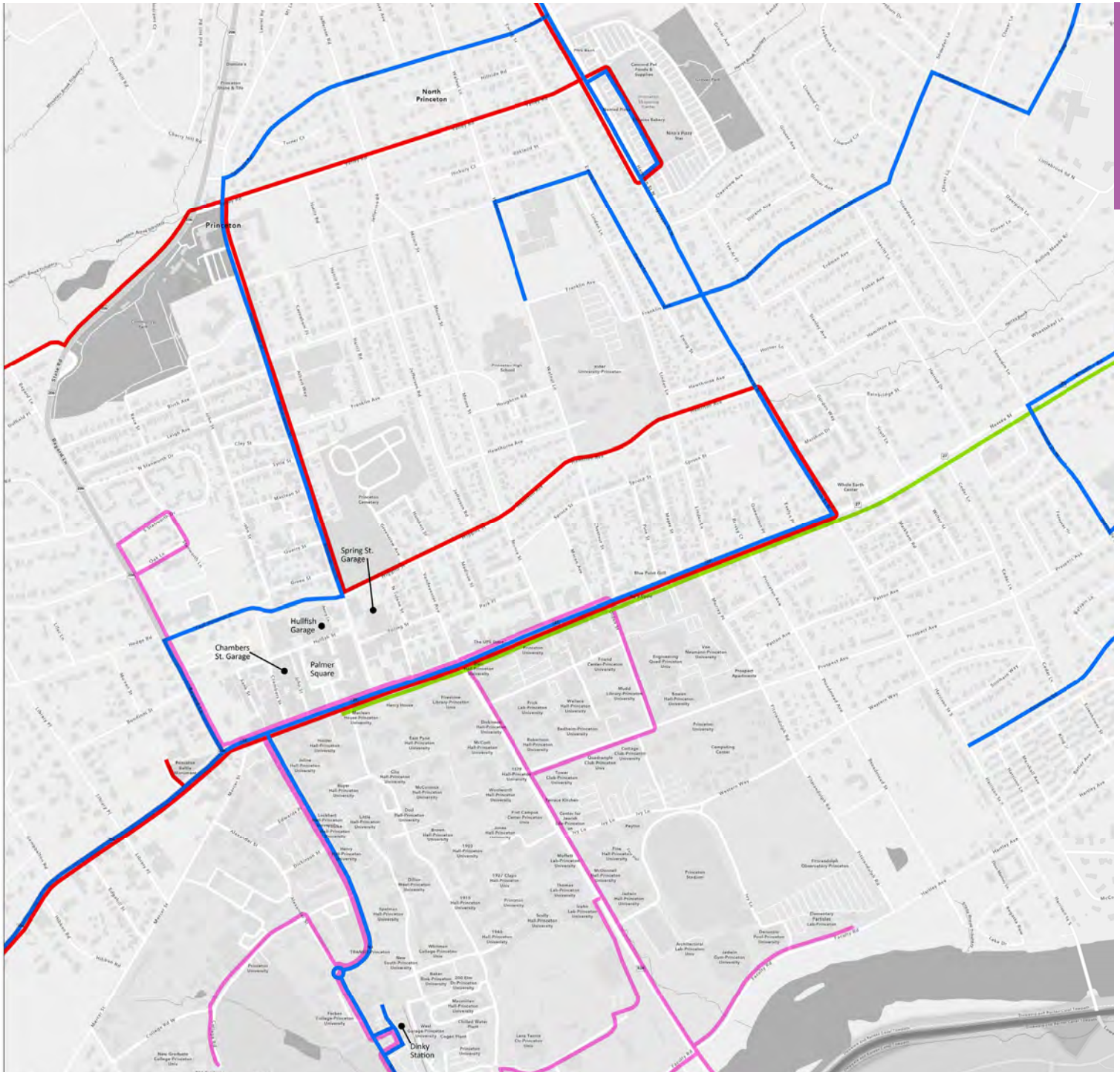
Access Link is a transportation service provided by NJ Transit to accommodate people with disabilities who are unable to use the local fixed bus route or light rail systems. Service is available between any origin and destination within a three-quarter-mile radius of an eligible bus route or light rail station and during operating bus schedule hours.[10]

PRIVATE BUS

CoachUSA Route 100 bus service runs locally along Route 27 between Princeton, New Brunswick, and East Brunswick before running express to and from New York City via the New Jersey Turnpike.

7 *www.sustainableprinceton.org/transportation/take-public-transportation*
8 *www.rideprovide.org*
9 *www.princetonsenior.org/crosstown-transportation*
10 *www.njtransit.com/accessibility/access-link-ada-paratransit*

EXISTING TRANSIT NETWORK - DOWNTOWN



0 2,400 4,800 Feet

Bus Routes

- Princeton Muni Transit
- NJ Transit Bus Routes
- Coach USA / Suburban Transit
- Princeton University Tiger Transit

Source: NJOGIS (NJ Transit), Municipality of Princeton (Muni Transit)

3.8 Commercial Traffic and Curb Management

Commercial truck traffic and local deliveries have significant effects on traffic, noise, parking, and safety in Princeton, and in many cases compete for limited curb space. The increase in deliveries of all kinds has made management of street and curb space a high priority.

TRUCK ROUTES

Two major thoroughfares run through Princeton – US Route 206, which runs from southern New Jersey to Sussex County; and NJ Route 27, which begins in Princeton and runs northeast to Elizabeth. Princeton has expressed concern about through traffic of heavy trucks on these routes.

NJ Route 27 is also Nassau Street, Princeton's downtown main street, and Princeton-Kingston Road. It has retail, educational, and office uses on both sides of the roadway from its origin at Bayard Lane north to Harrison Street, and there are residential uses farther to the east. This creates an obvious conflict between the road's two intended purposes – one as a through route connecting major destination centers, and the other as an active downtown core whose success is dependent on its pedestrian-scaled urban atmosphere.

DELIVERY MANAGEMENT

To minimize the disruption of large trucks making deliveries to the downtown, the Municipality has identified several loading zones on Nassau Street and other streets and has designated certain hours of the day when no parking is permitted in these zones. However, double-parking of trucks making downtown deliveries still presents an issue for traffic safety and flow along Nassau Street.

In addition, the COVID-19 pandemic has accelerated a "delivery culture," and resulted in a plethora of delivery vehicles traversing all neighborhoods in the Municipality. The result is congestion in the downtown and additional vehicle traffic and idling in residential neighborhoods. There are delivery lockers in the 7-Eleven on Nassau Street and at several locations along Route 1. However, many home deliveries are free, which removes any incentive for delivery recipients to pick up their merchandise from a locker.

3.9 Parking

Parking facilities take many forms in Princeton and require coordination, management, and enforcement to maintain a balance with other priorities of this Master Plan. Tensions between the priorities of residents, visitors and businesses continue to limit opportunities to optimize space within rights-of-way to serve functions beyond the storage of motor vehicles. Balancing these competing interests represents an ongoing challenge for the Municipality that will require a clear vision and prioritization of policies and investments to achieve them.

Parking reforms in Princeton can address the effects that parking supply has on land use and urban design, including but not limited to suburban sprawl, induced trips by car, greenhouse gas emissions, impervious coverage and stormwater runoff, urban heat island effect, and increased construction costs that are ultimately borne by customers and residents.

RESIDENTIAL SITE IMPROVEMENT STANDARDS

New Jersey adopted the Residential Site Improvement Standards (RSIS) in 1993 to standardize residential development throughout the State and mitigate the high costs and unpredictability of residential development. Among other standards, the RSIS establish minimum parking requirements of 1.5 to 3.0 parking spaces per dwelling unit.

In Princeton, 43% of households, three quarters of which are one- or two-person households, have either no vehicle or one vehicle. As with the mismatch between housing and household size discussed in the Demographics section of this Plan, the number of households with no or one vehicle suggests that Princeton's demographics do not completely comport with the assumptions behind the RSIS requirements to provide 1.5 or more parking spaces per unit. However, Princeton can seek special exception from these requirements through the State's process for creating Special Area Standards while still advancing the stated purposes of the RSIS.

EXISTING ELECTRIC VEHICLE CHARGING STATIONS

Table 3.2 lists existing public electric vehicle charging facilities in Princeton. As of 2023, the Municipality has 20 electric vehicle charging plugs at seven public or quasi-public locations. Although this plan identifies no specific locations for additional public electric vehicle charging stations, the private development of such facilities will continue through site plan review and redevelopment as necessary to comply with statutory requirements for off-street parking.

Table 3.2: Electric Vehicle Charging Facilities in Princeton

Site	Location	Charging Tier	Plug Type	Number of Plugs
Princeton First Aid and Rescue	2 Mt. Lucas Rd	Level 2	J1772	2
Princeton Municipal Complex	400 Witherspoon St	Level 2	J1772	8
Princeton Shopping Center	301 N Harrison St	Level 2	J1772	2
Spring Street Garage	24 Spring St	Level 2	J1772	2
Palmer Square / Chambers Street Garage	25 Chambers St	Level 2	J1772	2
Palmer Square / Hulfish Street Garage	47 Hulfish St	Level 2	J1772	2
Palmer Square / Hulfish Street Garage	500 Paul Robeson Pl	Level 2	J1772	2
			TOTAL	20

3.10 Mobility Recommendations

RECOMMENDATIONS - STREET NETWORK

1. **Continue to improve the street network in concert with the principles of hybrid NACTO street typologies, Complete and Green Streets, Vision Zero and Safe Routes,** such that all users have an intuitive understanding of which modes of transportation take priority on a given right-of-way.

2. **Adopt a Complete and Green Streets Checklist to guide capital improvement planning and street design.** A combined Complete and Green Streets Checklist can codify the principles of each policy into capital improvement procedures in a standardized format for evaluating and implementing transportation projects.

3. **Continue to implement Complete and Green Streets and other Mobility Plan goals** in capital projects involving rights-of-way under federal, state, and county jurisdiction.

4. **Designate low-traffic neighborhoods and build physical controls, such as speed cushions, diverters, bump-outs, and other traffic-calming measures, to limit, divert, and slow through-traffic.** Implement these measures fairly and equitably throughout Princeton's neighborhoods to maximize the benefits for all residents and road users.

5. **Coordinate all street repair and design projects with the Municipality's Stormwater Management Plan, Community Forestry Management Plan, Climate Action Plan, and other elements of the Master Plan,** and incorporate their recommendations for street trees, stormwater management, and climate resiliency wherever feasible.

6. **Identify and address flood-prone rights-of-way** pursuant to the climate change vulnerability assessment of the Land Use Plan Element and incorporate green stormwater infrastructure strategies as part of mitigation efforts where feasible.

RECOMMENDATIONS - PEDESTRIAN MOBILITY

7. **Amend the Municipal Code to require construction of sidewalks** as part of all new development where feasible.

8. **Implement the Sidewalk Plan maps and network,** allowing flexibility to reflect changing conditions, priorities, and completed improvements.

9. **Implement traffic calming infrastructure and other physical improvements that prioritize pedestrian convenience and safety.** Consider traffic-calming infrastructure during major roadway repairs and reconstruction, and, where feasible, pursue bump-outs, pinch-points, mid-block crossings, raised crosswalks, leading pedestrian intervals, and similar features with guidance from State and national resources.

10. **Expand the off-street trail network to incorporate connections between open space, the on-street sidewalk network, and the regional trail network,** including the Lawrence-Hopewell Trail and Delaware and Raritan Canal State Park Trail, to advance Princeton's vision for a contiguous network

of trails within existing and planned open space and a publicly accessible greenway network as recommended in the Conservation, Open Space, and Recreation Plan Element of this Master Plan.

11. **Implement the State's Americans with Disabilities transition plan, and support design that goes above and beyond ADA compliance where feasible,** during the development of design requirements, site plan design review, and capital improvement planning. Consider the lived experiences of people with disabilities, and include Universal Design principles – design that accommodates all users – in order to maximize safety, access, and convenience.

RECOMMENDATIONS - BICYCLE MOBILITY AND MICRO-MOBILITY

12. **Continue to develop the bicycle mobility network in concert with the principles of hybrid NACTO street typologies, Complete and Green Streets, Vision Zero and Safe Routes.** Where roads are not suitable for bicycle facilities due to high levels of traffic stress (LTS) or exceptional spatial limitations, improve and implement traffic-calming measures, alternative routes, and off-road multi-use paths, including the expanding regional trail and greenway network noted in the Conservation, Open Space and Recreation Plan Element.

13. **Update the 2017 Bicycle Mobility Plan maps and network to reflect changing conditions, priorities, and completed improvements.** The 2017 Bicycle Network Description is appended to this Plan as Appendix 11.5.

14. **Provide adequate public bicycle parking and storage in key locations,** including downtown, public facilities, bus stops, parks, and near the Dinky station. Ensure that bicycle parking and storage facilities are secure, visible, conveniently accessible, and sheltered from weather where feasible. Refer to the recommendations of the Bicycle Mobility Plan, guidelines published by the Association of Pedestrian and Bicycle Professionals (APBP), the New Jersey Bike & Walk Coalition (NJBWC), NACTO, and other leading resource centers for guidance.

15. **Require private bicycle parking and storage for multi-family, mixed-use, commercial, educational, subdivision and redevelopment projects.** Consider allowing provision of bicycle storage facilities in lieu of some or all of the off-street parking required for site plan approval.

16. **Incentivize the voluntary private installation of bike storage facilities and improvement of inadequate facilities.** Encourage provision of bike storage as an accessory structure that provides better options for bicyclists by connecting property owners to guidance, funding sources, and partnerships with local nonprofits and associations, anchor institutions, and major employers.

17. **Provide for safe operation and storage of e-bikes, e-scooters, e-boards, and other micro-mobility devices.** Mitigate conflicts between micro-mobility users, pedestrians, and drivers through traffic-calming features and other self-enforcing traffic infrastructure, and through clearly understandable regulation of uses of the street.

18. **Establish a bike bus program in collaboration with the Board of Education and other stakeholders and regulators,** to provide a social and physical alternative for school-age students and staff and reduce vehicle traffic associated with school busing and parent drop-off. Bike buses are an organized group of bicyclists with a common route, schedule, or destination. They can promote community development, social/physical development in children, and a more vibrant streetscape.

RECOMMENDATIONS - SHARED MOBILITY

19. **Partner with major institutions to provide or expand access to car-share, bike-share, and ride-share facilities and memberships for the public.** Princeton University has established a partnership with car-share provider ZipCar to offer two cars at Princeton Station and one car at Princeton Junction Station, and all three cars are available to anyone with a ZipCar membership, with no university affiliation required. Work with the university on potential use of on-demand transit services such as Via or Circuit Shuttle to complement Muni Bus and Tiger Transit service.

20. **Identify locations within and around the downtown and heavily trafficked areas where on-street parking can be converted to ride-share pick-up and drop-off locations** in order to minimize double-parking and traffic congestion.

21. **Amend the Municipality's parking requirements to incentivize or require temporary pick-up and drop-off spaces** in lieu of some off-street parking in major private developments.

RECOMMENDATIONS - SAFETY

22. **Prepare a Vision Zero Action Plan** to inform this and all other elements of the Master Plan. Integrate education, enforcement, planning, engineering, and investment to establish policies, standards and a timeline for implementation.

23. **Collect and review crash records, survey data, and safety audits in order to evaluate roadway safety among all users.** Conduct a safety audit as part of the Vision Zero Action Plan development process that will provide information to help prioritize route segments and intersections with the highest incidence or risk of crashes for appropriate safety improvements.

24. **Improve lighting and visibility for all pedestrian and bicycle routes to the greatest degree feasible.** Incorporate guidance from the 2017 Bicycle Mobility Plan, and minimize environmental impact through design and technology solutions that limit light pollution and energy use.

25. **Improve visibility at intersections where it is impaired by encroachment of vehicles and other obstructions.** A typology of solutions may be developed using other plans and studies in the Municipality. Include design interventions and physical improvements such as flex posts, bike racks, parklets, green stormwater infrastructure, roadway paint and striping, curb extensions and bump-outs, and other features that maximize usage of the right-of-way, prevent vehicle encroachment, and minimize visual clutter from signs and other street furnishings.

26. **Continue deploying pilot projects as a means to pre-test the implementation of roadway infrastructure.** Princeton will continue to deploy temporary and reversible design interventions such as "pop-up" bike lanes, on-street parklets, moveable barriers, posts, and cones, paint, striping, and signage where necessary prior to committing to studies or permanent construction.

27. **Incorporate traffic-calming design during standard roadway improvements and scheduled repairs to the greatest extent feasible,** informed by the recommended Complete and Green Streets Checklist, Vision Zero Action Plan, and other studies and advisory committees.

28. **Implement Safe Routes principles and pursue funding opportunities to prioritize safety and access to schools, parks, transit, and other key public facilities.** Princeton's existing bike boulevard loop connects its schools and neighborhoods. The Municipality will continue to implement studies and guidance from leading agencies and resource centers to enhance these routes for greater safety, equity, traffic management, parking management, and sustainability.

RECOMMENDATIONS - TRANSIT

29. **Increase local transit frequency and connectivity, and provide real-time information,** in order to encourage greater utilization of transit services and reduce automobile traffic and associated parking demand in the downtown. Expand and optimize Muni Bus service to maximize ridership by identifying community needs through survey or observation and addressing management strategies, timepoints, routes, and prioritization of service to areas with anticipated increases in residential density and pedestrian activity.

30. **Encourage NJ Transit to take steps to maintain and improve the existing Dinky service while also working with NJ Transit to explore proposals for the Dinky service, and work with community partners** to maximize coordination between Princeton's transit services and proposed improvements to the Princeton Branch.

31. **Coordinate with Princeton University on transit service,** including streamlining schedules, minimizing overlap, and maximizing service area coverage between the Muni Bus and Tiger Transit services.

32. **Market the Muni Bus to ensure awareness of the service by all residents and to maximize ridership.** The 2023 public outreach survey indicated that more than 97% of respondents do not use the Muni Bus regularly, and 90% of respondents had not ridden the Muni Bus at all since its post-pandemic re-launch.

33. **Evaluate the need for a "first mile/last mile" service from various transit stops** as a way to reduce the volume of car parking required and maximize transit ridership between key destinations and existing transit stops such as the Dinky station and Princeton Shopping Center.

34. **Provide sufficient public bike storage to facilitate convenient linkages between the bicycle network and transit network.** Safe, convenient, and reliable bike storage and connections will

promote better cohesion across non-motor vehicle mobility networks and incentivize reductions in vehicle miles travelled.

35. **Equip municipal bus stops with seating, shelter, and bike parking** to improve the comfort and convenience of transit ridership. Partner with Princeton University and NJ Transit to equip non-municipal stops.

RECOMMENDATIONS - COMMERCIAL TRAFFIC AND CURB MANAGEMENT

36. **Investigate imposition of truck weight limits on various thoroughfares to limit through-traffic of trucks in the Municipality,** without driving traffic to neighborhood streets. Heavy-truck through traffic conflicts with the primary uses of Princeton's downtown main street as a pedestrian-scale central business district. To limit large truck traffic, work with the leadership of neighboring towns and State legislators to remove these routes from the NJ Access Network and restrict truck access to local access only.

37. **Designate and enforce the use of truck access routes and add traffic-calming measures to streets where truck traffic and through traffic are not preferred.** Consider potential impacts and the distribution of those impacts on surrounding streets and neighborhoods.

38. **Allocate curb space during specified hours for pick-ups and deliveries and on-demand food deliveries.** Adjust on-street parking and other existing uses of the street to designate specific locations and hours within which delivery vans and food delivery vehicles can stop for short periods of time without blocking traffic.

39. **Work with businesses on curb and delivery management within the downtown,** including allocating additional loading zones to accommodate both deliveries and trash collection, and restricting or incentivizing deliveries during specific hours.

40. **Integrate cargo bikes into local delivery management.** Explore the feasibility of a delivery hub for trucks from which cargo bikes and small vehicles may make local deliveries.

RECOMMENDATIONS - PARKING

41. **Prepare a Parking Management Plan.** Princeton commissioned a parking study in 2017 to understand the dynamics of parking supply, demand, and pricing in the Municipality's downtown and to examine potential strategies for alleviating perceived parking challenges. A more current, post-COVID study is recommended to reflect changing conditions and address the challenges of implementing the prior study.

42. **Expand municipal parking data collection to improve evaluation of parking facilities and pricing, and to identify opportunities for improvement.** The Municipality collects utilization data of on-street parking meters and the municipally owned Spring Street parking garage, but does not have any data-sharing arrangements with other parking facility owners.

43. **Amend the zoning code to incentivize shared-parking facilities for public and private users where feasible,** and explore a program that

provides benefits to owners of private parking facilities near the downtown in return for contributions to the public parking supply. Shared use of a single parking facility based on specified hours or circumstances can take advantage of differently timed peak demand periods to increase overall parking supply.

44. **Work with Princeton University to identify additional opportunities for shared parking at university parking facilities.** Princeton University facilities are available for use among staff, faculty, and graduate students by paid permit, while the university garages and some surface parking lots are free to the public after 4pm. The Municipality will continue to work with the university to maximize the use of its parking facilities.

45. **Expand public-private parking agreements to optimize usage of existing parking facilities.** The Municipality's website notes that many employers already offer parking for their employees through arrangements with privately owned garages, and the Municipality currently offers paid-permit parking for downtown employees at the Westminster Choir College/Rider University campus on Walnut Avenue.

46. **Amend the zoning code to reduce or remove minimum parking requirements and establish maximum parking requirements where feasible.** Parking requirements often incentivize driving, increase impervious surface and development costs, and preclude more productive, more walkable uses of land and urban space. Reduced parking requirements for residential development will require pursuing approval from the State to create Special Area Standards that are exempt from Residential Site Improvement Standards (RSIS).

47. **Explore the feasibility of a payment-in-lieu of parking (PILOP) policy.** A PILOP policy can establish a framework to permit financial contributions to a central parking fund in lieu of construction of new on-site parking spaces.

48. **Require transportation demand management (TDM) plans of major employers and institutions** with a specified threshold number of employees. Incorporate TDM plan requirements into traffic studies where required and seek assistance from Greater Mercer Transportation Management Association. Princeton University currently offers programs and incentives to encourage travel to campus by other means than a single-occupancy vehicle.

49. **Develop a comprehensive residential permit parking program** that manages parking demand while addressing the concerns of the community and recognizing all users of the street. Princeton established a Permit Parking Task Force in 2019 to explore solutions to its parking supply and management challenges.

50. **Prioritize the siting of electric vehicle charging stations at critical facilities, key destinations, and within areas less prone to natural hazards.** Integrate electric vehicle charging stations at municipal sites, such as public parking lots and public schools, where practical and feasible.

51. **Work with property owners and managers of multi-family development projects, major**

institutions, and employment centers to retrofit existing parking facilities with electric vehicle charging equipment. Develop design standards and ways to incentivize and streamline the approval of voluntary development of publicly available electric vehicle spaces where site plan review is not required.

52. **Continue to retrofit public parking facilities with EV charging infrastructure and incentivize provision of publicly available EV spaces in private garages** to accommodate visitors to the downtown and residents of properties lacking off-street parking. Locate EV charging facilities in off-street locations that improve the feasibility of EV trips within and into Princeton without compromising opportunities to improve rights-of-way for non-automotive users. Develop specific policies and schedules to manage EV demand and provide a diversity of charging level types, proprietary plug standards, and other factors, which should be addressed through development of a more detailed EV Readiness Plan.

RECOMMENDATIONS - WAYFINDING

53. **Improve wayfinding throughout the Municipality and especially the downtown** through clearer signage and informative resources, as recommended in other Elements of this Master Plan.

4.0

UTILITY
& MUNICIPAL STORMWATER MANAGEMENT PLAN

Introduction

The purpose of this Utility Plan Element is to ensure that Princeton's utility infrastructure is sufficient to serve the present and future needs of the Municipality, while protecting the environment and the community's way of life. To fulfill this purpose, this element addresses five major topic areas: water supply, wastewater, waste management, energy, and cellular and broadband service.

This Utility Plan Element also includes Princeton's Municipal Stormwater Management Plan as required by the Municipal Land Use Law and New Jersey Department of Environmental Protection (NJDEP) Stormwater Management Rules.

4.1 Water Supply

All of Princeton is within the franchise area of New Jersey American Water (NJAW) or served by private wells. In addition to distributing treated water from the Raritan River, NJAW has storage tanks throughout Princeton and neighboring municipalities that it uses to smooth water pressure throughout its system. While Princeton has not identified any issues or supply constraints that would limit future growth, it is the Municipality's intent to minimize the use of potable water for outdoor uses to the greatest extent feasible.

4.2 Wastewater

The Municipality owns the public sewer collection system, comprising 150 miles of sewer lines and nine pump stations. The Princeton Sewer Department maintains the system and oversees a six-year capital improvement program focused on the repair of sewer lines, replacement of trunk lines, repair and upgrade of pump stations,[1] replacement of vehicles and equipment, and an ongoing program to reduce inflow and infiltration. The Sewer Department is currently evaluating the system's trunk lines to determine necessary improvements to reduce inflow and infiltration.

SEWER SERVICE AREA

Most of the Municipality's developed areas have access to sewer service as shown in the following map. Some residences within the sewer service area are not connected to the system, although they are entitled to connect at their own expense. Portions of the Municipality that are outside the sewer service area consist primarily of preserved open space and environmentally sensitive lands where development is discouraged or prohibited.

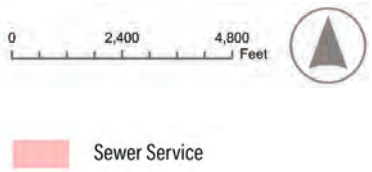
SEWAGE TREATMENT

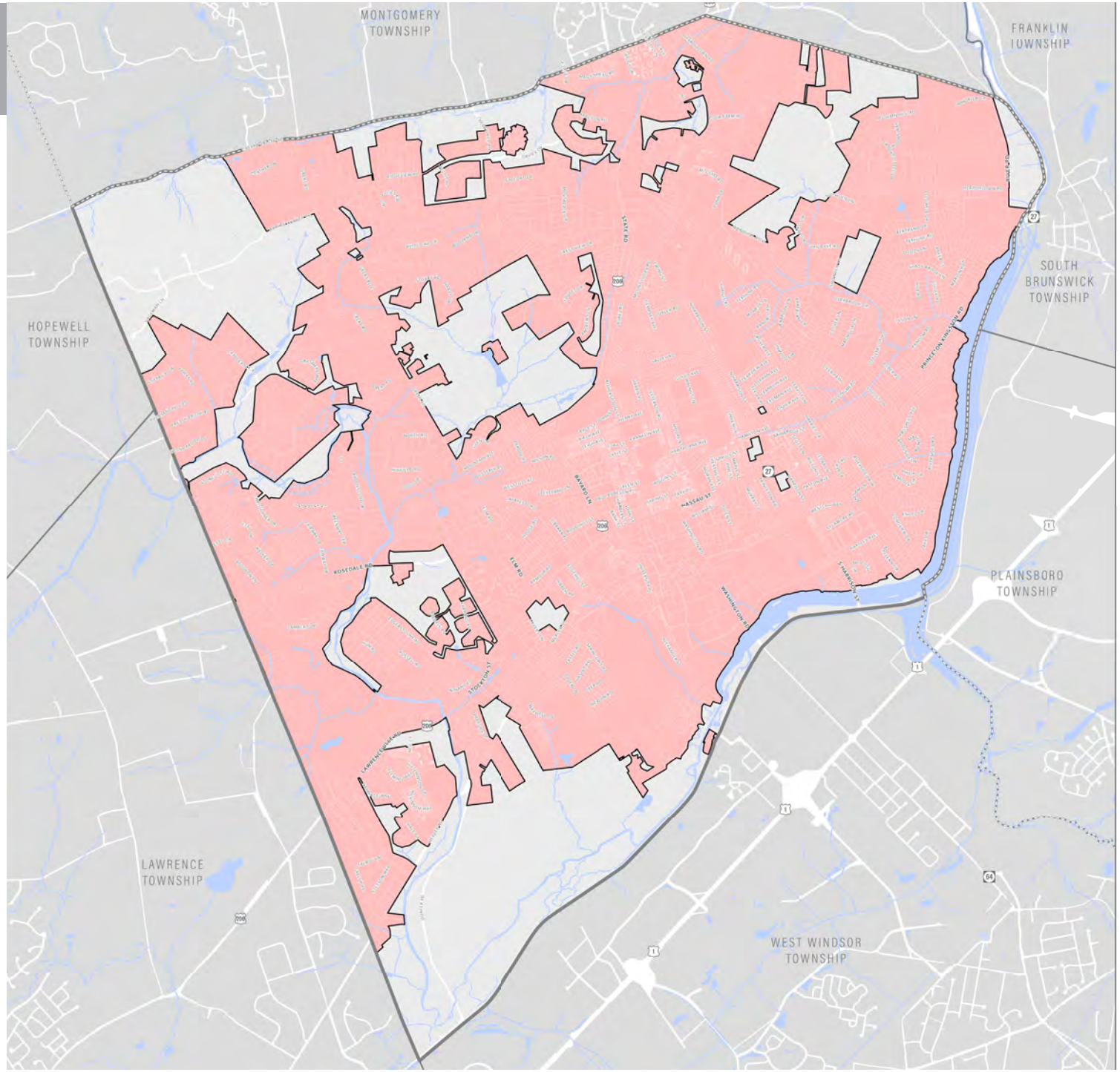
Princeton generates approximately 3.45 million gallons of sewage per day (MGD) to be treated at the River Road plant, which is owned and operated by the Stony Brook Regional Sewerage Authority (SBRSA). In addition to Princeton, the treatment facility also serves the Townships of South Brunswick and West Windsor. The facility has a rated capacity of 13.06 MGD, but the Authority is exploring the potential to expand capacity to 20 MGD.

The SBRSA approves sewer service to new development on a first-come, first-served basis. The capacity of the system will need to accommodate increased development associated with background growth, affordable housing development, zoning amendments, redevelopment, and implementation of Princeton University's campus plan.

1 *The Municipality has approved upgrades at eight of the nine pump stations.*

SEWER SERVICE AREA





This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

4.3 Waste Management

In February 2023, Princeton adopted a new Solid Waste and Recycling Ordinance that required the provision of a 64-gallon wheeled trash cart to residential buildings containing four or fewer units, and an agreement with a municipal contractor to pick up solid waste from these residences. Commercial buildings and multi-family developments containing more than four units must contract for their own solid waste collection.

RECYCLING

The Mercer County Improvement Authority (MCIA) collects curbside recycling from households and small businesses. In addition, the Municipality occasionally sponsors recycling events for electronics, hazardous materials, and documents. Princeton does not currently offer collection of organic/food waste but plans to start a pilot drop-off program in late 2023.

YARD WASTE

Princeton provides curbside collection of leaves, branches and logs in the spring and fall of each year. The Municipality is considering a requirement to bag leaves to reduce contamination and adverse impacts on the storm sewer system and interference with street function and safety.

While there is an existing joint facility for yard waste recycling in Lawrence Township, exploration of other options may be necessary due to potential limitations caused by new NJDEP stormwater regulations for food waste facilities. To handle food and yard waste locally, the Municipality is promoting on-site management strategies such as composting.

4.4 Energy

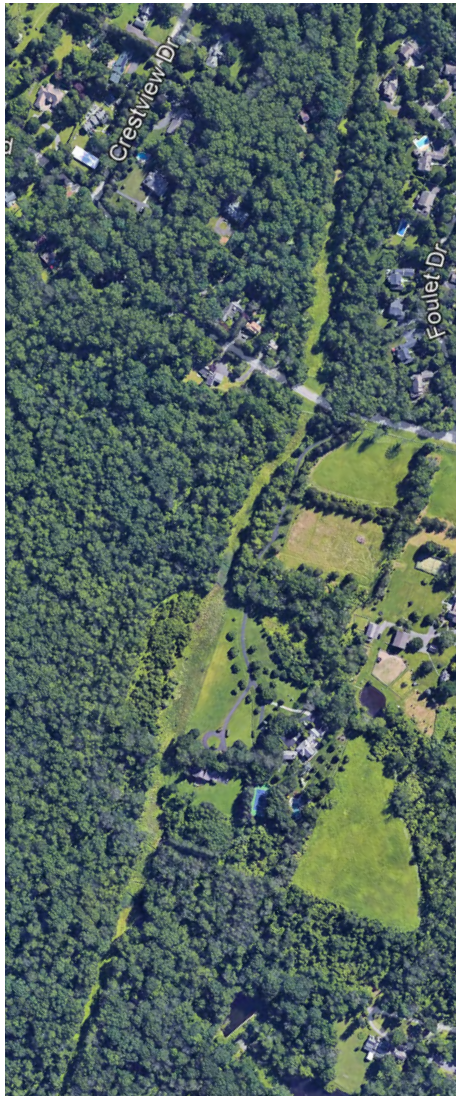
ELECTRICITY

Princeton is within the franchise service area of Public Service Enterprise Group (PSEG), which provides power to the Municipality. Since 2014, the utility has been implementing its Energy Strong initiative to upgrade its system with stronger utility poles and wires and better equipped substations that are more resilient to severe storms.

Although Princeton has limited control over the regional utility's electrical grid, the Municipality can plan for greater on-site power generation, energy efficiency, and resiliency through its land use and infrastructure policies. Princeton continues to prioritize reduced fossil fuel dependency, reduced carbon emissions, and improved resiliency through the use, expansion, maintenance, and management of its electrical grid.

NATURAL GAS

Princeton is within the franchise service area of PSEG for natural gas. While there is a national shift away from the use of natural gas due to public health and climate concerns, natural gas is a redundant energy alternative to electricity that remains useful at least until the electrical grid has been expanded and strengthened. Gas infrastructure in the Municipality is currently being upgraded to continue its use as a redundant energy source. However, the Municipality's long-term vision is to move to 100% renewable, zero-carbon energy consumption.



SOLAR

Princeton permits solar installations as accessory uses but lacks a comprehensive solar ordinance with contextual design standards. This Utility Plan Element reflects the goals and strategies of the Green Building and Environmental Sustainability Plan Element, which encourages the installation of solar panels on as many municipal buildings as possible and encourages additional solar development on private structures and lands through solar-friendly zoning and permitting.

WIND

Princeton does not currently permit the development of windmills or wind turbines. Although the MLUL requires municipalities to permit renewable energy facilities on 20 acres of contiguous land within every industrial district, no such properties exist in the Municipality. This Master Plan does not recommend that the Municipality add wind facilities as a permitted use.

GEOTHERMAL AND GEO-EXCHANGE

Geo-exchange is central to Princeton University's utility system and provides hot water and cooling water systems on campus to reduce carbon emissions and achieve sustainability goals. As reflected in the Green Building and Environmental Sustainability Plan Element, the Municipality supports the use of geothermal and geo-exchange systems in public and private buildings.

4.5 Broadband and Cellular Service

Much has changed since 1996, when the Utility Service Element recommended installation of fiber optic service and appropriate visual screening of satellite dishes. Fiber optic service is now widely available, and with the advent of high-speed broadband, satellite dishes are becoming increasingly outdated. In addition, the recommendation in the 1996 plan to make access to broadband available publicly in such locations as schools, the library, and the municipal building, has been implemented.

More recently, broadband and cellular services have become essential utilities for residents, businesses, schools, and institutions, particularly since the COVID-19 pandemic accelerated the transition of employment, commercial transactions, and educational curricula to online communication. Likewise, cellular service has become essential for public safety, transportation, and other functions.

Princeton's internet service providers (ISPs) include Verizon, Verizon FiOS, and Xfinity, depending on the area. The Engineering Department is currently working with the Municipality's cellular service providers to identify and address intermittent cell service coverage in certain areas.

4.6 Utility Recommendations

RECOMMENDATIONS - WATER SUPPLY

1. **Facilitate and incentivize greywater capture systems in new construction and the retrofit of systems in existing buildings** to recover clean wastewater from baths, showers, sinks, and appliances, in order to reduce the use of potable water for outdoor uses such as car washing or irrigation.[2]

2. **Facilitate and incentivize the capture and reuse of rainwater for outdoor uses** to reduce the use of potable water for outdoor uses while simultaneously managing stormwater before it enters the storm sewer system.

RECOMMENDATIONS - WASTEWATER

3. **Continue capital investments to reduce inflow and infiltration (I&I)** throughout the system and improve system capacity.

4. **Evaluate the feasibility of an anaerobic digestion and biogas recovery system** at the Stony Brook Regional Sewerage Authority treatment facility on River Road. Potential upgrades would permit recycling of treatment waste sludge byproduct and provide on-site power generation and/or heating capabilities.

WASTE MANAGEMENT

5. **Work with Experience Princeton and other partners to streamline waste management for businesses in the downtown** through solutions such as shared commercial waste receptacles, recycling programs, and storage areas.

6. **Implement waste reduction and litter control programs in public spaces,** particularly in activity centers such as parks, recreation areas, and the downtown.

7. **Implement a food waste recycling/upcycling program.** Food waste is a significant contributor to landfill volume and has uncaptured value. Food waste upcycling refers to the process of repurposing or transforming food waste into valuable products or resources including compost, fertilizer, animal feed, and fuel.

8. **Manage and regulate household and yard waste at the point of creation** to reduce the potential for negative impacts to public thoroughfares, stormwater infrastructure and surface water quality.

9. **Collect relevant data to inform monitoring and benchmarking** of public and private waste streams in order to devise appropriate strategies to reduce waste generation.

2 *greenmanual.rutgers.edu/nr-on-site-alternative-water-resuse/*

RECOMMENDATIONS - ENERGY

10. **Work with PSEG to expand electric service supply and transmission capacity.** Princeton's infrastructure will need to support expected increases in demand for electrification of buildings and electric vehicle charging infrastructure, as well as capacity for solar installations and other types of power generation or storage that may be able to "give back" excess capacity into the grid.

11. **Strengthen the electrical grid for greater resiliency** by working with PSEG and property owners to locate or relocate power lines underground where feasible and to implement on-site power generation where feasible in both new and existing development.

12. **Implement distributed energy resources (DER)** to serve community facilities and facilitate the development of DER in new large-scale development projects. These resources provide small-scale, highly efficient power generation, primarily from renewable energy sources and storage technologies such as combined heat and power, microgrids, vehicle-to-grid, demand response, and district ground-source heat pumps.

13. **Facilitate ratepayer participation in the New Jersey Community Solar Program** with a focus on low- and moderate-income households. The New Jersey Board of Public Utilities (BPU) launched a Community Solar Pilot Program in 2019 with planned permanence in 2023. The program enables energy ratepayers who cannot install their own solar facilities to subscribe to receive their energy "virtually" from approved community solar projects anywhere in the electric utility's service area and receive a credit on their energy bill.[3] PSEG has several community solar pilot projects in place throughout the State from which subscribers can choose,[4] and the BPU and Sustainable Jersey have launched a New Jersey Community Solar Project Finder to assist interested parties in locating and subscribing to an eligible project.[5] Sustainable Jersey offers additional guidance.[6]

14. **Amend zoning standards to permit solar panel installations in all zoning districts** with appropriate standards in place to advance other goals of the Master Plan, including historic preservation.

15. **Streamline the permitting, review and inspection processes for on-site renewable energy installations** in order to minimize barriers, reduce costs, and incentivize the development of on-site and renewable energy systems.

16. **Install renewable energy generation equipment and on-site energy storage at public facilities** where feasible to improve energy efficiency and resiliency.

17. **Encourage or require the monitoring and benchmarking of energy performance** among large-scale development projects and public systems to inform additional energy reduction strategies.

3 *njcleanenergy.com/renewable-energy/programs/community-solar*
4 *nj.pseg.com/saveenergyandmoney/solarandrenewableenergy/community_solar*
5 *New Jersey Community Solar Project Finder*
6 *Sustainable Jersey. Community Solar: Sustainable Jersey How-to Guide*

18. **Electrify public vehicles and public transportation systems and ensure that municipal vehicles are adequately supported** through EV charging stations in locations that are compatible with everyday municipal operations.

RECOMMENDATIONS - BROADBAND AND CELLULAR

19. **Require developers to offer cellular antenna siting** on all new buildings of appropriate height.

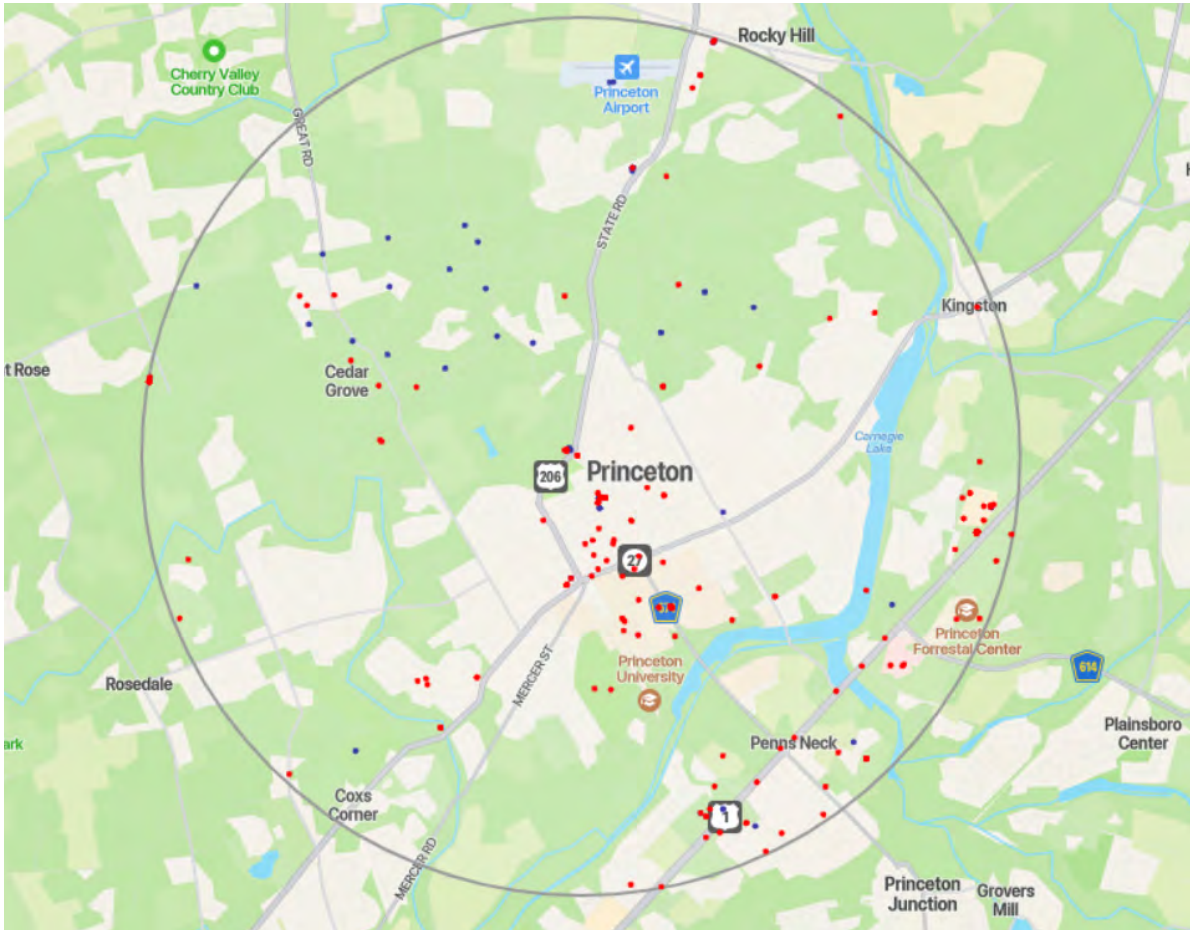
20. **Incentivize the installation of additional cellular antennas** on existing structures.

21. **Continue to expand access to free broadband** at all municipal facilities and public spaces.

22. **Facilitate private installation of broadband** to provide access within quasi-public spaces and private development projects.

23. **Develop a plan for the location of cellular infrastructure to fill existing service gaps,** and for the provision of robust broadband and municipal Wi-Fi to support future population and economic growth.

24. **Explore implementation of small-scale wireless infrastructure** and development of appropriate design standards to boost local wireless access in creative and discreet ways. Small-scale wireless infrastructure, including Smartpoles and Distributed Antenna Systems (DAS), can be incorporated into public spaces and developments to expand the wireless network with fewer communication towers.



Cell towers within 3 mile radius of Princeton *Source: https://www.antennasearch.com/*

4.7 Municipal Stormwater Management Plan

This section of the Utility Plan Element comprises the Municipal Stormwater Management Plan ("stormwater management plan") pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-93). Although these are technically two separate municipal documents, the MLUL was amended to require the inclusion of a stormwater management plan as a component of the utility services plan element of a master plan. A Stormwater Management Plan is also a requirement of the Municipal Stormwater Regulation Program (N.J.A.C. 7:14A-25) and this Stormwater Management Plan contains all the required elements described in the New Jersey Stormwater Management Rules (N.J.A.C. 7:8).

This Stormwater Management Plan establishes strategies for the Municipality of Princeton to address stormwater-related impacts of development and redevelopment. Effective stormwater management policies are critical to controlling the quantity and quality of surface water runoff associated with precipitation and flooding. The recommendations and standards in this Plan are intended to achieve this purpose by managing stormwater where it falls and making the built environment more absorbent.

A build-out analysis has been included in this Plan based on existing zoning and land available for development. This Plan also addresses the review and update of existing ordinances, the Princeton Master Plan, and other planning documents to allow for project designs that include low-impact development techniques. The final component of this Plan is a mitigation strategy for when a variance or exemption from the design and performance standards is sought. As part of the mitigation section of the Stormwater Management Plan, specific stormwater management measures are identified to lessen the impact of existing development.

REGULATORY BACKGROUND

NEW JERSEY MUNICIPAL STORMWATER REGULATION PROGRAM

The Municipal Stormwater Regulation Program (N.J.A.C. 7:14A-25) establishes the New Jersey Pollutant Discharge Elimination System (NJPDES) administered by the NJDEP. The NJPDES permit system authorizes the discharge of stormwater from each municipal separate storm sewer system (MS4) throughout the State and establishes the Statewide Basic Requirements (SBRs) necessary to reduce nonpoint source pollution associated with stormwater runoff. As a holder of a Tier A MS4 Master General Permit, Princeton must meet the applicable program requirements, including adoption of a stormwater management plan.

NJDEP STORMWATER MANAGEMENT RULES

The NJDEP amends and administers the New Jersey Stormwater Management Rules (N.J.A.C. 7:8) establishing general requirements for stormwater management plans and stormwater control ordinances (SCOs). In March 2020, NJDEP revised the Stormwater Management Rules for the first time since 2004. Among several stricter standards, the revised rules replace the requirement that major developments incorporate nonstructural stormwater management strategies to the "maximum extent practicable" with a requirement to use green infrastructure to meet stormwater standards.

STORMWATER UTILITY LAW

In 2019, New Jersey passed the Clean Stormwater and Flood Reduction Act (Stormwater Utility Law), which authorizes local governments, county governments, and certain utilities to create stormwater utilities. A stormwater utility is a public utility that assesses fees and uses the revenue to maintain infrastructure designed to control stormwater flooding and the discharge of pollutants into surface waters. As discussed in further detail in this Stormwater Management Plan, the Municipality is studying the feasibility of establishing a stormwater utility in Princeton.

INLAND FLOOD PROTECTION RULE

In 2023, the NJDEP adopted the Inland Flood Rule to incorporate current and projected climate-informed precipitation data into stormwater and flood management. Princeton will continue to implement state-mandated requirements for stormwater Best Management Practices to manage current and future storms through its stormwater control and flood control ordinances.

EFFORTS IN PRINCETON

In March 2005, the former Borough and former Township had each adopted a stormwater plan to comply with NJDEP's 2004 Stormwater Management Rules. This Stormwater Management Plan is the first to be prepared for Princeton since the establishment of the consolidated Municipality in 2013 and the revision of NJDEP's Stormwater Management Rules in March 2020. As of December 2020, Princeton has adopted a stormwater control ordinance to comply with or exceed NJDEP's revised Stormwater Management Rules.

PRINCETON UNIVERSITY SUSTAINABILITY ACTION PLAN (2019)

Princeton University's 2019 Sustainability Action Plan calls for an increase in the number of acres under enhanced stormwater management, from the 100 acres noted in 2018, the plan's baseline year, to 130 acres (including the new Lake Campus in West Windsor) by 2026.[7] The plan notes that since 2008, the University has undertaken more than 20 stormwater management projects, including green roofs, subsurface infiltration, porous pavements, bioretention and rain gardens, under-field storage, rainwater harvesting, and stream and buffer restoration. To date, the university estimates these efforts have reduced stormwater runoff from affected properties by an estimated 23 million gallons, or 35%.

IMPERVIOUS COVER ASSESSMENT AND REDUCTION ACTION PLAN (2020)

In December 2020, the Watershed Institute prepared a study for the Municipality that analyzed impervious coverage, regulatory controls, and potential mitigation projects. The study provided quantitative analysis of existing impervious coverage and stormwater runoff.

STORMWATER UTILITY FEASIBILITY STUDY

In 2022, Princeton initiated a study to explore the feasibility of creating a stormwater utility, permitted under statute as a mechanism through which the Municipality can collect user fees to fund the maintenance and enhancement of stormwater

7 *sustain.princeton.edu/sustainability-action-plan/stormwater-management*

management infrastructure. As part of Phase I of that initiative, the Municipality has conducted an impervious coverage study using GIS data. Additional phases will continue pending Council review and approval.

STORMWATER POLLUTION PREVENTION PLAN (2023)

The Municipal Stormwater Regulation Program requires municipalities to prepare a Stormwater Pollution Prevention Plan (SPPP) that details ongoing and required efforts to reduce pollutant discharge into waterways through the management of stormwater. Princeton prepared its current SPPP in June 2023 and will revise it on an annual basis.

WATERSHED IMPROVEMENT PLAN (WIP)

Princeton must prepare and adopt a Watershed Improvement Plan (WIP) within the next three to five years in accordance with the requirements of its 2023 MS4 permit. The plan will identify impaired streams and make specific recommendations for restoration projects and improvements.

STORMWATER MANAGEMENT ORDINANCES

Since 2015, the Municipality has adopted and amended the following stormwater ordinances:

- Ord. #2022-05: Stormwater Management Regulation for Large and Small Projects
- Ord. #2021-11: Private Storm Drain Inlet Retrofitting Requirements
- Ord. #2020-39: Stormwater Management Regulations for Small and Large Projects
- Ord. #2020-38: Stormwater Management Regulations for Major and Minor Development
- Ord. #2020-13: Pet Waste, Litter, and Improper Waste Disposal Regulations
- Ord. #2018-12: Leaf, Log and Branch Collection Program
- Ord. #2017-61: Illicit Connection Regulations
- Ord. #2015-44: Wildlife Regulations

The Municipality will continue to adopt and amend its stormwater management ordinances to meet Statewide Basic Requirements (SBRs) for stormwater management and maintain compliance with its MS4 permit.

WATER RESOURCES

Stormwater management is inherently connected to the watershed. The following is a summary of Princeton's water resources for the purpose of informing the implementation of this Stormwater Management Plan and related stormwater planning efforts.

SUBWATERSHEDS (HUC14)

The U.S. Geological Survey has assigned a 14-digit identification number, known as a Hydrological Unit Code 14 (HUC14), to each subwatershed drainage area in the country. Princeton has eight HUC14 subwatersheds, as shown on the following map and Table 4.1.

STREAMS AND WATERBODIES

The Surface Waters and Wetlands map depicts streams and waterbodies in Princeton. Named waters within the Municipality include:

- Millstone River
- Stony Brook
- Bedens Brook
- Harry's Brook
- Van Horn Brook
- Alexander Creek
- Cherry Run
- Lake Carnegie
- Palmer Lake

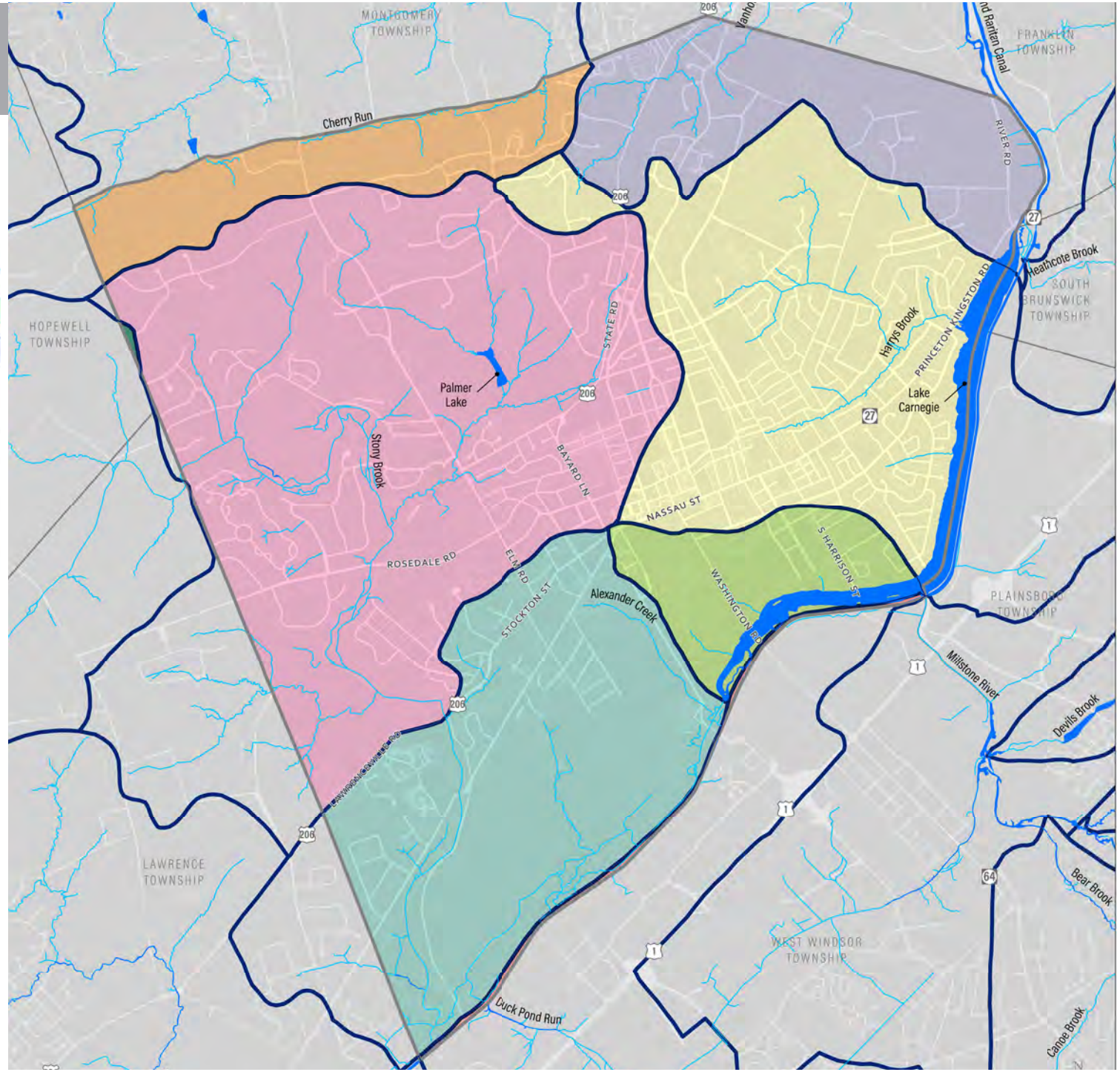
CATEGORY 1 WATERWAYS

The NJDEP designates Category 1 (C1) waters to implement antidegradation policies of the Surface Water Quality Standards (N.J.A.C. 7:9). Category 1 waters are high-quality waters that have exceptional ecological significance, recreational significance, water supply significance, or fishery resources, warranting protection from measurable changes in quality. Stony Brook is the only Category 1 waterway in Princeton. All other waterways in Princeton are non-trout, Category 2 (C2) waters.

Table 4.1: HUC14 Subwatersheds in Princeton

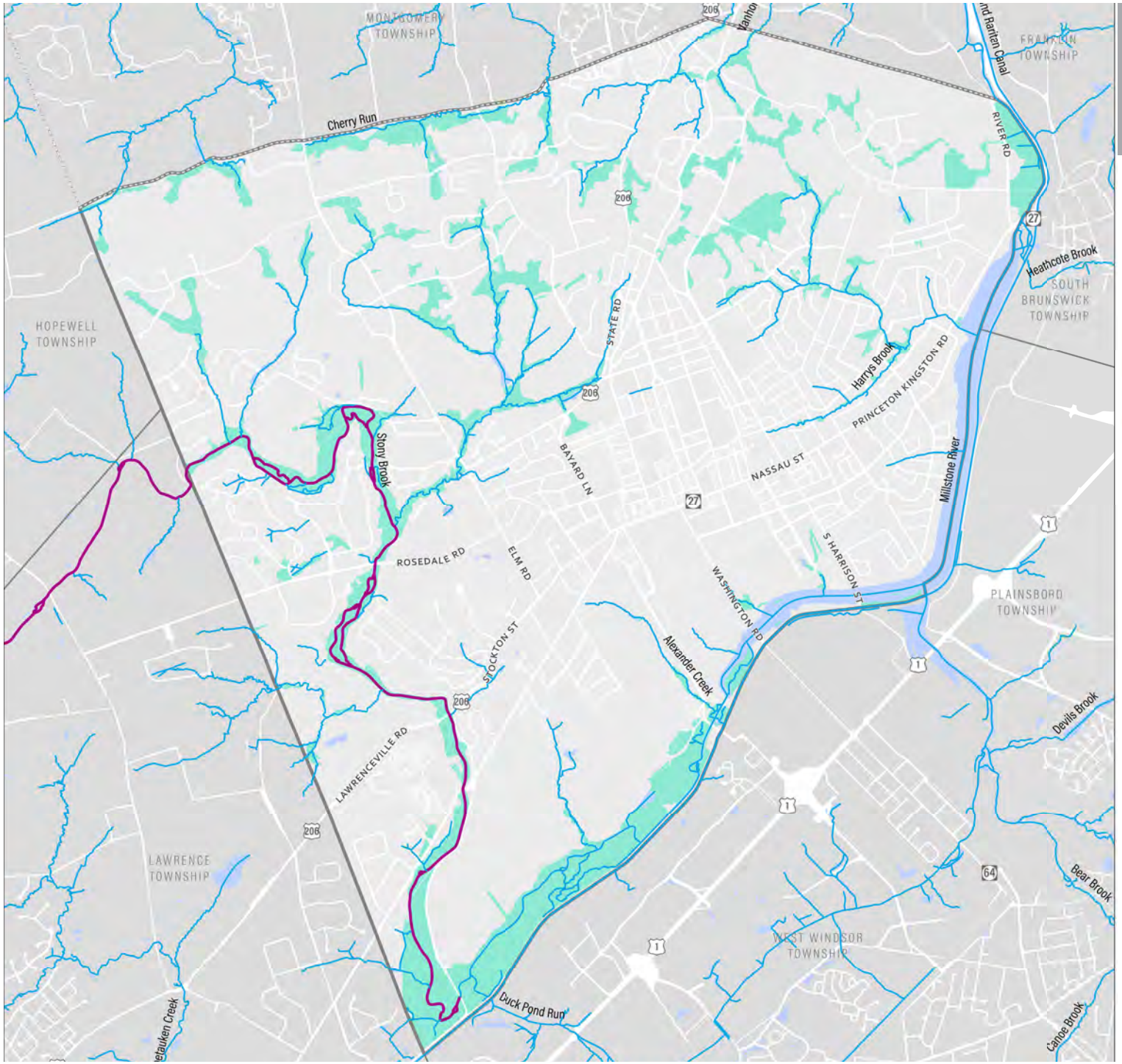
HUC14	Waterway	HUC14 Description	Princeton Area	
			Acres	%
02030105090050	Stony Brook	Province Line Road to 74d46m dam	5	0.0
02030105090060	Stony Brook	Route 206 to Provinceline Rd	4,360	37.2
02030105090070	Stony Brook	Alexander Creek to Route 206	2,237	19.1
02030105090080	Duck Pond Run	Duck Pond Run	57	0.5
02030105090090	Stony Brook	Princeton Drainage	640	5.5
02030105110020	Millstone River	Heathcote Brook to Harrison St	2,548	21.7
02030105110030	Millstone River	Bedens Brook to Heathcote Brook	1,187	10.1
02030105110050	Bedens Brook	Below Provinceline Rd	750	6.4
		Total	11,784	100.0

SUBWATERSHEDS



This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

SURFACE WATERS AND WETLANDS



0 2,400 4,800 Feet

Surface Water Classification

- FW2-NTC1 (Freshwater / Category 1 / Non-Trout)
- FW2-NT (Freshwater / Category 2 / Non-Trout)
- Wetlands
- Waterbody

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

SURFACE WATER QUALITY

AMBIENT BIOMONITORING NETWORK (AMNET)

The NJDEP has established the Ambient Biomonitoring Network (AMNET) to assess the health of the State's waterways using 800 monitoring stations throughout the State. The NJDEP uses AMNET and other data to identify all impaired waterways that do not meet surface water quality standards and to impose Total Maximum Daily Loads (TMDLs) of specified pollutants to prevent further impairment. The AMNET assigns four levels of assessment to reflect impairment: Excellent, Good, Fair, and Poor.

There are five AMNET stations in Princeton, summarized in Table 4.2. All AMNET stations that have Round 6 monitoring data show an impairment level of Fair. This assessment indicates moderate impairment to surface water quality throughout the Municipality and opportunities to reduce pollutant loading from stormwater runoff.

NEW JERSEY INTEGRATED LIST

The Federal Clean Water Act requires each state to prepare and submit to the EPA biennially a Section 303(d) list and Section 305(b) report identifying impaired waterways. The NJDEP publishes this information in the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated List). Waters on Sublist 5 (303(d) of the Integrated List include those that NJDEP has identified as impaired and in need of a TMDL for a particular pollutant.

Table 4.3 provides a summary of impaired waterways in Princeton as listed on the Integrated List. The NJDEP has also identified impaired waterways in Princeton and assigned a priority status for each waterway, ranging from Low to Medium. Priority status indicates low to moderate urgency for the development of a TMDL based on severity of pollution.

Table 4.2: AMNET Station Data[1]

AMNET Station ID	Waterway	Location	Impairment (Round 6)
AN0393	Stony Brook	Route 206	Fair
AN0393A	Stony Brook	Province Line Rd	Not Sampled
AN0394A	Stony Brook	Alexander Rd	Fair
AN0394B	Harry's Brook	Poe Rd	Fair
AN0397	Millstone River	Off Route 27	Fair

1 *NJDEP Bureau of GIS. Ambient Biomonitoring Network (AMNET) of New Jersey.*

Table 4.3: Sublist 5 303(d) Impaired Waterways[1]				
HUC14	**Waterway**	**HUC14 Description**	**Parameter**	**Priority**
02030105090050	Stony Brook	Province Line Rd to 74d46m dam	Arsenic	Low
02030105090060	Stony Brook	Rt 206 To Province Line Rd	Arsenic	Low
02030105090070	Stony Brook	Harrison St To Rt 206	Arsenic	Low
02030105090070	Stony Brook	Harrison St To Rt 206	Biological-Cause Unknown	Low
02030105090080	Duck Pond Run	Duck Pond Run	Biological-Cause Unknown	Low
02030105090090	Stony Brook	Princeton Drainage	Arsenic	Low
02030105090090	Stony Brook	Princeton Drainage	Biological-Cause Unknown	Low
02030105090090	Stony Brook	Princeton Drainage	Escherichia Coli (E. Coli)	Medium
02030105110020	Millstone River	Heathcote Brook to Harrison St	Arsenic	Low
02030105110020	Millstone River	Heathcote Brook to Harrison St	Biological-Cause Unknown	Low
02030105110020	Millstone River	Heathcote Brook to Harrison St	Dieldrin In Fish Tissue	Low
02030105110020	Millstone River	Heathcote Brook to Harrison St	Escherichia Coli (E. Coli)	Medium
02030105110020	Millstone River	Heathcote Brook to Harrison St	PCBs In Fish Tissue	Low
02030105110020	Millstone River	Heathcote Brook to Harrison St	Ph	Medium
02030105110030	Millstone River	Beden Brook to Heathcote Brook	Arsenic	Low
02030105110030	Millstone River	Beden Brook to Heathcote Brook	Dissolved Oxygen	Medium
02030105110030	Millstone River	Beden Brook to Heathcote Brook	Escherichia Coli (E. Coli)	Medium
02030105110030	Millstone River	Beden Brook to Heathcote Brook	Ph	Medium
02030105110030	Millstone River	Beden Brook to Heathcote Brook	Phosphorus, Total	Medium
02030105110050	Beden Brook	below Province Line Rd	Arsenic	Low
02030105110050	Beden Brook	below Province Line Rd	Biological-Cause Unknown	Low

1 *NJDEP. New Jersey Integrated Water Quality Monitoring and Assessment Report 2020.*

TOTAL MAXIMUM DAILY LOADS (TMDLS)

A Total Maximum Daily Load (TMDL) is the maximum amount of a specific pollutant, as determined by the NJDEP, that a waterbody may receive without exceeding surface water quality standards. To address each pollutant that exceeds its TMDL, the NJDEP prepares a report containing A TMDL Implementation Plan to inform stormwater pollution prevention efforts throughout the watershed.

Table 4.4 shows impaired waterways in Princeton with existing TMDLs established by NJDEP. Most HUC14s in Princeton have a TMDL for at least one pollutant.

Table 4.4: Existing Total Maximum Daily Loads (TMDLs)

HUC14	Waterway	HUC14 Description	TMDL	Report Year
02030105090050	Stony Brook	Province Line Rd to 74d46m dam	Total Suspended Solids	2016
02030105090050	Stony Brook	Province Line Rd to 74d46m dam	Total Phosphorous	2016
02030105090050	Stony Brook	Province Line Rd to 74d46m dam	Mercury	2010
02030105090060	Stony Brook	Rt 206 to Province Line Rd	Fecal Coliform	2003
02030105090060	Stony Brook	Rt 206 to Province Line Rd	Total Suspended Solids	2016
02030105090060	Stony Brook	Rt 206 to Province Line Rd	Total Phosphorous	2016
02030105090070	Stony Brook	Harrison St to Rt 206	Escherichia Coli (E. coli)	2006
02030105090070	Stony Brook	Harrison St to Rt 206	Total Phosphorous	2016
02030105090070	Stony Brook	Harrison St to Rt 206	Total Suspended Solids	2016
02030105090080	Duck Pond Run	Duck Pond Run	Fecal Coliform	2003
02030105090090	Stony Brook	Princeton Drainage	Total Suspended Solids	2016
02030105090090	Stony Brook	Princeton Drainage	Total Phosphorous	2016
02030105110020	Millstone River	Heathcote Brook to Harrison St	Mercury	2010
02030105110020	Millstone River	Heathcote Brook to Harrison St	Total Phosphorous	2016
02030105110020	Millstone River	Heathcote Brook to Harrison St	Total Suspended Solids	2016
02030105110030	Millstone River	Beden Brook to Heathcote Bk	Total Suspended Solids	2016
02030105110050	Beden Brook	below Province Line Rd	Total Phosphorous	2016
02030105110050	Beden Brook	below Province Line Rd	Total Suspended Solids	2016

GROUNDWATER RECHARGE AREAS

The following Groundwater Recharge Areas map shows groundwater recharge areas throughout the Municipality according to NJDEP mapping data. Annual recharge rates in Princeton range from nearly zero in the urban core of the former Borough to 15 inches per year in low-density and undeveloped lands of the former Township.

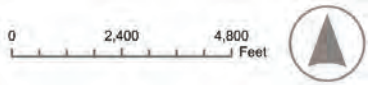
WELL HEAD PROTECTION AREAS

The NJDEP delineates well head protection areas and the horizontal extent of groundwater captured by wells. Well head protection areas comprise three tiers corresponding to time of travel (TOT), or the estimated time it takes for a particle of groundwater to reach a pumping well: Tier 1 (two-year TOT), Tier 2 (five-year TOT), and Tier 3 (12-year TOT). Each tier and TOT generally represents a timeframe and geographic boundary within which monitoring and remediation of a potential pollutant should occur to prevent contamination of a well.

The following Well Head Protection Areas map shows well head protection areas in Princeton as delineated by the New Jersey Geological Survey (NJGS). There are nine existing Public Community Water Supply (PCWS) wells located in Princeton and no Public Non-Community Water Supply (PNCWS) wells. All well head protection areas in Princeton are located along the southeastern border adjacent to Stony Brook and Lake Carnegie.

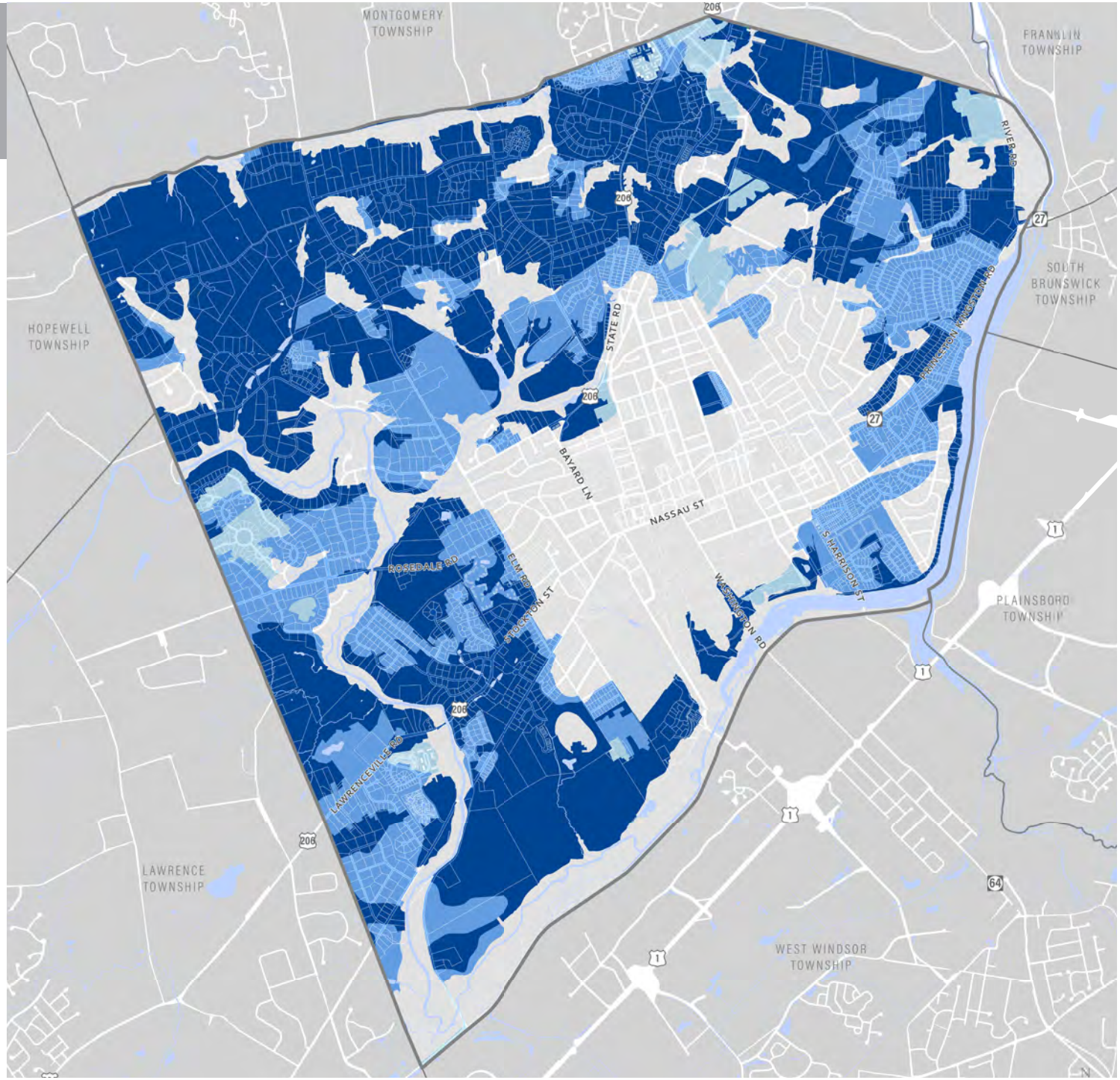
Land use and development activity within well head protection areas may require special review and permitting by NJDEP to ensure compliance with the Well Head Protection Plans (WHPPs) prepared by the water supplier.

GROUNDWATER RECHARGE AREAS



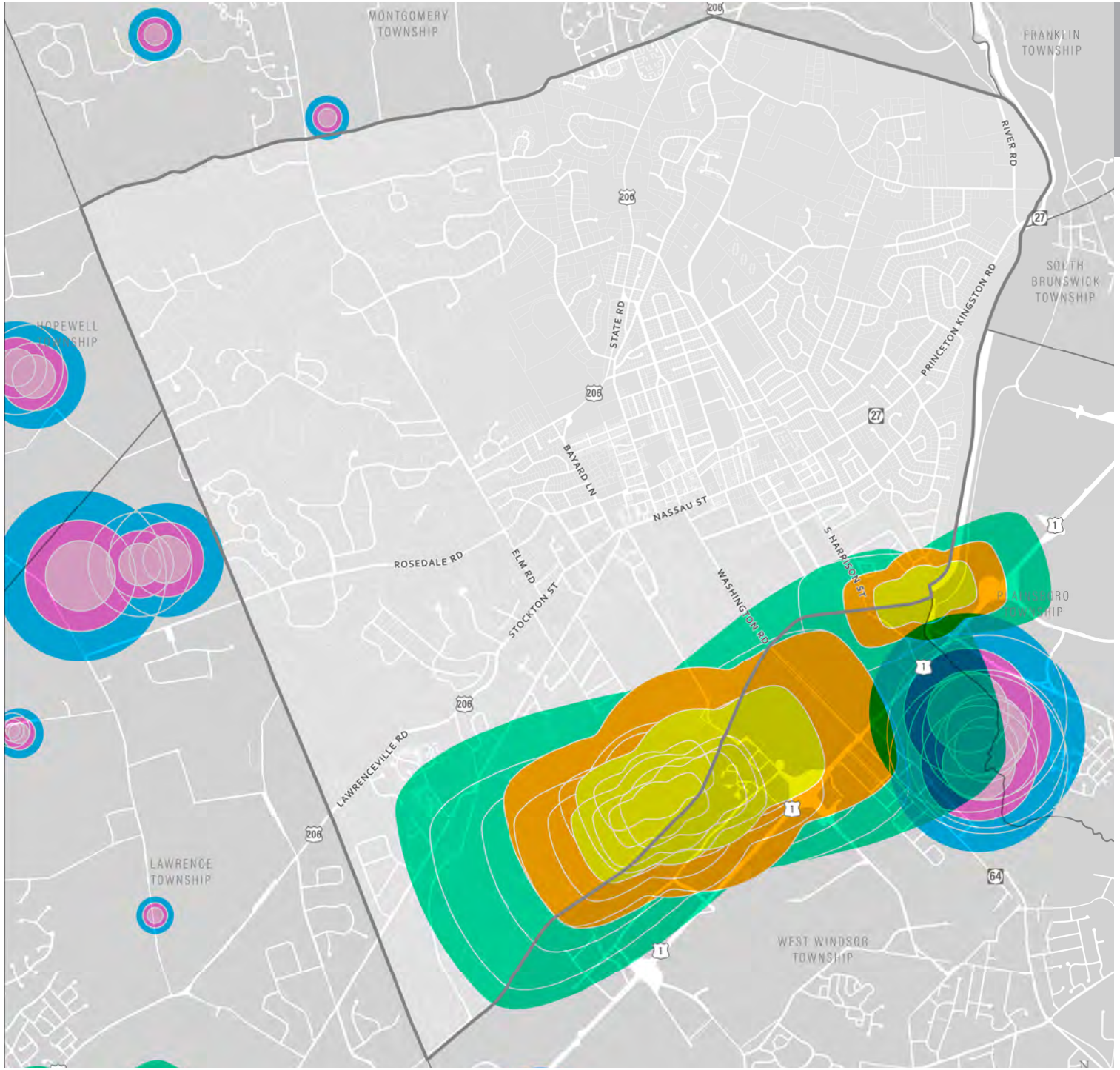
RANK

	B	11 to 15 in/yr
	C	8 to 10 in/yr
	D	1 to 7 in/yr
	E,L,W,X	0 in/yr or no recharge calculated



This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

WELL HEAD PROTECTION AREAS



0 2,400 4,800 Feet

PCWS Well Head Protection Areas
- Tier 1 (2-Year)
- Tier 2 (5-Year)
- Tier 3 (12-Year)

PNCWS Well Head Protection Areas
- Tier 1 (2-Year)
- Tier 2 (5-Year)
- Tier 3 (12-Year)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

LAND USE / BUILD-OUT ANALYSIS

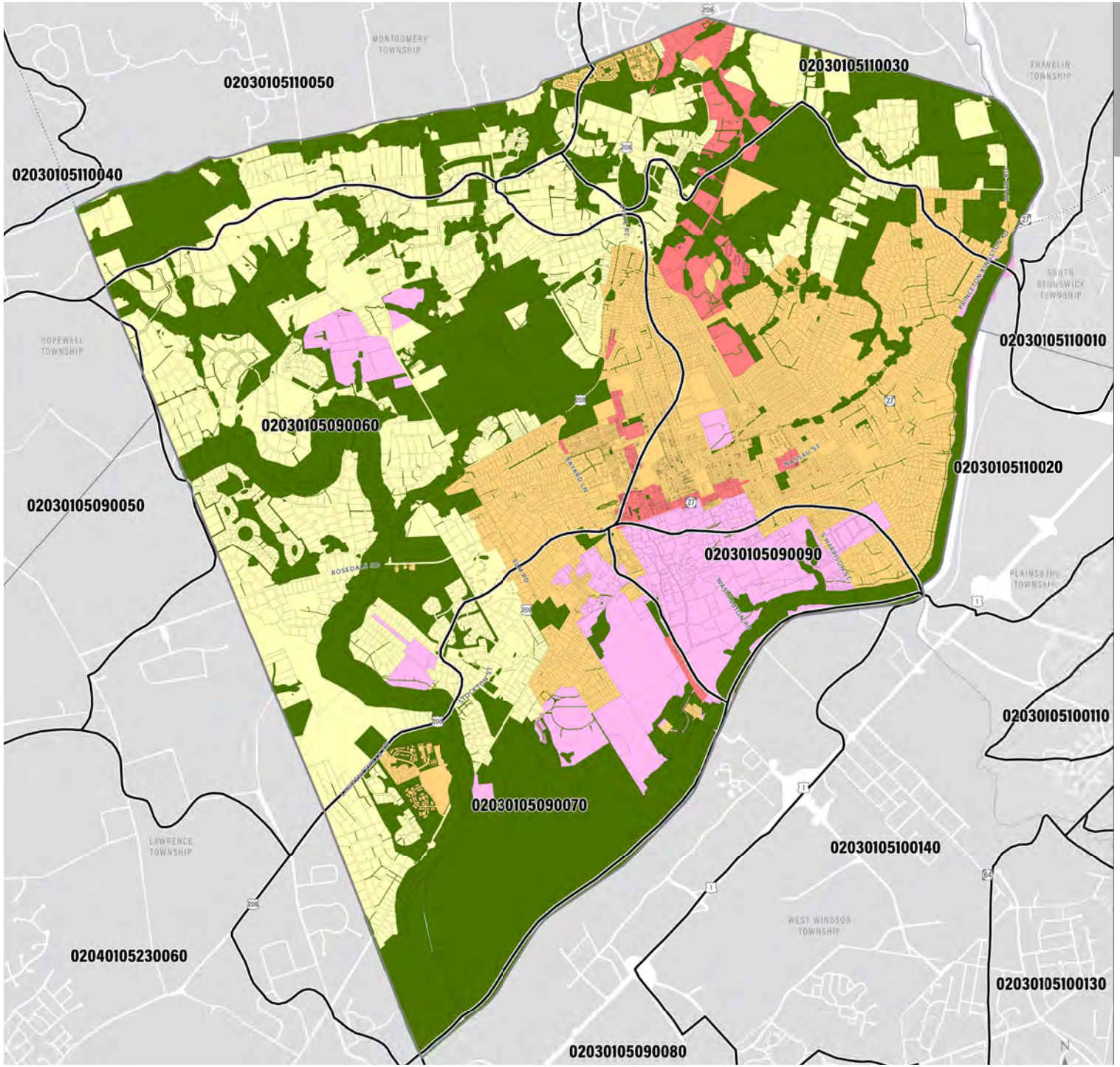
A build-out analysis projects future land use based on existing development regulations. The Stormwater Management Rules require a build-out analysis as part of a stormwater plan to project future impervious surface area, land use, and pollutant loads generated by stormwater runoff within each HUC14 subwatershed.

This build-out analysis is theoretical and restricted by the limitations of comparing existing land use and environmental regulations to total redevelopment under existing zoning regulations. However, the overall themes of this build-out analysis and associated pollutant load projection should be coordinated with TMDL Implementation Plans and other watershed improvement planning and mitigation efforts.

METHODOLOGY AND ASSUMPTIONS

The methodology of this build-out analysis is based on the application of maximum impervious coverage requirements to the buildable area within each HUC14 with the following assumptions:

- Area calculations rely on mapping data provided by NJOGIS, NJDEP, and the Municipality of Princeton and correspond to GIS polygon area rather than lot-specific tax assessor or survey data.
- Buildable area is equal to total zoning district area, minus environmentally constrained lands to account for areas of the Municipality where additional development is restricted, such as waterbodies, wetlands, intermediate wetlands buffers (50 feet), Category 1 stream buffers (300 feet), and preserved lands.
- Allowable lot coverage in residential zones of the former Township (T) assumes a median lot size of each zone in order to account for the graduated maximum lot coverage requirements of T10B-246.1, which regulates maximum impervious surface coverage on a graduated scale corresponding to lot size.
- For each nonresidential zone of the former Township (T) where maximum impervious coverage is not specified by zoning, and where the zone comprises multiple lots that are developed or undeveloped, build-out assumes 85% utilization of buildable area with 15% reserved for landscape buffering and stormwater management facilities. This assumption is consistent with impervious cover estimates for existing development provided by 2015 NJDEP Land Use Land Cover GIS data (zones B-1, B-2, E-4, S-1, S-2, POR, OR-1, OR-2).
- For each nonresidential zone of the former Township (T) where maximum impervious coverage is not specified by zoning ordinance, and where the zone comprises a single development, build-out assumes recently approved development projects using data provided by the Municipality and no expected increase in impervious coverage (zones AH-5/H/TRZ, SC/PSCIRRZ, IRA, RSA).
- Maximum impervious surface coverage calculations by zoning district include public rights-of-way and assume the same build-out coverage percentage as the underlying zoning district.



LAND USE / BUILD-OUT

0 2,400 4,800 Feet

Projected Land Cover

- High, Medium Density Residential
- Low Density, Rural Residential
- Commercial
- Urban, Mixed Urban, Other Urban
- Forest, Water, Wetlands

Subwatershed Boundaries (HUC14)

Sources: Municipality of Princeton (parcels), NJDEP (Watersheds)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

IMPERVIOUS SURFACE PROJECTIONS

The Land Use / Build-Out map shows projected land uses in Princeton assuming full build-out of vacant buildable land and the redevelopment of existing land to the maximum extent allowed by zoning. This map largely reflects existing land use patterns in the Municipality but assumes maximum permitted coverage and some reclamation of environmentally sensitive land such as buffering of streams and wetlands. Note that this map shows land use and is not synonymous with land cover.

Projected land uses correspond to land cover categories provided by the NJDEP Stormwater Best Management Practices (BMP) Manual. The assignment of land cover categories to each of Princeton's zoning districts reflects the most intense development scenario to ensure that amendments to Princeton's zoning ordinance and stormwater management regulations minimize development impacts to the greatest extent feasible. For example, the build-out projects commercial land uses in mixed-use districts to assume maximum development intensity. This build-out assigns educational uses as "other urban" as it is the most comparable category under NJDEP's framework.

Table 4.5 provides a summary of projected impervious surface coverage by HUC14 based on full build-out of buildable land under existing zoning. According to the most intense development scenario, Princeton could anticipate an increase in impervious cover of approximately 4.2% over its existing impervious coverage estimate of 14.41%.[8] To reduce existing impervious cover where possible and minimize additional impacts of development, Princeton will need to continue to revise its stormwater management ordinances and zoning regulations consistent with the goals and recommendations of the Master Plan.

POLLUTANT LOAD PROJECTIONS

The NJDEP Stormwater Best Management Practices (BMP) Manual provides pollutant load factors by land cover type to help municipalities calculate the discharge of total phosphorous (TP), total nitrogen (TN), and total suspended solids (TSS) within each HUC14 subwatershed. Table 4.6 provides the total area of projected land uses and corresponding pollutant loads in Princeton based on the Land Use / Build-Out Map.

Compared to existing pollutant load projections based on 2015 Land Use Land Cover GIS data, full build-out of Princeton could generate increased pollutant loads in several subwatersheds but an overall reduction in pollutant loads municipality-wide. Specifically, HUC14 drainage areas in the Millstone River and Beden Brook watersheds could experience higher levels of pollutants, while areas of Stony Brook could see lower levels of pollution associated with stormwater runoff.

8 *Impervious Cover Assessment and Reduction Action Plan. December 30, 2020. The Watershed Institute.*

Table 4.5: Projected Impervious Surface by HUC14				
HUC14	**Total Area (Acres)**	**Environmentally Constrained Area (Acres)**	**Buildable Area (Acres)**	**Build-Out Impervious (Acres)**
2030105090050 / Stony Brook	6.47	0.80	5.67	2.76
2030105090060 / Stony Brook	4,298.65	1,689.51	2,609.14	774.72
2030105090070 / Stony Brook	2,233.70	1,382.96	850.74	280.66
2030105090080 / Duck Pond Run	75.96	52.05	23.91	9.36
2030105090090 / Stony Brook	638.74	113.38	525.36	220.34
2030105110020 / Millstone River	2,526.34	603.03	1,923.31	656.59
2030105110030 / Millstone River	1,191.99	580.08	611.90	175.24
2030105110050 / Beden Brook	749.10	408.41	340.69	66.68
TOTAL	**11,720.95 (100%)**	**4,830.22 (41.2%)**	**6,890.73 (58.8%)**	**2,186.36 (18.6%)**

Table 4.6: Projected Land Cover and Pollutant Loads by HUC14				
HUC14: 2030105090050 / STONY BROOK				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	0.00	0.00	0.00	0.00
Low Density, Rural Residential	5.67	3.40	28.36	567.14
Commercial	0.00	0.00	0.00	0.00
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	0.00	0.00	0.00	0.00
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	0.80	0.08	2.40	31.94
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**6.47**	**3.48**	**30.75**	**599.09**

HUC14: 2030105090060 / STONY BROOK				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	523.96	733.55	7,859.45	73,354.88
Low Density, Rural Residential	1,888.82	1,133.29	9,444.10	188,882.06
Commercial	53.03	111.36	1,166.66	10,605.98
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	143.33	143.33	1,433.31	17,199.66
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	1,689.51	168.95	5,068.52	67,580.27
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**4,298.65**	**2,290.49**	**24,972.04**	**357,622.85**

HUC14: 2030105090070 / STONY BROOK				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	250.41	350.57	3,756.09	35,056.84
Low Density, Rural Residential	383.58	230.15	1,917.90	38,358.08
Commercial	13.28	27.89	292.21	2,656.44
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	203.47	203.47	2,034.73	24,416.72
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	1,382.96	138.30	4,148.87	55,318.24
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**2,233.70**	**950.38**	**12,149.80**	**155,806.32**

HUC14: 2030105090080 / DUCK POND RUN				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	0.00	0.00	0.00	0.00
Low Density, Rural Residential	9.09	5.45	45.43	908.64
Commercial	0.00	0.00	0.00	0.00
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	14.82	14.82	148.22	1,778.70
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	52.05	5.21	156.16	2,082.14
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**75.96**	**25.48**	**349.82**	**4,769.48**

HUC14: 2030105090090 / STONY BROOK				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	109.19	152.86	1,637.83	15,286.40
Low Density, Rural Residential	0.00	0.00	0.00	0.00
Commercial	2.67	5.60	58.69	533.55
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	413.51	413.51	4,135.06	49,620.73
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	113.38	11.34	340.13	4,535.08
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**638.74**	**583.31**	**6,171.71**	**69,975.77**

HUC14: 2030105110020 / MILLSTONE RIVER				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	1,151.71	1,612.39	17,275.64	161,239.33
Low Density, Rural Residential	495.00	297.00	2,474.98	49,499.69
Commercial	178.75	375.37	3,932.43	35,749.39
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	97.85	97.85	978.54	11,742.52
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	603.03	60.30	1,809.09	24,121.21
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**1,923.31**	**2,382.61**	**24,661.60**	**258,230.93**

HUC14: 2030105110030 / MILLSTONE RIVER				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	35.75	50.05	536.29	5,005.35
Low Density, Rural Residential	468.89	281.34	2,344.47	46,889.47
Commercial	104.38	219.21	2,296.44	20,876.74
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	2.87	2.87	28.71	344.47
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	580.08	58.01	1,740.25	23,203.38
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**609.03**	**550.60**	**5,177.20**	**72,771.56**

HUC14: 2030105110050 / BEDEN BROOK				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	11.90	16.66	178.51	1,666.06
Low Density, Rural Residential	328.79	197.27	1,643.96	32,879.11
Commercial	0.00	0.00	0.00	0.00
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	0.00	0.00	0.00	0.00
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	408.41	40.84	1225.24	16336.53
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**328.79**	**197.27**	**1,643.96**	**32,879.11**

MUNICIPAL TOTAL				
Land Cover	**Projected Area (ac)**	**TP Load (lbs/yr)**	**TN Load (lbs/yr)**	**TSS Load (lbs/yr)**
High, Medium Density Residential	2,082.92	2,916.09	31,243.81	291,608.88
Low Density, Rural Residential	3,579.84	2,147.91	17,899.21	357,984.20
Commercial	352.11	739.43	7,746.43	70,422.10
Industrial	0.00	0.00	0.00	0.00
Urban, Mixed-Urban, Other Urban	875.86	875.86	8,758.57	105,102.80
Agricultural	0.00	0.00	0.00	0.00
Forest, Water, Wetlands	4,830.22	483.02	14,490.66	193,208.79
Barren Land / Transitional Area	0.00	0.00	0.00	0.00
HUC14 TOTAL	**11,720.95**	**7,162.30**	**80,138.68**	**1,018,326.76**

Table 4.7: Princeton SCO Development Thresholds			
Project Category	**Min. Land Disturbance**	**Min. Additional Impervious Coverage**	**Exempt from Site Plan Review**
Major Development	¼ acre	5,000 sf	No
Large Project	¼ acre	5,000 sf	Yes
Minor Development	-	400 sf	No
Small Project	-	400 sf	Yes

PRINCETON'S STORMWATER CONTROL ORDINANCE

The Municipality adopted a consolidated stormwater control ordinance (SCO) in June 2017 that was amended in December 2020 following the NJDEP's revision of its Stormwater Management Rules. A copy of Princeton's SCO is appended to this Master Plan.

Princeton's SCO is more stringent than what is required by the Stormwater Management Rules. Whereas the Stormwater Management Rules define "major development" as projects that cause (1) land disturbance of one acre or more or (2) an increase in impervious coverage of one-quarter acre or more, Princeton's definition reduces those development thresholds to one-half acre of land disturbance and 5,000 additional square feet of impervious coverage, respectively. The Municipality also provides a definition for "minor developments," or projects that result in an increase of impervious surface of 400 square feet or more and do not meet the definition for "major development."

To regulate stormwater management of projects that are exempt from site plan review per the Municipal Land Use Law, such as single-family and two-family homes, Princeton provides additional definitions and standards for "large projects" and "small projects." "Large projects" and "small projects" are effectively synonymous with "major development" and "minor development" but apply to projects that do not require site plan review. Further, the Municipality measures the land disturbance and impervious surface for "large projects" and "small projects" on a cumulative basis from June 12, 2017, to account for incremental increases in impervious coverage below review thresholds.

Table 4.7 provides a summary of Princeton's SCO thresholds for applicability of the Stormwater Management Rules.

Per the SCO, "minor developments" and "small projects" must use green infrastructure to manage two gallons of stormwater on site for each square foot of new impervious surface and retain 0.78 gallons on site. Design standards for green infrastructure and stormwater management measures are the same for these projects as for "major development," except that "small projects" are exempt from some requirements.

DESIGN AND PERFORMANCE STANDARDS

Applicable development in Princeton must meet the specific stormwater design and performance standards established in the Stormwater Management Rules (N.J.A.C. 7:8). Princeton's SCO mirrors the language in N.J.A.C. 7:8-5 (Design and Performance Standards for Stormwater Management Measures), N.J.A.C. 7:8-5.8 (Maintenance Requirements), and N.J.A.C. 7:8-6 (Safety Standards for Stormwater Management Basins).

The Municipality's designated inspectors will monitor projects during construction to ensure that construction of stormwater management measures is consistent with design and approval. The Municipality assumes responsibility for the long-term operation and maintenance of municipally owned stormwater management facilities. The Municipality is studying the feasibility of creating a stormwater utility to fund and maintain its municipal stormwater infrastructure.

NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

Applicable development in Princeton must include green stormwater infrastructure and nonstructural stormwater management strategies to meet stormwater management goals per the Stormwater Management Rules. Princeton's SCO requires use of green infrastructure best management practices (BMPs) and low-impact development strategies (LIDs) accordingly.

Princeton's SCO requires the use of green infrastructure more stringently than NJDEP's model SCO. Whereas NJDEP includes cisterns and dry wells as green infrastructure, Princeton does not. The Municipality generally requires applicants to exhaust all other eligible green stormwater infrastructure options first to be compliant with local stormwater regulations.

Applicants must demonstrate compliance with the SCO before the Municipality can schedule their applications for a hearing at the Planning Board or Zoning Board of Adjustment.

MITIGATION PLAN

Pursuant to the Stormwater Management Rules, a Stormwater Mitigation Plan is required in order to grant a variance or waiver from the stormwater management measures set forth in the stormwater plan and SCO. The Mitigation Plan must identify necessary measures, potential mitigation projects, and/or criteria to evaluate mitigation projects that can be used to offset the deficit created by granting a variance.

As noted in the SPPP prepared in June 2023, Princeton has developed a draft Mitigation Plan that is under review for adoption.

The Municipality will identify projects through the forthcoming WIP as required to comply with its MS4 permit.

The Impervious Cover Assessment and Reduction Action Plan prepared by The Watershed Institute in 2020 provides several conceptual mitigation projects that may inform the forthcoming mitigation planning efforts.

PLAN CONSISTENCY

This stormwater plan is consistent with other applicable plans and regulatory mechanisms, including:

REGIONAL STORMWATER MANAGEMENT PLANNING AREA

Princeton is not within any Regional Stormwater Management Planning Area. In response to the establishment of any regional stormwater management plan, the Municipality will revise this stormwater plan as necessary to be consistent.

RESIDENTIAL SITE IMPROVEMENT STANDARDS

Princeton's stormwater control ordinance and stormwater plan are consistent with Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The Municipality will use the RSIS in the stormwater management review of residential development and will update the stormwater plan to be consistent with any future updates to the RSIS.

SOIL EROSION AND SEDIMENT CONTROL STANDARDS

Princeton's stormwater control ordinance requires that all new development and redevelopment plans comply with the minimum standards of the New Jersey Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 et seq.) and implementing rules (N.J.A.C. 2:90).

MERCER COUNTY SOIL CONSERVATION DISTRICT

Pursuant to the Soil Erosion and Sedimentation Control Act, any application proposing 5,000 square feet or more of soil disturbance must submit a permit application to the soil conservation district for approval. During any new construction, the Municipality's designated inspectors will monitor on-site soil erosion and sediment control measures and report any inconsistencies to the Mercer County Soil Conservation District.

DELAWARE AND RARITAN CANAL COMMISSION

Certain areas of Princeton are located within Review Zones A and B of the Delaware and Raritan Canal Commission (DRCC), which correspond to areas within 1,000 feet of the Delaware and Raritan Canal State Park and other portions of the Municipality upstream of the canal, respectively. Although the DRCC has not prepared its own Stormwater Management Plan, the Commission reviews stormwater measures proposed for land development projects located within its jurisdiction in Princeton.

TOTAL MAXIMUM DAILY LOAD (TMDL) REPORTS

The NJDEP has approved TMDLs for waterways that intersect Princeton. The Municipality implements various stormwater management regulations and control measures to reduce pollution of its waterways. The Municipality has also partnered with The Watershed Institute and adjoining upstream municipalities to develop strategies to reduce TMDLs in the watershed. The Municipality will review and coordinate its stormwater management policies where feasible with all TMDL reports applicable to Princeton.

CONSISTENCY THROUGHOUT THE PRINCETON MASTER PLAN

As a component of the Utility Plan Element of the Princeton Master Plan, this Stormwater Management Plan both contributes to and is consistent with the Master Plan elements listed below. The Master Plan and development regulations implement green infrastructure and the principles expressed in the nonstructural stormwater management strategies of the Stormwater Management Rules.

The **Land Use Plan Element** establishes strategies to inform amendments to Princeton's land development ordinance, zoning map, development standards, and redevelopment plans, and to respond to anticipated effects of climate change. Land use strategies include preservation and restoration of flood capacity among natural and built lands and the provision of green infrastructure on both public and private property.

The **Conservation, Open Space and Recreation Plan Element** establishes Princeton's goals and objectives for conservation of resources, and the preservation of open space, including strategies for natural stormwater management, green infrastructure, and soil infiltration.

The **Green Building and Environmental Sustainability Plan Element** establishes additional goals and strategies to maximize the environmental sustainability of existing and future development, including the implementation of green infrastructure beyond minimum State requirements.

The **Mobility Plan Element** provides for implementation of the Green Streets policies of incorporating green stormwater infrastructure into transportation projects and within public rights-of-way.

The **Community Facilities Plan Element** inventories Princeton's public facilities and recommends improvements that will incorporate green stormwater infrastructure in tandem with the SCO and this stormwater plan.

STORMWATER MANAGEMENT RECOMMENDATIONS

25. **Prepare and adopt a Watershed Improvement Plan (WIP)** in accordance with the requirements of the Municipality's 2023 MS4 permit, and incorporate TMDL Implementation Plans into it, where feasible.

26. **Maximize the functionality of existing stormwater infrastructure.** Ensure that existing stormwater infrastructure remains compliant with the Municipality's MS4 permit, functions efficiently, and is equipped to handle increased flow caused by climate change and future development.

27. **Adopt new or modified land use ordinances and planning guidelines** to ensure that new development and redevelopment does not exacerbate, and ideally mitigates, stormwater runoff.

28. **Mitigate the impacts of stormwater on natural and urban land.** Ensure that stormwater management systems are managed and upgraded as necessary to minimize or eliminate significant street flooding and stream erosion.

29. **Mitigate flood damage on a watershed-by-watershed basis.** Ensure that properties in the Harry's Brook, Stony Brook and Millstone River watersheds face limited or no risk of flood-related damage in all but the largest storms through a combination of damage mitigation, watershed management and flood protection, in that priority order.

30. **Improve the integrity of surface water and groundwater by restoring natural water quality and quantity.** Protect and restore to the extent practicable the ecologic and hydrologic function of the Municipality's ground and surface waters and its shared responsibilities for the Stony Brook and Millstone River watersheds, addressing issues such as groundwater recharge that supports stream flow, riparian areas that protect stream ecosystems, and stormwater management to avoid stream erosion and pollution.

31. **Ensure stormwater management initiatives are cost-effective.** Examine the costs and consequences of the Municipality's current stormwater system and the implications of non-action. Identify, categorize, and quantify (1) the various costs attributable to the current stormwater management system and (2) the costs (consequences) of flooding that occur with the current stormwater management system. Project future costs based on climate change impacts and anticipated future development.

32. **Establish a stormwater utility,** pending the findings of the feasibility study, to fund and manage stormwater infrastructure.

5.0 COMMUNITY FACILITIES

Introduction

The purpose of this Element is to identify existing community facilities, to establish goals and objectives related to the provision of community facilities and programs, and to inform the Municipality's capital improvements, development and redevelopment standards, site plan review, programming, and general municipal decision-making.

5.1 Municipal Facilities

Since the adoption of the 1996 Community Master Plan, Princeton has expanded and consolidated many of its Municipal functions in a new Municipal building. It has completed the planned expansion of the public library that was discussed in the 1996 plan element, and Princeton First Aid and Rescue Squad has moved to a new building at the corner of Route 206 and Mount Lucas Road across from the police department headquarters.

FACILITIES ASSESSMENT STUDY

A facilities assessment study is being finalized that will provide guidance on how to optimize usage of 13 Municipal properties.

CRITICAL FACILITIES, RESILIENCY AND PREPAREDNESS

According to FEMA, "Critical facilities commonly include all public and private facilities that a community considers essential for the delivery of vital services and for the protection of the community. They usually include emergency response facilities (fire stations, police stations, rescue squads, and emergency operation centers), custodial facilities (jails and other detention centers, long-term care facilities, hospitals, and other health care facilities), schools, emergency shelters, utilities (water supply, wastewater treatment facilities, and power), communications facilities, and any other assets determined by the community to be of critical importance for the protection of the health and safety of the population."[1]

Many of the Municipal facilities discussed in this Element fall under FEMA's definition, and this Element includes recommendations for making them more resilient to natural disasters and a changing climate, so that they may remain operational during public emergencies. In addition, the Utility Plan Element of this Master Plan recommends that these facilities be served by distributed energy resources that will stay operational during such emergencies.

MUNICIPAL ADMINISTRATION

Princeton's Municipal building, known as Witherspoon Hall, at 400 Witherspoon Street, opened in 2002, addressing a shortage of space for the Township that was identified in the 1996 Community Master Plan. The facility includes offices, court facilities and a community room. It is currently not sufficient to serve all the Municipality's needs, and some administrative staff currently work out of the building at One Monument Drive.

1 *www.fema.gov/glossary/critical-facility*

RECREATION

The Municipality's Recreation Department is currently housed at 380 Witherspoon Street, which also houses the Municipality's IT department. The IT department needs to be relocated from this building in order for the Municipality to remain compliant with Green Acres requirements.

PUBLIC WORKS

The 1996 Community Facilities Element identified as a priority the development of a consolidated public works facility that incorporated Borough and Township departments and the Board of Education transportation department, either at the 298 River Road site or another site to be identified. The plan noted that the municipal facility on John Street was being relocated, with an anticipated completion date of 1997, and recommended the relocation of the facility on Harrison Street.

The development of a consolidated facility incorporating the public works staff and sewer department staff, and potentially the engineering department staff, currently located at 27 N. Harrison Street, 298 River Road, and 303 John Street, and the Board of Education transportation department at 298 River Road, was identified as priority in 1989 and remains a priority.

The Municipality's parking staff is currently housed at 45 Stockton Street and at the Spring Street garage. A new location will need to be identified for the staff at 45 Stockton Street if the property is used for another purpose.

A location also needs to be identified for heavy-duty EV charging for buses and other heavy-duty equipment.

5.2 Public Safety

Princeton's police department is headquartered at the corner of Route 206 and Valley Road. The Municipality's fire department occupies three buildings in the municipality, and Princeton First Aid and Rescue Squad now occupies a new building across from the police department headquarters.

POLICE DEPARTMENT

The police department operates out of its headquarters between Witherspoon Street, Valley Road, and Route 206, and additionally has operations at 298 River Road and at one municipal firehouse.

FIRE DEPARTMENT

Fire protection for the Municipality is provided by the Princeton Fire Department, headquartered in the firehouse at 363 Witherspoon Street. The department manages 12 vehicles, housed at 363 Witherspoon and at 15 Chestnut Street and 27 N. Harrison Street. The Princeton Fire Department consists of three fire companies. Fire operations were consolidated into the Witherspoon Street Firehouse in 2011.

The Fire Department was a 100% volunteer organization from 1788 to 2020, when it hired its first career firefighters. There are currently six full-time firefighters assigned to the Witherspoon Street Firehouse and three full-time firefighters/inspectors and one civilian inspector assigned to inspections at Monument Drive. The Fire Department is overseen by the Department of Emergency and Safety Services.

Part of the Fire Department's responsibility is preparation for natural disasters, and it works with the community on preparation of emergency plans for severe events such as hurricanes, heatwaves, fires or major disasters, and on registration of vulnerable residents who may need greater assistance during an emergency. Municipal firehouses are critical facilities.

Currently, the Fire Department is challenged for space for overnight accommodations, equipment storage, training, and administrative functions. Moving forward, the Municipality would like to combine all Office of Emergency Management, fire inspection, and Princeton Fire Department operations into one location or proximate area.

FIRST AID AND RESCUE SQUAD

The Princeton First Aid and Rescue Squad (PFARS) is an independent nonprofit that serves the Municipality. Were it not to exist, the Municipality would need to provide the numerous EMS and rescue services that PFARS provides. The organization comprises nine career staff and 71 members, and is responsible for 10 vehicles, housed at its new facility at 2 Mount Lucas Road. The facility opened in December 2019, and in addition to vehicle bays, includes offices, training areas, bunk rooms, a great room, and a study room. Rooftop solar panels help power the facility. This building is a critical facility.

DEPARTMENT OF EMERGENCY AND SAFETY SERVICES

This office, headquartered in the former Borough municipal building at One Monument Drive, comprises the Bureau of Fire Safety, the Office of Emergency Management, the Fire Department, and the Public Occupational Health and Safety office. It is responsible for fire code compliance, directing emergency management operations, oversight of the Fire Department, and coordinating safety compliance across the Fire Department, the Office of Emergency Management, and the fire marshals.

5.3 Public Health

PENN MEDICINE PRINCETON HEALTH

Since the 1996 Community Master Plan, Princeton Hospital, which had been located on Witherspoon Street, has expanded and relocated to a site on Route 1 in Plainsboro, which opened in May 2012. The hospital is now affiliated with Penn Medicine, and includes acute care and acute rehabilitation and an ambulatory surgery center, as well as medical offices.

Princeton Health operates Princeton House Behavioral Health, which has an inpatient facility at 905 Herrontown Road and an outpatient facility at 741 Mount Lucas Road, and a women-only outpatient program at 1000 Herrontown Road.

On the campus of the new Princeton Medical Center is the Zufall Health Center, a Federally Qualified Health Center (FQHC) that provides health services to under- and uninsured low- and moderate-income residents at no cost or a reduced cost.

Princeton Health conducts periodic Community Health Needs Assessments. Its most recent report, from 2021, identifies as barriers to optimum health the high cost of housing, transportation challenges for those without access to a vehicle, and difficulty in accessing or affording healthcare, particularly mental healthcare and addiction services, for which demand was seen as increasing faster than demand for other healthcare services.

PRINCETON HEALTH DEPARTMENT

The Municipality also has its own PHAB-accredited Health Department, charged with protecting the community from health threats, educating residents about health issues, providing health solutions, and advancing community health. The Health Department performs regular environmental health compliance inspections, public health nursing investigations, health education, and vital statistics services (recording of birth, death, and marriage certificates).

Other programs run by the Health Department include a federally funded free dental care program that provides free basic dental care services to low- and moderate-income Princeton residents who were adversely affected economically by the COVID-19 pandemic, and the Mayor's Wellness Campaign, a statewide initiative to improve residents' health through evidence-based programs and strategies. The Health Department and the Mayor lead this campaign annually through partnerships with local organizations. In 2022, the Health Department received the highest recognition of "Healthy Town" for its campaign integrating art, gardening, and reading to reduce social isolation and improve mental health in the community.

Animal Control and Rental Housing are also overseen by the Health Department. Animal Control services include animal impoundment and enforcement, animal cruelty investigations, rabies investigations and other animal-related complaints. Rental Housing is responsible for ensuring compliance of rental units with the Princeton Housing Code. The staff manages inspection/maintenance programs, investigates quality-of-life issues, issues rental housing certificates of compliance, and performs general rental property inspections.

PARKS, RECREATION AND OPEN SPACE

Princeton's parks, recreational facilities, trails, and open spaces provide a framework for outdoor activities, exercise, sports, and general well-being. These elements of the community bear a direct relationship to public health. Princeton's goals and strategies for these resources are detailed in the Conservation, Open Space and Recreation Plan Element of this Master Plan.

5.4 Public Facilities

PRINCETON PUBLIC LIBRARY

The 1996 Community Master Plan noted that the governing bodies of the Princeton Public Library, located at the corner of Witherspoon and Wiggins Streets, had agreed on an expansion plan for the library. The expansion, which is now complete, added almost 30,950 square feet to the existing facility for a total of more than 57,600 square feet. The building, which features a community room, other meeting rooms, and a café as well as reading and study facilities and an extensive book collection, continues to be used heavily for reading, technology access, film festivals, classes, story times, book club meetings, and author events.

Population within walking distance of the Princeton Shopping Center is anticipated to grow over the next 10 years. This includes new multi-family developments on Thanet Road and at either end of the Shopping Center. Further redevelopment of the Shopping Center itself is currently being planned in order to revitalize this important community retail complex. The addition of a library branch at the Shopping Center could serve as a complementary public destination to new retail, service, and residential uses, enhancing the Shopping Center as a more holistic community destination.

PRINCETON SENIOR RESOURCE CENTER

Princeton's Senior Resource Center, also known as the Nancy S. Klath Center for Lifelong Learning, is located at 101 Poor Farm Road, and is owned and operated by a nonprofit entity of the same name. The center receives some public funding as well as fees from classes and donations. It operates in the Poor Farm Road location and provides some services in the old Borough facility at One Monument Drive. It offers social and recreational activities, health and fitness classes, educational and enrichment programs, technology assistance, retirement planning, and volunteer activities. In addition, it offers support and guidance services, assistance with benefit applications, links to in-home support, care planning, and referrals to various community services.

VALLEY ROAD SCHOOL SITE

The original former school building at 1 Valley Road is now abandoned and not in use. A portion is currently uninhabitable and has been recommended for demolition. An addition to the building, and an associated ballfield, are currently used by the Board of Education as its administrative headquarters, as well as the transportation and maintenance headquarters for the Board's fleet of school buses. Studies were done in 1981 and 2015 to examine the best way to reuse the site.

YMCA/YWCA

The YMCA and YWCA are located at 59 Paul Robeson Place, and are now part of the Somerset County YM system. The YMCA includes a lap pool, fitness center, gymnasium, outdoor basketball court, outdoor athletic field open to the entire Princeton community, and group exercise studios. Programming includes youth sports, babysitting services, teen programs, and a summer camp program. The YWCA programs include a breast cancer resource center, an early childhood learning center, a social group for newcomers, digital literacy programs, lessons in English as a second language, and youth summer programs and childcare.

5.5 Cultural Amenities

Arts institutions are durable assets for a community, acting as magnets for other activities. Princeton offers a wealth of cultural opportunities, both in the municipality and on the Princeton University campus. While there are many cultural opportunities available, not all of them are free. Prior to the COVID-19 pandemic there had been a Public Arts Commission, which is in the process of being reactivated. A collaborative of nonprofit executive directors has once again begun meeting regularly, and, should the group so choose, it could expand its role to include coordination and marketing of programming.

There is one outdoor amphitheater in the municipality, at Community Park North.

ARTS COUNCIL OF PRINCETON

This facility, at 102 Witherspoon Street across from the Princeton Public Library, offers classes in all media, as well as exhibits and arts-related events such as the annual Porchfest music festival. The Arts Council also oversees use of the Municipality's parklet and organizes the winter chalets.

HINDS PLAZA

This public plaza, on Sylvia Beach Way and Witherspoon Street outside the public library, serves as an outdoor gathering place for residents and visitors and hosts a weekly farmers' market. The Municipality is currently studying potential design improvements to the plaza, such as a stage and sound system, that would allow for more outdoor uses.

LEWIS ARTS COMPLEX

The Lewis Arts Complex, 122 Alexander Street, is home to Princeton University's Dance, Music Theater, Theater, and the interdisciplinary Princeton Atelier programs. The Visual Arts program, housed at 185 Nassau Street, is also part of the Lewis Arts Complex. The complex serves the campus and the wider Princeton regional community through the presentation of public performances, exhibitions, readings, film screenings and lectures, most of them free.

MCCARTER THEATRE

McCarter Theatre, at 91 University Place, is a renowned regional performance venue that offers dramatic productions, musical performances, cultural attractions, and education and outreach events.

PALMER SQUARE

Palmer Square Management stages outdoor musical and movie events on the privately owned and managed Palmer Square.

PRINCETON ART MUSEUM

With a collecting history that began in 1755, the Princeton Art Museum was formally established in 1882, and now houses over 113,000 works of art ranging from antiquity to the contemporary period. It offers permanent and rotating exhibits as well as educational events for students and the public. In 2018 the art museum announced plans for a new building in the center of the university campus that will approximately double the space for art exhibition, conservation, and study. The new building is currently under construction and due to open in spring 2025.

ART ON HULFISH

This is the Princeton Art Museum's temporary new gallery, at 11 Hulfish Street, offering a rotating roster of exhibitions and related programming, including discussion groups, learning opportunities, and drop-in activities.

ART@BAINBRIDGE/BAINBRIDGE HOUSE

This is a gallery project of the Princeton Art Museum, housed in a carefully restored Colonial-era house at 158 Nassau Street.

PRINCETON GARDEN THEATRE

The Princeton Garden Theatre, at 160 Nassau Street, is a historic movie theater established in 1920. It is owned by Princeton University and operated by Renew Theaters, a nonprofit that manages community art-house movie theatres. It shows independent, foreign, and classic films.

PRINCETON SHOPPING CENTER

There is an interior courtyard at the Princeton Shopping Center that can be used for various types of events to serve the growing residential community in that area of the Municipality.

PRINCETON UNIVERSITY CONCERTS

These concerts, at various Princeton University venues including Richardson Auditorium, host performances by world-class musicians that are open to the public.

RICHARDSON AUDITORIUM

The primary musical concert venue on the Princeton University campus, located at 61 Nassau Street behind Nassau Presbyterian Church, Richardson offers performances by both student and outside groups.

TAPLIN AUDITORIUM

Taplin Auditorium, in Guyot Hall on the Princeton University campus, is part of the High Meadows Environmental Institute, and hosts seminars, lectures and conferences throughout the academic year on a broad range of environmental topics. Most events are open to the public.

5.6 Historic Sites

Historic preservation is addressed in the Historic Preservation Plan Element, which is a separate element of this Master Plan. The assumptions, goals, and strategies of the Historic Preservation Plan Element guide the consideration, designation, preservation and stewardship of historic sites and districts in Princeton. However, the Community Facilities Plan Element also identifies the location of historic sites. The following sites are included on the National and State Registers of Historic Places.

GROVER CLEVELAND HOME

Located at 15 Hodge Road, this National Historic Landmark, patterned after Morven, was built in 1856 by Robert F. Stockton. Grover Cleveland purchased it in 1897 after his second term as president, and lived there until his death in 1908. His widow lived there for many years thereafter. It continues to serve as a private residence.

COTTAGE CLUB

This building, located at 51 Prospect Avenue, replaced the building originally known as The University Cottage, which was purchased in 1886 by several university juniors who sought a place to take their meals that offered better dining than then-available university options. The current building was constructed in 1892 and was entered into the New Jersey and National Registers of Historic Places in 1999 based on its architectural integrity and cultural contributions to the community. It continues to serve as an eating club for university students.

DRUMTHWACKET

Drumthwacket, at 354 Stockton Street, is the official residence of the Governor of New Jersey. It stands on land once owned by William Penn. It is maintained by the Drumthwacket Foundation, which works to preserve it and conserve and restore the furniture, fine art, and antiques on view in the residence.

ALBERT EINSTEIN HOUSE

This home, located at 112 Mercer Street, was where Albert Einstein lived from 1935 until his death in 1955. Despite Einstein's request that the house not be turned into a museum, it has been added to the National Register of Historic Places and has been designated a National Historic Landmark. It is currently owned by the Institute for Advanced Study and serves as a private residence.

JOSEPH HENRY HOUSE

This historic building, adjacent to Chancellor Green on the Princeton University campus, was originally built to lure prominent physicist Joseph Henry to Princeton. Henry later became the first secretary of the Smithsonian Institution. After Henry's departure, the house served as the official home of the Dean of the College until 1961, and currently serves as home of the university's Andlinger Center for the Humanities. It was declared a National Historic Landmark in 1965.

DONALD GRANT HERRING ESTATE

This property, located at 52, 72, and 75-77 Arreton Road, is what survives after subdivision of the original 117-acre estate, and is on the National Register of Historic Places as one of the finest examples of the Arts and Crafts movement in central New Jersey. It serves as a private residence.

MACLEAN HOUSE

Maclean House, on the Princeton University campus, was home to 10 university presidents, as well as to the enslaved people owned by five of those presidents. It was declared a National Historic Landmark in 1971, and currently houses the Alumni Association of Princeton University.

MAYBURY HILL

Maybury Hill, an excellent example of Georgian domestic architecture, at 346 Snowden Lane, is the birthplace of Joseph Hewes, a signer of the Declaration of Independence. It is on the National Register of Historic Places, and today serves as a private residence.

MORVEN MUSEUM AND GARDEN

Built in the 1750s by Richard Stockton, a signer of the Declaration of Independence, Morven, located at 55 Stockton Street on property originally granted by William Penn, served as the state's first Governor's Mansion between 1945 and 1981. It has been extensively restored, and it reopened in 2004 as a museum and garden.

NASSAU HALL

Princeton University's Nassau Hall, which faces Nassau Street behind the university's FitzRandolph Gate, was built in 1756 to house what was then the College of New Jersey. At the time it was the largest stone building in the colonies. In 1783 the building served as the nation's Capitol building, housing the Continental Congress from June to November. It was in Nassau Hall that the news of the peace treaty with Great Britain was received.

PRINCETON BATTLEFIELD STATE PARK

This was the site in January 1777 of one of the fiercest battles of the American Revolution, capping 10 days of fighting that began with General George Washington's famous crossing of the Delaware River on Christmas Day 1776. The site, located at 500 Mercer Road, includes Clarke House, built by a Quaker farmer in 1772. The famous Mercer Oak, believed to have been present during the Battle of Princeton, stood in the middle of the battlefield until it collapsed of old age in 2000. An offspring, sprouted in 1981 from a Mercer Oak acorn, grows next to the stump of the original tree. The site also includes broad open lawns, available for cross-country skiing in the winter, and paved and gravel hiking paths. Both the lawns and paths link to the Institute Woods, and the hiking trails lead to the Delaware and Raritan Canal. The American Battlefield Trust is currently renovating and upgrading the Battlefield.

PRINCETON ICE COMPANY

The Princeton Ice Company built a dam on former farmland in 1884 to allow for the production of ice for sale, and the company became the primary supplier of

ice to the town. In 1902 the company built a second dam in order to expand production. The company dissolved itself in 1929 after new technology made trading in ice obsolete. The site has gone largely undisturbed since then, apart from the 1958 addition of a colonial revival home. In 1987 the property was purchased by Princeton Township for open space and has been known since 2013 as the Billy Johnson Mountain Lakes Nature Preserve. The house, at 57 Mountain Avenue, is home to the Friends of Princeton Open Space and is operated as an event venue by the Mountain Lakes Holding Company. In 2013 Princeton received a state Historic Preservation Award for rehabilitation of the two dams.

PRINCETON RAILROAD STATION

The 1918 stone train station at 94 University Place formerly served passengers traveling between Princeton Junction and Princeton on the "Dinky," the shortest scheduled commuter rail line in the United States. The building ceased service as a station in 2014 when a new station was built, 460 feet to the south. Today the building houses a restaurant.

PROSPECT HOUSE

Prospect House, on the Princeton University campus, is a private meeting and dining club serving university faculty and staff. Previously it served as the home of university presidents. The surrounding gardens were fenced off from the rest of the university by then-university President Woodrow Wilson, after repeated instances of damage by trespassing students.

TUSCULUM

This estate, at 166 Cherry Hill Road, was built in 1773 for John Witherspoon, president of Princeton University and a signer of the Declaration of Independence. It is named after the Roman town of Tusculum. Today it serves as a private residence.

UPDIKE FARMSTEAD/HISTORICAL SOCIETY OF PRINCETON

In 2004, the Historical Society of Princeton purchased the six-acre Updike Farmstead at 354 Quaker Road and now uses the site for its offices. The Farmstead consists of a late 18th/early 19th century farmhouse, a large barn, wagon shed, corn crib, three-bay garage, garden sheds, and a raised-bed organic garden. The Farmstead is on the State and National Registers, and is part of the Princeton Battlefield/Stony Brook Settlement Historic District.

WITHERSPOON STREET SCHOOL FOR COLORED CHILDREN

Located at 35 Quarry Street, this school educated the African-American children of Princeton from kindergarten through eighth grade, from 1858 until Princeton Public Schools were integrated in 1948. Following the 1896 *Plessy v. Ferguson* Supreme Court decision permitting racial segregation as long as facilities were "separate but equal," the school underwent a major remodeling. In 1909 the school moved to its present location, which has been entered into the National Register of Historic Places. The building has been expanded twice since then, and currently serves as an apartment building.

5.7 Educational Facilities

Princeton's identity is largely intertwined with Princeton University. In addition to this renowned Ivy League institution, the Municipality is known for its outstanding public and private schools. Indeed, Princeton's strong public school system is a backbone of the community and is what keeps housing in the Municipality in high demand.

PUBLIC AND CHARTER SCHOOLS

The quality of life in a municipality is directly affected by the health of its public schools. Princeton Public Schools (PPS) comprises four elementary schools – Community Park School, Johnson Park School, Littlebrook Elementary School, and Riverside Elementary School – as well as one middle school and one high school, all of which currently accommodate a total of approximately 3,700 students. It has been more than a half-century since Princeton Public Schools constructed a school. The planned future growth in the municipality is already a major focus of the PPS Board of Education because the public schools are currently at enrollment capacity, and PPS anticipates that building new facilities and/or expanding existing facilities will soon be necessary. District administrators estimate that renovation and construction to expand capacity will take up to five years to come online.

PPS is currently preparing a plan to accommodate projected enrollment growth, and by late 2023 expects to select a plan for the next phase of renovation and construction to accommodate forecasted enrollment growth over the next five to seven years.

Princeton is also home to the Princeton Charter School, a public charter school (K-8) at 100 Bunn Drive with a current enrollment of approximately 400 students.

Most public schools in Princeton are conditional uses in residential districts, while several non-public schools are in Education zoning districts. This Element recommends studying each of the schools individually to determine the appropriate zoning regulations in order to maintain consistency with the school's surroundings.

NON-PUBLIC SCHOOLS

Princeton is home to several private and parochial schools, including Princeton Day School (K-12), 650 Great Road, Stuart Country Day School (K-12), 1200 Stuart Road, St. Paul's School (K-8), 218 Nassau Street, Academy of the Sacred Heart (K-8), 1128 Great Road, the Hun School of Princeton (6-12), 176 Edgerstoune Road, the Princeton Friends School (K-8), 470 Quaker Road, the Lewis School (ungraded, ages K-12), 53 Bayard Lane, and the Princeton International School for Math and Science (9-12), 19 Lambert Drive.

Princeton also contains numerous nursery schools, including longtime ones like Princeton Nursery School on Leigh Avenue and ones within other institutions like University Now Day Nursery (Princeton University), Princeton Community Family Learning Center (All Saints Church), and Crossroads Nursery School (IAS).

INSTITUTIONS OF HIGHER LEARNING

Besides Princeton University, the Municipality is home to the Princeton Theological Seminary, 64 Mercer Street, and the Institute for Advanced Study at 1 Einstein

Drive. Kean University also has an architecture learning center in Michael Graves' The Warehouse on Patton Avenue. Westminster Choir College, now owned by Rider University, moved its operations out of its Princeton campus in the fall of 2020. There is current litigation related to the property, and it is currently for sale, although some community music activities still take place on the campus at 101 Walnut Lane.

5.8 Community Facilities Recommendations

RECOMMENDATIONS - MUNICIPAL FACILITIES AND PUBLIC SAFETY

1. **Implement the recommendations of the upcoming Facilities Assessment Study.**
2. **Retrofit existing municipal and public safety buildings and facilities** as set forth in the Green Building and Environmental Sustainability Element to improve energy efficiency and decrease energy demand.
3. **Implement distributed energy resource (DER) technology at critical municipal and public safety buildings and facilities**, such as the Municipal Building and River Road Sewage Treatment Plant, to ensure they remain operational during public emergencies.
4. **Designate municipal facilities for emergency uses as needed and appropriate,** including serving as emergency shelters, warming/cooling facilities, communication hubs, and points of distribution of emergency materials and information during public emergencies.
5. **Optimize the size of the municipal vehicle fleet** to reduce vehicle miles traveled.
6. **Convert the municipal fleet to electric vehicles** or other zero-emission vehicles.
7. **Install resilient electric vehicle charging infrastructure or other zero-emission fueling infrastructure for the municipal fleet,** including identifying suitable locations for heavy-duty charging of vehicles.

8. **Make municipal and public safety buildings resilient** to flooding and other climate hazards.

9. **Integrate solar energy generation systems** on municipal and public safety buildings and facilities.

PUBLIC HEALTH RECOMMENDATIONS

10. **Provide greater access to outpatient and health services** through adjustments to permitted uses within the land development ordinance.

11. **Evaluate subsidizing transit or ride-share services** or expanding the existing Senior Resource Center's Crosstown service beyond the senior community, to increase access to healthcare for those without their own vehicle.

12. **Maintain and develop open space and recreational facilities** as set forth in the Conservation, Open Space and Recreation Element of this Master Plan, to promote public health.

PUBLIC FACILITIES RECOMMENDATIONS

13. **Study options for the reuse of the Valley Road School site** to maximize its ability to accommodate community needs.

CULTURAL AMENITIES RECOMMENDATIONS

14. **Develop and implement a creative placemaking program** for the town's public spaces.

EDUCATIONAL FACILITY RECOMMENDATIONS

15. **Maximize utilization of existing facilities and land** to address projected enrollment growth and shifts in concentration of students.

16. **Undertake cost-effective building improvements** as necessary.

17. **Develop criteria for prioritizing potential locations for new school facilities,** in collaboration with the school district, and including but not limited to, locations to which schoolchildren can safely walk or bike; locations in future centers of residential growth, such as near the Shopping Center; and locations that can accommodate school bus traffic and parking.

18. **Prioritize public school buildings as critical facilities for distributed energy resources (DER),** so they may stay functional during public emergencies.

19. **Install solar power infrastructure at school facilities** to facilitate reductions in energy costs and increased resiliency.

20. **Integrate green and sustainable building practices within school facilities** that are aligned with the Green Building and Environmental Sustainability Plan

21. **Study the zoning for schools** and determine appropriate zoning regulations to permit them as conforming and context-sensitive uses.

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6.0 CONSERVATION, OPEN SPACE AND RECREATION

Introduction

This Conservation, Open Space and Recreation Plan Element reestablishes Princeton's goals for conservation, open space, and recreation and recommends actions to advance those goals. This is a combined Element of the Master Plan that includes the statutory components of each respective element as well as all components of an Open Space and Recreation Plan as required by Green Acres.

This Element is organized in two sections: (1) Natural Resource Conservation and (2) Open Space and Recreation.

6.1 Natural Resource Conservation

Princeton has long recognized that its natural resources complement and support the functions of its built environment. Conservation of each of the following resources plays a role in Princeton's economy, quality of life, and resiliency to climate change. Further detail and analysis of each natural resource will be provided in a new Environmental Resource Inventory (ERI).

FORESTS

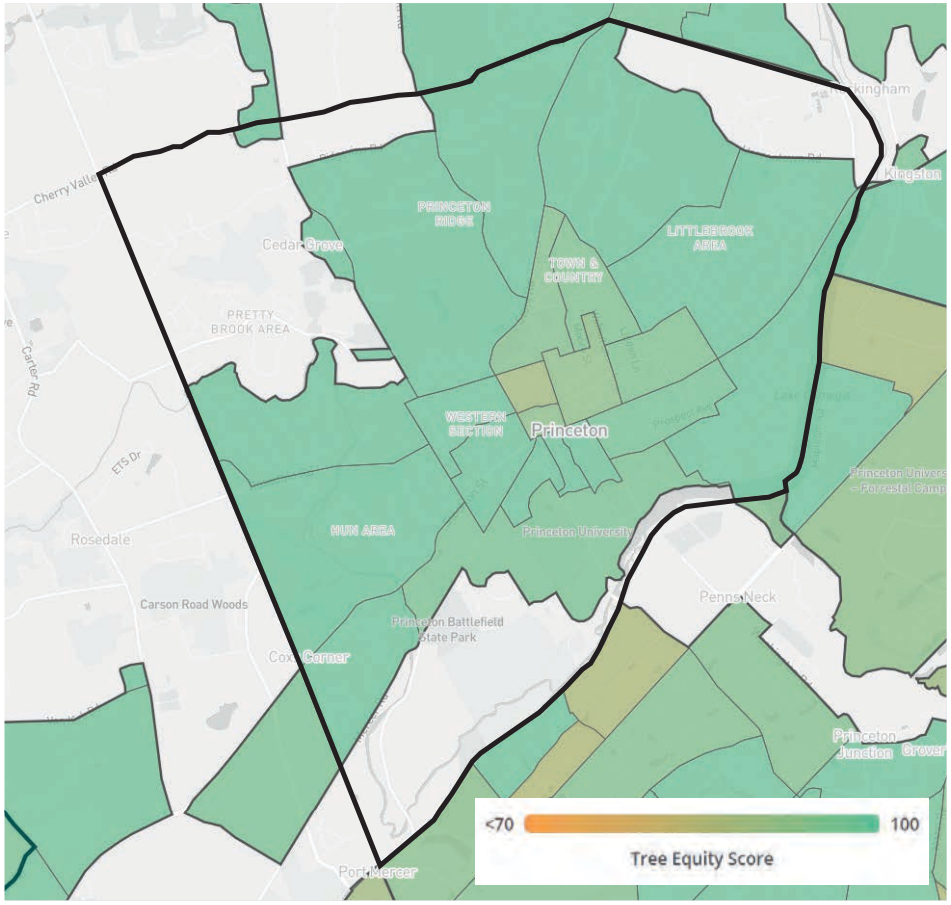
Forests and urban tree canopy provide a wide array of benefits to Princeton's ecosystems and communities. To reinforce these benefits, the Municipality continues to prioritize the preservation, maintenance, and expansion of its forested areas and urban tree canopy. The Shade Tree Commission and municipal staff maintain an extensive online map of Princeton's street trees via TreeKeeper inventory management software, providing data on more than 19,000 trees, stumps, and vacant tree pits on municipal streets and parks.

TREE EQUITY

The Tree Equity Score is a metric calculated by American Forests assessing how effectively trees and their associated benefits are distributed across race and class lines. The score is derived from a variety of socioeconomic and spatial data including income, age, race, public health indicators, tree canopy cover and surface temperature to help prioritize neighborhoods where additional efforts are necessary to close gaps in tree canopy coverage and distribution.

Map 6.1 - Tree Equity Scores in Princeton

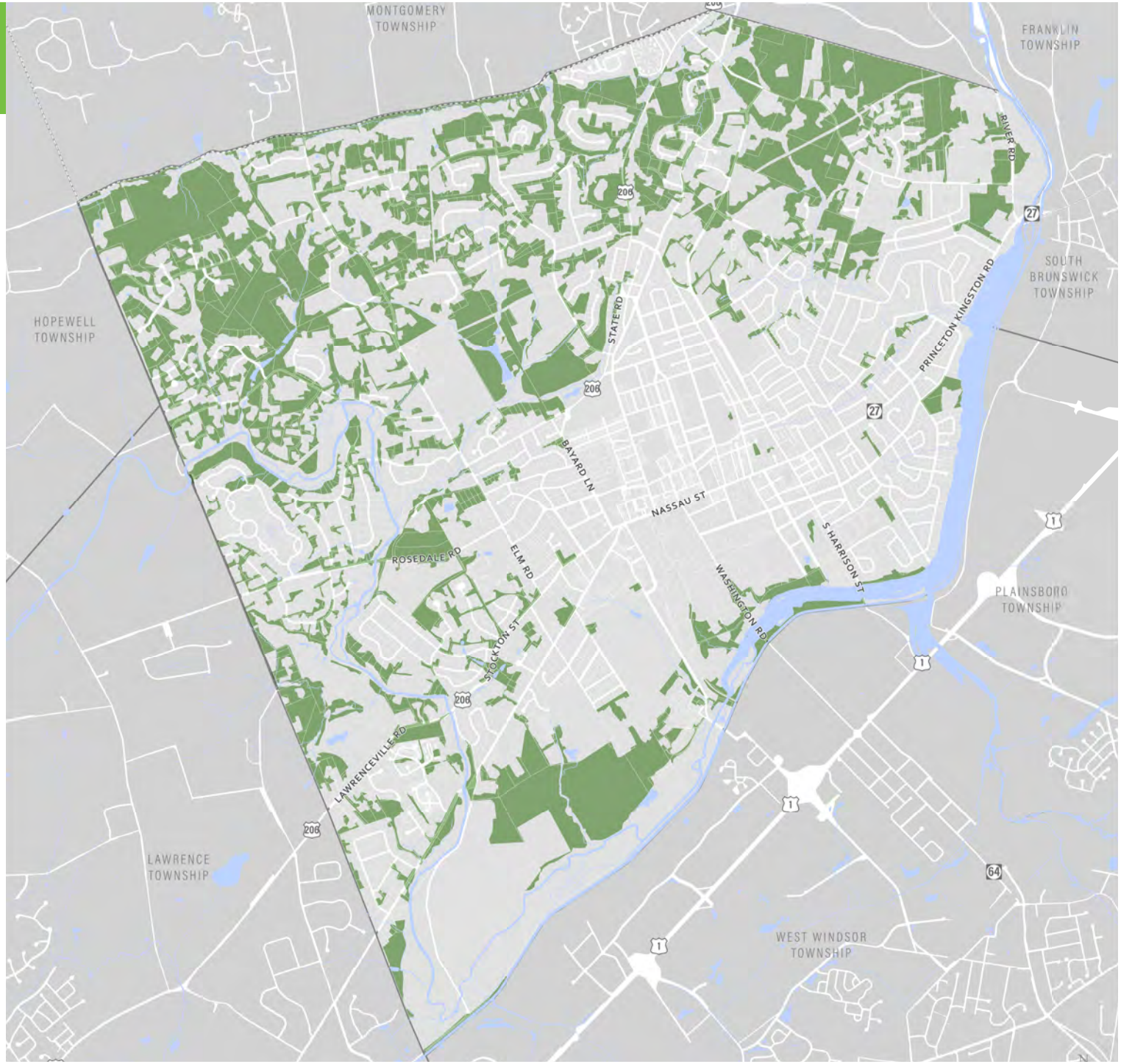
Map 6.1 shows Tree Equity Scores in Princeton, which rank from 89 to 100 and indicate equitable distribution of tree canopy throughout the Municipality.



Source: American Forests (treeequityscore.org)

FOREST COVER

FOREST



Source: NJDEP (Forest)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

WILDLIFE HABITAT

Princeton's ecosystems provide habitat for a variety of species including several that are endangered, threatened, or of special concern. The Landscape Project is a policy tool provided by NJDEP that combines documented species sightings and location data, land-use and land-cover data, and species life history information to delineate habitat for at-risk wildlife throughout the state. Table 6.1 provides a summary of each Landscape Project habitat rank and its total acreage in Princeton.

The Wildlife Habitat map illustrates the delineation of these areas in the Municipality. Critical habitat in the Municipality generally corresponds with undeveloped conservation areas and woodlands to the north, wetlands and stream corridors, and preserved farmland near the Institute Woods to south. Areas of greatest concern – Rank 5 – are generally located in the northwest quadrant of the Municipality.

NJ CONSERVATION BLUEPRINT

NJ Conservation Blueprint is an interactive mapping tool provided by a broad consortium of governmental and non-governmental organizations to facilitate data-driven conservation efforts and help local governments prioritize lands for preservation and community green space.

The Conservation Blueprint Priority Lands map shows areas of Medium-High to High priority for conservation as identified by NJ Conservation Blueprint. These lands include undeveloped and unpreserved areas in which preservation is critical to maintain ecosystem integrity based on water quality, habitat for rare species, flood resiliency, and habitat connectivity.

INVASIVE SPECIES

Princeton has partnered with the New Jersey Invasive Species Strike Team and other organizations to control nuisance and non-native invasive species and to minimize their environmental damage. Current focus species include the emerald ash borer, spotted lanternfly, and deer, which are causing significant damage to ecological resources and biodiversity in Princeton. The New Jersey Invasives Strike Team has also prepared a Do Not Plant List as a guidance document to inform the development process.

Table 6.1: Landscape Project Species-Specific Habitat Classifications

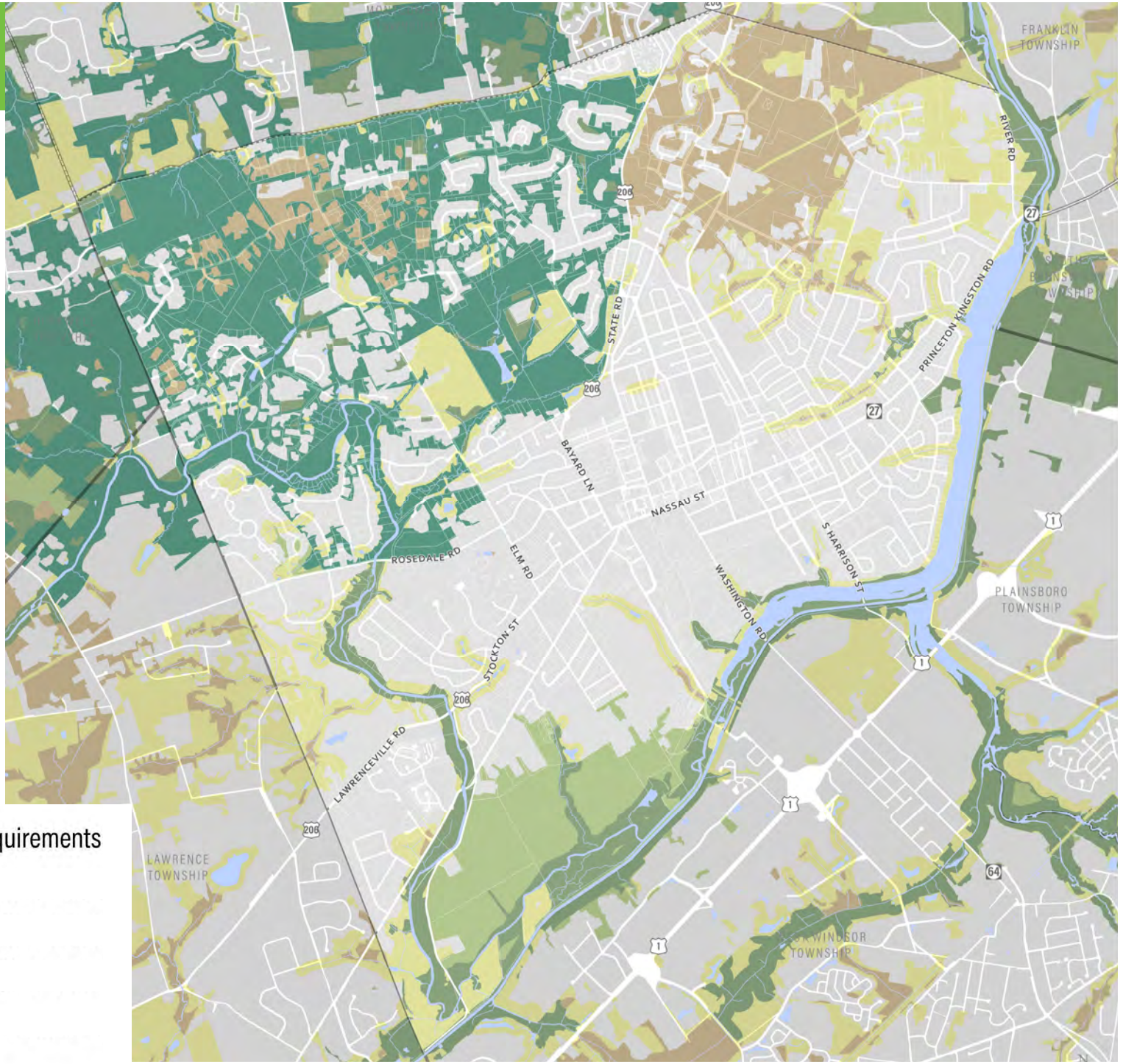
Rank		Rank Description	Acres	%
1	**Habitat-Specific Requirements**	▪ Meets habitat-specific suitability requirements such as minimum size or core area criteria for endangered, threatened or special-concern wildlife species ▪ Does not intersect with any confirmed occurrences of such species	1,363	11.5%
2	**Special Concern**	▪ Contains at least one occurrence of species considered to be of special concern	955	8.1%
3	**State Threatened**	▪ Contains at least one occurrence of State threatened species	536	4.5%
4	**State Endangered**	▪ Contains at least one occurrence of State endangered species	879	7.5%
5	**Federal Listed**	▪ Contains at least one occurrence of species listed as endangered and threatened pursuant to the Federal Endangered Species Act of 1973	2,093	17.7%
		TOTAL	**5,826**	**49.3%**

WILDLIFE HABITAT

0 2,400 4,800 Feet

Sources: NJDEP (Landscape Project v3.3), Municipality of Princeton (Parcels)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.



Rank 1 - Habitat specific requirements

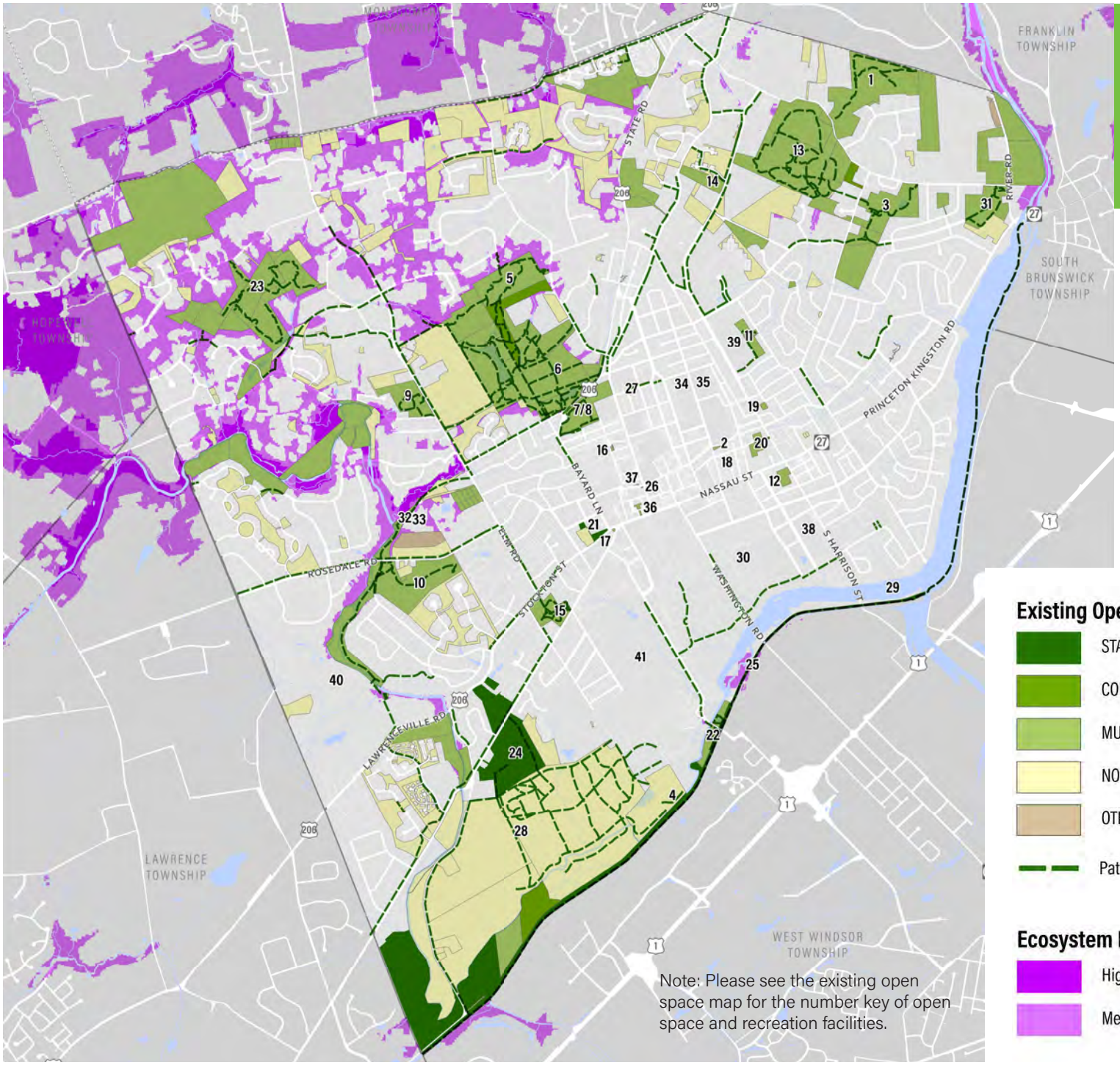
Rank 2 - Special Concern

Rank 3 - State Threatened

Rank 4 - State Endangered

Rank 5 - Federal Listed

CONSERVATION BLUEPRINT PRIORITY LANDS



Note: Please see the existing open space map for the number key of open space and recreation facilities.

0 2,400 4,800 Feet

Sources: NJMAP (njmap2.com/blueprint) , Municipality of Princeton (Parcels)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Existing Open Space and Recreation Facilities

- STATE
- COUNTY
- MUNICIPAL
- NON-PROFIT, PRIVATE
- OTHER PUBLIC ENTITY
- Paths

Ecosystem Priority Rank (Conservation Blueprint)

- High
- Medium-High

SURFACE WATERS AND WETLANDS

Princeton's surface waters include its lakes, streams, brooks, and tributaries in addition to the wetlands associated with these resources and other low-lying areas. Although State regulations limit activity within specified buffer distances to delineated wetlands and surface waters, Princeton can reinforce the ecological integrity of these resources by managing upland stormwater runoff and other development impacts to natural features.

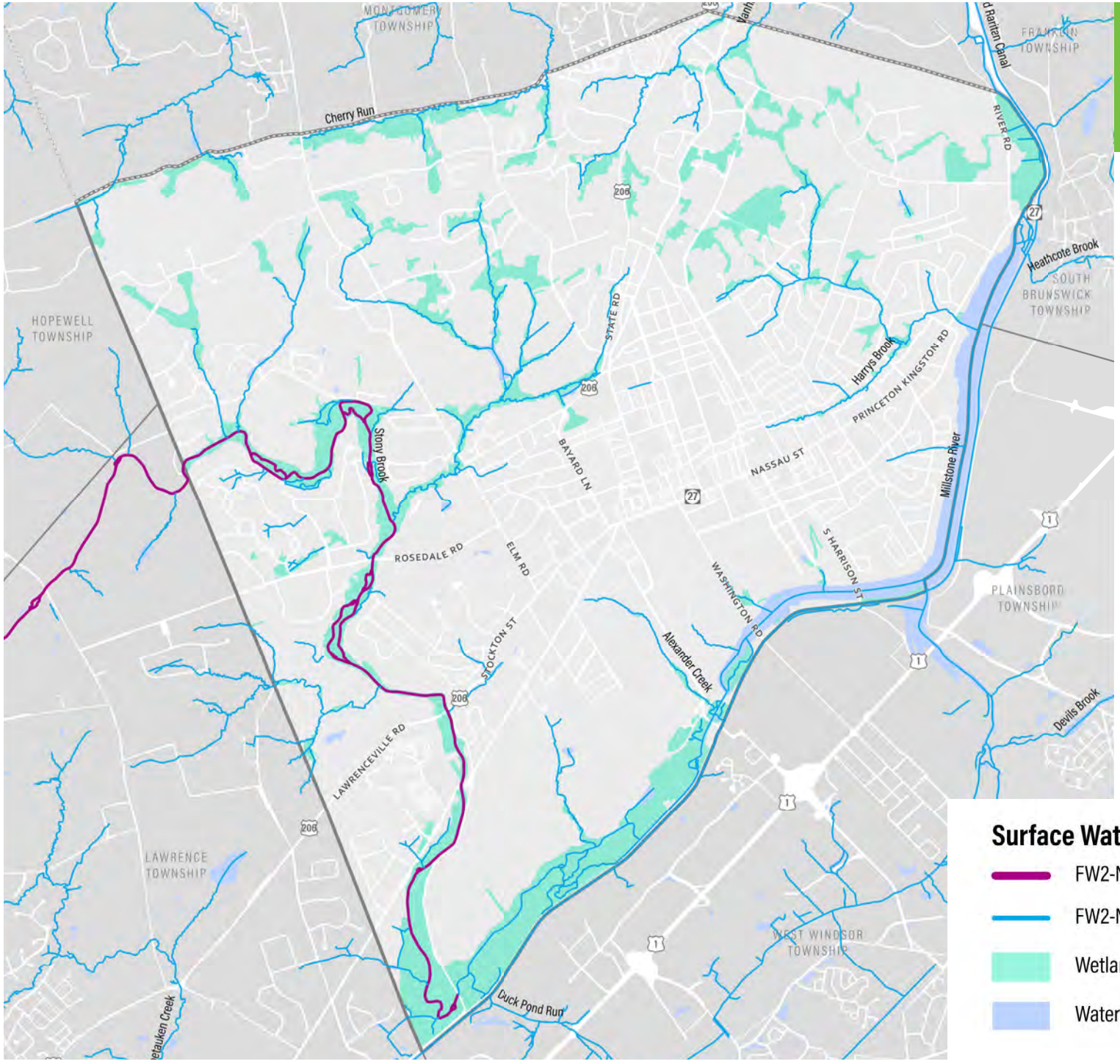
FLOODPLAINS

Fluvial floodplains include low-lying areas adjacent to waterbodies that are subject to periodic flooding caused by rainfall events. Floodplains in Princeton are located along the Millstone River and several streams and tributaries. State regulations limit development within FEMA Special Flood Hazard Areas.

STEEP SLOPES AND SOILS

Steep slopes comprise areas where natural grade slopes more than 25 percent in residential development and 15 percent in nonresidential development. Conservation of steep slopes is key to preventing soil instability, erosion and sedimentation, and loss of significant natural topography. Princeton's stream embankments, the shoreline of Lake Carnegie, and The Ridge in the north of the Municipality are among the most significant of these areas.

SURFACE WATERS AND WETLANDS



0 2,400 4,800 Feet

Sources: NJDEP (Wetlands, Streams, Waterbodies)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Surface Water Classification

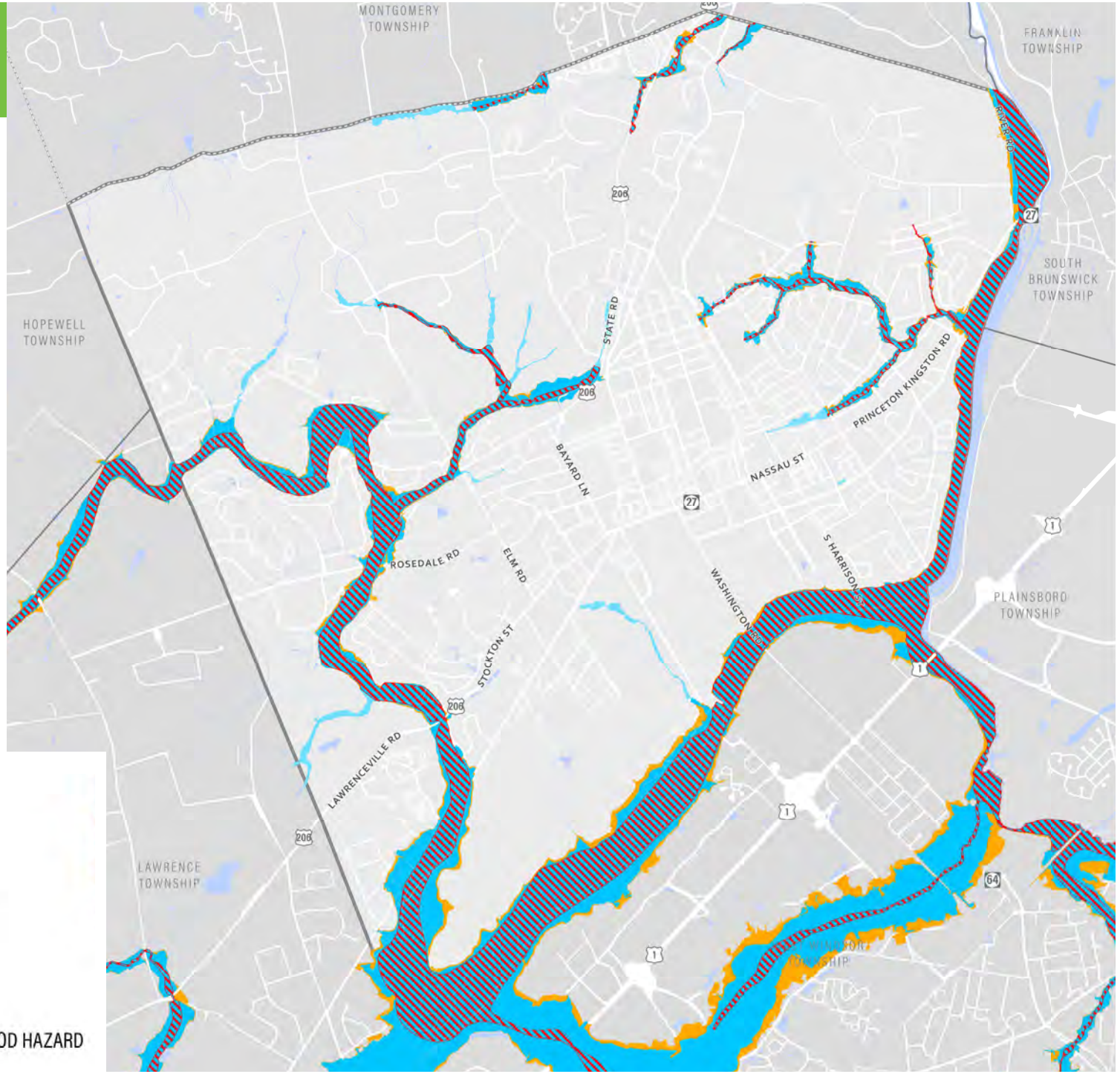
- FW2-NTC1 (Freshwater / Category 1 / Non-Trout)
- FW2-NT (Freshwater / Category 2 / Non-Trout)
- Wetlands
- Waterbody

FLOOD HAZARD AREAS

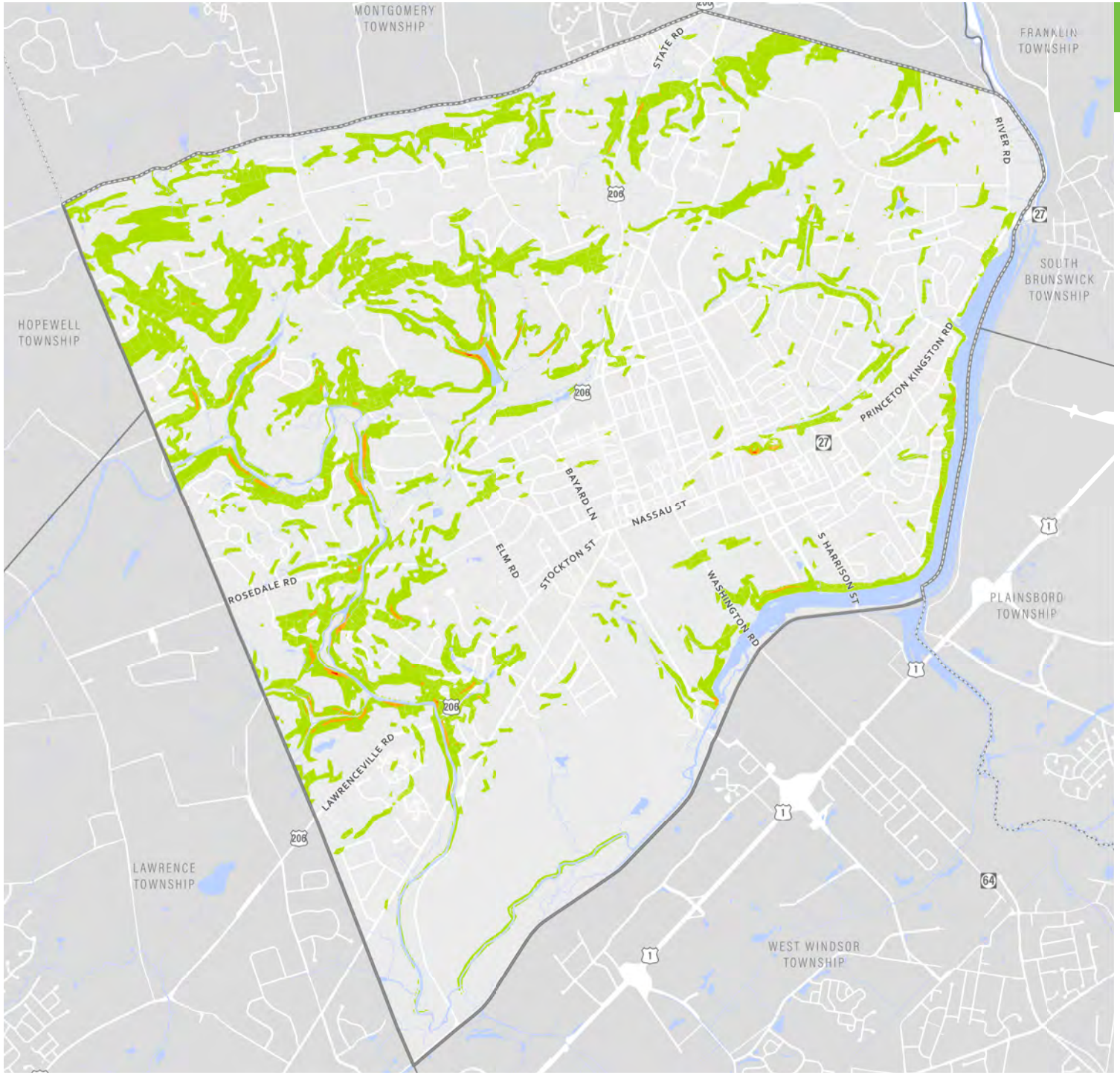
0 2,400 4,800 Feet

Sources: FEMA (Flood Hazard Areas), NJDEP (Streams, Waterbodies)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.



STEEP SLOPES



0 2,400 4,800 Feet

Sources: NJDEP (Steep Slopes, Streams, Waterbodies)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Waterbody

Streams

SLOPES

5 to 15 Percent

15 to 25 Percent

25 Percent and above

STORMWATER MANAGEMENT

Stormwater management efforts primarily concern the balance between impervious coverage and groundwater recharge to improve the quality and quantity of stormwater runoff. This element echoes the Green Building and Environmental Sustainability Element and Municipal Stormwater Management Plan with the Utility Plan Element, which provide additional stormwater management strategies.

SPECIAL ENVIRONMENTAL AREAS

Princeton's special environmental areas include The Ridge, Lake Carnegie, and the Delaware and Raritan Canal due to their unique significance to the Municipality's scenic and environmental character.

ENERGY AND WATER CONSUMPTION

Conservation of energy and water supply are priorities that intersect a variety of other planning efforts in Princeton. The Utility Plan Element, Green Building and Environmental Sustainability Plan Element, Community Facilities Element, and Climate Action Plan address these efforts in more detail.

OPEN SPACE

Princeton has more than 3,200 acres of open space within its boundaries, comprising approximately 27.5% of its land area. The Municipality owns or is responsible for approximately 2,066 acres that are preserved through the Green Acres program and restricted for recreation and conservation purposes. The following map shows all existing open space in Princeton.

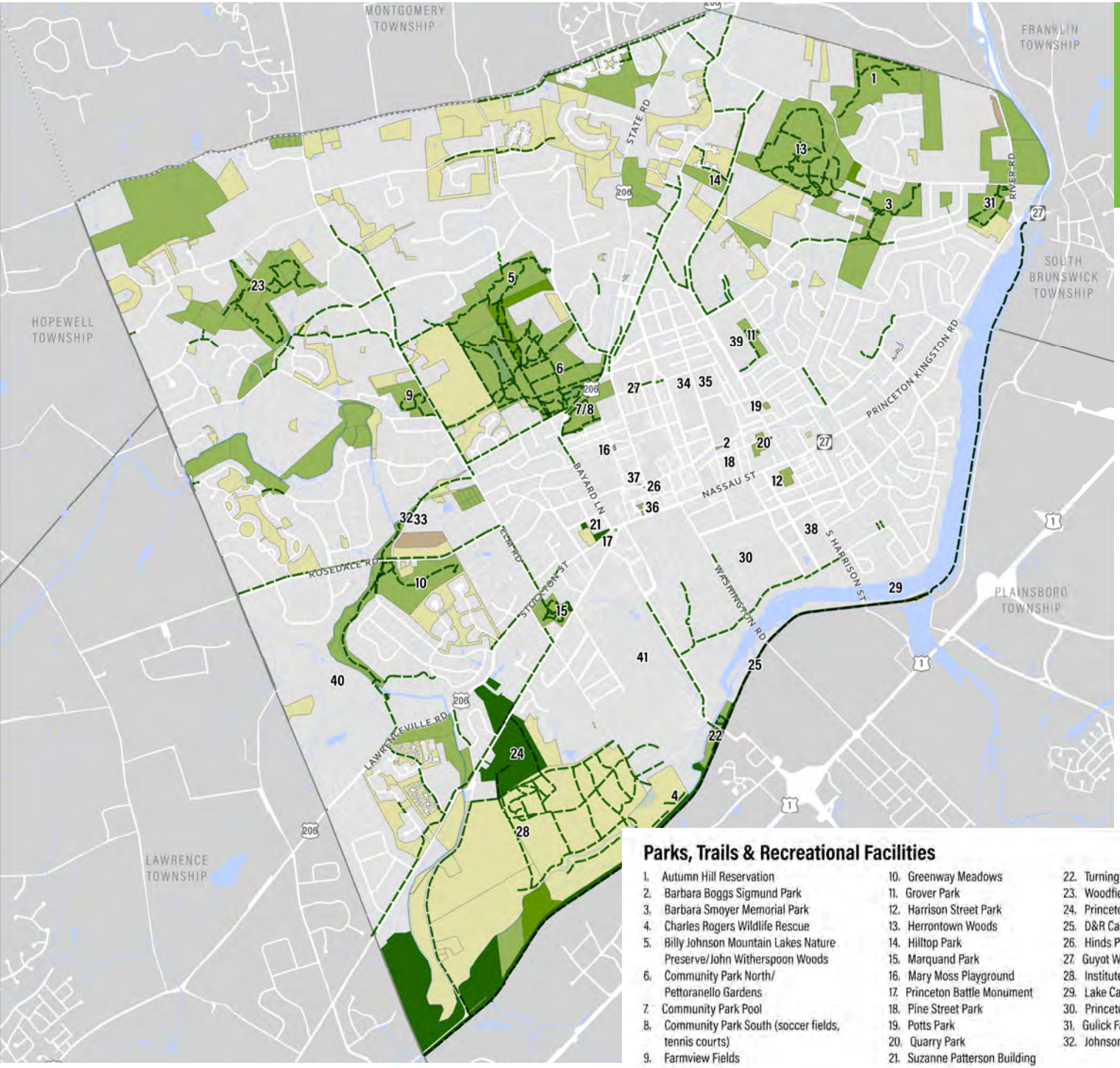
Appendix 11.8 includes Princeton's Recreation and Open Space Inventory (ROSI), which contains all municipally owned recreation and open space sites and provides a general description of facilities and uses.

Princeton has established an Open Space Manager position to oversee stewardship and acquisition of open space at an administrative level, but its Passive Open Space Advisory Committee is no longer in existence. An Open Space Advisory Committee representing diverse perspectives and including subject-matter experts can help guide expansion and development of Princeton's open space system in a manner consistent with the goals and recommendations of all elements of this Master Plan.

MAINTENANCE

The Municipality maintains its open space through a variety of means. The Princeton Recreation Department manages the Municipality's developed recreation space, while passive open spaces and conservation areas are maintained primarily by a combination of volunteers and private foundation funding.

EXISTING OPEN SPACE AND RECREATION FACILITIES



0 2,400 4,800 Feet

Sources: Municipality of Princeton (Existing Open Space and Recreation Areas, Paths)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Existing Open Space and Recreation

- STATE
- COUNTY
- MUNICIPAL
- NON-PROFIT, PRIVATE
- OTHER PUBLIC ENTITY
- Paths

Parks, Trails & Recreational Facilities

1. Autumn Hill Reservation
2. Barbara Boggs Sigmund Park
3. Barbara Smoyer Memorial Park
4. Charles Rogers Wildlife Rescue
5. Billy Johnson Mountain Lakes Nature Preserve/John Witherspoon Woods
6. Community Park North/ Pettoranello Gardens
7. Community Park Pool
8. Community Park South (soccer fields, tennis courts)
9. Farmview Fields
10. Greenway Meadows
11. Grover Park
12. Harrison Street Park
13. Herrontown Woods
14. Hilltop Park
15. Marquand Park
16. Mary Moss Playground
17. Princeton Battle Monument
18. Pine Street Park
19. Potts Park
20. Quarry Park
21. Suzanne Patterson Building
22. Turning Basin Park
23. Woodfield Reservation
24. Princeton Battlefield State Park
25. D&R Canal State Park
26. Hinds Plaza
27. Guyot Walk
28. Institute Woods
29. Lake Carnegie
30. Princeton University Campus/Stadium
31. Gulick Farm Trail
32. Johnson Park Trolley Trail
33. Various Elementary Schools/Basketball Courts/Field
34. Princeton High School Track/Field
35. Princeton Middle School Basketball Courts/Field
36. Palmer Square Green
37. Princeton YMCA/YWCA
38. Broadmead Field
39. Princeton Shopping Center Courtyard
40. TPC Jasna Polana
41. Springdale Golf Club

6.2 Trails and Greenways

Several existing and proposed regional trails intersect Princeton. These trails serve both recreational and transportation purposes and represent opportunities to develop the greenway network further to provide greater access to open space both in Princeton and beyond.

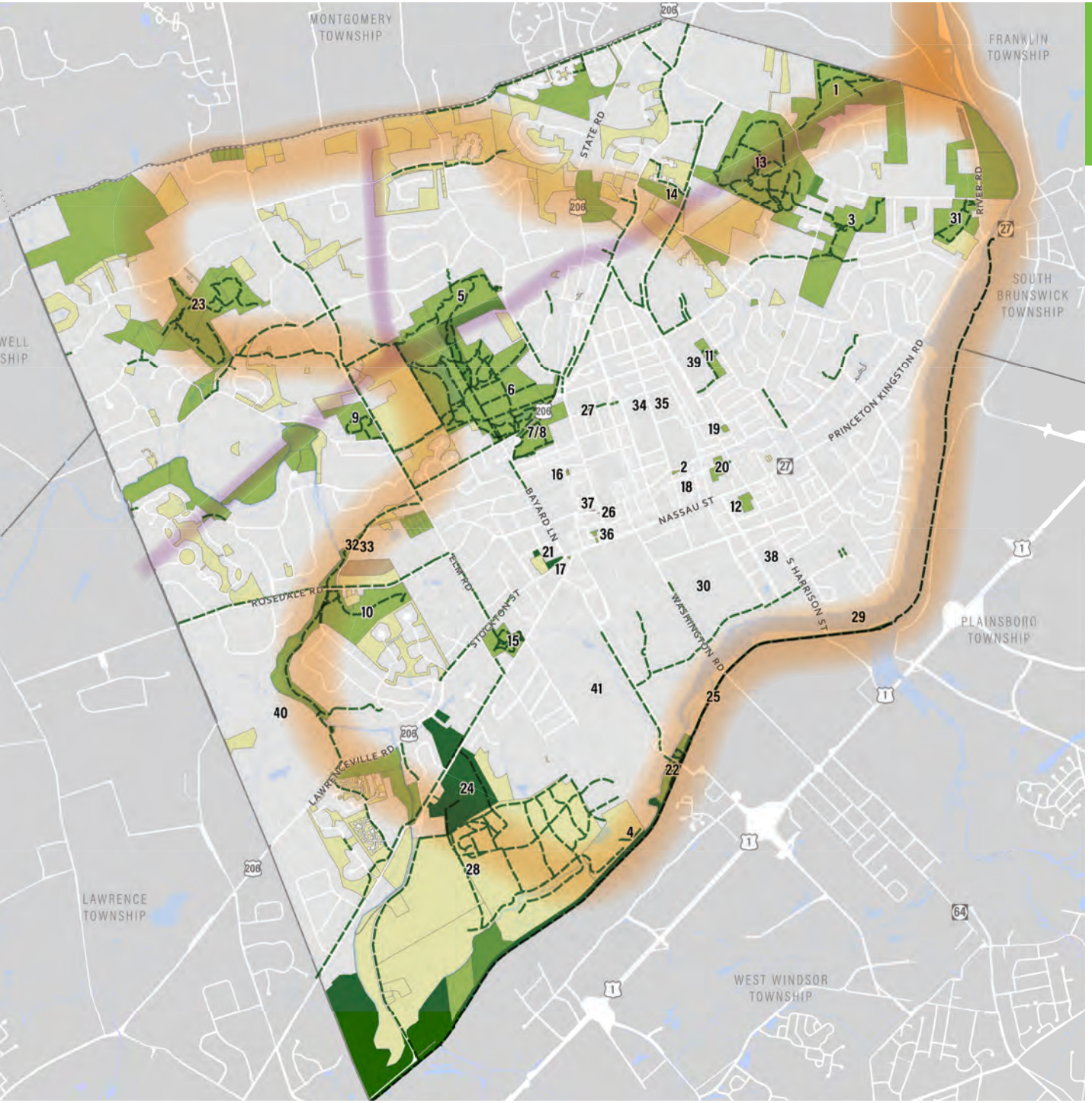
The East Coast Greenway is a developing trail system that stretches nearly 3,000 miles from Maine to Florida. Once finished, the Greenway will provide a continuous, safe and scenic route for bicycle and pedestrian travel that connects various cities, towns, and natural landscapes. In Princeton, the route follows the Delaware and Raritan Canal Trail in addition to an alternative on-road route on Mercer Road and Nassau Street.

The Lawrence-Hopewell Trail (LHT) is a 22-mile trail loop linking several parks, preserves, and campuses in Hopewell Township and Lawrence Township. The LHT consists of on-road bike routes and off-road multi-use paths, including a portion of Princeton's western border at Province Line Road. The LHT is also accessible from Princeton via the D&R Canal Towpath to Maidenhead Meadows Park in Lawrence Township.

The Delaware and Raritan Canal State Park Trail is a linear state park and arterial trail that runs approximately 70 miles along the historic canal towpath connecting Bordentown, New Brunswick, and Frenchtown. The D&R trail runs along the southern boundary of Princeton and links nearby trail systems.

The Circuit Trails is an expanding 800-mile network of bicycle and pedestrian trails that connect communities, employment centers, and parks and open space within the greater Philadelphia region. The Circuit includes both the D&R Canal Trail and LHT, representing opportunities to strengthen Princeton's local connections to the regional trail system for commuting and recreation.

Reflecting strong feedback from public outreach efforts, it is the Municipality's goal to focus its open-space acquisitions first on lands that will enhance its own trail system, with the eventual goal of creating a Greenway Loop around the outer edge of the Municipality. Additionally, the Municipality will work to establish greater linkage to the regional trail network described above. The following map shows, in orange, a conceptual framework for a Greenway Loop, also referred to as Princeton's "Emerald Necklace." The Municipality also plans to utilize the Transco Pipeline right-of-way to the greatest extent feasible, as shown in purple.



TRAIL AND GREENWAY OPPORTUNITIES

0 2,400 4,800 Feet

Sources: Municipality of Princeton (Existing Open Space and Recreation Areas, Paths)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

Note: See existing open space map for number key of open space and recreation facilities.

Existing Open Space and Recreation Facilities

- STATE
- COUNTY
- MUNICIPAL
- NON-PROFIT, PRIVATE
- OTHER PUBLIC ENTITY
- Paths

- Conceptual Greenway Opportunities
- Transco Pipeline Opportunity

6.3 Existing Recreation Facilities

The Princeton Recreation Department maintains active recreation facilities and programs at 15 park locations comprising almost 270 acres throughout the Municipality. Table 6.2 provides an inventory of municipal recreation facilities.

Princeton's recreation facilities support more than 18 organized sports leagues and recreation programs. The Recreation Department estimates that residents comprise more than 50% of participants in its programs.

The Municipality strives to provide a balance of availability for all users of its recreational resources. While Princeton Recreation Department programs have priority in reserving recreation fields, 17 other groups, including Princeton Public Schools and non-municipal sports organizations, also have access to the Municipality's recreation facilities through rental policies and scheduling agreements with the Recreation Department. Some facilities of Princeton Public Schools, local private schools, and Princeton University are also open to the public during after-school hours. However, growth of the University and increased usage of its own facilities has reduced their availability to the public in recent years.

Table 6.2: Municipal Recreation Facility Inventory		
Type	**Existing Facilities**	**Location(s)**
Playground	11	▪ Barbara Boggs Sigmund Park ▪ Barbara Smoyer Memorial Park ▪ Farmview Fields ▪ Greenway Meadows ▪ Grover Park ▪ Harrison Street Park ▪ Hilltop Park ▪ Mary Moss Playground ▪ Potts Park ▪ Quarry Park
Basketball Court	5	▪ Community Park South ▪ Grover Park ▪ Hilltop Park ▪ Potts Park
Platform Tennis Court	4	▪ Community Park South
Tennis Court	15	▪ Community Park South
Pickleball Court	4[1]	▪ Community Park South
Baseball/Softball Field	10	▪ Barbara Smoyer Memorial Park ▪ Community Park South ▪ Farmview Fields ▪ Greenway Meadows ▪ Grover Park ▪ Hilltop Park ▪ Marquand Park
Swimming Pool	1	▪ Community Park South
Skate Park	1	▪ Hilltop Park
Dog Park		▪ Community Park South ▪ Quarry Park
Multi-Purpose / Rectangular Field	5	▪ Barbara Smoyer Memorial Park ▪ Community Park South ▪ Farmview Fields ▪ Greenway Meadows ▪ Hilltop Park
Picnic Area	13	▪ Barbara Boggs Sigmund Park ▪ Barbara Smoyer Memorial Park ▪ Community Park North ▪ Community Park South ▪ Farmview Fields ▪ Greenway Meadows ▪ Grover Park ▪ Hilltop Park ▪ Marquand Park ▪ Pine Street Park ▪ Potts Park ▪ Quarry Park ▪ Turning Basin Park

1 *Shared with tennis courts*

NATIONAL RECREATION AND PARK ASSOCIATION STATISTICS

The National Recreation and Park Association (NRPA) publishes an annual report providing survey statistics from parks and recreation departments throughout the United States. These findings can help local officials set department priorities by providing national statistics for comparison with local conditions. While no hard and fast rules for the provision of parks and recreational facilities exist, NRPA data provide a quantifiable baseline for identifying potential local need for additional facilities and open space.

Table 6.3 demonstrates Princeton's abundance of municipally owned recreation and open space facilities relative to places of similar population and population density. However, metrics such as residents per facility or acres per resident do not account for nuances in demand such as scheduling conflicts, use of facilities by external organizations and travel teams, or other factors affecting facility demand and limitations specific to Princeton.

Table 6.3: Comparison of Princeton with NRPA Statistics

NRPA Metric	National Median (Similar Pop.)	National Median (Similar Pop. Density)	Princeton	Relative to Places of Similar Pop.	Relative to Places of Similar Pop. Density
Acres of Parkland per 1,000 Residents	11.3	12.3	15.4	+ 36%	+ 25%
Residents per:					
Park	2,014	2,206	1,534	+31%	+ 44%
Playground	3,028	3,543	2,789	+ 9%	+ 27%
Basketball Court	7,117	7,568	6,056	+ 18%	+ 25%
Tennis Court	5,815	6,040	2,018	+ 188%	+ 199%
Pickleball Court	9,257	12,379	7,570	+ 22%	+ 64%
Youth Baseball Diamond	5,033	6,980	2,556	+ 97%	+ 173%
Adult Baseball Diamond	19,556	18,152	2,556	+ 665%	+ 610%
Youth Softball Diamond	9,060	13,675	2,556	+ 254%	+ 435%
Adult Softball Diamond	11,802	13,782	2,556	+ 362%	+ 439%
Swimming Pool	25,191	38,695	30,681	-18%	+ 26%
Youth Soccer Field	4,947	6,450	4,383	+ 13%	+ 47%
Adult Soccer Field	10,775	12,651	4,383	+ 146%	+ 189%
Skate Park	32,000	54,069	30,681	+ 4%	+ 76%
Dog Park	28,000	44,000	10,227	+ 174%	+ 330%
Recreation Center	24,380	32,424	n/a	n/a	n/a
Community Center	26,696	34,000	n/a	n/a	n/a
Senior Center	32,075	73,262	30,681	+ 5%	+ 139%
Performance Amphitheater	30,283	59,433	30,681	- 1%	+ 94%
Nature Center	30,912	101,506	7,670	+ 303%	+ 1223%

RECREATION PROGRAMMING NEEDS

This section provides a summary of the Municipality's recreation needs as identified through public outreach, input from the Municipality's Recreation Department, and guidance from the NRPA.

The need to accommodate recreational activities in Princeton has grown since the 2008 Parks and Recreation Master Plan was adopted. The increase in demand is related in part to the changing landscape of youth sports, and in part to the effects of the COVID-19 pandemic.

Youth sports are increasingly utilizing fields for training and practices in addition to games. This results in larger fields being divided up to accommodate several teams or sports simultaneously, which means fields may not have the official dimensions for a particular sport. The duration of field use is also expanding, with greater use on weekends and during evenings to the degree that daylight is sufficient. Continuous use of natural turf fields degrades the surface over time without allowing for sufficient recovery time. This can lead to poor playability, soil erosion, and over-application of chemicals.

The COVID-19 pandemic also created a stronger demand for recreation, in addition to other outdoor activities. More programs appeared, with more people participating in them. The pandemic grew the use of facilities beyond sports leagues to include activities such as yoga and Pilates, and even religious services use open spaces and facilities. It is impossible to know whether this trend will last, but there is no indication of it abating at this time.

Princeton can share recreation facilities to some degree with Princeton Public Schools, Princeton University, and local private schools. Those arrangements are helpful, but do not address all needs.

RECREATIONAL PROGRAMS

The following are a sample of the existing recreational programs offered by Princeton:

- Kids Adaptive Yoga (at Johnson Park Elementary School gym)
- Teens and Adults Adaptive Yoga (at Hun School Athletic Center)
- Men's Summer Basketball League (at Community Park South)
- Platform Tennis
- Adult Chair Fitness (in the community room at the Community Park pool)
- Princeton Area Masters Swim (at the Community Park pool and Princeton University)
- Day Camp (at Community Park South)
- Youth Track & Field Clinics (at Princeton High School track)
- Youth Running Program and Track Club (at Princeton High School track)
- U.S. Sports Institute summer Kids' and youth programs (flag football multi-sports, soccer; at Community Park South)

In addition to the programming provided by Princeton, there are independent organizations that utilize municipal and educational facilities, including:

- Youth Summer Basketball Camp (at Princeton High School)
- Princeton Volleyball Club (at Princeton Day School)
- Princeton Athletic Club (at Princeton Friends School, Community Park North amphitheater)
- Princeton Basketball Club (youth; at Grover Park, Princeton Middle Schol, Princeton Academy, Princeton Charter School, Princeton High School)
- Princeton Lacrosse Club (at Princeton Day School and Princeton High School)
- Princeton Soccer Academy (youth; at Greenway Meadows Park and Stuart County Day School)
- Princeton Wrestling Club (at Princeton University)
- Princeton Tennis Program (at Community Park South)

6.4 Public Outreach

The following is a summary description of public outreach efforts as required in an Open Space and Recreation Plan per Green Acres guidelines. This synopsis is supplementary to the overall public outreach findings identified in Section 1.0 of the Master Plan.

OPEN HOUSE #1

The November 2022 Open House included a station dedicated to open space and conservation topics. Participants were encouraged to place colored dots on a map of the Municipality to illustrate their preferences and priorities for open space investment.

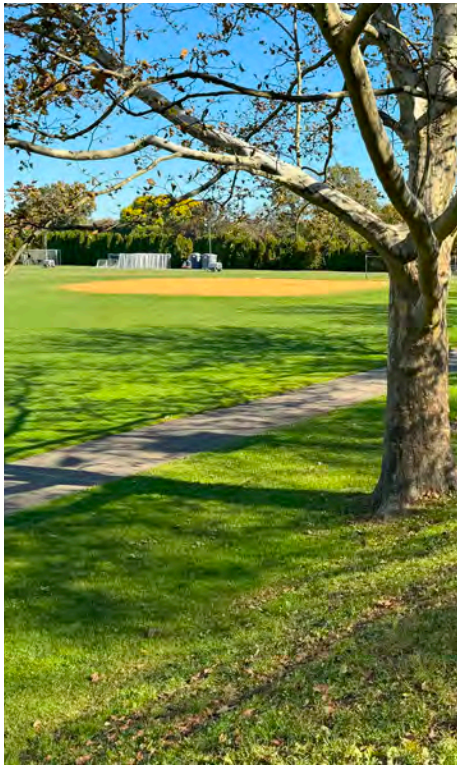
One-third of attendees indicated their highest priority was for connector trails and paths. Other priorities included small passive spaces such as tot lots and dog parks, particularly as part of the redevelopment at the Princeton Shopping Center and in existing green spaces such as Quarry Park and Harrison Street Park. Attendees were also clear that any redevelopment of the Westminster Choir College site, the Butler tract and the Princeton Theological Seminary site should preserve and incorporate passive open space.

COMMUNITY VISIONING SURVEY

The 2022 Community Visioning Survey provided another layer of public input. The survey asked participants to identify their highest priorities for open space and recreation. Consistent with the feedback from the open house, trails and playgrounds were ranked the most needed recreation elements.

ADDITIONAL OUTREACH

Additional outreach efforts included interviews with municipal staff of the Recreation Department, nonprofit organizations, the Municipality's Open Space Manager, and the Recreation and Open Space Element subcommittee.



6.5 Identified Recreation Needs

Public outreach efforts identified the following needs related to Princeton's existing open space and recreation system:

SPORTS FIELD CAPACITY

Unmet demand for field sports facilities has reduced possibilities for newer and larger programs and limited opportunities for public use. As population grows and programs develop, competition for usage of these facilities continues to increase.

FACILITY LIGHTING

Opportunities for organized sports and recreation during after-dark hours are limited. The result is increased demand for facilities during daytime hours.

INDOOR FACILITIES

The Municipality has no indoor multi-purpose recreation facilities to meet recreation needs at night, during inclement weather, or for specialized indoor sports.

COMMUNITY GARDEN CAPACITY

There is currently a waiting list for the Community Gardens.

PLAYGROUND/TOT LOT CAPACITY

Public outreach identified a community vision for greater access to new or existing green spaces and recreation facilities in the former Borough, where density of population and development is highest. In particular, additional facilities for young children and families were a priority in the Visioning Survey.

ACCESS FOR THOSE OF DIFFERENT ABILITIES

There are currently no passive recreation facilities that can specifically accommodate users with different mobility needs, and not all trails are easily accessible or usable by mobility-impaired users. Employing Universal Design principles will enable everyone to access, understand, and use a space regardless of age, size, ability, or disability.

6.6 Conservation and Recreation Funding Mechanisms

Princeton can preserve open space in several ways. Fee simple purchase by the Municipality or a nonprofit organization is the most straightforward option, but it can be expensive. Potentially more cost-effective options include land dedications, transfer of development rights programs, and public easements for conservation and access. Where feasible, Princeton will continue to explore these alternatives in addition to seeking funding assistance from Green Acres, Mercer County, and other funding sources.

GREEN ACRES

The NJDEP administers the Green Acres Program to disburse state funds in the form of matching grants and loans to municipalities, counties, and nonprofit groups for acquisition of open space. Recently, the Department's funding awards have favored acquisitions over improvements and prioritized acquisition of sites that provide multiple benefits to communities and ecosystems. Princeton – like most municipalities – has in the past received Green Acres funding for acquisition and development of open space and recreational lands.

MERCER COUNTY OPEN SPACE TRUST FUND

Mercer County levies an open space tax to fund preservation and park development. The County's open space tax is determined each year during the County's budgeting procedures, with a ceiling of $0.03 per $100 of equalized assessed property value. In a 2021 referendum, voters approved reallocation of open space funds to allow at least 50% to be used for preservation of parks, farmland, and other open space (a reduction from 70%), up to 30% to be used for recreational development and/or historic preservation (an increase from 20%), and up to 20% for stewardship of the land (an increase from 10%).

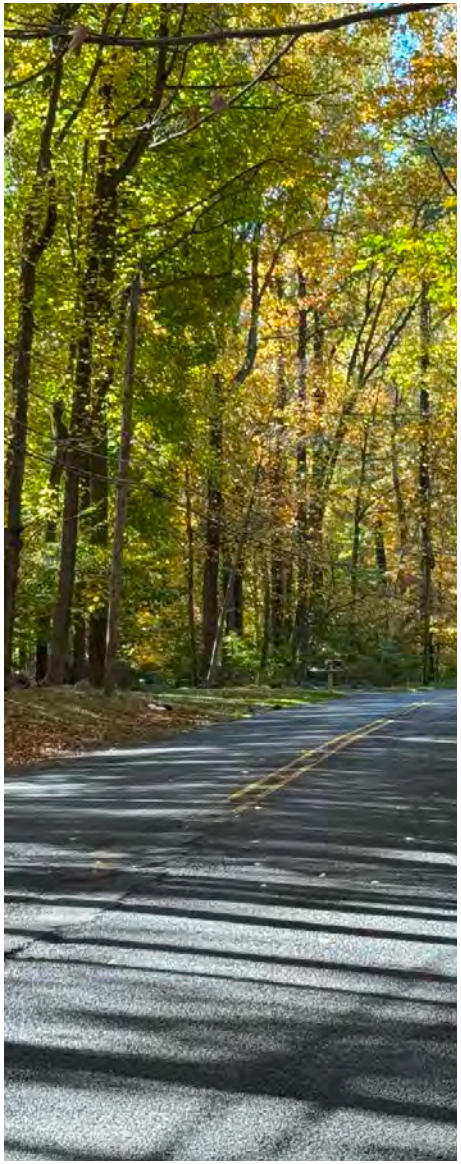
Mercer County owns three properties in Princeton that are restricted to conservation and recreation use: (1) Princeton Country Club, (2) the Powell property, and (3) 15 acres of the Tusculum property. As of 2023, the County has not identified any additional properties in Princeton for preservation.

PRINCETON OPEN SPACE TRUST FUND

Princeton has a municipal open space trust fund supported by an open space tax rate of 1.7 cents per $100 of assessed property value, which generates approximately $1.2 million per year for open space expenditures. Per Green Acres rules, this tax is a prerequisite for the Planning Incentive (PI) funding category, which awards 50% matching grants to local governments for preservation of land identified in their Open Space and Recreation Plans.

NONPROFITS AND LAND TRUSTS

Princeton and the surrounding region are fortunate to have a wide consortium of environmental advocacy organizations dedicated to the preservation and stewardship of open space, trails, and greenways.



6.7 Coordination Throughout the Master Plan

Princeton has systematically incorporated conservation efforts throughout its Master Plan to conserve natural resources through various efforts. Specifically:

The Environmental Resource Inventory (ERI) is a "living document" like the Master Plan, that details all natural resources and environmentally significant features throughout Princeton. The ERI provides specific data and information on surface water, groundwater, soils, wetlands, forests, geology, flood plains, and critical wildlife to support implementation of this Conservation, Open Space and Recreation Plan Element. Princeton's prior ERI was prepared in 2010 by DVRPC for the former Borough and former Township. The Municipality expects to prepare and adopt a revised ERI following the adoption of this Master Plan. The information in the new ERI will inform the Planning Board and Environmental Commission on decisions relating to conservation and environmental management.

The Land Use Plan Element provides the planning foundation for Princeton's zoning code. The core principles of the Municipality's land use plan include advancement of smart growth principles, including preservation of open space, to guide sustainable development and strategies for climate resiliency.

The Green Building and Environmental Sustainability Plan Element establishes overarching principles for new development and public improvements that incorporate resource conservation and efficiency throughout the lifecycle of buildings and infrastructure in Princeton.

The Utility Plan Element outlines strategies for conservation and strengthening of Princeton's energy supply and transmission, drinking water, wastewater infrastructure, solid waste management, and resiliency. The Utility Plan Element also contains the Stormwater Management Plan, which demonstrates Princeton's compliance with state regulations and recommends additional efforts to improve water quality and reduce the quantity of stormwater runoff.

The Mobility Plan Element establishes Princeton's commitment to promoting a transportation network that is safe and convenient for biking, walking, transit, and other more sustainable alternatives to driving. Connecting open space, recreation and trails is a key principle of the Mobility Plan Element, in addition to the inclusion of green stormwater infrastructure through the implementation of Green Streets policies.

In 2019, Princeton Council adopted a **Climate Action Plan**, prepared by Sustainable Princeton and its partners. The CAP establishes strategies for managing natural resources and improving climate resiliency by reducing carbon emissions, increasing the supply of low-carbon, affordable, reliable energy, and increasing access to safe, affordable low-carbon housing and transportation. The recommendations in the Climate Action Plan have informed all elements of this Master Plan.

6.8 Conservation, Open Space and Recreation Recommendations

RECOMMENDATIONS - FOREST CONSERVATION

1. **Preserve significant contiguous woodland resources** through amendments to zoning requirements and strategic acquisitions and conservation easements.

2. **Minimize deforestation and encroachment into unpreserved forests** caused by new development and recreational uses, through zoning requirements and public improvements.

3. **Maximize contextual planting of native and adapted species** that are tolerant to drought, flood, pests, and disease, through zoning requirements and public improvements.

WILDLIFE HABITAT CONSERVATION

4. **Conserve contiguous habitat and greenways to minimize habitat fragmentation,** guided by the NJ Conservation Blueprint map.

SURFACE WATER AND WETLANDS CONSERVATION

5. **Restore and "daylight" buried or piped streams where feasible.** Coordinate this effort through the Watershed Improvement Plan as discussed in the stormwater plan of the Utility Plan Element.

6. **Minimize upland impervious coverage and associated stormwater runoff.** Adjust impervious coverage requirements through zoning and implementation of the stormwater control ordinance.

7. **Maximize on-site groundwater infiltration through the use of green stormwater infrastructure** and implementation of the stormwater management plan and watershed improvement planning.

8. **Minimize the use of pesticides, herbicides, and fertilizers that pollute downstream water quality** through zoning requirements for native and hardy plantings and promotion of alternatives with minimal environmental impact.

FLOOD AND STORMWATER MANAGEMENT

9. **Amend zoning requirements to enhance protection of stream corridors and floodplains.** The 2020 Impervious Cover Assessment and Reduction Action Plan, prepared by the Watershed Institute, recommends implementing 150-foot development buffers on all streams and specifying permitted activities within required buffer areas.

10. **Improve upland stormwater management capacity and on-site groundwater infiltration** to reduce downstream flood volume. Coordinate with zoning regulations, the stormwater control ordinance, public improvements, and watershed improvement planning.

11. **Restore historic flood capacity where feasible.** Coordinate with stormwater management and watershed improvement planning.

12. **Monitor areas prone to flash flooding and identify and implement solutions** through stormwater management, watershed improvement planning, and improvements to public rights-of-way.

13. **Reduce maximum permitted impervious coverage to the greatest extent feasible.** Continue to revise the Municipality's stormwater management ordinances and implement plans associated with the municipal separate storm sewer (MS4) permit as detailed in the Utility Plan Element of the Master Plan.

14. **Maximize the use of green stormwater infrastructure,** especially in developed areas of the Municipality. Develop incentives to retrofit existing development with green stormwater infrastructure, "de-pave" areas with excessive impervious coverage, and install green stormwater infrastructure on public property where possible.

15. **Amend zoning and design standards to incentivize or require more densely vegetated alternatives to lawn cover.** Denser vegetation can absorb greater quantities of stormwater while providing habitat, noise management, buffering, and other additional benefits.

STEEP SLOPES AND SOIL CONSERVATION

16. **Minimize disturbance of steep slopes** during development construction through development standards and review.

17. **Minimize concentrated stormwater runoff that has the potential for downstream flooding and erosion** through implementation of the Utility Plan Element, Stormwater Management Plan, and Green Building and Environmental Sustainability Plan Element.

18. **Amend the zoning for new development to require stabilization and reinforcement of steep slopes** with vegetation and implement during public improvements.

GENERAL CONSERVATION RECOMMENDATIONS

19. **Maintain consistency between the Master Plan and the new Environmental Resource Inventory (ERI).** Review all elements of the Master Plan for consistency with the new ERI and amend any elements of the Master Plan as necessary to maintain consistency for municipal decisions.

20. **Pursue conservation of lands identified by NJ Conservation Blueprint** and coordinate with Princeton's Environmental Resource Inventory (ERI).

21. **Continue to partner with the New Jersey Invasives Strike Team and other organizations to control nuisance and non-native invasive species** and to minimize their environmental damage.

22. **Amend the zoning code under the Municipality's design standards to codify the Do Not Plant List and require approval of variances** for new development and proposed non-native plantings, in order to reinforce native biodiversity.

23. **Expand urban tree canopy with a focus on equity and environmental justice.** Continue to update and use the TreeKeeper municipal tree inventory map.

24. **Assess and amend the zoning code and tree removal and replacement plan to ensure that the Municipality's tree canopy continues to grow.** Consider a framework that addresses the differences in benefits between tree species, age, and location. Apply this policy to public decisions and municipal operations as well as private actions.

25. **Develop and adopt tree planting standards that implement best practices for urban forestry,**

including sufficient soil volume, drainage, conflict management with utilities, site selection, and optimal public uses of trees.

OPEN SPACE AND RECREATION

26. **Establish an Open Space Advisory Committee (OSAC),** and work with it to develop open space and recreation standards for evaluating development applications.

27. **Develop criteria to assist Planning Board and Council review of opportunities to acquire land for open space and recreation.** The OSAC should guide this effort and coordinate with other stakeholders in the Municipality. Criteria may include:

    - Open Space Potential
    - Recreation Potential
    - Trail Connection Potential
    - Ecological Value
    - Habitat Quality
    - Access and Equity Opportunities
    - Historical Significance
    - Stormwater Management Potential
    - Flood Mitigation Potential
    - Contiguity to Other Preserved Land
    - Property Size
    - Existing / Anticipated Development Pressure
    - Existing / Planned Infrastructure Capacity
    - Aesthetic Value
    - Maintenance Demand/Capacity

28. **Review, update and refine the open space acquisition list from the 2011 Open Space and Recreation Plan.** The OSAC should guide this effort with input from the Environmental Commission, Planning Board, and other conservation advocates using the acquisition criteria developed pursuant to Recommendation 27.

29. **Amend the zoning code provisions for cluster development to streamline and incentivize the preservation of open space** through cluster development. The current regulations for cluster development are complicated and expensive to implement, whereas streamlined requirements would promote clustering over conventional development.

30. **Establish a mechanism for monitoring public conservation easements to ensure proper maintenance, prevent encroachment, and ensure their continued function** within the Municipality's open space, recreation, and trail system. Conservation and access easements often comprise public restrictions on private land and may require routine management to ensure effectiveness.

31. **Partner with nonprofits to expand and maintain passive open spaces in ways that are cost-effective and resource-efficient.** Princeton has an abundance of nonprofit organizations that continue to establish and maintain conservation areas and trails within and around Princeton.

32. **Evaluate opportunities to meet the growing demands on sports and recreation fields** in a manner that is environmentally-friendly and not disruptive to residential neighborhoods..

33. **Incorporate open space to the extent feasible in all new development and redevelopment projects** by amending zoning requirements to ensure that large development projects incorporate open space. Include a requirement for open space in redevelopment plans.

34. **Continue to partner with Princeton University, Princeton Public Schools, and other educational institutions** to provide additional resources and capacity to the Municipality's recreation offerings.

35. **Identify locations for additional playground equipment and tot lots,** particularly where access to existing facilities is limited, and in walkable locations where possible.

36. **Pursue funding opportunities from nonprofit organizations and public sources** as cost-effective strategies for maintenance, stewardship, and improvement of parks and open spaces.

37. **Continue to optimize facility usage to favor Princeton residents.** The Recreation Committee can develop and implement adjustments to pricing, scheduling, and data collection to assist with the management of Princeton's parks and recreation facilities.

ACCESS AND EQUITY

38. **Improve access and equity of recreation and open space resources.** Review geographic distribution of assets, ease of travel to locations, programming, and facility design, and adjust to provide equitable access and opportunities for participation among all residents.

39. **Incorporate Universal Design best practices in the development and improvement of recreation facilities to the greatest extent feasible,** in order to maximize accessibility and inclusion throughout the Municipality's open space, recreation and trail systems.

40. **Facilitate access to open space and recreation opportunities within and near the downtown** by optimizing access to existing assets such as Princeton University and incorporating additional public green spaces through redevelopment where feasible.

TRAILS AND GREENWAYS

41. **Develop a Greenway Loop in Princeton** connecting open space and recreation facilities, community assets, and the regional open space and trails system through a combination of land acquisition, public access easements, and infrastructure enhancements.

42. **Expand direct linkages to the greatest extent feasible.** Link Princeton's trail network among existing and proposed community assets through on-road and off-road connections and direct routes where possible.

43. **Prioritize bicycle and pedestrian safety in trail improvements** including the interface of trails with roadways.

44. **Prioritize trail easements over acquisition of additional land.** Acquisitions are often costly and require ongoing municipal maintenance. Easements will help maximize opportunities to expand the trail network without purchasing additional property.

45. **Integrate public trails within neighborhoods** in a manner that is sensitive to adjacent land uses, maintains desirable neighborhood character, maximizes natural surveillance by the public, and buffers private property where appropriate.

46. **Market the Municipality's trail network and facilitate public use.** Establish consistent, user-friendly wayfinding signage and mapping resources, and provide consolidated information online.

47. **Coordinate with neighboring municipalities, Mercer County, Circuit Trails, DVRPC, nonprofits, and other entities** to continue to prioritize key linkages between community assets, parks and green spaces, regional trails, utility rights-of-way, and other opportunities to connect Princeton's expanding bicycle and pedestrian network into the regional trail system.

48. **Work with homeowners' associations (HOAs) and condominium associations** to provide context-sensitive trail development opportunities around cluster developments. Include public access easements alongside conservation easements in new development where feasible.

49. **Utilize the Transco Pipeline right of way** to create direct trail linkages among preserved open spaces and trail systems within and around Princeton. Prioritize public access easements on pipeline segments east of Great Road, including locations where there is greater open space connectivity, fewer stream crossings, larger lot development, and greater opportunities for buffering of residential properties.

MAINTENANCE

50. **Prioritize maintenance and stewardship of existing resources.** Public outreach has identified a desire to focus municipal resources on maintaining and enhancing existing open space.

51. **Continue to partner with nongovernmental organizations and nonprofits.** Partnerships can help extend municipal maintenance capacity through additional resources, volunteer efforts, and cost control.

52. **Continue to allocate municipal funds and pursue external grant funding opportunities for maintenance and stewardship.** Funding from outside sources and matching grants can help supplement municipal funds to maximize maintenance and stewardship efforts.

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7.0 ECONOMIC DEVELOPMENT

Introduction

The purpose of this Element is to formalize Princeton's strategies for realizing a stronger and more resilient local economy. This Element includes analysis of local and regional employment data and recommendations to capitalize on the Municipality's strengths and to reduce constraints on economic growth.

7.1 Employment

Princeton's economy is dominated by the educational services sector, which represents 51.3% of all jobs in Princeton and contributes to Princeton's role as a strong regional employment center. However, overall employment trends in the Municipality show a loss of jobs over the past 10 years that, according to the Delaware Valley Regional Planning Commission, the federal Metropolitan Planning Organization that includes Princeton in the region it covers, is not anticipated to be made up for another 20 years. Part of this loss reflects the trend over the past 10 years of professional firms moving out of Princeton, a trend the Municipality would like to reverse. Employers report that, in addition to the barriers of high rents and small floorplates, any distaste their largely out-of-town employees have for working in highway-oriented office parks rather than vibrant downtowns is overridden in Princeton's case by the perception of traffic congestion and parking shortages in town, in addition to highway-oriented office parks being located near lower-cost housing options in other municipalities. Not only does this loss of jobs have an adverse effect on Princeton's economy, it also thwarts Princeton's commitment to sustainability and to mitigating the problem of transportation-related emissions as a cause of climate change.

OVERALL CHANGES IN EMPLOYMENT

Except for a spike in 2019, employment overall in Princeton dipped in the past 10 years. Although the decline after 2019 may be due to the COVID-19 pandemic, the 2016 projections from the Delaware Valley Regional Planning Commission estimated 2020 employment at very close to actual levels, and, as noted above, these projections anticipate that not until 2045 will Princeton's employment return to 2013 levels.

SECTORS IN DECLINE

A decline in several key employment sectors contributes to the overall decline in employment in the Municipality since 2013. These sectors include Management of Companies and Enterprises, which saw a dramatic drop from 5.1% to 1.7% of all jobs, and Healthcare and Social Assistance, which dropped from 15.8% of all jobs in 2013 to 6.7% in 2020. Jobs in Arts, Entertainment and Recreation, while a small portion of total jobs, also declined, an important consideration for a municipality for which the arts is a driver of culture and tourism.

The decline in the Healthcare and Social Assistance sector is likely attributable at least in part to the closure of the in-town Princeton Medical Center, and it may not be possible to recoup those jobs. Management of Companies and Enterprises is a larger challenge, since corporate operations have specific space needs that may not be available in the Municipality and, as discussed above, traffic, parking, and high rents present a significant barrier to professional firms' and corporate executives' inclination to locate their operations and their employees in the Municipality. Understanding the reasons for the drop in employment will help the Municipality develop specific, effective mitigation strategies.

Table 7.1: Employment by Industry Sector, 2020				
	Princeton		Surrounding Municipalities	
Sector	**Jobs**	**Share**	**Jobs**	**Share**
Agriculture, Forestry, Fishing and Hunting	0	0.0%	106	0.1%
Mining, Quarrying, and Oil and Gas Extraction	2	0.0%	382	0.3%
Utilities	58	0.2%	579	0.4%
Construction	181	0.7%	3,391	2.3%
Manufacturing	67	0.2%	16,033	10.7%
Wholesale Trade	90	0.3%	14,985	10.0%
Retail Trade	1,393	5.2%	11,405	7.6%
Transportation and Warehousing	37	0.1%	4,573	3.0%
Information	331	1.2%	5,927	3.9%
Finance and Insurance	561	2.1%	10,557	7.0%
Real Estate and Rental and Leasing	183	0.7%	2,066	1.4%
Professional, Scientific, and Technical Services	4,815	17.9%	23,583	15.7%
Management of Companies and Enterprises	451	1.7%	6,106	4.1%
Administration & Support, Waste Management and Remediation	368	1.4%	13,034	8.7%
Educational Services	13,755	51.3%	10,721	7.1%
Health Care and Social Assistance	1,791	6.7%	16,765	11.1%
Arts, Entertainment, and Recreation	371	1.4%	1,306	0.9%
Accommodation and Food Services	1,006	3.7%	4,724	3.1%
Other Services (excluding Public Administration)	1,124	4.2%	2,488	1.7%
Public Administration	244	0.9%	1,720	1.1%

GROWING SECTORS

While overall employment has dropped since 2013, several sectors have grown in relative importance, most notably the Retail sector, the Professional, Scientific and Technical Services sector, and the Educational Services sector. These sectors are tied to the presence of the university, or are dependent on it, and are not likely to be relocated elsewhere or performed remotely. It is important for the Municipality to protect these jobs and foster the development of additional jobs in these sectors.

REGIONAL CONTEXT

Table 7.1 shows employment by sector in Princeton as of 2020, and total employment by sector in the surrounding townships of Hopewell, Lawrence, West Windsor, Plainsboro, South Brunswick, Franklin, and Montgomery. As the table shows, because of the dominance of the Educational Services sector in Princeton, the surrounding municipalities have a larger relative share of their jobs in Construction, Wholesale Trade, Manufacturing, Warehousing, and Transportation, as well as in traditionally white-collar job sectors such as Finance, Information, and Administration, than does Princeton. This white-collar imbalance is also potentially due to the office parks scattered along major thoroughfares in surrounding municipalities where rents may be lower and firms can still take advantage of a Princeton Zip code.

Subtracting out from the Municipality's Educational Services sector the approximately 5,800 benefits-eligible employees of the university who work at the main Princeton campus brings the job distribution in the Municipality into greater equilibrium compared with its neighbors. It also highlights the relative importance compared to its neighbors of the Retail sector, which

would go from 5.2% to 6.6% of total jobs; the Professional Services sector, which would rise from 17.9% to 22.9% of total jobs; the Healthcare sector, which would rise to 8.5% of total jobs from 6.7%; and Accommodations and Food Services, which would rise to 4.5% of local jobs from 3.7%. Three of these four sectors are location-dependent – i.e., these jobs cannot be relocated from Princeton or performed remotely. However, as noted below, most workers who fill these jobs don't live in Princeton.

KEY SECTOR: LIFE SCIENCES

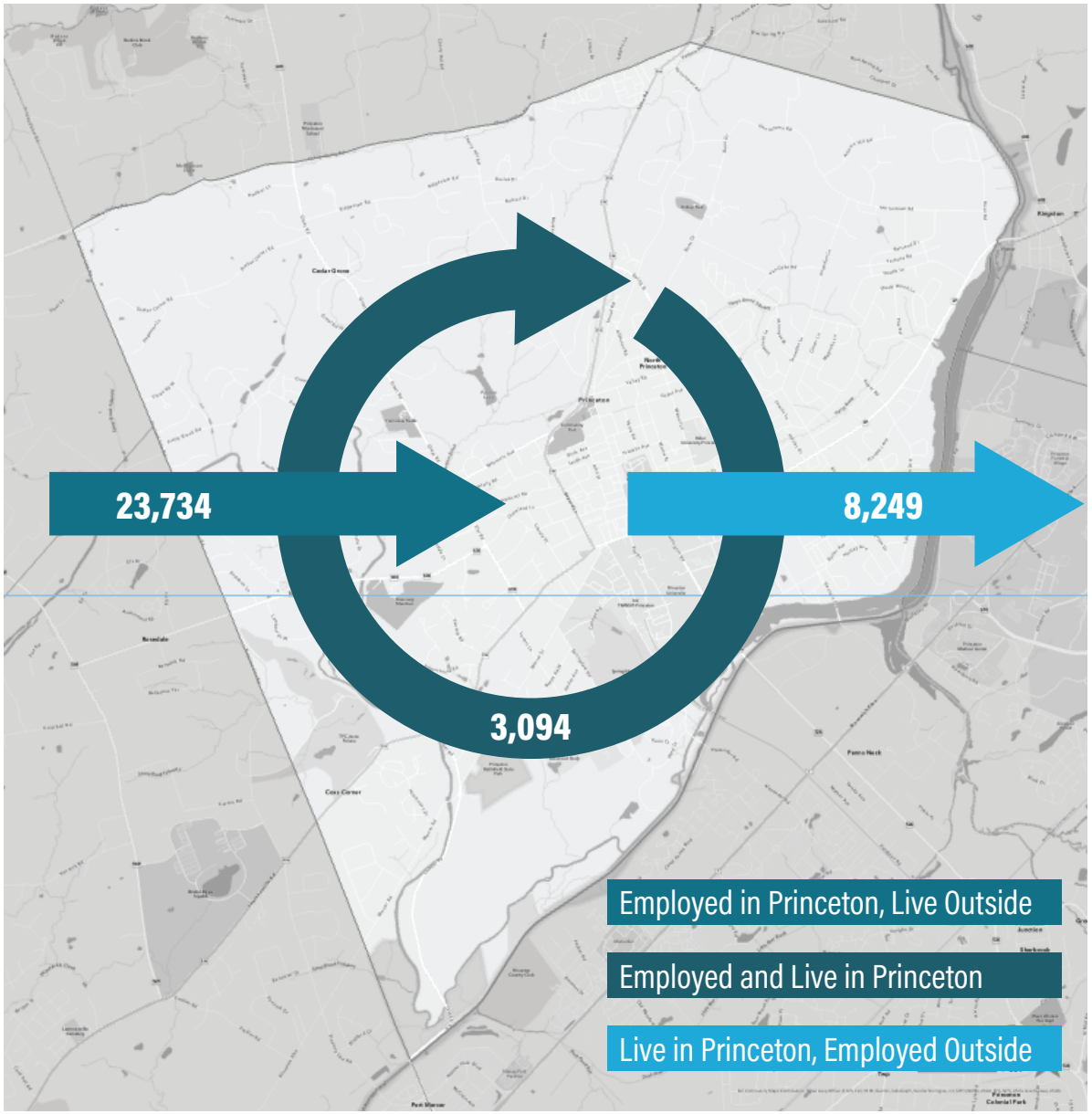
Commercial real estate firm Newmark noted in its 2020 Year-End Life Sciences National Overview report that Princeton is a sub-market of the New Jersey life sciences market, and has all of the features that are key to the success of a sub-market in this sector: (1) a high concentration of nearby life science, biotechnology, or pharmaceutical firms, (2) the presence of a research university anchor with a strong pipeline of STEM graduate-degree holders, and (3) location within in a market experiencing population growth and rising wages. Newmark's 2021 mid-year update to the report, while it did not discuss sub-markets, ranked New Jersey as the 10th strongest regional market in the nation for life science real estate.

The report also discussed the industry's preferred building and research lab characteristics: low-and-wide buildings, large floorplates, tall ceilings, high load capacities, proximity to highways, systems redundancy, chemical storage, management, and decontamination systems, ability to accommodate animal populations, and compliance with various levels of biosafety standards.

The life sciences sector presents both a challenge and a unique opportunity for Princeton: As noted above, the sector anticipates continued significant growth, and the Municipality has all the intellectual characteristics of a robust life-sciences sub-market. Despite this, the Princeton University's BioLabs, an incubator for technology and life science startups, has chosen to locate in neighboring Plainsboro, where it found available real estate that met its needs and a straightforward and low-friction approval process. While Princeton may lack the large-scale physical characteristics the industry demands, through a stronger partnership with the university and a concerted effort to streamline its approval processes, Princeton could offer smaller-scale incubator and accelerator space for emerging life-sciences enterprises that may not yet have the large-scale requirements of established companies. Princeton could also prioritize attracting the supporting professional services, such as legal, accounting, administrative, financial, and other similar services, needed to establish and grow startup ventures in the life sciences. This should be a top economic-growth priority for the Municipality, aided by a commitment from the new Mercer County executive, who has promised greater focus at the County level on attracting life-sciences enterprises.

KEY PARTNER: PRINCETON UNIVERSITY

A strong long-term partnership between the Municipality and Princeton University benefits the Municipality's economic vitality. The Municipality understands that both it and the university do better if they can plan jointly for innovation and growth.



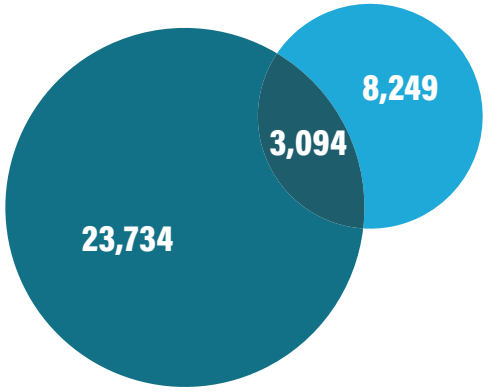
Source: US Census Bureau, OnTheMap, 2020

7.2 Commuting and Housing

COMMUTER INFLOW-OUTFLOW

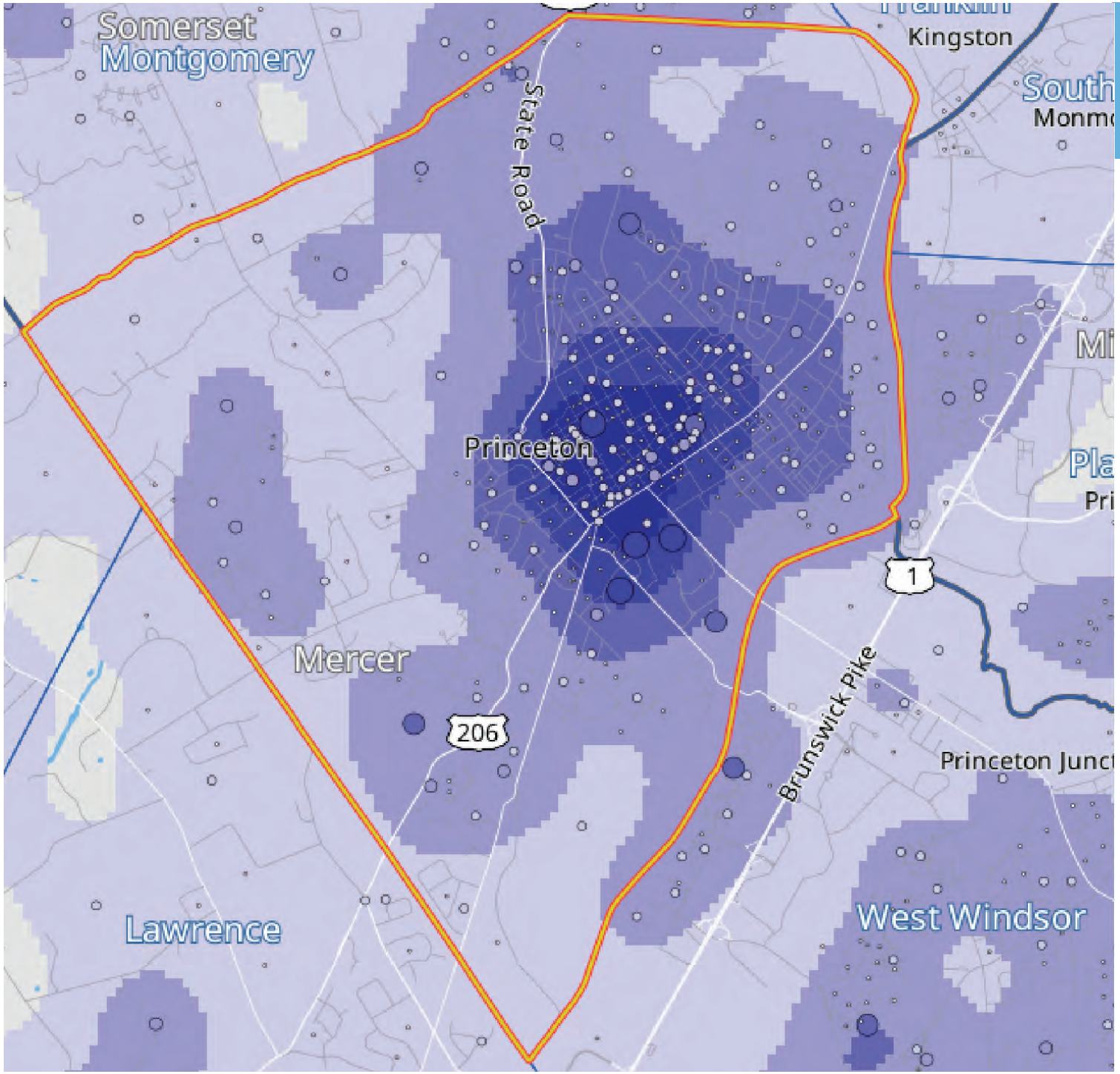
Of the 26,828 jobs available in Princeton in 2020, only 3,094, or 11.5%, were filled by Princeton residents; the other 88.5% of workers commute in from other municipalities. That means as many as 23,734 people drive to Princeton every day and need somewhere to park. At the same time, of the 11,343 employed Princeton residents, 8,249 of them, or 72.7%, travel to other municipalities for work. These daily migrations represent a significant disconnect between housing and jobs in the Municipality. If every inbound and outbound commuter were to drive alone, almost 32,000 cars would traverse Princeton's roads every weekday. Princeton University offers incentives to its employees not to commute by single-occupancy vehicle, but, depending on the point of origin, many commuters have no choice but to drive.

Princeton Commuter Inflow/Outflow
2020



Source: US Census Bureau, OnTheMap, 2020

PRINCETON JOB COUNT AND DENSITY



0 2,400 4,800 Feet

Legend

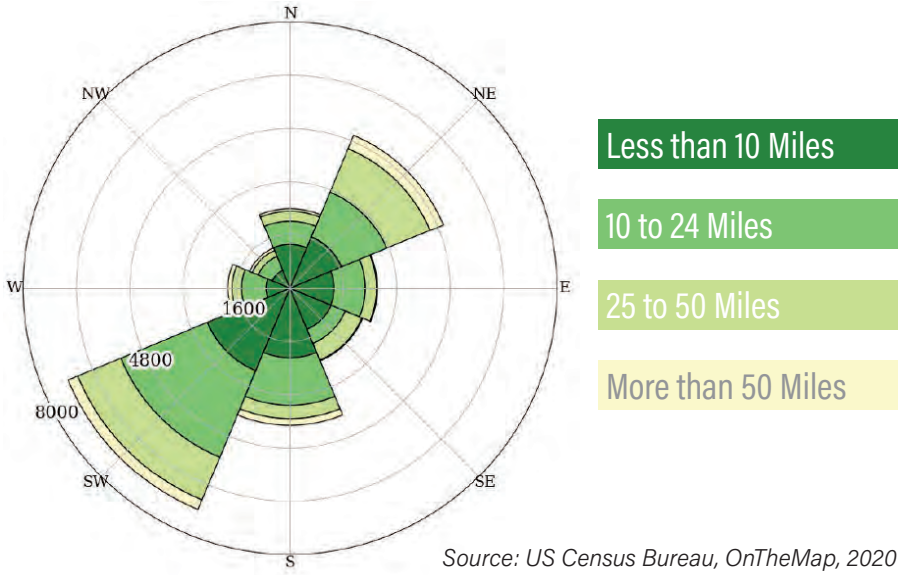
Job Count [Jobs/Census Block]
- 1 - 5
- 6 - 20
- 21 - 44
- 45 - 77
- 78 - 121

Job Density [Jobs/Sq. Mile]
- 5 - 51
- 52 - 192
- 193 - 426
- 427 - 754
- 755 - 1,176

Source: US Census Bureau, OnTheMap, 2020

Distance/Direction To Work

2020



Source: US Census Bureau, OnTheMap, 2020

All but 4.7% of workers who commute to Princeton come from less than 50 miles away, and almost half come from less than 10 miles away. The Distance/Direction to Work radar chart provides more information about the geography and distance from which workers commute into the Municipality.

Since the majority of jobs are concentrated in and around the university and the Nassau Street business district, the resulting commuter traffic also converges on that area, as the Princeton Job Count and Density map shows.

For the Municipality to reattract the base of professional firms that have decamped to nearby locations in the past 10 years because of traffic and parking concerns, it will need to make a significant commitment to strategies that reduce the number of single-occupancy vehicles on its streets and in its parking spaces, including enhancing transit, cycling and micro-mobility options, as well as housing options as discussed below.

JOBS/HOUSING RATIO

According to the U.S. Environmental Protection Agency (EPA), a healthy range for the ratio between the number of jobs in a municipality and the number of housing units is between 0.75 for a bedroom/commuter municipality and 1.5 for a municipality that serves as an employment center. This range optimizes vehicle miles traveled, which in turn affects a key concern of Princeton discussed above – traffic and parking. The Municipality's jobs/housing ratio is 2.9, almost twice the ratio of a healthy employment center, suggesting that Princeton has suffered a growing disconnect between where people live and where they work: People who want to live and work in Princeton may find their housing choices constrained to such a degree that they are forced to live elsewhere and commute.

Table 7.2: Rental Affordability by Industrial Sector, 2020		
Industrial Sector	**Average Annual Wage**	**% of Wages Needed to Afford Median Rent**
Construction	$83,193	24.6%
Retail trade	$34,455	59.3%
Information	$112,299	18.2%
Finance and insurance	$129,801	15.8%
Real estate and rental and leasing	$71,960	28.4%
Professional, scientific, and technical services	$133,949	15.3%
Management of companies and enterprises	$195,592	10.5%
Administrative and support and waste management and remediation services	$43,766	46.7%
Educational services	$87,334	23.4%
Health care and social assistance	$62,249	32.8%
Arts, entertainment, and recreation	$27,898	73.3%
Accommodation and food services	$22,627	90.4%
Other services (except public administration)	$50,192	40.7%

Increasing the supply of housing in order to re-connect where people live with where they work, so that more people who work in Princeton can also live there, is a high priority of the Municipality.

HOUSING AFFORDABILITY

In New Jersey, rental housing is generally considered to be affordable if rent consumes 33% or less of an individual's gross annual wages. In many employment sectors, including sectors critical to Princeton's local economy such as Retail and Accommodations and Food Services, the 2020 median monthly rent in Princeton of $1,704 is not affordable to an individual worker making the average wage for the sector (Table 7.2). This forces most workers to live somewhere more affordable and commute to work, generally by car, thus increasing traffic and demand for parking.

In New Jersey, a home is generally considered to be affordable to a buyer if housing costs, including principal and interest payments, property taxes, and property insurance, consume 28% or less of an individual's gross annual wages. (The lower percentage than rent is to account for additional home maintenance costs that renters do not incur.) Based on these statistics, Table 7.3 shows that there is no employment sector in Princeton in which an individual worker earns enough at the average salary to afford to purchase a home at the 2020 median home value in Princeton of $872,400. (It should be noted that the 2021 median home price in Princeton rose to $893,600.) In all but one of the 14 primary employment sectors, two such salaries are insufficient to afford a home at the median home value.

In addition to concerns about traffic and parking, the historical constraints on the provision of new housing may be an additional driver of the overall drop in employment in the Municipality. For Princeton's local employment base to grow, the Municipality will need to make a durable, long-term commitment to generating new housing, particularly housing affordable to early-career workers,

workers in service industries, and workers who are ready to start families. As the population trends in the Municipality show, once someone in their late 20s and early 30s decides to leave Princeton for somewhere more affordable, they tend not to return during their child-rearing years, and, as will be discussed below, each such household takes an average of $82,388 in annual retail demand with it, some of which would be spent in the Municipality if the household could afford to live there.

The educational profile of Princeton residents aged 25 and older that is detailed in the Demographics section of this Master Plan provides additional contour to the housing affordability problem. More than 85% of Princeton residents hold at least a bachelor's degree, and 57% hold a graduate degree. The jobs in Princeton that do not require a post-secondary education – service jobs such as Retail, Accommodation and Food Services, for example – are also the jobs that do not provide an employee the financial wherewithal to be able to live nearby. Many of these workers must commute, often from locations far away where housing is more affordable. They may not be paying as much for housing financially, but they are paying with their time and potentially their travel choices.

Additionally, the Demographics section of this Master Plan notes the significant mismatch between house size and household size. The need for smaller units

Table 7.3: Homeownership Affordability by Industrial Sector, 2020

Industrial Sector	Average Annual Wage	% of Wages Needed to Purchase Home at Median Value
Construction	$83,193	95.1%
Retail trade	$34,455	229.7%
Information	$112,299	70.5%
Finance and insurance	$129,801	61.0%
Real estate and rental and leasing	$71,960	110.0%
Professional, scientific, and technical services	$133,949	59.1%
Management of companies and enterprises	$195,592	40.5%
Administrative and support and waste management and remediation services	$43,766	181.5%
Educational services	$87,334	90.6%
Health care and social assistance	$62,249	127.2%
Arts, entertainment, and recreation	$27,898	283.7%
Accommodation and food services	$22,627	349.8%
Other services (except public administration)	$50,192	157.7%

for one- and two-person households far exceeds the supply, and the supply of larger homes far exceeds the apparent need. A program to permit subdivision of larger single-family homes into multi-unit buildings in zones where appropriate as well as removing barriers to create additional types of Missing Middle housing, as is recommended in the Land Use Element of this Master Plan, could alleviate this mismatch and increase the availability and affordability of smaller homes, while preserving all the positive characteristics of their neighborhoods.

7.3 Commercial Districts

To analyze the Municipality's main commercial districts, Princeton retained retail economic development consultant JGSC Group. The firm has a proprietary methodology for understanding the drivers of an area's retail economy that includes two online surveys (one for residents and visitors, and one specifically for students at Princeton University and the Princeton Theological Seminary), interviews with key stakeholders including business owners, property owners and municipal officials, and a competitive market analysis of the trade area surrounding Princeton. JGSC Group's report is attached to this Plan as Appendix 11.4. In addition, the newly appointed director of Experience Princeton, the Municipality's Special Improvement District, was interviewed. Experience Princeton was established in 2022 and covers all commercial and multi-unit residential property in the Municipality.

Among the key findings in the JGSC Group report:

- Annual retail demand per household in Princeton is almost twice the statewide average, at $82,388 per household vs. $49,326.
- Princeton's Nassau Street/Palmer Square/ Witherspoon Street Central Business District is an attraction to visitors as well as residents, particularly visitors with annual household incomes above $100,000. These visitors are attracted in part to the

high-end national brand retailers in the district, which could not survive without patronage from outside the Municipality.

- The largest retail category in Princeton overall is eating and drinking establishments, representing 6.1% of all businesses in Princeton.
- In contrast to the Nassau Street commercial district, the Princeton Shopping Center largely serves local retail needs. Additional commercial and residential growth in this area is planned and should bring additional local patronage and complementary uses.
- With approximately 1,100 new housing units scheduled to come online in the Municipality in the next three to five years, overall retail demand is expected to grow by an estimated $73 million over the next five years, a 13% increase.
- Many retail workers commute into Princeton. Merchants noted difficulty with recruiting and retaining workers, citing convenient parking in particular as a barrier.
- Many respondents to the online survey expressed a desire for more housing in the Central Business District, in particular mid-rise apartments, apartments above shops, and micro-housing (smaller than 600 square feet).
- Students largely find the Central Business District too expensive, and many establishments are not open during late-evening hours when students are finishing studying for the evening.

The report then examined each of five commercial districts in more detail.

NASSAU STREET/WITHERSPOON STREET/PALMER SQUARE

This is the Municipality's central business district, offering a variety of retail vendors including clothing, furniture, toys, jewelry, wine and gourmet foods, along with a variety of professional services including wealth advisors. The area comprises a mix of locally owned businesses and, increasingly, prestige national brands such as Ralph Lauren and Hermès. Witherspoon Street is becoming something of a Restaurant Row, with options ranging from sophisticated dining to casual to take-out. Palmer Square hosts a variety of well-attended outdoor activities, particularly on weekends, and places like Dohm Alley offer public exhibitions and art.

The sidewalks are wide and accommodating, and in addition to metered street parking there is a centrally located municipal parking deck, where recently the first half-hour of parking has been made free to encourage its use, and two large publicly accessible, privately owned parking garages near Palmer Square.

Besides the immediate market within Princeton, the district draws customers from the wider region and beyond, including international visitors. Both the JGSC report and the executive director of Experience Princeton acknowledged that the retailers would not be able to survive without the substantial tourist trade.

CHALLENGES AND OPPORTUNITIES

The effects of e-commerce on tourism-based in-person shopping are a clear threat. Experience Princeton has identified several indicators of increasing pressure on existing brick-and-mortar retail, including: (1) the declining number of flagship retailers in the district, (2) the growing number of convenience stores, and (3) inquiries about converting

ground floors from commercial to residential. Growth of the food and dining sector in the district helps to counterbalance this, although the food and dining sector employs approximately three times as many people per square foot as traditional retail, and if these workers cannot afford to live nearby, they exert additional traffic and parking pressures on the Municipality.

The newly formed Experience Princeton is addressing itself immediately to the basic responsibilities of a Special Improvement District – keeping the district clean and well-appointed, enhancing streetscapes, adding more signage and wayfinding, developing a leasing plan, and working to add more facilities for bicycles and scooters, including safe overnight storage. It is also examining additional uses it would like to see permitted in the district, particularly experiential uses, including small-scale manufacturing and "makerhoods" that cannot be threatened by e-commerce. However, most of the district is in the historic center of Princeton, where buildings are older and floorplates are small, limiting the types of non-retail businesses that could be attracted. The Experience Princeton executive director indicated that changing the floor area ratio requirements in the district and moving toward more of a form-based code would help.

The JGSC Group surveys and Experience Princeton both highlighted that there are not sufficient overnight accommodations in the Municipality to meet demand. According to Experience Princeton, overnight visitors spend on average approximately 1.5 times what day tourists spend, so the anticipated opening of the Graduate Hotel in 2024 is a welcome addition to this district. Expanding overnight accommodations even further as market demand warrants would bring more such spending.

PRINCETON SHOPPING CENTER

Princeton Shopping Center was built in 1954, and was originally a regional retail destination, with a Bamberger's department store, two supermarkets, and other shops surrounding an interior courtyard, and substantial surface parking around the perimeter. It now caters primarily to local residents, with a supermarket, hardware store, and other locally oriented retailers.

CHALLENGES AND OPPORTUNITIES

Revitalization of Princeton Shopping Center is one of the Municipality's top economic-development priorities. Going into the pandemic, the vacancy rate at the Shopping Center was 19.5%. The International Council of Shopping Centers considers a 20% vacancy rate to be struggling, and greater than 20% is considered failing. A preliminary investigation, prepared in 2021 in order to evaluate whether the existing conditions at the Shopping Center justify designation as an redevelopment area, stated, "If the PSC [were] to be developed today, it would not be designed as a facility that is separated from the surrounding community in every direction by a vast parking field, with an internalized open space that is consistently under-utilized, making it effectively an island, accessible only to the motoring public." In 2021 the Municipality designated the center as an Area in Need of Redevelopment, to create an opportunity for new development, including multifamily residential uses, that could help revitalize the struggling existing commercial complex. That designation is

starting to bear fruit: Already, multifamily residential projects are being developed at the south end of the property and on Terhune Street to the north. There is also multifamily residential development under construction across Terhune Street on Thanet Road. Combined, these projects will bring more than 700 new households to the area by 2025, and represent more than $235 million in private investment. These projects are anticipated to help reinvigorate the Shopping Center's role as a hub for convenience and amenity retail, and with it the opportunity for additional programming in the center courtyard. The Community Facilities Element of this Master Plan also recommends that the Municipality study whether some institutional uses, such as a library branch, could also locate here. Beyond the existing condition of the buildings at the Shopping Center, the infrastructure serving it is outdated, and the property has stormwater challenges that affect the surrounding residential neighborhoods, all of which will require new investment in order for the site to deliver its full potential.

ALEXANDER STREET

This is one of the main thoroughfares connecting the downtown area to Route 1. The southwest side of the street is bordered by the Springdale Golf Course and Princeton University's Forbes College. The opposite side includes the NJ Transit Dinky station and associated parking, and some low-density convenience retail, restaurants and office uses. The presence of the Dinky station, McCarter Theatre and the university's Lewis Arts Complex creates the opportunity for further residential, educational, and commercial development of this area to capitalize on its designation as an Arts, Education and Transit District.

CHALLENGES AND OPPORTUNITIES

Alexander Street has been referred to as a "stranded asset." Most of the properties on the east side are owned by the university and will eventually be developed for related uses, and thus, while redevelopment potential is there, the area may not undergo any commercial redevelopment prior to the university developing them. The JGSC Group report recommends convenience retail and dining options for this district, to set it apart from tourist-driven Nassau Street. Any increases in retail uses will need to be calibrated with market demand, so that if additional residential development is created, it will be feasible to expand retail uses. The NJ Transit proposal for shuttle service between Valley Road, Witherspoon Street, Nassau Street, and the Dinky station may help connect this area with residents and amenities north of Nassau Street.

BUNN DRIVE

This is an office-research area at the northern end of the Municipality. Various medical offices and Church & Dwight's research facility are located at the southern end of the area, and additional medical/professional offices and facilities are located along Bunn Drive headed north. The Copperwood residential development is located here,

and the Princeton Senior Resource Center is just off the northern end of Bunn Drive. Immediately off Bunn Drive to the east, less than a half-mile north of the Princeton Shopping Center, is the Princeton Community Village residential development.

CHALLENGES AND OPPORTUNITIES

It is possible to envision this area being redeveloped at a higher density with additional research uses. Based on the real estate requirements detailed in the Newmark report discussed above, this is also an area that may be appropriate for the development of life sciences facilities. However, the proximity of the Shopping Center predicates against developing new convenience retail along Bunn Drive. Rather, the focus should be on enhanced connections to the Shopping Center and downtown, including transit service, bicycle lanes, and pedestrian walkways.

STATE ROAD NORTH

This is an auto-oriented group of stores at the northern end of the Municipality, on the border with Montgomery Township.

CHALLENGES AND OPPORTUNITIES

Currently the physical characteristics of this area are not conducive to pedestrian or bicycle patronage, and thus it is not a "walkable" retail district. However, a recently enacted inclusionary residential overlay zone may spark some mixed-use development in this area, including the provision of sidewalks, bike lanes, etc.

7.4 Economic Development Recommendations

RECOMMENDATIONS - EMPLOYMENT

1. **Consider establishing an office of economic development.** This office would have a different remit than Experience Princeton, the Municipality's Special Improvement District: It would serve as liaison to Princeton University to advocate for both entities' shared interests, would work with the university and with Mercer County to attract and locate life-sciences entities and entities from other industry sectors that the Municipality may deem a priority, and more generally would be able to take advantage of additional targeted opportunities to attract employment to the Municipality.

2. **Foster conversion of office space to research lab, light manufacturing, and associated facilities** where feasible to create suitable space for life-sciences businesses.

3. **Expand opportunities for new nonresidential development** through amendments to the zoning ordinance.

4. **Review, evaluate and streamline processes and requirements** to enable entities interested in locating in Princeton to do so without undue regulatory burden or delay.

5. **Enhance the availability of high-speed broadband and reliable cellular service** to reinforce Princeton's attractiveness as a reliably connected location for businesses. See the Utility Element of this Master Plan for more detailed recommendations.

RECOMMENDATIONS - COMMUTING AND HOUSING

6. **Facilitate transportation options other than cars to meet the needs of a local and regional workforce.** This includes schedule and route changes to the Muni Bus, as well as the provision of adequate infrastructure for bicycles, scooters, etc., and potential changes to paid parking strategies, to make it feasible for commuters not to have to drive and park downtown. See the Mobility Element of this Master Plan for more specific information.

7. **Pursue commuter management strategies** by working with local employers such as the Municipality, Princeton Public Schools, and local retail and dining establishments, to identify ways to encourage and perhaps subsidize employee transit use, carpooling, ridesharing, and shared parking, including the possibility of parking cash-outs for employees who currently enjoy employer-paid parking. (Princeton University has already instituted such programs.) Implement these strategies through coordination with the Mobility Plan Element and Land Use Element of this Master Plan.

8. **Amend the zoning ordinance to reduce the cost of and promote new housing,** including rental apartments and conversion of larger single-family homes in areas connected to commercial nodes and districts into multi-unit buildings with smaller units, either for rent or for sale, that are affordable to lower-wage workers. See the Land Use Element of this Master Plan for more specific recommendations.

RECOMMENDATIONS - COMMERCIAL DISTRICTS

9. **Harmonize the sign ordinances from the former Borough and former Township into one ordinance** governing signs in all commercial zones.

10. **Where appropriate, ensure hotels and lodging are a permitted use** in commercial and mixed-use districts.

11. **Expand and standardize the design of municipal wayfinding signage** in all commercial zones.

12. **Preserve and strengthen Nassau Street, Witherspoon Street, and Palmer Square as a world-class retail and dining destination** through strategies that address access, parking, deliveries, land use, bike and pedestrian access, physical appearance, leasing plans, greater opportunities for public arts, and other components of the district.

13. **Work with Experience Princeton and the owner of Princeton Shopping Center** to ensure effective retail management so that the Shopping Center becomes a thriving commercial hub for the growing residential community in the area.

14. **Enhance the Alexander Street commercial area as a transit-oriented mixed-use educational district** by expanding the capacity for education, commercial and multifamily residential development through amendments to the zoning ordinance.

15. **Coordinate the use of public space and street space in the Municipality's commercial zones through curbside management, delivery management, outdoor dining, and property access.** See the Mobility Element and Land Use Element for more detailed recommendations.

16. **Foster additional opportunities for public art and performance** as further enhancements to the Nassau Street/Palmer Square district and at the Princeton Shopping Center.

8.0

HISTORIC PRESERVATION

Introduction

The historical importance of Princeton and the exceptional qualities of its historic architecture, cultural landscapes, institutions, viewsheds, and streetscapes have garnered a robust reputation in New Jersey and throughout the country. Historic resources provide valuable connections to the past by providing a way to recognize previous generations that have built Princeton and their roles in the wider history of the region, State, and nation.

The purpose of this Historic Preservation Plan Element is to establish overarching goals for the Municipality related to historic preservation, identify existing and suggested historic sites and districts, provide the basis for the development of standards, and facilitate the establishment of the consolidated Municipality's Certified Local Government (CLG) status.

8.1 Historic Preservation Over Time

Princeton is a historic community with a longstanding legacy of preserving its historic resources. The following is a general timeline of historic preservation efforts relevant to Princeton.

1966 The United States passed the National Historic Preservation Act and established the National Register of Historic Places. The register recognized historic properties with national, state and local significance.

1970 The State of New Jersey created its State Register (N.J.S.A. 13:1B-15.128) with the same criteria for eligibility as the National Register and made listing on the New Jersey Register a prerequisite for National Register listing.

1967 Princeton Borough and Princeton Township created by ordinance a Joint Historic Sites Commission to study historic preservation.

1968 The newly established Joint Historic Sites Commission conducted a partial survey of historic sites.

1981 A comprehensive survey of historic properties, known as the Princeton Architectural Survey, was conducted in the Township and Borough.

1985 Princeton Borough amended its municipal code to establish three historic districts as zoning overlays: the Central Historic Preservation District, the Jugtown Historic Preservation District, and the Mercer Hill Historic Preservation District.

1986 Princeton Borough added a fourth district, the Bank Street Historic Preservation District, and created the Historic Preservation Review Committee (HPRC).

1987 Princeton Township passed a local historic district ordinance that established a Historic Preservation Commission for the Township. The ordinance also allowed the Township to designate historic districts and historic buffer districts.

2013 The former Borough and Township consolidated as the Municipality of Princeton, and a consolidated historic preservation commission was created.

2014 The consolidated Municipality adopted a new Historic Preservation Ordinance.

Photo (opposite page): Looking north from Hulfish Street, Baker's Alley, seen here in 1925, was home to a neighborhood of African American residents. It was demolished to make way for Palmer Square in the late 1920s. Residents were relocated and some structures were moved further north in the Witherspoon-Jackson neighborhood, which was designated as a local historic district in 2016.

8.2 Existing Historic Districts

Development activities affecting historic resources are generally subject to review and regulation according to their status on the National Register of Historic Places, the State Register of Historic Places, or within a local historic overlay zone prepared by a Historic Preservation Commission and adopted by local governing body.

NATIONAL REGISTER OF HISTORIC PLACES

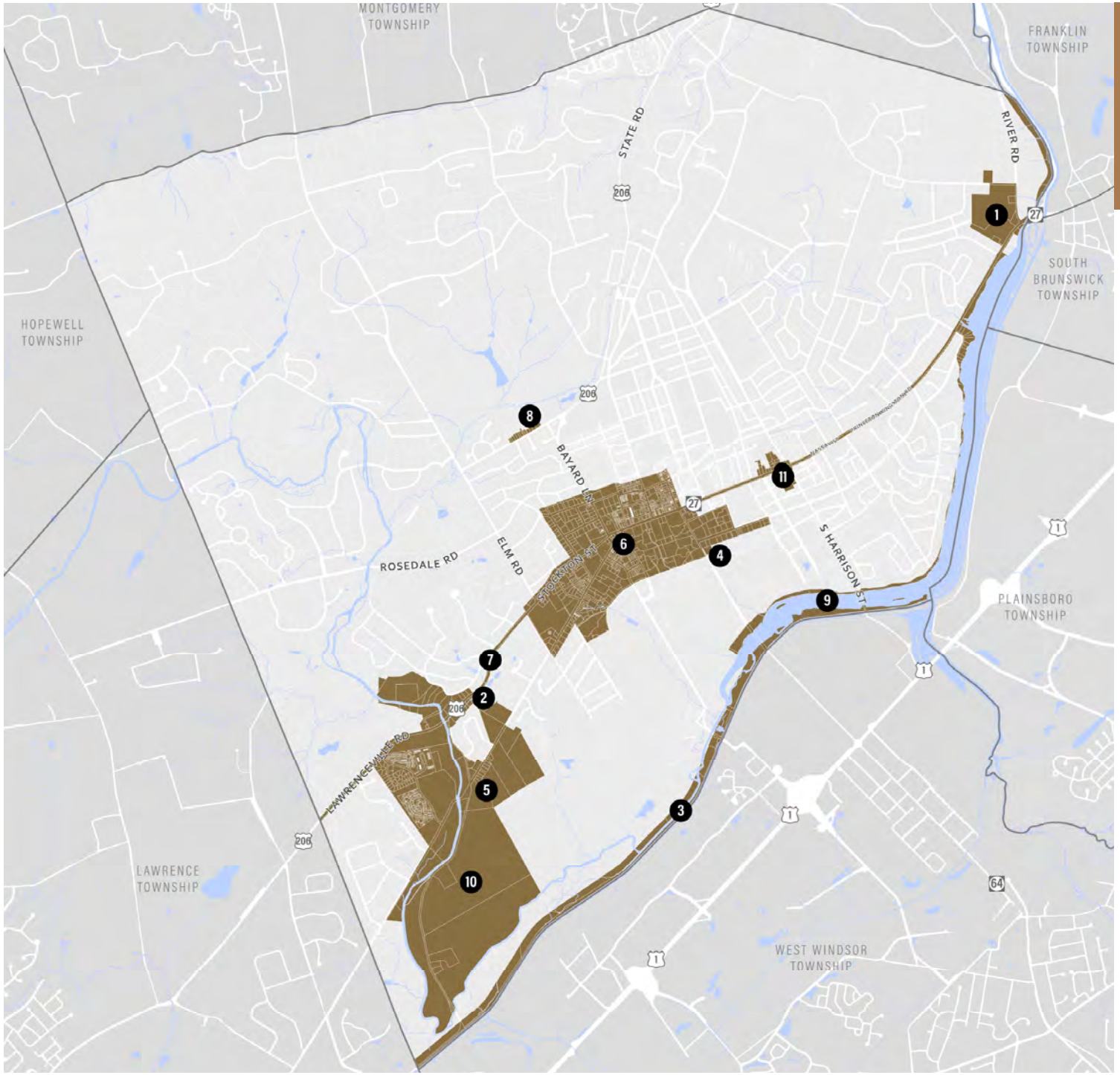
The National Historic Preservation Act of 1966 (NHPA), as amended through 1992, provides the framework for a partnership among federal, state, and local governments to protect historic resources. Among other provisions, the act established the National Register of Historic Places to recognize resources of national, state, and local historic significance. A site's listing on or eligibility for the register subjects it to a required review of federally funded, licensed, or assisted projects involving the site, known as Section 106 review. This means that a federal agency must assess the impact of its proposed project on a listed or eligible property and the project must be modified if necessary to mitigate adverse impacts. This review is conducted in consultation with the State Historic Preservation Office and the federal Advisory Council on Historic Preservation.

STATE REGISTER OF HISTORIC PLACES

New Jersey established a State Register in 1970 (N.J.S.A. 13:1B-15.128) with the same criteria for eligibility as the National Register and made listing on the State Register a prerequisite for National Register listing. A site's listing on the State Register subjects it to a required review of State or publicly funded projects involving the site. Encroachments on properties listed on the State Register are reviewed by the State Historic Sites Council in conjunction with the New Jersey Historic Preservation Office (NJHPO).

Label	Cultural Resource Name	Alternate Cultural Resource Name	Demolished	National Historic Landmark
1	Kingston Mill Historic District		NO	NO
2	Princeton Battlefield/Stony Brook Village Historic District (Boundary Increase and Additional Documentation)	480 Stockton Street	NO	NO
3	Delaware and Raritan Canal Historic District		NO	NO
4	Princeton Historic District Boundary Increase and Additional Documentation Princeton Eating Clubs	Princeton Eating Clubs	NO	NO
5	Princeton Battlefield Addendum		NO	NO
6	Princeton Historic District		NO	NO
7	King's Highway Historic District		NO	NO
8	Mountain Avenue Historic District		NO	NO
9	Lake Carnegie Historic District		NO	NO
10	Princeton Battlefield / Stony Brook Village Historic District		NO	NO
11	Jugtown Historic District		NO	NO

NATIONAL AND STATE LISTED HISTORIC DISTRICTS



Legend

Waterbody

Streams

State and National Register

LISTED

Source: NJDEP (Listed Historic Districts)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

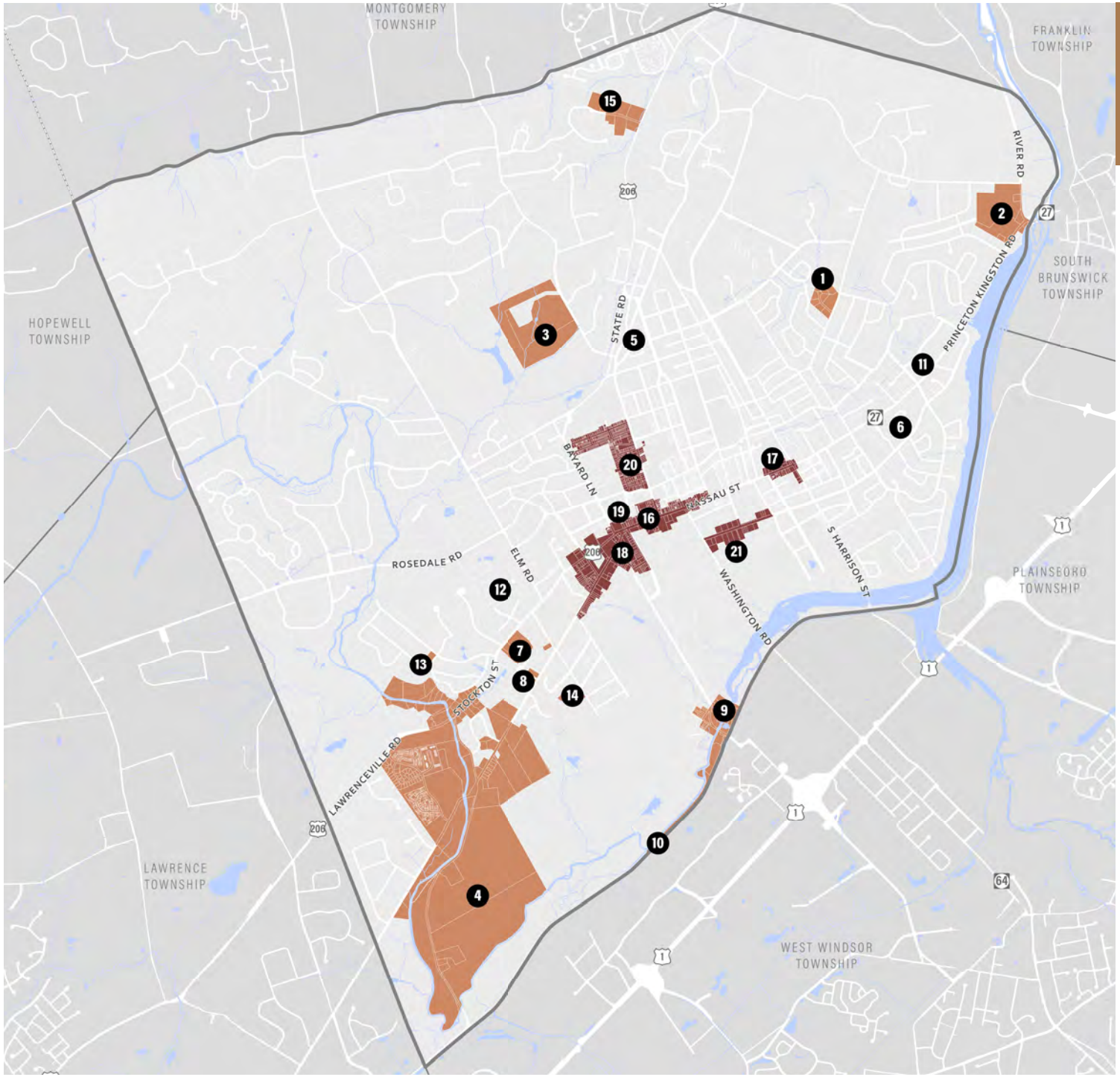
LOCAL HISTORIC DISTRICTS

Local historic districts authorize local review and regulation of locally designated historic resources. Princeton has designated 21 areas as historic preservation overlay zoning districts to guide and regulate public and privately funded development activity within them. Some of Princeton's historic preservation overlay zones correspond to historic districts that have been listed or determined eligible for listing on the National and State Registers of Historic Places. The following section summarizes Princeton's local historic districts and their listing status on the National and State Registers.

Princeton's current Historic Preservation Ordinance categorizes these districts into two types of historic preservation zones: Type 1 zones are generally located within the former Township, while Type 2 zones correspond to the former Borough. Both types are subject to review by Princeton's Historic Preservation Commission. However, the extent of review varies slightly between types based on site visibility and proposed changes to exterior building color.

Label	District	Type
1	MAYBURY HILL	1
2	KINGSTON MILL HISTORIC DISTRICT	1
3	TUSCULUM	1
4	PRINCETON BATTLEFIELD AND STONY BROOK SETTLEMENT HISTORIC DISTRICT	1
5	MANSGROVE	1
6	CASTLE HOWARD	1
7	DRUMTHWACKET	1
8	DRUMTHWACKET COW BARN	1
8	DRUMTHWACKET FARMER'S HOUSE AND DAIRY	1
8	DRUMTHWACKET GARDEN BUILDING	1
8	DRUMTHWACKET GARDENER'S HOUSE	1
8	DRUMTHWACKET GREENHOUSE/POTTING SHED	1
8	DRUMTHWACKET COACH HOUSE/STABLE	1
9	PRINCETON BASIN HISTORIC DISTRICT	1
10	DELAWARE AND RARITAN CANAL HISTORIC DISTRICT	1
11	JOLINE - GULICK HOUSE	1
12	CONSTITUTION HILL	1
13	EDGERSTOUNE	1
14	OLDEN MANOR	1
15	DONALD G HERRING ESTATE-OLD ARRETON ROAD HISTORIC DISTRICT	1
16	CENTRAL HISTORIC DISTRICT	2
17	JUGTOWN HISTORIC DISTRICT	2
18	MERCER HILL HISTORIC DISTRICT	2
19	BANK STREET HISTORIC DISTRICT	2
20	WITHERSPOON-JACKSON HISTORIC DISTRICT	2
21	PROSPECT AVENUE HISTORIC DISTRICT	2

LOCAL HISTORIC DISTRICTS



0 2,400 4,800 Feet

Legend

Waterbody

Streams

Local Historic Districts

Type 1

Type 2

Source: Municipality of Princeton (Local Historic Districts)

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed.

DESCRIPTIONS OF LOCAL HISTORIC DISTRICTS

1. **Maybury Hill (c. 1725)** – Maybury Hill was designated as a National Historic Landmark in 1971. The older portion of the house dates back to the middle of the 18th century with an expansion in the 19th century. Joseph Hewes, a signer of the Declaration of Independence for North Carolina, spent his boyhood here.

2. **Kingston Mill Historic District (settled in 1683)** – A rural industrial early settlement area centered on a grist mill located on the Millstone River, this district includes the mill, Gulick Farm, and several 18th-century buildings. The boundaries of the local district coincide with those in the National and New Jersey Registers.

3. **Tusculum (c. 1773)** – Tusculum was the summer home and farm of John Witherspoon, a signer of the Declaration of Independence and President of the College of New Jersey (now Princeton University). The National and New Jersey Register boundaries are confined to 20 acres surrounding the house.

4. **Princeton Battlefield-Stony Brook Settlement Historic District (settled c. 1686-1777)** – This district contains the site of the Battle of Princeton, the Stony Brook Quaker Meeting House, Mercer Street Bridge over the Stony Brook and the Stony Brook Bridge on Route 206. In 1989, the district was enlarged to encompass the area of the Stony Brook settlement established by the first Quaker settlers in the community. The enlarged district is also on the National and New Jersey Registers.

5. **Mansgrove (c. 1725)** – John N. Simpson built the main block of this house in the 1800s. Mansgrove has strong associations with one of Princeton's pioneering landowners, Judge Thomas Leonard.

6. **Castle Howard (c.1760)** – This building is said to have been constructed by Richard Stockton, uncle of the signer of the Declaration of Independence. There have been many prominent owners, including members of the Stockton family, John Witherspoon, and Captain Howard, a British military officer.

7. **Drumthwacket (c. 1835)** – This building on Route 206 is owned by the State of New Jersey and is

the official residence of the State's Governor. The property is on the National and State Registers of Historic Places. The center block is the original Greek Revival mansion of Charles Smith Olden, who served as Governor during the Civil War.

8. **Drumthwacket outbuildings (c. 1896-99)** – The estate's six outbuildings, on Lover's Lane, Greenhouse Drive and Parkside Drive, are designated locally as individual sites.

9. **Princeton Basin (settled 1834)** – This district was significant in regional transportation and commerce from 1834 until 1932. Located along the banks of the Delaware and Raritan Canal, the area developed as a small industrial and shipping center. Seven 19th-century frame structures survive on the north and west sides of Basin Street.

10. **Delaware and Raritan Canal Historic District (c. 1832)** – The canal was completed in the early 1830s, and the Princeton Basin became a shipping terminus. The State of New Jersey owns the canal, which, along with the lands immediately to either side of it, comprise the D&R Canal State Park. The canal is listed on the National and New Jersey Registers of Historic Places.

11. **Joline-Gulick House (c. 1830-57)** – This house consisted originally of one building, a Greek-revival house with a Victorian wing. The two houses were separated, and the Victorian wing was placed on the adjacent lot to the north. The older, main portion is one of the best examples of a vernacular Greek-revival domestic building. Its addition is a distinctly Victorian house, rare in Princeton.

12. **Constitution Hill (c.1896-97)** – Constitution Hill is an outstanding example of the work of the Philadelphia firm of Cope & Stewardson in the Tudor Revival style. A 1979 residential cluster development that echoes the Tudor Revival architecture surrounds the two original buildings, but Constitution Hill still retains the ambience of Princeton's turn-of-the-century estates.

13. **Edgerstoune (1903)** – This house, built for Archibald D. Russell and designed by William Russell of the firm Clinton and Russell of New York City, was the centerpiece of a 273.7-acre estate. It is a good example of English Tudor Revival. It now serves as the administration building of the Hun School.

14. **Olden Manor (c. 1720)** – This site was owned by the Oldens, one of Princeton's pioneering families, from the 1690s to the 1920s. It has served as

the residence of the director of the Institute for Advanced Study; its most famous resident has been Robert Oppenheimer.

15. **Donald G. Herring Estate (c. 1919)** – This estate is on the National and New Jersey Registers. The local district is larger and includes two buildings that comprise part of the original Princeton Hospital. These buildings were moved to their present location in 1952.

16. **Central Historic District** – This district encompasses the core of the central business district and large portions of Princeton University's campus and buildings. The district's buildings represent diverse periods and architectural styles from the 18th through the 20th centuries. Located amid the district's 18th-century Nassau Hall, Bainbridge House and Maclean House are the Greek Revival Nassau Presbyterian Church, the Tudor Revival Lower Pyne, Latrobe's Stanhope Hall, the Richardsonian Romanesque Alexander Hall, the Victorian Gothic Chancellor Green, and the Collegiate Gothic Madison and Holder Halls. The commercial buildings along Nassau Street demonstrate an array of historical styles, including Federal, Second Empire, Renaissance Revival, and the Colonial Revival of Palmer Square. The list of individual landmarks in this core district is extensive. This district is also part of the Princeton Historic District, which is listed on the National and State Registers of Historic Places.

17. **Jugtown Historic District** – Located at the intersection of Nassau and Harrison Streets, this area was first settled by Europeans in 1695. By the end of the 18th century, Jugtown had become a thriving hamlet of houses, stores, a tavern, and a pottery works, from which the neighborhood derives its name. The district's beginnings are visible in the modest brick dwellings of the 18th century, which were joined later by elegant wood-framed Federal-style dwellings with delicate carved wood details and fanlights. During the 19th century, the neighborhood came to include houses built in a wider variety of architectural styles. Queen Anne and Colonial Revival dwellings of the late 19th and early 20th centuries complete the district. During the second half of the 19th century Jugtown gradually started to lose its industrial elements; however, it retained its residential character and some retail shops. From 1887 to 1897 this neighborhood was also home to the short-lived Evelyn College for Women, associated with Princeton University.

18. **Mercer Hill Historic District** – Primarily residential in character, this district includes two National Historic Landmarks, clusters of Victorian houses, and several homes designed by noted Princeton architect/builder Charles Steadman. Key historic buildings include Palmer House, Trinity Church, Ivy Hall, the Sheldon House on Mercer Street, and Breckenridge House on Library Place. Many historic sites within the district are located on the Princeton Theological Seminary's campus: Alexander Hall, Miller Chapel, Stuart Hall and Springdale. Several architectural periods are represented in the district, with houses executed in the Federal, Greek Revival, Gothic Revival, Italianate, Second Empire, Queen Anne, and Colonial Revival styles. This district is also part of the Princeton Historic District.

19. **Bank Street Historic District (c. 1890)** – The wood-framed buildings that line Bank Street represent a highly cohesive and well-preserved district of vernacular Queen Anne-style houses built between 1897 and 1906. These houses feature a variety of Victorian decorations. This district is also part of the Princeton Historic District.

20. **Witherspoon-Jackson Historic District** – This neighborhood is the center of Princeton's vital historic Black community. African-Americans have worked and resided in Princeton, both as enslaved people and as free men and women, since the 17th century. The remarkable survival of this neighborhood is a testimony to the African-American community's perseverance in the face of subtle and overt forms of discrimination. The neighborhood has been identified by the New Jersey Historic Preservation Office as eligible for listing as a historic district on the National and State Registers of Historic Places.

21. **Prospect Avenue Historic District** – A cohesive and intact expression of Princeton University's growth and development in the late 19th and early 20th centuries, it is home to the Princeton University eating clubs and possesses distinct characteristics of streetscape and significant architecture designed by nationally prominent architects. The district runs east from Washington Road along Prospect Avenue to Murray Place, and includes the Ferris Thompson Wall and Gate of the former Princeton University Athletic Field, now restored, on the north side of Prospect Avenue in front of Bowen Hall.

8.3 Criteria for the Designation of Historic Sites and Districts

The criteria for the designation of local historic sites and historic preservation districts in Princeton are the same as for the National and State Registers. Eligible properties or districts must exhibit historic or architectural significance nationally or at the State or local level in terms of American history, architecture, archeology, culture or engineering. Additionally, resources must exhibit a high degree of character-defining features from the period during which it earned its significance. Specifically for Princeton, such places and districts must:

- Be associated with events that have made a significant contribution to the broad patterns of Princeton's past; or
- Be associated with the lives of individuals significant in Princeton's past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

8.4 Standards for Preservation of Historic Properties

Under the NHPA, the Secretary of the Interior is responsible for establishing professional standards and for providing guidance on the preservation of the nation's historic properties. The Secretary of the Interior's Standards for the Treatment of Historic Properties applies to all grants-in-aid projects assisted through the Historic Preservation Fund (authorized by the NHPA) and the standards are intended to be applied to a wide variety of resource types, including buildings, sites, structures, objects, and districts. The standards address four treatments: preservation, rehabilitation, restoration, and reconstruction.

Preservation is the application of measures necessary to sustain the existing form, integrity, and materials of an historic property.

Rehabilitation involves the enabling of a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

Restoration entails an accurate depiction of the form, features, and character of a property as it appeared at a particular period of time, by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

Reconstruction is the depiction, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

CERTIFIED LOCAL GOVERNMENT STATUS

The Certified Local Government (CLG) program was authorized by amendments to the NHPA in 1980 and provides for more formal participation by communities in federal and state historic preservation programs. Under the program, NJHPO is required to set aside at least 10% of its federal funding from the National Park Service for CLGs. Municipalities with CLG status have the opportunity to comment on all New Jersey and National Register nominations in their jurisdiction.

Municipalities are considered for certification by NJHPO upon request of their chief elected official. Governments requesting certification must submit evidence that they meet the basic program criteria, which include establishment of a local Historic Preservation Commission, efforts to complete a comprehensive survey and inventory of local historic resources, designation and protection of local landmarks and historic districts, and development of a process to ensure public participation in local historic preservation.

8.5 Historic Resources for Potential Local Designation

Princeton has many additional sites and districts that may be appropriate for historic designation. This list includes resources that the Municipality should prioritize, provided that the inventory, analysis, and findings are consistent with national standards and Princeton's goals. Princeton's Historic Preservation Commission has done extensive research on additional potential historic sites and districts, and it is anticipated that this list will be updated from time to time to reflect consideration of those additional districts and properties and to reflect changes in status of historic districts, sites and structures.

- Princeton Historic District is a very large National Register Historic District that is partially represented by three locally designated historic districts: Bank Street Historic District, Central Historic District, and Mercer Hill Historic District.
- Deer Path and Clover Lane – This area is a 1950s development designed by David Savage and Herbert Kendall, architects. The former Township's Office of Historic Preservation conducted a study of this neighborhood in 2007.
- Tree Streets - Laid out in 19th century, these streets were given or eventually given the names of trees: Chestnut, Pine, Maple, Linden, and Spruce Streets.
- Morven Tract – The Morven Tract, stretching north of Stockton Street, west of Bayard Lane, east of the west side of Elm Road, and south of the north side of Cleveland Lane, derives its name from the Stockton family's original ownership of the land as part of the Morven estate.
- Greenholm (c. 1910-20) – This cul-de-sac residential subdivision was developed by Colonel William Libbey of Thanet Lodge. The subdivision consists of eight properties built in a variety of styles or moved to this private lane, which was formerly a playing field used by undergraduate students. In 1869 it was the site of the second-ever intercollegiate football game (Princeton vs. Rutgers), which was Princeton University's first-ever home game.
- Institute for Advanced Study – Include Fuld Hall and the visiting members' housing designed by Marcel Breuer, as well as the Maxwell Lane neighborhood, which contains a collection of mid-century modern houses.
- FitzRandolph and Broadmead Area – This includes properties fronting both sides of Broadmead Street and FitzRandolph Road.
- Greenlands (Textile Research Institute [TRI]) – This property, at 601 Prospect Avenue and the corner of Prospect Avenue and Riverside Drive East, is the site of a once-private residential estate.

- Westminster Choir College - This includes the original Colonial Revival buildings with a period of significance from 1934 to 1967 at 101 Walnut Lane.
- 1128 Great Road (Princeton Academy of the Sacred Heart, formerly Our Lady of Princeton) – Constructed in 1930, the Manor House is likely the largest and most elegant house designed by Rolf Bauhan during that period.
- Markham Road – A collection of four-square and bungalow houses situated with similar setbacks from the street on smaller lots creating a cohesive neighborhood streetscape from Sergeant Street to Patton Avenue.
- Rosedale Road – This area has a distinct historical style, and the Historic Preservation Commission should conduct a study to determine whether it should be locally designated.
- Battle Road Neighborhood – This district has a distinct historical style, and the HPC should conduct a study to determine whether it should be locally designated.

8.6 Impact of Other Elements of the Master Plan on Historic Preservation

The historic preservation efforts recommended by this Element may be affected by other Elements of the Master Plan, as follows:

The **Land Use Plan Element** forms the basis for the Municipality's land use regulations. The Element includes a recommendation for zoning changes that would permit additional housing density, particularly in the downtown and the area immediately surrounding the downtown, without unduly altering neighborhood fabric. This recommendation has been made while being fully mindful of the Municipality's historic preservation efforts. The recommendation to increase housing density and the requirement to ensure adequate protection of historic resources are not mutually exclusive.

The climate change-related hazard vulnerability aspects of the Land Use Plan Element recommend that structures, including those associated with mobility infrastructure, be hardened against future increases in precipitation and flooding. Since historic buildings and structures, such as bridges, may be in areas where these risks are higher, recommended modifications may include elevation or relocation. These actions have the potential to affect historic structures. As mitigation or adaptation measures are considered, the impacts to historic structures should be assessed.

The **Community Facilities Plan Element** provides recommendations for improvement of public facilities and additional actions to support public services. Its recommendations are not anticipated to have any negative effect on the Municipality's historic preservation efforts, but adaptation of historic sites for community uses could foster preservation and awareness, provided appropriate measures for reuse are incorporated.

The **Conservation, Open Space and Recreation Plan Element** recommends actions to protect and enhance the Municipality's natural and recreational resources in ways that coordinate stormwater management, tree canopy, and flood management with land preservation and habitat conservation. The recommendations in the Conservation, Open Space, and Recreation Plan Element complement the historic preservation recommendations in this Element by ensuring adequate provision and protection of open-space and recreational amenities, and best management practices for stormwater management, especially as the Municipality grows. Open-space preservation has the potential to dovetail with historic preservation where publicly accessible historic sites may benefit from open-space resources. Sensitive adaptation or use of historic sites for passive activities may weave together preservation and recreation. Integration of historic sites within a system of public trails and paths has the potential to increase awareness of historic sites and districts.

The **Utility Plan Element** addresses Princeton's critical utility systems, including energy, water, wastewater, solid waste, stormwater, and communications infrastructure. Recommendations include additional renewable power generation and enhanced stormwater management. The Utility Plan Element recommends adoption of an ordinance to regulate photovoltaic (solar) energy facilities, which should address the need to integrate such technologies in an appropriate manner that does not compromise architectural integrity.

The **Green Building and Environmental Sustainability Element** contains strategies for resiliency in public and private development related to resource consumption, building systems, mobility, and sustainable development practices including adaptive reuse of existing structures. The recommendations in that Element will help to protect and sustain vital resources in the Municipality, including historic resources.

The **Mobility Plan Element** and its recommendations are intended to increase the ability of both residents and visitors to travel into, out of, and within the Municipality, by means other than single-occupancy vehicles whenever possible. One of that Element's primary goals is the reduction of transportation-related greenhouse gas emissions, which will reduce the potential harm not just to people but also to structures, including historic assets. The Mobility Plan Element also recommends reductions in on-site parking requirements where feasible, which should help protect the integrity of historic assets undergoing redevelopment that may otherwise have to increase parking availability on-site. The recommendations in the Mobility Plan Element are not anticipated to have any adverse effect on the Municipality's historic preservation efforts.

The **Economic Development Plan Element** includes recommendations intended to strengthen, and in some cases revitalize, the Municipality's commercial districts, generally by adding residential density as reflected in the Land Use Plan Element, and to reduce the traffic and parking congestion associated with commercial activity. Taken together, this Historic Preservation Element and the Economic Development Element strike a balance: This Element encourages adaptive reuse where appropriate to meet the Municipality's changing needs, including needs related to economic growth, and the Economic Development Plan Element acknowledges the importance of protecting the Municipality's historic assets, which may make certain types of economic development inappropriate in certain areas. Increasing the potential profitability of adaptive reuse may help focus more private investment in the existing historic commercial centers that can be used to improve and maintain historic structures.

8.7 Historic Preservation Recommendations

The following recommendations incorporate and expand upon those of the 2012 Historic Preservation Element and 2017 Master Plan Reexamination Report.

RECOMMENDATIONS - GENERAL

1. **Establish Certified Local Government (CLG) status for the consolidated Municipality pursuant to the requirements of New Jersey's State Historic Preservation Office.** Both the former Borough and former Township held CLG status, which became invalid following consolidation. Princeton has begun the process to establish CLG status for the consolidated Municipality and thus enable CLG privileges and eligibility for public funding.

2. **Review and update the 1981 Princeton Architectural Survey and other historic surveys** to reflect the most current status and condition of all previously identified historic resources. Focus additional surveys on historic roads, bridges, and landscapes, including those which may be at risk of impairment or loss. Use the updated surveys to inform revision of the list of potential historic districts.

3. **Continue to maintain a diverse and knowledgeable Historic Preservation Commission.** Continue to ensure that professionals serving the Historic Preservation Commission meet with the minimum required professional qualification standards relative to history, architectural history, and archaeology. Consider diversity of backgrounds and perspectives in appointing lay people to the HPC in addition to demonstrated interest in historic preservation.

4. **Develop and maintain a list of sites and districts that are most at risk for impairment or loss** and thus represent higher priorities for preservation. Princeton has an abundance of undesignated resources with known or potential historic significance. To designate properties in a strategic way, establish and maintain a shortlist of resources prioritized based on potential risk. Section 8.5 provides an initial list of resources recommended for potential designation.

5. **Investigate the designation of historic roadways and thoroughfares with exceptional significance.** Explore the applicability of New Jersey Historic Roadway Design Guidelines, Federal Scenic Byways, or other mechanisms to protect historic thoroughfares and transportation infrastructure to the extent that Section 106 review does not protect these resources already.

6. **Pursue and accept donations of property, grants of easements, and other forms of protection of historic properties.** Prioritize preservation of historic property through private funding where feasible.

7. **Ensure that local officials advance historic preservation goals through the interpretation and administration of regulations and construction codes,** including the current New Jersey Rehabilitation Code.

8. **Minimize unreasonable restrictions and extraordinary costs for permitted uses and significant projects in the public interest** that involve historic resources. Administer historic preservation regulations and guidelines in ways that complement projects that advance other goals of the Master Plan, such as affordable housing, contextual infill development, and provision of infrastructure.

9. **Work with applicants seeking development approvals to help them integrate historic preservation goals within their projects** as appropriate. Encourage the original and/or present use of historic sites in their original location whenever feasible and provide advisory guidance for sympathetic adaptive reuse when original or present use is no longer planned or feasible, in order to balance historic preservation with permitted uses of property.

RECOMMENDATIONS - AWARENESS AND STEWARDSHIP

10. **Host on the Municipal website and promote awareness of available documentation of historic resources and districts in Princeton.** At minimum, include a list of historic sites and historic district overlay zones, historic surveys, and nomination reports.

11. **Develop and promote online resources and/or print materials to facilitate public understanding of historic preservation policies.** At minimum, provide a summary of historic preservation policies and guidance on the applicability of regulations, guidelines, and procedures.

12. **Develop a comprehensive system of wayfinding and site identification signs** to inform the public of historically significant sites and districts. Make signage consistent and/or contextual with corresponding historic resources to enhance public awareness, stewardship, and unique local aesthetics.

13. **Provide advice to public agencies and private entities** on the selection of appropriate sites for development, redevelopment, and reuse within historic districts.

14. **Work with property owners and public and private agencies** to advance historic preservation goals. Continue to form partnerships to identify historic resources and support their preservation, acquisition, adaptive reuse, monitoring, and maintenance.

RECOMMENDATIONS – ZONING AND REGULATIONS

15. **Amend the Historic Preservation Ordinance to conform to NJHPO requirements** for the review and regulation of historic resources. Maintain compliance with NJHPO guidelines to sustain the Municipality's anticipated CLG status and associated privileges.

16. **Develop, adopt, and maintain historic preservation design guidelines** to improve review of proposed alterations and new construction at historic sites and in historic districts. Follow the Secretary of the Interior's Standards for the Treatment of Historic Properties.

17. **Remove historic preservation buffer districts from the zoning ordinance,** and accommodate the Municipality's vision for them through regulations of the underlying zoning districts and adopted historic district overlay zones. The Municipality established these buffer districts to regulate improvements on properties that are outside of specified historic preservation districts. The NJHPO does not recognize this regulatory tool. The Municipality can also explore conventional zoning mechanisms, such as cluster zoning, transfer of development rights, and other tools where appropriate, to protect the context and landscape features of historic properties.

18. **Merge, align and simplify the standards for Type 1 and Type 2 local historic districts** while ensuring that sufficient protections and enhancements for historic resources remain in effect. Simple and effective requirements can encourage rather than discourage restoration, adaptive reuse, and historical appropriateness of development activity through a straightforward application and review process.

19. **Adopt and maintain standards for review of development applications and construction permits for projects within local historic districts.** Standards for review should apply generally and/or specifically for each adopted district.

20. **Maintain and update the Municipal list of locally designated districts and historic district overlay zone boundaries (Section 8.2)** to reflect newly designated or lost resources. Historic preservation zones should reasonably reflect existing conditions as additional properties are designated or as designated properties are lost to unsympathetic modification or demolition.