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SECTION 5: LAND USE ELEMENT

INTRODUCTION

Maplewood is a mature, largely built-out community, with very little vacant land remaining, and its established land use patterns are anticipated to remain largely intact. This does not mean, however, that there are not opportunities to effectuate change in order to achieve the community’s vision for the appropriate scale and intensity of development. The Township’s population is at its highest level to-date, and while growth is expected to moderate in the coming years, continued increases for Maplewood can be anticipated as a share of regional growth. If the Township does not accommodate some measure of growth, the scarcity of development potential could further drive up the value of existing properties, to costs that may be unattainable for many current and future residents. Maplewood will need to absorb additional density in the form of redevelopment of existing sites, which will require creativity and flexibility to respond to market forces in a manner that is acceptable to the community.

This Master Plan seeks to balance revitalization and change with the preservation of the assets that Maplewood residents value, including historic resources and the built context that gives the Township its distinct identity. The approach is one of targeted, smart growth of business and mixed-use areas, protection of existing neighborhood scale, and strengthening of amenities such as parks and transit. Equity is also an important consideration. Some areas of Maplewood have received significant new density because of availability of land, property ownership, and other factors. But as these portions of the Township are developed, other areas should also be contemplated for context-appropriate infill development, to help ensure that no one neighborhood receives disproportionate impacts of development.

In the near term, the most logical areas to receive density are where it is already occurring in Maplewood: near the train station (i.e., Maplewood Village) and along key commercial corridors (e.g. Springfield Avenue, Valley Street, and Irvington Avenue). These areas are optimal for new residents, given their proximity to local goods and services, transit, and community amenities, and they often contain underutilized properties that are ripe for modern and efficient development. Options can include new mixed-use and multifamily buildings as well as standalone office and retail uses – all of which can serve to enhance street life, local economic activity, and sense of place.

While the Township’s low-density residential neighborhoods are not envisioned to change significantly, they too represent opportunities to introduce context-appropriate density. This does not mean transforming single-family areas into apartment buildings, but instead encouraging options such as accessory dwelling units (ADUs) – which are already allowed under current zoning – as well as two-family homes and small apartment buildings. Such housing has come to be known as the “Missing Middle,” because it represents a residential building type in between detached single-family homes and large apartment buildings, which has been significantly underbuilt since the post-war period. The many benefits of Missing Middle housing include:

- Buildings fit seamlessly into neighborhoods, either because similar building types already exist in the community or because the homes are designed and constructed to preserve or complement the streetscape’s appearance and character.

- Neighborhood-scaled multi-unit structures can provide a community with a greater range of housing options, at various price points.
- The housing types fit within – and help to generate – walkable, place-based neighborhoods with community amenities that establish a sense of community.
- The homes can accommodate people of all ages, physical abilities, and stages of life.¹¹

The Land Use Plan that follows seeks to strike the appropriate balance of redevelopment and preservation, to further the key planning goals of connection, quality of life, and resiliency, under the overarching principle of equity.

For Maplewood, Missing Middle Housing could be more efficient than single-family in providing additional units, would be more contextual than larger mid-rise apartment buildings, and could help satisfy the Township’s affordable housing obligation.

¹¹ Adapted from “Discovering and Developing Missing Middle Housing,” AARP, 2022.

LAND USE PLAN

The Maplewood Land Use Plan (see Figure 32) broadly indicates the proposed location, extent, and intensity of the future development of land for various types of residential, commercial, business, recreational, and public and semi-public purposes.

The Land Use Plan is intended to guide future development in the Township for the next 10 years, under the provisions of the Municipal Land Use Law, in a manner which protects the public health, safety, and general welfare. This Plan is designed to serve as the basis for potential revisions to the Township’s land use ordinances, including zoning, subdivision, and site plan codes.

The Land Use Plan provides an overview of preferred land use types and locations consistent with Maplewood’s overarching planning goals, and in furtherance of the land use strategies and recommendations previously identified in this Master Plan. While it recognizes existing land uses and environmental resources and constraints, it also considers

future potential development, economic trends, and best planning practices.

The Land Use Plan is not necessarily meant to be parcel-specific; it illustrates broad land use patterns for different geographic areas in Maplewood. For example, an area designated as residential may include lots that contain commercial uses. While the existing land use map may pick up these individual uses, the Land Use Plan shows the generalized ideal land use for the area. Designations on the Land Use Plan are not intended to eliminate isolated cases that do not match the indicated land use, but rather to depict the overall desired uses that are envisioned for the area over time.

The Land Use Plan is based on the categories of development discussed below, which are similar to those provided in the 2004 Master Plan. The relationship of these categories to existing zoning is provided, along with recommendations for potential zoning changes. Proposed regulatory and map amendments are summarized at the end of this section. It is important to note that the Land Use Plan’s recommendations are just that: recommendations. Any zoning amendments undertaken by the Township may ultimately vary in some details from these specific recommendations, but should be consistent with the overall policy and intent.

The generalized future land uses are shown using traditional land use colors. Generally, lighter shades of each color indicate less development intensity; as the shade darkens, intensity increases. This map is not a substitute for, and does not supersede, Maplewood’s official zoning map.

Table 14: Land Use Plan Legend

Source: BFJ Planning.

Land Use	Color
Residential (five categories)	Yellow/Orange/Brown/Teal
Business and Mixed Use (four categories)	Red/Pink
Light Industrial/Commercial	Purple
Parks and Open Space	Green
Public and Nonprofit	Blue
Public Parking	Gray
Specialized Areas	As Indicated

Residential

The Land Use Plan shows five levels of residential density, primarily reflecting existing zoning and settlement. This classification is based on the use of the land, not ownership. Maplewood has a number of townhouse or condominium developments may be single-family in terms of ownership and occupancy, but are grouped in a higher-density category because they are in attached buildings.

It should also be noted that single- and two-family homes may occur in any residential land use category. In addition, the residential land use category does not exclude uses that are often found embedded in residential neighborhoods, such as schools, places of worship, and occasional small businesses. These other uses, if of an appropriate scale, are normally seen as compatible with dwellings in overwhelmingly residential areas, and even as necessary to the proper functioning of neighborhoods. While the Land Use Plan shows current public and nonprofit uses such as places of worship, schools, and governmental facilities, a residential designation is not intended to preclude the future location of such uses, as may be appropriate and allowable by zoning.

1. Low-Density Residential (light yellow)

The low-density residential land use category provides for a density ranging from minimum lot sizes of 4,000 to 7,000 square feet, corresponding to the R-1-4, R-1-5, and R-1-7 zoning districts. This category covers the majority of Maplewood, except for areas in the eastern and southeastern portions of the Township as well as non-residential areas.

Low-density residential areas are typified by well-established, single-family neighborhoods. These areas are envisioned to remain generally at their current density and scale. However, it is recommended that the Township continue to encourage ADUs in either attached or detached structures throughout these zones, and should consider allowing two-family homes as conditional uses in all or certain single-family zones. The R-1-7 district could be considered first for the introduction of two-family homes, given its larger lot sizes. Conditions could include a minimum lot size, width, and/or depth that is larger than

permitted, to ensure sufficient room for off-street parking and other infrastructure needs. For example, the Township could consider permitting two-family homes where minimum lot size and width were at least 1.25 times larger than the minimum required. This is the same ratio of requirements for two-family homes in the R-2-4 district; a 5,000-square-foot lot of at least 50 feet in width is required for two-families, vs. a 4,000-square-foot lot of at least 40 feet in width for single-families. Using the 1.25 ratio for the R-1-7 district would require a minimum lot size of 8,750 square feet and minimum lot width of 87.5 feet to permit a two-family home. The Township could also consider additional locational provisions such as limiting two-family homes to certain major streets. This is an issue for further study and analysis.

As noted in the Strategies and Recommendations section, strong design of current and future two-family homes in the Township is critical to ensure that they are compatible with established neighborhoods and promote a walkable environment. Conditions for permitting two-family homes in single-family districts should incorporate design requirements to reduce the scale of garages, reduce pavement in front yards, and ensure a building height in keeping with adjacent and nearby homes. These provisions should also be incorporated into two-family requirements for the R-2-4 district.

Another change to be considered in all single-family zones (and the R-2-4 district) is a clarification of the provisions for transition lots. As recommended in the Strategies and Recommendations section, rather than defining transitional lots, the Township should consider defining a transitional area. Off-street parking, professional offices, and multiple dwellings would continue to be allowed in transitional areas – as they are on transitional lots – but would be controlled through conditions on lot size, side yard setbacks, building height, and required buffers.

Lastly, the Township should explore context-sensitive zoning regulations to ensure that new development within all residential zones (including the R-2-4 district) is compatible with the existing scale of development, through height, setback, and other bulk controls. The performance, noise,

and lighting standards should be reviewed for clarity and consistency with best practices, and Maplewood should look into ways to streamline and expedite basic property upgrades and reduce the need for variances, to incentivize continued upkeep.

2. Moderate-Density Residential (light orange)

This land use category corresponds to the R-2-4 zoning district and is designed to permit single- or two-family homes at a minimum lot size of 4,000 or 5,000 square feet, respectively. The moderate-density residential designation encompasses many of the neighborhoods on Maplewood’s east side, and is intended to preserve and retain the existing permitted residential density. However, it is noted that, within this zoning district, there are existing three- and four-family homes. Traditionally, these units have been located within structures that resemble single-family homes, and they provide a unique and relatively affordable housing type that should be preserved.

Currently, in addition to transitional lots as conditional uses (see discussion above), multifamily residential units are permitted as principal uses in the R-2-4 district on lots of 2 acres or larger. This condition does not exist anywhere in the district, meaning that in practice, multifamily uses are not permitted except on transitional lots. The Township should consider reducing the minimum acreage requirement for multifamily development in the R-2-4 district for smaller apartment buildings (e.g. up to 4 units), to broaden housing opportunities and provide for “Missing Middle” housing.

Of note, there are existing residential properties within the CI district that could be ideal for these types of housing opportunities, rather than commercial or industrial uses permitted under the current zoning. These areas are indicated as residential in the Land Use Plan.



Existing neighborhood-scaled fourplex on Baker Street

Source: Google Maps

3. Garden Apartments/Townhomes (dark orange)

This residential category defines a housing density of 12 to 15 units per acre (for attached units and multiple-use buildings, respectively), and corresponds to the RGA garden apartment district. No zoning changes to this district are proposed.

4. Multifamily (brown)

This category corresponds to existing and approved multistory apartment/condominium buildings in Maplewood, which have generally been permitted through the use of the redevelopment tool or zoning variances. Such developments have typically occurred near the train station, along or near Springfield Avenue, and on portions of Valley Street, and they have often been part of the Township’s efforts to meet its affordable housing obligation. Residential density varies according to lot size of these sites, but is generally higher than would be permissible under the RGA district. The Township does not currently have a zoning district in place that would facilitate the development of these types of multifamily buildings, and this Master Plan does not recommend creation of such a zone. However, development of new multifamily buildings could be considered through redevelopment or rehabilitation designation (see discussion below) or, on a smaller scale, on transitional lots as described above.

5. Continuing Care Retirement Community (teal)

There is one such use found in Maplewood, the Winchester Gardens retirement community off Elmwood Avenue, corresponding to the CCRC zone. This land use designation is intended to preserve this important residential use in the Township, and no changes to the zoning district are proposed.

However, with the upcoming fourth round of affordable housing obligations coming in 2025, Maplewood will likely need to continue identifying opportunities to address its obligation, which in a built-out community requires creativity. The Winchester Gardens property has undeveloped and/or underutilized areas which could be considered for context-appropriate development, such as townhomes with an affordable component. Such a change, which would need to be carefully discussed with the property owner, could be considered through the use of an overlay zone similar to what exists at the Maplewood Country Club property.

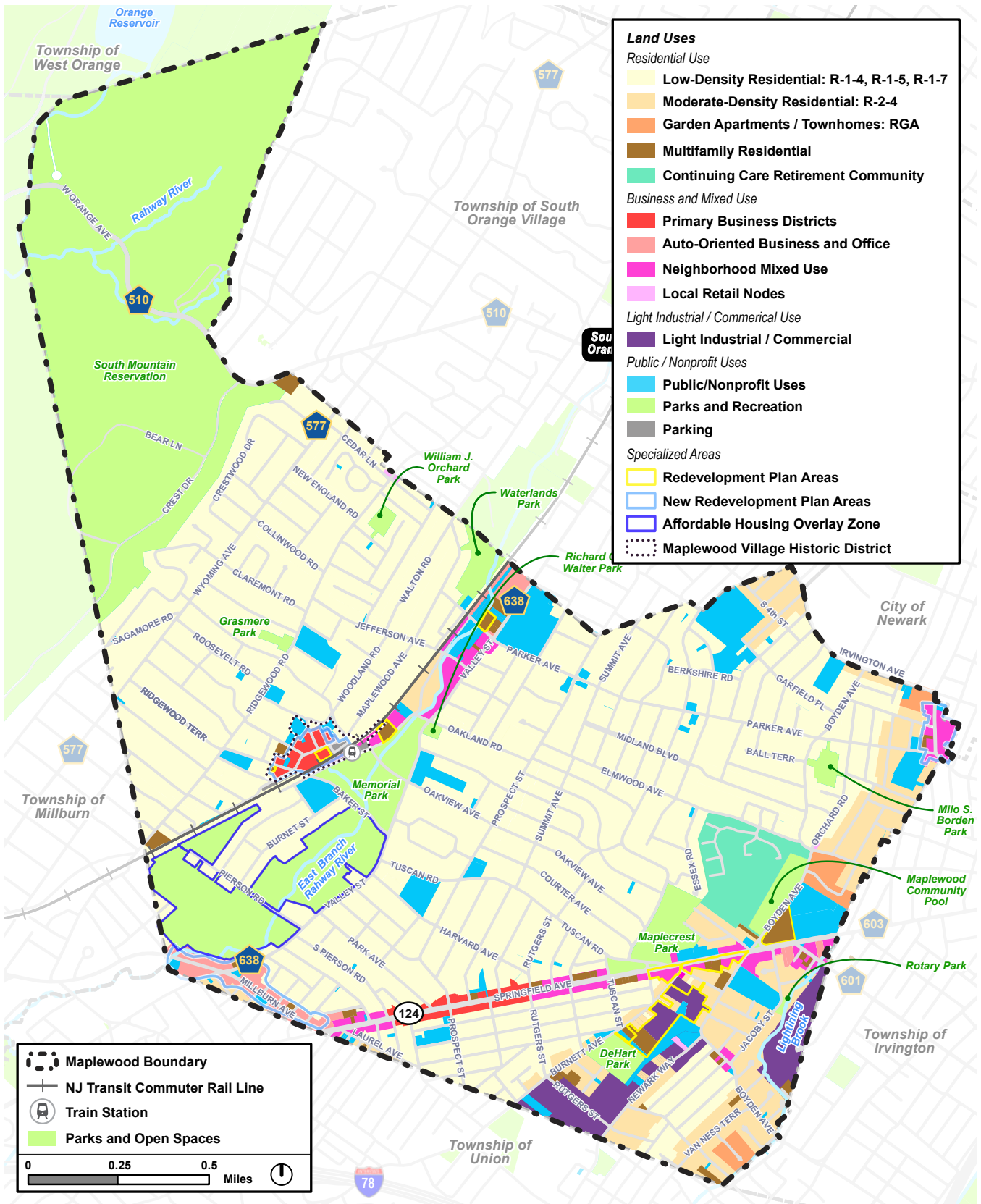


Figure 32: Land Use Plan

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), NJOGIS, BfJ Planning.

Business and Mixed Use

The Land Use Plan groups business (retail, personal-service and professional office uses) and mixed uses (business in combination with residential) into four categories. Unlike the residential categories, which are differentiated primarily by density, the business categories are also grouped by their intensity of use and relationship to nearby neighborhoods and to the automobile.

1. Primary Business District (dark red)

This land use category supports Maplewood's two main business districts, Maplewood Village and Springfield Avenue, both of which are also designated as Special Improvement Districts (SIDs). This category is designated on all of the RB zoning district as well as the portion of the PRB district on Springfield Avenue identified in the Strategies and Recommendations section as the strongest existing commercial node, between South Pierson Road/Ohio Street and Rutgers Street.

This category is envisioned to promote mixed-use areas with a density of development that helps the commercial area thrive and promotes a high degree of pedestrian activity. A wide variety of active commercial and service uses should be permitted, along with multifamily residential uses on upper floors. In order to facilitate this environment, not only should dwelling units be limited to the upper floors in the Primary Business Districts, but inward-facing supportive residential amenities (e.g. structured parking) should be limited in area on the ground floor of buildings and should be located behind a liner of public-facing and public-serving commercial and service uses oriented to the street. Switching from parking minimums to parking maximums, and thus reducing the amount of required off-street parking, should help to facilitate such building configurations. In addition, such ground-level uses should be at-grade, unless not possible due to particular topographical issues on a site, to ensure a connection with street-level activity.

In all business zones, it is recommended that the Township thoroughly review permitted uses, area and bulk regulations, and parking requirements to support small and emerging businesses as well as the arts and cultural community. This review should include an assessment of the permitting process to streamline the approval of desired

business types, such as conversions of retail to restaurant use.

2. Neighborhood Mixed Use (dark pink)

This land use category denotes business and mixed-use areas in Maplewood that serve adjacent residential neighborhoods, and to an extent the Township overall, but have less of a regional draw than the two Primary Business Districts. This designation is indicated for most of the existing NB districts, the PS district, portions of the PRB district not categorized as Primary Business District, portions of the HB district on Springfield Avenue not categorized as Auto-Oriented Business/Office (see below), and the OB zone on Valley Street between Oakland Road and Parker Avenue.

These Neighborhood Mixed Use areas, while often quite walkable, are also well-served by the automobile and typically need some level of off-street parking, either provided on-site or in municipal parking. This classification can serve as a designation that is "in-between" the Primary Business Districts and the Auto-Oriented Business/Office category.

However, some Neighborhood Mixed Use areas may have the potential to succeed to a level that they could be considered Primary Business Districts. For example, as the health and vibrancy of Springfield Avenue improves, the commercial core identified above could expand and create a more active street-level district. In addition, the business district along Irvington Avenue is recommended in this Master Plan for the potential creation of a SID, in collaboration with adjacent municipalities. For these two areas, even though public-facing commercial and service uses are not required on the ground floor (as they are for the Primary Business District designation), they should be highly encouraged, to facilitate greater pedestrian activity.

3. Auto-Oriented Business/Office (lighter red)

Although the business districts described above are highly walkable, there are other areas of the Township where businesses are, and will continue to be, reached primarily by automobile. This land use classification acknowledges this reality, and encompasses the OB district on Millburn Avenue and on Valley Street north of Parker Avenue, the HB district on the western end of Springfield Avenue, and HB-

designated sites on Springfield Avenue where the uses are auto-oriented and not permitted in any other zone (i.e., car washes and convenience stores with fuel pumps).

Two key zoning changes are inherent in this land use classification. The first is the removal of the HB district from portions of Springfield Avenue, bringing these areas to the OB, PRB, NB, or R-1-4 districts as appropriate. As noted in the Strategies and Recommendations section, this change would be consistent with the Township's longtime vision for Springfield Avenue as a more cohesive, pedestrian-oriented environment and the mitigation of potential negative traffic-related impacts on residential neighborhoods.

The second recommended zoning change is the elimination of the RO district on Springfield Avenue, current site of the NJ Transit Hilton bus garage and the only instance of this zone in Maplewood. The RO-zoned site could be considered as either CI or SLI and has been designated as Light Industrial/Commercial (see discussion below).

For both OB- and HB-zoned areas, the Township should explore potential zoning adjustments as well as streetscaping improvements to enhance aesthetics and lessen impacts on adjacent residential areas. For example, language could be added to the code to minimize or reduce the number of vehicular curb cuts and to incorporate a pedestrian condition with a sidewalk separated from the road by a grass strip.

4. Retail Node (light pink)

This land use category identifies a few highly localized, pedestrian-oriented retail nodes that have developed within otherwise single-family neighborhoods. This designation encompasses several sites along Ridgewood Road at its intersection with Cedar Lane (locally called the Ridgewood Row shopping area), and a single site at the Elmwood Avenue/Boyden Avenue/Orchard Road intersection.

Although in most cases these uses have existed for some time, they have retained their single-family residential zoning. The 2003 Master Plan noted a "conscious decision" not to rezone nonconforming land uses, so as to discourage their expansion or alteration. In the case of these retail nodes, because of their location among homes, they are

unlikely to expand. These non-residential sites include some longstanding businesses in the community – as well as newer businesses that are a welcome addition – and their nonconforming status could pose a detriment to their success.

The Retail Node designation recognizes these unique uses and is intended to allow them to continue in their current developed state. The Township may accomplish this by permitting, as conditional uses within single-family zones, retail, office, and service uses within buildings that were occupied by legally nonconforming non-residential uses in existence as of the date of adoption of this Master Plan.

Light Industrial/Commercial

The Light Industrial/Commercial land use designation encompasses Maplewood's two existing industrial zones the SLI and CI districts, as well as the RO district. Currently, the districts are differentiated by uses, with the CI district generally allowing a wider range of uses including non-medical offices, indoor commercial recreation, and breweries and distilleries. The RO district is a more traditional large-scale office zone, although its current use includes activities that would be permissible in the CI district.

The Township could consider consolidating these three districts into one zone that permits all of the current uses in the CI district. Alternatively, the RO district could be brought into the SLI zone, creating an opportunity to revisit – in coordination with the Township of Irvington – the provisions of the SLI district, which have not been updated since 2005. Either option would bring the RO district's area and bulk provisions to a scale of development that is more appropriate for the existing context (the current RO district permits a lot size of up to 80,000 square feet, vs. 40,000 square feet for the CI district and 35,000 square feet for the SLI district).

As noted in the Strategies and Recommendations section, the use standards in both the CI and SLI districts should be broadened to include a range of arts-supportive, food-related, and light manufacturing uses such as art galleries, maker spaces, food production, and limited retail space to accompany light manufacturing. New permitted uses should complement and not compete with existing industrial uses;

thus, standard retail and restaurant uses should be carefully controlled so as not to push out long-established industrial uses, and the introduction of new residential uses should not be permitted. Opportunities to introduce “green” businesses such as indoor agriculture, battery production and storage, recycling, and sustainable energy technology should also be explored. Conditions may need to be established on such uses to mitigate any impacts to adjacent areas and ensure an appropriate scale of development.

Public and Nonprofit

This designation encompasses areas of the Township that contain existing public and nonprofit uses, including municipal facilities, schools, utilities, public or private open space, and nonprofit uses such as houses of worship.

The Parks and Open Space category, shown in green, is intended to promote the maintenance and operation of public parks and privately owned open space and recreation. Currently, Maplewood does not have a zoning district dedicated to preserved park lands (i.e., properties on the Recreation and Open Space Inventory); parks are generally designated with the same zoning as surrounding/adjacent areas. The Township should consider creating an open space zone, which would better identify and protect these properties, as well as the privately owned resources, with limitations on uses and development.

The Public/Nonprofit category, shown in blue, identifies existing municipal, educational, or nonprofit uses. In the event that such uses change in the future – for example, a church or a school closes – the new use should be consistent with the surrounding area. This could include residential use at a density indicated on the Land Use Plan, a new nonprofit use comparable in scale, or a local retail node. The future location of public/nonprofit uses shall be allowed as permitted by existing zoning regulations; schools, houses or worship, and similar uses are typically conditional uses in many zoning districts.

Lastly, public off-street parking lots are indicated in gray. These are either municipal lots or associated with the train station. These uses are anticipated to continue, in order to serve existing needs, and this Master Plan recommends ongoing maintenance and improvements to such parking resources. However, in the event that public parking is

ever considered for redevelopment with new uses, the land use pattern should be consistent with the existing context in terms of use and intensity. Within the Maplewood Village area west of the train tracks, future development of parking lots should complement the Primary Business Area designation, while along Dunnell Road or Springfield Avenue, it should be consistent with either Neighborhood Business or Primary Business Area (if located within that node on Springfield Avenue).

Specialized Areas

The Land Use Plan recognizes specialized areas in Maplewood that serve a distinct purpose or are addressed through overlay zoning, and those areas that have been designated as redevelopment or rehabilitation areas.

5. Historic District

The Township’s State and National register-listed historic district, the Maplewood Village Historic District, was designated in 2022. Under the New Jersey Register, public (state, federal, or municipal) projects in the district are reviewed by the New Jersey Historic Preservation Office. The Maplewood Historic Preservation Commission offers its knowledge and opinions. This Master Plan recommends an update to the Historic Preservation Element, with consideration for designation of additional potential resources. If additional historic districts are designated, they should be added to the Land Use Plan.

6. Affordable Housing

Within the R-1-7 zoning district, the Township has designated a portion of the Maplewood Country Club property (Block 19-18, Lot 1; Block 19-20, Lot 243; and Block 18-3, Lot 24) for multifamily and/or townhome development as part of its Housing Element and Fair Share Plan. Such residential development is permitted at a density of 8 units to the acre with a 20% affordable housing set-aside, on the developable portions of the site (i.e., not within designated floodplains or wetlands). As part of preparation of its next Housing Element and Fair Share Plan, the Township should consider establishing this area as an overlay zone, to better identify it as an opportunity for creation of affordable housing.

7. Redevelopment and Rehabilitation Areas

As shown on the Land Use Plan, Maplewood has designated eight redevelopment areas: three (PSRA, SA-1, and SA-3) along Springfield Avenue between Tuscan Road and Chancellor Avenue, one (RD-2) along Burnett Avenue north of DeHart Park, three (TARA, PORA, and DR-R) adjacent to the train station, and one (7PAW) along the north side of Parker Avenue between Dunnell Road and Valley Street. Of these, the RD-2 area has not been implemented, and should be revisited to facilitate appropriate revitalization.

In addition to these designated redevelopment areas, the Township should consider the following additional areas for potential designation as either redevelopment or rehabilitation areas:

- The Millburn Avenue corridor, currently zoned HB and OB, from the municipal border with Millburn to Springfield Avenue (potentially in coordination with the Townships of Millburn and Union).
- The Irvington Avenue business district, currently zoned NB, generally between Parker Avenue and Putnam Street (potentially in coordination with the City of Newark and Township of Irvington).
- The former movie theater building in Maplewood Village (currently being studied for a redevelopment designation).
- The entire Maplewood Village area, which would qualify as an area in need of rehabilitation. Working with the Maplewood Village Alliance and the Historic Preservation Commission, the Township should explore whether a rehabilitation designation could accomplish larger public goals such as façade renovation and improvements to the public realm. Unlike a redevelopment designation, an area designated for rehabilitation may be eligible for short-term tax abatements or payments in lieu of taxes (PILOTs), but is not eligible for long-term incentives, nor are rehabilitation areas eligible for redevelopment area bond (RAD) financing or the exercise of eminent domain.

PROPOSED ZONING MAP CHANGES

For the most part, this Master Plan recommends maintaining Maplewood’s existing zoning districts, with some modifications to area, bulk, use, and parking provisions to address specific planning issues. However, as illustrated on (Figure 33) and listed below, there are some instances where a map change is warranted:

Business/Office Zones:

- Rezone HB sites along Springfield Avenue to R-1-4, NB, and OB.
- Rezone OB zone along Valley Street between Oakland Road and Parker Avenue to NB. Any future development in this portion of Valley Street should carefully consider traffic impacts to the Valley Street/Parker Avenue intersection, particularly at the high school.
- Rezone the RO district either to CI or SII.

Industrial Zones:

- Consider consolidating the two industrial districts into one zone.
- Consider rezoning existing residential uses to R-2-4

Parks and Open Space:

- Create a new Parks, Recreation, and Open Space district to accommodate existing public and private parks and recreational uses.

Affordable Housing:

- Explore establishing a portion of the Maplewood Country Club property as an Affordable Housing Overlay Zone to reflect the existing zoning requirements.

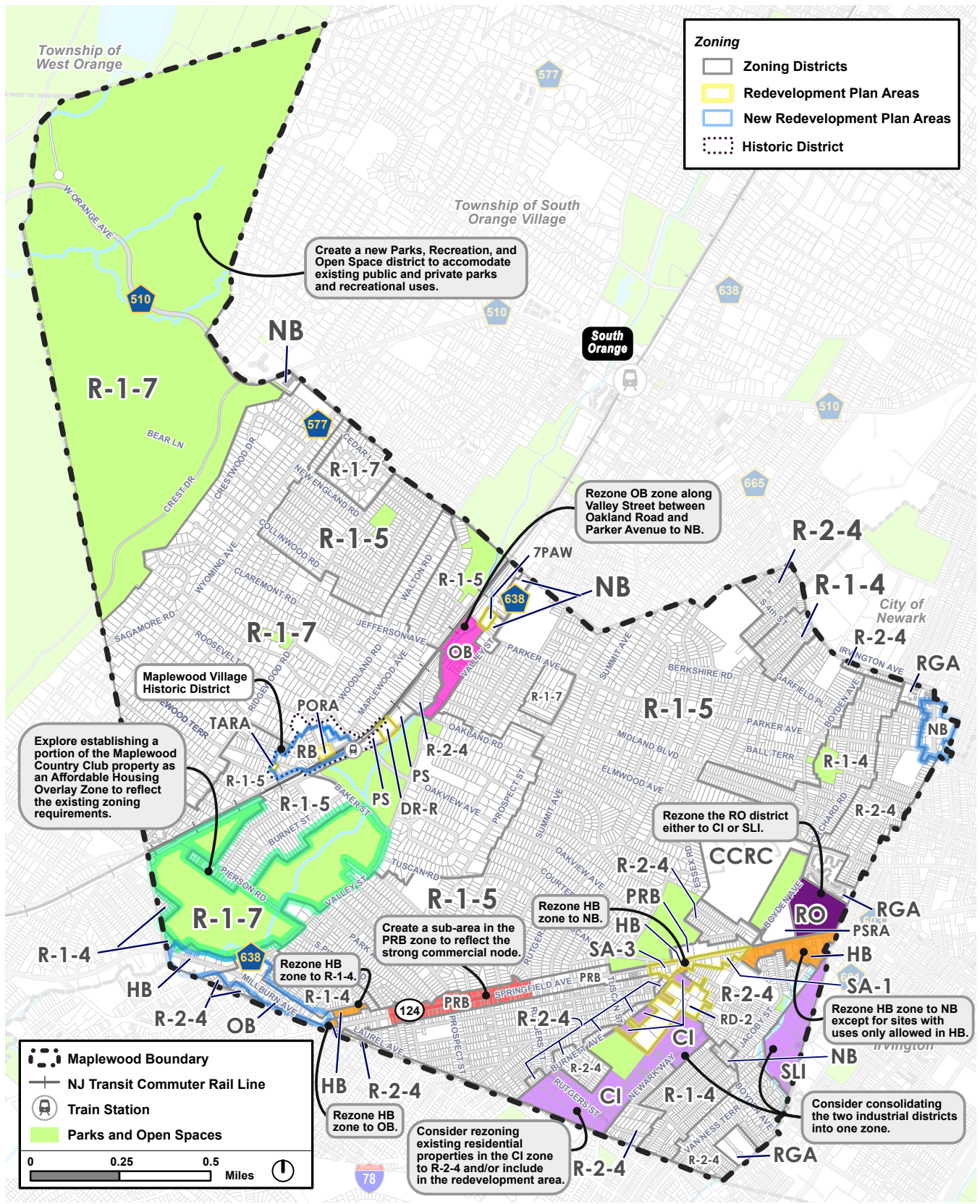


Figure 33: Recommended Zoning Map Changes

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), NJOGIS, BfJ Planning.

CLIMATE CHANGE AND VULNERABILITY ASSESSMENT

As of 2021, the MLUL requires that a climate change-related hazard vulnerability assessment be completed as part of the preparation of a land use plan element of a municipal master plan in accordance with NJSA 40:55D-28.b.(2)(h). The analysis is designed to identify key hazard-related risk factors, areas subject to potential impacts, and the development of policies and strategies for mitigation of potential impacts, preparedness, post-disaster recovery, and resilient planning and design. The MLUL criteria, which are set forth at NJSA 40:55D-28.b.(2)(h), are set forth as follows:

- (h) *A climate change-related hazard vulnerability assessment which shall*
- (i) *Analyze current and future threats to, and vulnerabilities of, the municipality associated with climate change-related natural hazards, including, but not limited to increased temperatures, drought, flooding, hurricanes, and sea-level rise;*
 - (ii) *Include a build-out analysis of future residential, commercial, industrial, and other development in the municipality, and an assessment of the threats and vulnerabilities identified in subparagraph (i) of this subparagraph related to that development;*
 - (iii) *Identify critical facilities, utilities, roadways, and other infrastructure that is necessary for evacuation purposes and for sustaining quality of life during a natural disaster, to be maintained at all times in an operational state;*
 - (iv) *Analyze the potential impact of natural hazards on relevant components and elements of the master plan;*
 - (v) *Provide strategies and design standards that may be implemented to reduce or avoid risks associated with natural hazards;*
 - (vi) *Include a specific policy statement on the consistency, coordination, and integration of the climate-change-related hazard vulnerability assessment with any existing or proposed natural hazard mitigation plan, floodplain management*

plan, comprehensive emergency management plan, emergency response plan, post-disaster recovery plan, or capital improvement plan; and

(vii) Rely on the most recent natural hazard projections and best available science provided by the New Jersey Department of Environmental Protection.”

Identification of Hazards

Maplewood contains three primary rivers and streams: the Rahway River, East Branch of the Rahway River, and Lighting Brook. Special Flood Hazard Areas (SFHAs) and environmental constraints such as riparian zones and freshwater wetlands are associated with each of these waterbodies.

SFHAs within the Township include areas A and AE, as shown on the Environmental Constraints Map. SFHA A exhibits a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Since detailed analyses are not performed by FEMA for such areas, no depths or base flood elevations are shown within these zones. SFHA AE encompasses the base floodplain and has base flood elevations indicated on FEMA and National Flood Insurance Program (NFIP) mapping.

The Township also contains areas within Flood Zone X. This Flood Zone is an area of 0.2% chance of annual flooding and is, therefore, subject to minimal flood hazard.

Maplewood has exposure to inland flooding events from extreme weather, such as hurricanes and powerful storms, which can cause the waterbodies to swell substantially and flood adjacent low-lying areas. Local flooding from severe rainfall events can also occur. In this case, the water drains from slopes within the same catchment area and accumulates in low-lying areas if insufficient drainage conditions exist. As a result, local stormwater management systems can be overwhelmed during severe rainfall events and create local flooding conditions.

A total of 4.7% of the land within the Township (116 acres) is located within SFHAs, and an additional 4.7% (116 acres) is located within Flood Zone X. These relatively small percentages indicate that Maplewood is less flood-prone than many Essex County municipalities as it pertains to SFHAs and Flood Zone X areas.

That being said, the Township is very susceptible to local flooding from inadequate stormwater management systems. The storm sewer system was originally designed for 5- to 10-percent annual-chance of flooding from storms, and cannot accommodate rainfall resulting from the 1-percent annual-chance storm. Due to this lack of processing capacity, some roadways and properties are more prone to localized flooding from extreme rainfall events.

The NFIP characterizes properties that have had multiple flood claims as either Repetitive Loss or Severe Repetitive Loss properties, depending on how many flood insurance claims they have generated. The Township has 11 repetitive loss properties and does not have any Severe Repetitive Loss properties, as shown below.

An additional hazard that affect the Township to a small degree is susceptibility to landslides. According to the 2020 Essex County All Hazard Mitigation Plan, a total of 37 acres within Maplewood is considered to be class B area that is susceptible to potential landslides. Only 33 buildings exist within these areas.

Another climate change-related natural hazard, which has garnered increasing attention in recent years, is extreme heat and the steady increase in average annual temperature. Extreme heat is typically characterized as a

condition where temperatures stay 10 degrees or more above a region’s average high temperature for a consistent, extended period of time. These higher temperatures can cause hyperthermia and even death. In addition, extreme heat strains local power systems due to increased use of air conditioning systems, which can cause power outages.

Maplewood is susceptible both to extreme heat and high humidity, the combined effects of which can magnify the health risks, as shown in the following image.

Maplewood is projected to continue to be susceptible to extreme heat and average temperature increases. The National Oceanic and Atmospheric Administration (NOAA) has noted that the average global temperature in July 2019 was 1.71 °F above the 20th century average of 60.4 °F. For New Jersey, according to the Sustainable Jersey Climate Change Adaptation Task Force (2013), by 2050, the average temperature is projected to increase 3 °F to 5 °F above the existing statewide baseline. Like much of the northeastern U.S., Maplewood is also susceptible to short-term droughts. Because the Township is relatively built-out, typical impacts from drought such as crop failure and increased risk of wildfire are likely to be less pronounced; however, acute impacts to community gardens and private landscaping, as well as risk of wildfire on smaller patches of vegetated area, do pose some risk. Anticipated future higher temperatures would worsen short-term drought conditions, but water supply shortages would be unlikely to occur during a short-term drought.

Table 15: Repetitive Loss and Severe Loss Properties in Maplewood and Essex County

Source: Essex County All Hazard Mitigation Plan 2020 Update

	Maplewood	Essex County Total
Total Policies in Force	128	4,221
Total Losses	105	4,752
Total Loss Payments	\$1,178,060	\$110,389,033
Repetitive Loss Properties	11	450
Severe Repetitive Loss Properties	0	62
Total Repetitive and Severe Repetitive Loss Combined	11	512

According to the County’s All Hazard Mitigation Plan, the following natural hazards are considered to be of medium to high risk for Maplewood.

High Risk

- Severe Weather (Hurricanes, tropical storms, and associated flooding)
- Severe Winter Weather

Medium Risk

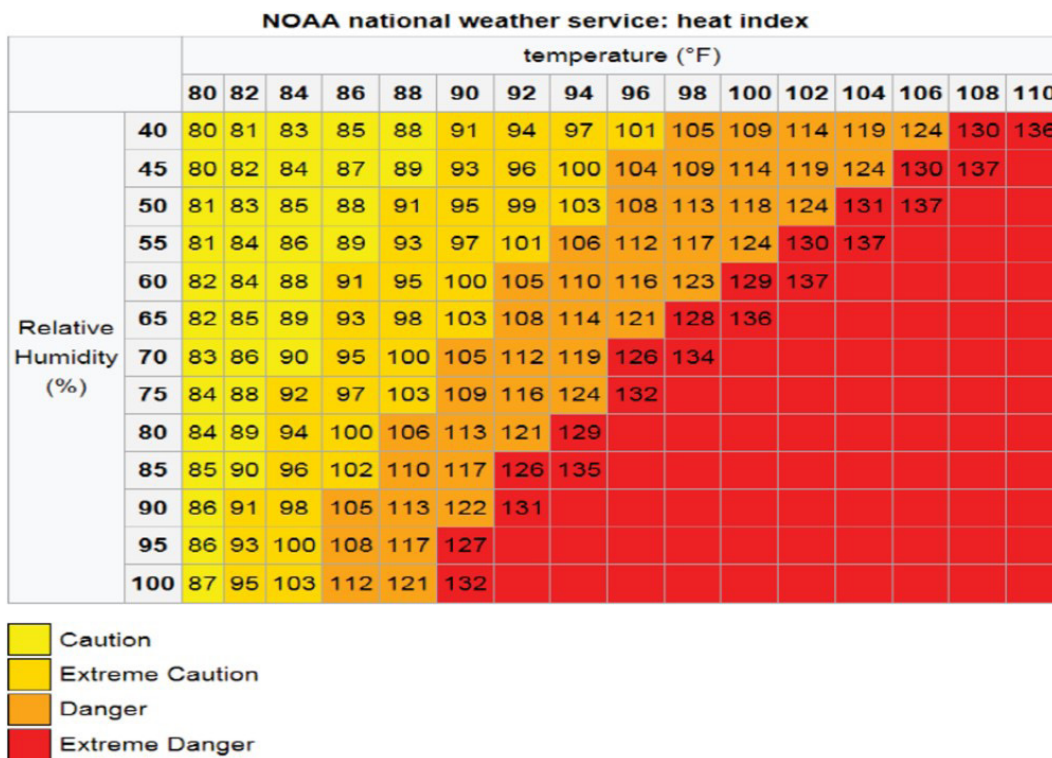
- Drought
- Extreme temperature

Of these natural hazards, the flooding aspect of severe weather has had the most profound impact on the Township in the recent past and has the potential to have substantial, costly additional impacts in the years to come. Therefore, after careful consideration of each natural hazard identified above, the CC&VA build-out analysis will focus on flooding as the key natural hazard under consideration.

However, extreme heat will remain a significant hazard for Maplewood and the larger region, and there are steps the Township should take to mitigate this issue. This Master Plan recommends improving the extent and health of the tree canopy, particularly in neighborhoods that are especially vulnerable to the Urban Heat Island Effect due to a lack of significant vegetation. Additionally, as part of its disaster preparedness efforts, the Township should identify and publicize the locations of cooling and warming centers during extreme heat and cold events, both of which are expected to become more frequent and intense due to climate change. Finally, Maplewood will need to work with the Board of Public Utilities (BPU) and utility providers to ensure that residential cooling services are both affordable and able to be supported by the local electrical infrastructure. The current electrical infrastructure could not support full electrification of our residential HVAC systems, and some of the most constrained neighborhoods in terms of grid capacity are also some of the most economically disadvantaged.

Figure 34: National Oceanic and Atmospheric Administration National Weather Service Heat Index

Source: National Oceanic and Atmospheric Administration (NOAA).



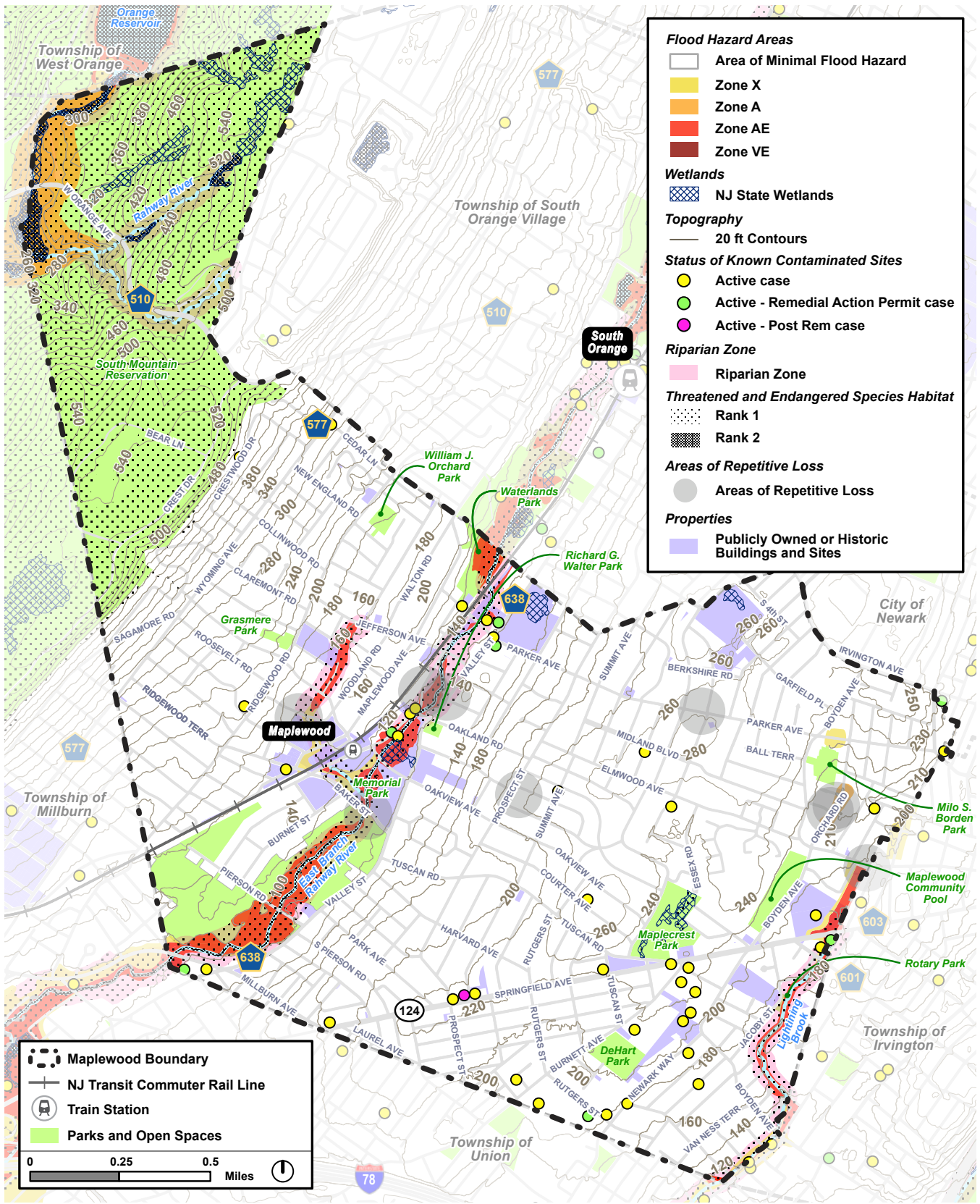


Figure 35: Environmental Constraints

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), U.S. Office of Homeland Security, Maplewood Environmental Resource Inventory, NJ Office for Planning Advocacy, County of Essex All Hazard Mitigation Plan, Tetra Tech, BfJ Planning.

Build-Out Analysis

In accordance with MLUL requirements, the build-out analysis is focused on areas that are prone to impacts from flooding as it pertains to projected future development, since these areas exhibit a higher level of vulnerability and risk. The area that the build-out encompasses was delineated using FEMA's SFHAs.

The build-out analysis includes all lots where 1 square foot or more of the lot or lots would be affected by floodwaters. This methodology is intended to be conservative and considers the entire impacted lot even if only a portion of it would be impacted by floodwaters.

Once the study area was delineated, the lots were screened for the presence of existing development and environmental constraints. Properties that are already developed with single-family homes, and those that are completely or substantially constrained with flood hazard areas, wetlands, or other environmentally sensitive areas (and thus not developable) were removed from the analysis.

The remaining lots were subjected to a land use and environmental constraints analysis, which resulted in the removal of additional lots. Because the build-out deals with the capacity of land to accommodate additional development, only vacant properties and underutilized properties that have been developed with 50% or less of their development capacity, according to the existing zone or redevelopment plan that governs their development, were retained within the analysis.

The results yielded two lots that satisfied these criteria, as shown on the Build-Out Analysis Map on Figure 36, both of which are owned by the Maplewood Country Club. The combined total acreage of the two lots (Block 18.03, Lot 24 and Block 19.20, Lot 293) yields 89 acres. This tract is included in the Affordable Housing Overlay Zone, where a density of 8 dwelling units per acre is permitted. As no commercial parcels met the criteria for further analysis, no additional commercial square footage is projected within the build-out analysis area under consideration.

The resulting residential units that could be implemented on the Maplewood Country Club tract represent an estimate of the density of additional development and associated residents that could be located within the area under consideration; however, it is important to note that the tract is quite large. Therefore, although the entire tract has been considered as part of this build-out analysis, there appears to be sufficient acreage to construct residential units outside of, and sufficiently separated from, the SFHA. Should residential development occur on this tract, all applicable environmental and land use regulations should be adhered to in order to ensure that all of the residential units are sufficiently separated from the SFHA and any associated environmental constraints so as ensure the safety of the residents and the conservation of the environmental resources on this tract.

This build-out analysis only focuses on a portion of the Township: those areas located within a SFHA. As discussed above, there are many other areas that could be subject to additional localized flooding with heavy rains. The Township should continue to implement improvements to stormwater infrastructure to make these areas safer and more resilient to the more frequent storm events. This Master Plan also recommends regulatory changes to stormwater management that are aimed at strengthening Maplewood's entire storm system.

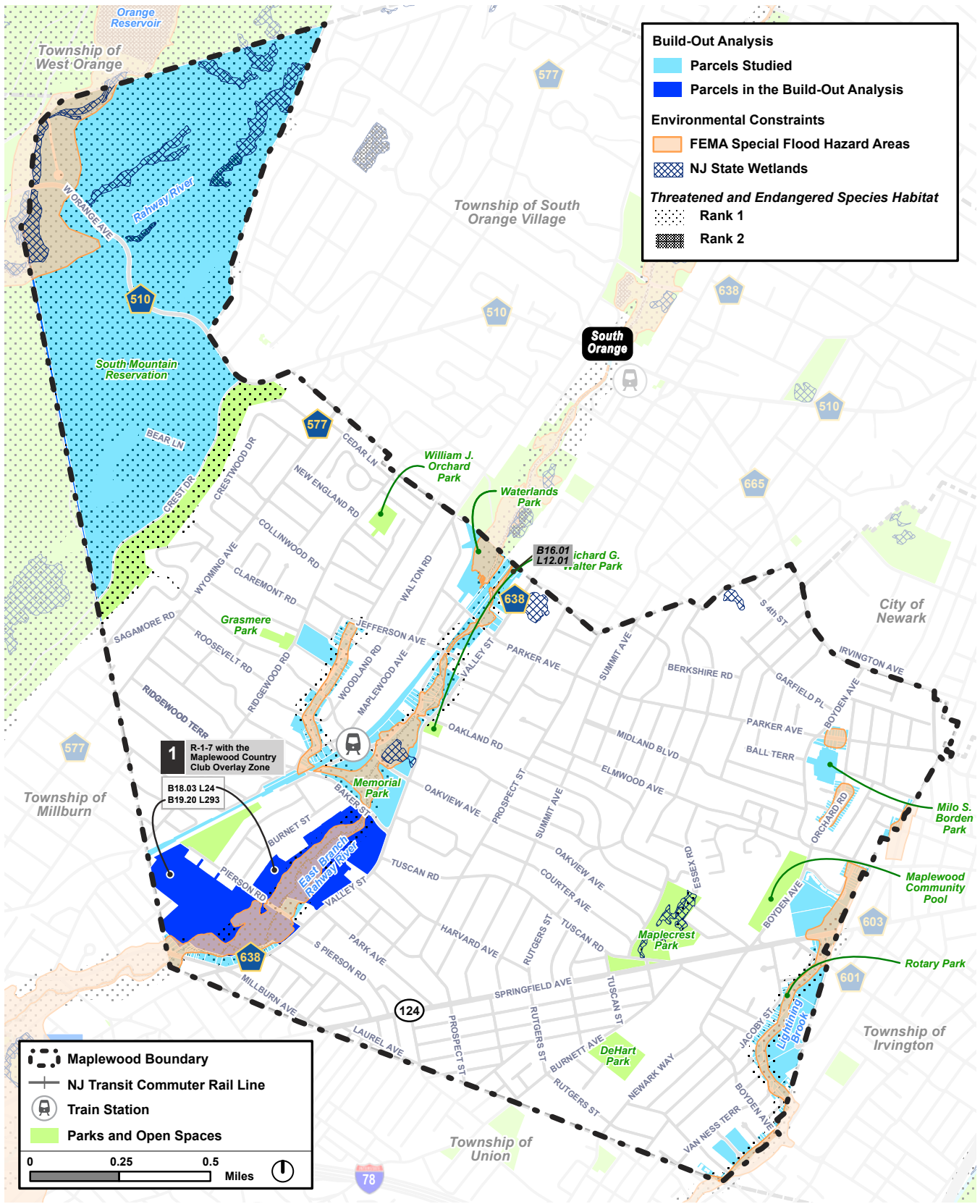


Figure 36: Build-Out Analysis Study Area with Environmental Constraints

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), U.S. Office of Homeland Security, Maplewood Environmental Resource Inventory, NJ Office for Planning Advocacy, County of Essex All Hazard Mitigation Plan, Tetra Tech, BFJ Planning.

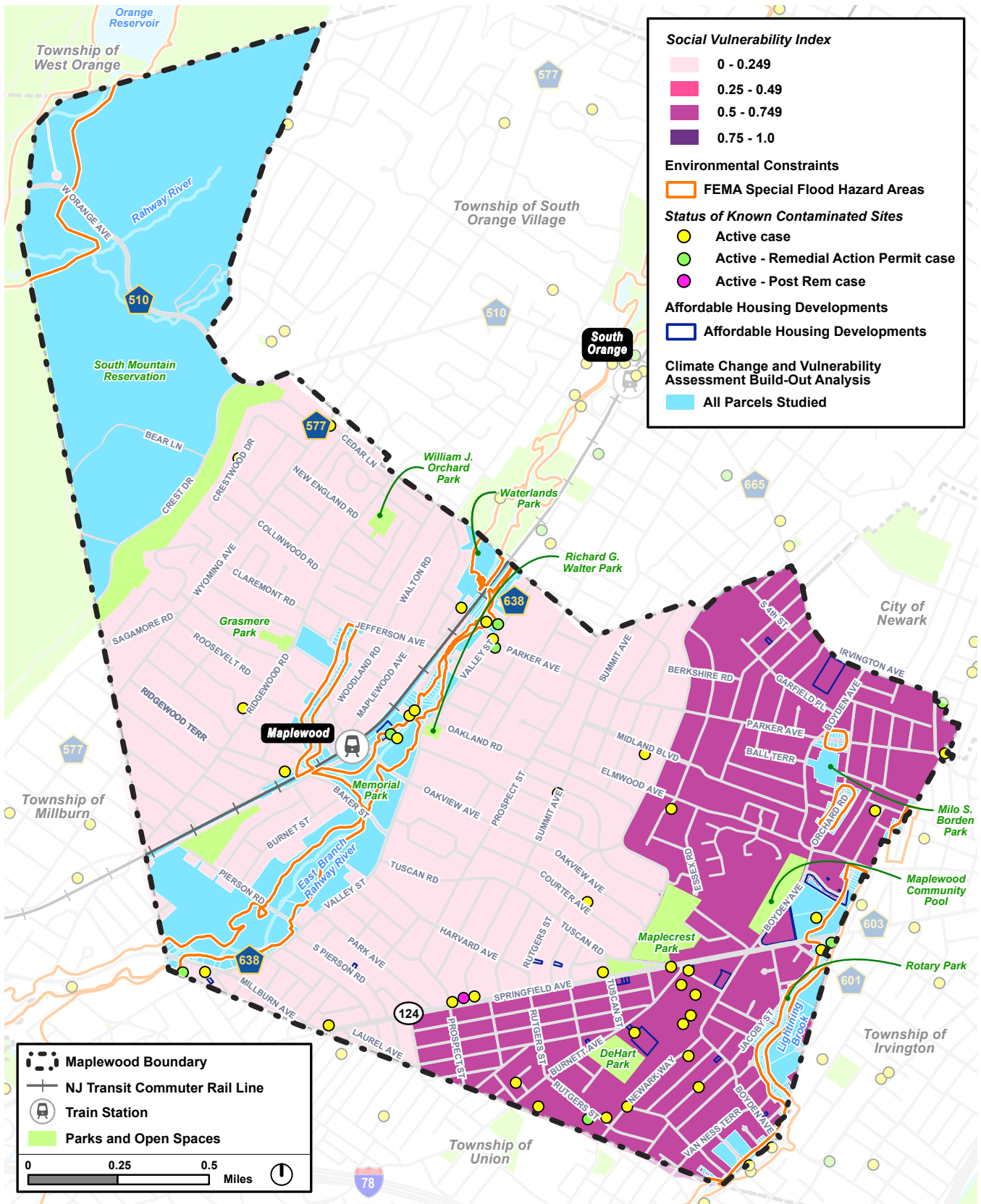


Figure 37: Vulnerable Populations

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), Center for Disease Control and Prevention (Exported from Urban Footprint), U.S. Office of Homeland Security, Housing Element Fair Share Plan, Mid-Point Review of Affordable Housing Activities, BfJ Planning.

In addition, the analysis considers existing zoning and redevelopment plans, and considers current market conditions, trends, and other parameters in order to provide a reasonable estimate of the net development yield for the area under consideration. If the Township were to enact zoning amendments or amend or adopt new redevelopment plans, if new trends emerged in the market, or if other market or regulatory changes should occur, it may change the net development yield in the build-out analysis study area.

As part of the vulnerability analysis and build-out analysis, potential impacts to vulnerable populations were considered. The figure below depicts the geographic distribution of populations using the Social Vulnerability Index. The most vulnerable populations in Maplewood are in the eastern portion of the Township, which also contains Lightning Brook. As shown on the Environmental Constraints Map, Lightning Brook does have an associated SFHA and other environmentally sensitive features. The Brook is also susceptible to flooding during extreme rainfall events, which may cause local flooding due to stormwater management systems becoming overwhelmed during extreme rainfall events. As recommended elsewhere in this Plan, the Township should consider the potential for buyouts of properties (or the most vulnerable portions of the properties) along local waterbodies to reduce the risk of flooding in these areas.

Critical Facilities

Critical facilities in the context of the Land Use Plan and Climate Change Vulnerability Assessment include uses that are necessary for evacuation purposes and for sustaining quality-of-life during a natural disaster, which are to be maintained at all times in an operational state. Examples include police stations; fire stations; first aid and rescue facilities; public buildings such as the municipal building and public works facilities; and quasi-public and private facilities such as schools and telecommunications towers and equipment. Key critical facilities within the Township are depicted on the Critical Facilities Map on Figure 38. Of these, a preschool, gas station, Maplewood Fire Department building, and a cell tower are in relatively close proximity to the East Branch of the Rahway River. In addition, a day care center and a gas station are located near the Lightning Brook. These facilities have a degree of elevation separation from the adjacent waterbodies;

however, they are at a relatively low elevation and may be susceptible to flooding from extreme weather events.

Conclusion

As a built-out community with limited vacant land, most of Maplewood's development potential comes in the form of redevelopment of existing developed properties. For those limited areas identified as vulnerable in the build-out analysis, or for other properties that may be vulnerable to localized flooding in severe storms, redevelopment of existing properties creates opportunities to construct improvements that are more resilient to flooding. Redevelopment in low-lying areas is recommended to include elevated or floodproofed buildings and structures, to the extent feasible, in accordance with current federal, State and local requirements in order to help ensure public safety.

For interior areas that are not subject to these impacts, the climate change focus is on ensuring access to critical infrastructure and essential services in the event of storm events and natural disasters, and on maintaining evacuation routes. These areas can also accommodate new development, given that they are not located within floodplain areas. Such future development should be planned and implemented to leverage the opportunity to improve access to critical facilities and evacuation routes.

Several recommendations pertaining to stormwater management and impervious coverage are included within other sections of this Master Plan. These recommendations facilitate proactive steps toward addressing local stormwater management capacity issues through both "hard" strategies, such as updated infrastructure, and "soft" strategies such as reducing impervious coverage where feasible and replacing the impervious areas with vegetated pervious land area.

Additionally, some of the recommendations in this Master Plan focus on improving bike and pedestrian systems, which would have resiliency benefits in the wake of storm events or natural disasters, as socially vulnerable residents without a vehicle would have more convenient access to necessary services within and near their neighborhoods.

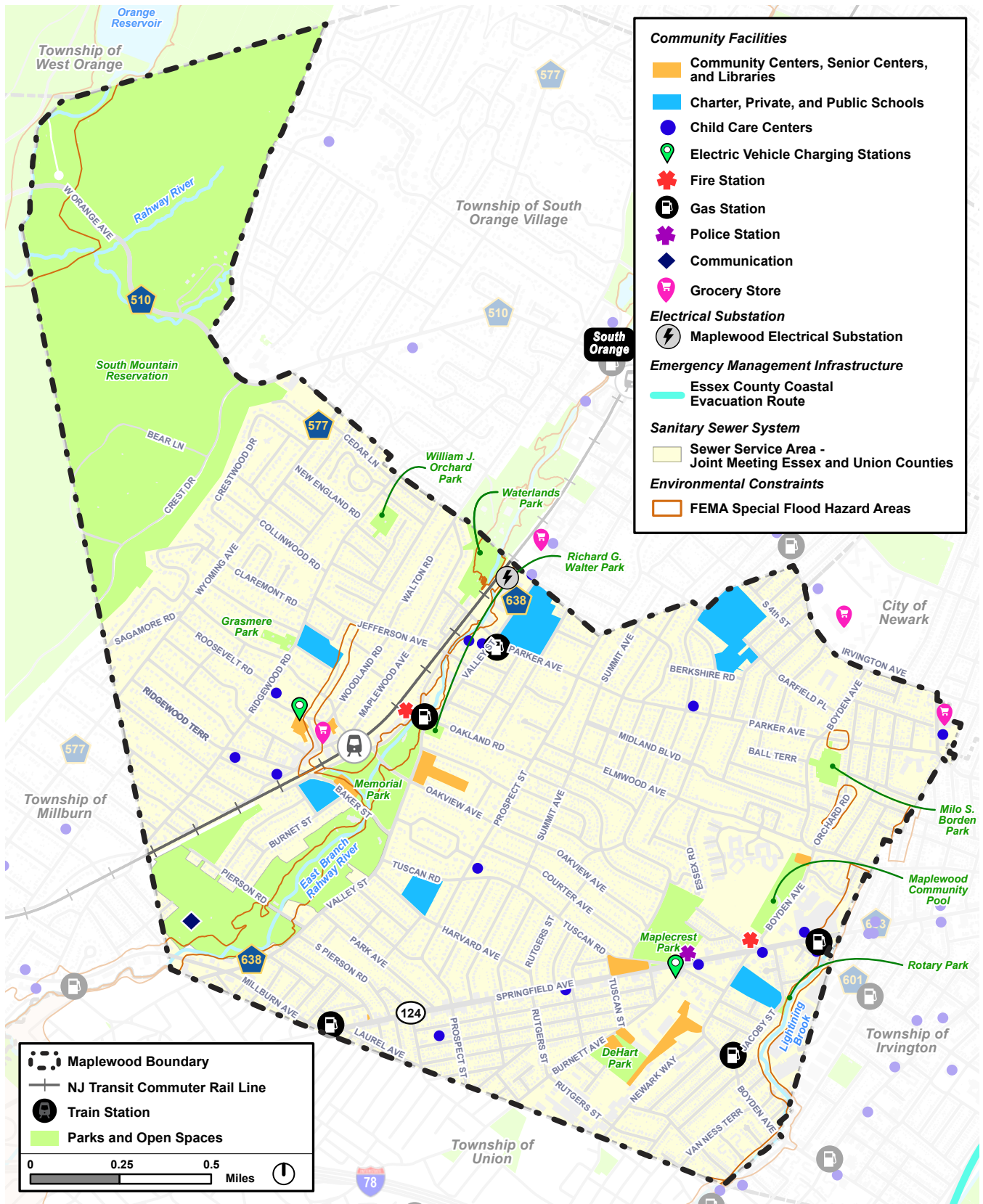


Figure 38: Critical Facilities

Source: Essex County, USGS, NJ Transit, NJDEP, NJDOT, OpenStreetMap (OSM) Road Network (Exported from Urban Footprint), NJOGIS, NJDOE, Google Maps, Township of Maplewood, County of Essex All Hazard Mitigation Plan, U.S. Office of Homeland Security, BfJ Planning.