BOROUGH OF DUNELLEN
CLIMATE RESILIENCY PLAN

PREPARED BY DMR ARCHITECTS
MAY 2023

ADOPTED BY THE DUNELLEN BOROUGH PLANNING BOARD
JUNE 13, 2023

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ACKNOWLEDGMENTS

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ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

The Borough of Dunellen is an inland municipality with a population of 7,637 people as of 2020, substantial portions of which is within the 100-year floodplains of the Green Brook and Bonygutt Brook. The neighborhoods in those floodplains, and even just beyond them, are regularly affected by heavy rain storms and hurricanes including, most recently, Hurricane Ida. This Climate Resiliency Plan has been prepared in accordance with the 2021 amendment to to the Municipal Land Use Law (MLUL) which requires municipalities to account for climate resilence in their municipal master plans, and may be one of the first such plans to be adopted in the State.

The Borough's purpose in adopting this plan is not to comply with the 2021 amendment, as the amendment only requires the consideration of climate vulnerability in all Master Plan Land Use Elements adopted after the signing of the amending law (P.L. 2021, c6). Rather, the Borough is adopting this plan on its own initiative to develop a comprehensive, organized approach to preparing for a future characterized by more extreme weather. The Borough has already begun taking numerous actions including adopting and amending its ordinances to better address stormwater management and partnering with other government agencies, quasi-governmental organizations, and utility providers to better prepare the Borough to withstand severe storms.

Consistent with the requirements of the 2021-amended MLUL, this plan does the following:

1. Analyzes current and future threats to, and vulnerabilities of, the municipality associated with climate-change related natural hazards;

2. Includes a build-out analysis of future residential, commercial, industrial and other developments in the municipality, and an assessment of the threats and vulnerabilities identified above related to that development;

3. Identifies critical facilities, utilities, roadway, and other infrastructure that is necessary for evacuation purposes and sustaining quality of life during a natural disaster, to be maintained at all times in an operational state;

4. Analyzes the potential impact of natural hazards on relevant components and elements of the master splan;

5. Provides strategies and design standards that may be implemented to reduce or avoid risks associated with natural hazards;

6. Includes a specific policy statement on the consistency, coordination, and integration of the climate-change related hazard vulnerability assessment with certain other plans adopted by the municipality; and

7. Relies on the most recent natural hazard projections and best available science provided by the NJ DEP.

Additionally, this plan has been prepared simultaneously with the Borough undertaking its decennial Master Plan Reexamination Report, which includes recommendations and policy guidance for the Borough to address its susceptibility to and impact on climate change, and the Borough's involvement with the North Jersey Transportation Planning Authority (NJTPA) and New Jersey Transit Friendly Planning program to reduce reliance on automobiles that contribute to greenhouse gases and climate change.

REQUIREMENTS

In 2021 Governor Murphy signed into law an amendment to the Municipal Land Use Law (MLUL, at N.J.S.A. 40:55D-1 et seq.) that requires municipal Master Plans to incorporate a climate change hazard vulnerability assessment.

Dunellen's last Master Plan and Land Use Element was adopted in 2011. The Borough of Dunellen, understanding the significant impact climate change may have on its residents and businesses, has undertaken this Climate Resiliency Plan. This plan is prepared in accordance with the requirements of P.L. 2021, c6, which Governor Murphy signed into law in 2021 amending the MLUL.

This Plan is also being prepared at the same time that the Borough prepares its 2022 Master Plan Reexamination Report and engages with the North Jersey Transportation Planning Authority and New Jersey Transit to conduct its Complete and Green Streets and Transit Friendly Planning Initiatives.

THE FOLLOWING ITEMS ARE REQUIRED FOR A CLIMATE RESILIENCY PLAN:

1. Municipalities to analyze current and future threats to, and vulnerabilities of, the municipality associated with climate-change related natural hazards;

2. Include a build-out analysis of future residential, commercial, industrial and other developments in the municipality, and an assessment of the threats and vulnerabilities identified above related to that development;

3. Identify critical facilities, utilities, roadway, and other infrastructure that is necessary for evacuation purposes and sustaining quality of life during a natural disaster, to be maintained at all time in an operational state;

4. Analyze the potential impact of natural hazards on relevant components and elements of the master plan;

5. Provide strategies and design standards that may be implemented to reduce or avoid risks associated with natural hazards;

6. Include a specific policy statement on the consistency, coordination, and integration of the climate-change related hazard vulnerability assessment with certain other plans adopted by the municipality; and

7. Rely on the most recent natural hazard projections and best available science provided by the NJ DEP.

INTRODUCTION

Communities throughout New Jersey, particularly over the past decade, have been impacted by climate-change-related flooding, precipitation, heat, and sea level rise. Major storms, like Superstorm Sandy in 2012 and Tropical Storm Ida in 2021, and multiple consecutive record breaking summer temperatures have motivated planners and policy makers to make climate resiliency a priority. If not sufficiently slowed or stopped by the global community, climate change will continue to impact the environment, public welfare, human health, security, and the economy of New Jersey and its more than 560 municipalities. While New Jersey and its municipalities cannot stop climate change on their own, they can take actions to not only help to reduce climate change but protect themselves from its effects.

In recent years, the New Jersey State government has taken steps to provide guidance and resources to New Jersey's municipalities to address threats related to climate change, including the following:

- In 2019, Governor Murphy signed Executive Order 89 establishing the Interagency Council on Climate Resilience. The Interagency Council brings together seventeen agencies with responsibilities for maintaining the physical, environmental, and economic health of New Jersey's resources and communities.
- In 2021, the State adopted legislation requiring new development to include electric vehicle charging infrastructure or "Make-Ready" spaces in their parking facilities.
- In 2021, the MLUL was amended to require the integration of climate vulnerability assessments into future municipal master plan updates. Municipalities are required to include a climate change-related hazard vulnerability assessment in their land use plan elements to analyze current and future threats associated with climate change related to natural hazards. The assessment also must include a build-out analysis of all future development in the municipality. This Climate Resiliency Plan was prepared in accordance with that amendment.

To develop a climate resiliency plan the first step is to determine what climate resilience is. Climate Resilience is defined in the State of New Jersey's Climate Change Resilience Strategy document, published in 2021, as, "the ability of social and ecological systems to absorb and adapt to shocks and stresses resulting from a changing climate, while better positioned to respond to the future."

The purpose of the Resiliency Plan is to help municipalities better understand the impact of climate change on their communities and prepare a comprehensive strategy to be in a better position to respond to and mitigate the local effects of climate change.

The Borough of Dunellen, understanding the importance of climate change and the impact it has on their community, has undertaken this Climate Resiliency Plan in accordance with the MLUL to protect, guide, educate, and prepare the community and municipal departments to understand and respond to climate change. This plan will help to craft and to guide decisions made about zoning, redevelopment, housing, infrastructure, green initiatives, pedestrian safety and other aspects of daily life and municipal governance in Dunellen in a future characterized by severe weather events and changing climate.

Dunellen believes that it will be one of the first, if not *the* first, municipality in New Jersey to complete a Climate Resiliency Plan since it was added as a Master Plan Element in the Municipal Land Use Law.

Flooding of McCoy Park after Hurricane Ida

ABOUT DUNELLEN

The Borough of Dunellen is a 1.05 square-mile municipality located along the border of Middlesex, Somerset, and Union Counties. Its municipal neighbors are Plainfield, Piscataway, Middlesex, and Green Brook Township. Two major primary roads pass through the Borough: these are the north-south oriented North Avenue (a.k.a. Bound Brook Road or NJ-28), and the east-west oriented Washington Avenue (a.k.a. Middlesex County Route 529). The Borough is serviced by a NJ Transit commuter train station on the Raritan Valley line, and is also served by three (3) NJ Transit bus lines (Routes 819, 114, and 59).

According the 2020 Census, the Borough has a population of 7,637 persons, increasing 5.4% since 2010. The population density for Dunellen is 7,273 persons per square mile. According to the 2020 American Community Survey (ACS), the racial makeup of the Borough is 52.6% white, 10.6% black, 6.3% Asian and 37.4% Hispanic. There are a total of 2,654 housing units in Dunellen, of which 2,408 are occupied. Of these 2,408 occupied units, 66% are owner occupied and 34% are rentals.

As with most communities in New Jersey, Dunellen is susceptible to threats related to climate change, including but not limited to flooding due to increased precipitation, hurricanes and other cyclones, increased snowfall, and severe weather such as high winds and extreme heat. It is also susceptible to the secondary consequences of these events such as stormwater system backups and power outages caused by damaged or overwhelmed infrastructure.

Dunellen is located in the Green Brook watershed within the Raritan River Basin. The Green Brook defines the Borough's northern border, whereas the Bonygutt Brook, a tributary of the Green Brook, bisects the Borough and is parallel to and

located just south of the Borough's commercial corridor, North Avenue, and the NJ Transit rail line. The brooks are prone to flooding and are responsible for flood plains that cover substantial areas over the northern, western, and central parts of the Borough.

Weather patterns increasing in severity and unpredictability can have a number of consequences for businesses, property owners, and residents in Dunellen, including loss of lives or property, increasing costs of home heating and cooling and property maintenance, interruptions in electric, water, and other services, traffic disruption, and beyond.

According to the most recent data for natural hazard projections and best available science from NJ DEP, the Climate Resiliency Plan has compiled a vulnerability assessment to identify such vulnerabilities with the impact it has within the Borough.

According to the NJ DEP's 2020 Scientific Report on Climate Change:

RISING TEMPERATURES – New Jersey is warming faster than the rest of the Northeast region and the world on average. Heatwaves are expected to impact larger areas, with more frequency and longer duration by 2050;

INCREASING PRECIPITATION – Annual precipitation in New Jersey is expected to increase by 4% to 11% by 2050. The intensity and frequency of precipitation events is anticipated to increase due to climate change;

DECREASED WATER QUALITY – Surface and groundwater quality will be impaired as increased rain runoff carry nutrients and contaminants into water sources. Freshwater intakes and aquifer recharge areas may also be threatened if sea level rise pushes salt water further upriver;

EXTREME WEATHER – Tropical storms are expected to increase in intensity due to the warmer atmosphere and warmer oceans that will occur with climate change. Over the last 50 years, in New Jersey, storms that resulted in extreme rain increased in occurrence by 71% which is a faster rate than anywhere else in the United States;

DROUGHT – Droughts may occur more frequently due to decreases in summer precipitation. It is anticipated that droughts lasting three to six months or longer may slightly increase in frequency in the Northeastern United States under a low emissions scenario and will significantly increase under a high greenhouse-gas emissions scenario;

DECREASED AIR QUALITY – New Jersey's air quality will be impacted due to changes in the meteorological conditions, often referred to as the ozone climate penalty, which is "the deterioration of air quality due to a warming climate." This phenomenon will be most impactful in urban environments, and can result in or exacerbate health problems for their inhabitants.

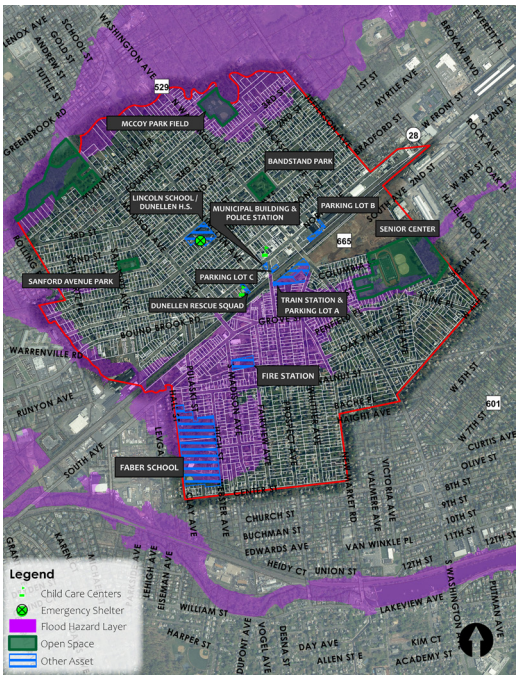
EXISTING INFRASTRUCTURE

The Elizabethtown Water Company District of New Jersey American Water provides public water to the Borough of Dunellen. Elizabethtown's raw water supply before treatment is sourced from both surface water and ground water, including the Raritan River. Finished water from Elizabethtown serving Dunellen is processed at the Franklin Township Canal Road treatment plant and the Raritan Millstone treatment plan in Bridgewater.

The Borough's sewer utilities are serviced by the Plainfield Area Regional Sewerage Authority (PARSA) for their sewer utilities. There are approximately 87,000 feet of sewage collection lines, 335 manholes and three force mains totaling approximately 8,100 feet which discharge into PARSA's system.

Sewer maps provided by the Borough show that many of the sewer lines in Dunellen were built in the late 1930's and early 1940's, during the New Deal Works Progress Administration (WPA). The age of this infrastructure is similar to that of communities surrounding Dunellen and throughout New Jersey. As in similar communities, due to the age of the sewer and water infrastructure there are instances of water and sewer line breaks. Several areas in Dunellen have received new utilities for water and power, as the responsible utility companies gradually replace old infrastructure with new infrastructure. Several miles of utilities were replaced in Dunellen in 2022 alone.

Power and gas servicing Dunellen is provided by PSE&G. Electrical service is often impacted during major storms where wind, snow, or falling and flying debris damage power lines delivering electricity to Borough residents. Additionally, increased air conditioning usage in response to increased heat puts a strain on electrical infrastructure.



VULNERABILITY ASSESSMENT

The vulnerability assessment matrix is a template provided by NJ DEP to inventory community assets and assess their vulnerability to climate change. The Borough used the matrix template to identify and categorize its assets and to score each asset's climate-vulnerability on a scale of 0 to 5 as to how increased temperatures, sea level rise, precipitation, ocean acidification, and drought / water supply issues caused by climate change might impact those assets. A score of 5 means the asset is significantly vulnerable and 1 means the asset is minimally or not vulnerable. A score of "0" means not applicable.

The matrix also includes generic descriptions of the impacts, the adaptive capacity, and an overall vulnerability score. Some key definitions for the purpose of this assessment are below:

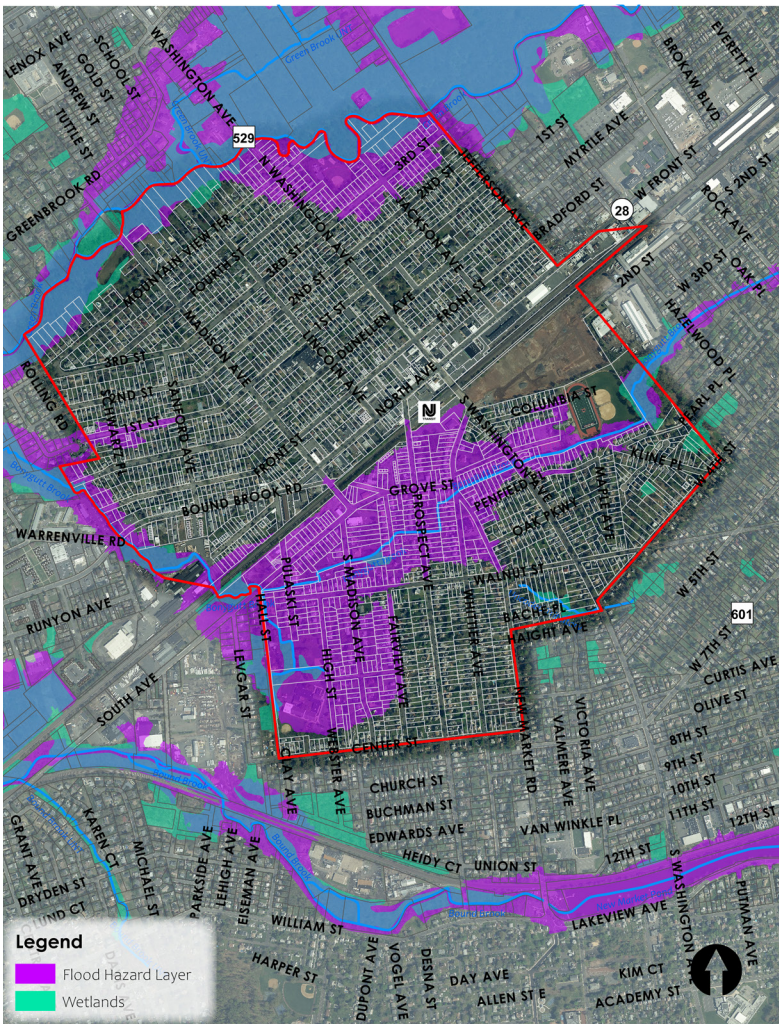
- An asset is defined as a "useful or valuable thing or person." (obtained from Merriam Webster)
- A cultural asset is defined as "buildings, locations, people and features that are considered historically or socially significant to the Borough."
- Climate Impact is defined as the "change of climate features and its impact on the community."
- Adaptive Capacity is defined as "the social and technical skills and strategies of individuals and groups that are directed toward responding to environmental change."
- Vulnerability is defined as "a function of environmental exposure sensitivity and adaptive capacity."

The assessment chart contained in this report identifies 19 assets within Dunellen, of which 8 are cultural assets, 7 are natural features, and 4 are critical infrastructure, as categorized by DMR and the Borough.

As Dunellen is inland and not a coastal town the climate impacts of sea level rise and ocean acidification do not readily apply. Increased temperatures, precipitation, and drought or water supply issues are expected, however, to moderately or severely impact the Borough.

DMR and the Borough determined that all 19 assets have a "medium" adaptive capacity, meaning that each of these assets are able to adapt in some degree to climate change.

		CLIMATE IMPACT							
ASSET NAME	**ASSET CATEGORY**	**INCREASED TEMP**	**SEA LEVEL RISE**	**PRECIPITATION**	**OCEAN ACIDIFICATION**	**DROUGHT/WATER SUPPLY**	**DESCRIPTION OF IMPACTS**	**ADAPTIVE CAPACITY** (HIGH, MEDIUM, LOW)	**VULNERABILITY** (HIGH, MEDIUM, LOW)
Green Brook	Natural Feature	5	0	5	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	13
Bonygutt Brook	Natural Feature	5	0	5	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	13
Municipal Hall	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting government operations	medium	9
Schools	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting education facilities	medium	9
Senior Center	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting older population	medium	9
North Avenue	Critical Infrastructure	3	0	3	0	3	Increased chance of flooding, precipitation, impacting transportation network	medium	9
Dunellen Population	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting all population	medium	9
Police Station	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting safety and response resources	medium	9
Fire Station	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting safety and response resources	medium	9
OEM Management Center	Cultural Asset	3	0	3	0	3	Increased chance of flooding, precipitation, impacting safety and response resources	medium	9
Washington Park	Natural Feature	3	0	3	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	9
Gavornik Park	Natural Feature	3	0	3	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	9
Columbia Park	Natural Feature	3	0	3	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	9
McCoy Park	Natural Feature	3	0	3	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	9
Morecraft Park	Natural Feature	3	0	3	0	3	Increased chance of flooding, precipitation, impacting natural features	medium	9
Raritan Vally Train Line	Critical Infrastructure	3	0	3	0	0	Increased chance of flooding, precipitation, impacting transportation network	medium	6
NJ Transit Bus Line	Critical Infrastructure	3	0	3	0	0	Increased chance of flooding, precipitation, impacting transportation network	medium	6
Train Station	Critical Infrastructure	3	0	3	0	0	Increased chance of flooding, precipitation, impacting transportation network	medium	6
Leadership of Dunellen	Cultural Asset	0	0	0	0	0	Leadership to provide insight and protective measures to decrease the impact of natural climate change		0



Special Flood Hazard Areas (100-year flood plains, including floodways), streams as mapped by FEMA, and potential wetlands as mapped by NJ DEP.

Green Brook

Flooding in a 2019 storm is shown near the corner of Prospect Avenue & Grove Street.

FLOOD ZONES

The Borough is located within the Green Brook Water Shed and contains the Green Brook and Bonygutt Brook, which flood the northern, western, and central parts of the Borough during major storms. The areas surrounding the Green Brook and Bonygutt Brook are either located in the flood zone X which is an 0.2% (500 year flood plain) annual flood chance or the A, AE, AO, or VE which is 1% (100 year flood plain) annual flood chance (also known as the Special Flood Hazard Area).

The Green Brook flows along the border between Dunellen Borough and Green Brook Township. The existing land uses in Dunellen adjacent to the Green Brook are predominantly single-family homes or public open space facilities, many of which are within the flood zone. The stretch of flood zone east of Washington Avenue extends to parts of 2nd Street.

The Bonygutt Brook floodway flows south of and generally parallel to Route 28 and the NJ Transit railroad right-of-way, and along the border with Middlesex Borough (west). Nearly the entirety of Dunellen south of North Avenue and Bound Brook Road is within either flood zone A, AE, AO or VE zone (Special Flood Hazard Area) or the X zone. The main business corridor of North Avenue is not within the flood zone, but the impact of climate change on the frequency and intensity of storms may not be fully accounted for in floodplain mapping. Also not accounted for in floodplain mapping is the adequacy of stormwater infrastructure. History shows that North Avenue still floods during severe rain events.

BUILD OUT ANALYSIS AND ASSESSMENT OF THE THREATS AND VULNERABILITIES RELATED TO THE DEVELOPMENT

The purpose of the Buildout Analysis exercise is to project how much new development or redevelopment could potentially occur in the Borough under current zoning, where that development/redevelopment might occur, and in what fashion it might occur, and to estimate how much of that development/redevelopment could take place in flood prone areas of the Borough.

DMR analyzed the following data as part of its Buildout Analysis:

- Dunellen Borough zoning and redevelopment regulations;
- Approved and conceptual redevelopment projects;
- 2015 Potential Wetland GIS layer provided by NJ DEP (most current version of the data available);
- 2015 Impervious Coverage GIS layer provided by NJ DEP (most current version of the data available);
- Effective FEMA Flood Hazard Area GIS layer published by FEMA;
- Dunellen Borough Official Tax Maps Dated April 2017.

Based on MOD-IV property tax assessment data and GIS parcel layers published by Middlesex County and distributed through the New Jersey Open Data GIS website, DMR isolated private and non-profit owned properties for analysis based on the following criteria:

- Lots in residential zones recorded by the tax assessor as vacant or which DMR visually assessed as either vacant or undeveloped based on aerial imagery, and which meet the minimum lot area, frontage, and depth requirements for their zone. Some of these parcels are part of single-family properties under the same ownership where the dwelling is on its own recorded parcel.
- Lots in the RA Single Family Zone which are developed but which meet or exceed the minimum lot depth of the zone district and are at least double the minimum lot width and lot area of the zone and could feasibly be subdivided into two or more lots;
- Lots in the RB One- and Two-family zone which meet the minimum lot dimension requirements for two-family or multi-family development.

DMR also considered in its analysis the approved unit yield for redevelopment projects approved but not yet built in the Borough, as well as a conceptual multi-family project

proposed on Site 2 of the Downtown Redevelopment Area, currently known as Parking Lot A or Dunellen Station Parking South.

DMR's analysis methodology for the buildout of the B Zones and the remainder of the Downtown Redevelopment Area is described later in this section.

DMR relied on MOD-IV data recorded with the lots to determine the number of dwelling units on each lot. DMR found that this data was generally reliable on the RA and RB Zone Districts; however, it is likely that the data recorded for the B Zone district over represents the number of dwellings, as several lots that do not have a residential component are recorded in the MOD-IV data as having one (1) dwelling. DMR estimated the number of existing dwelling units in the B Zone and Downtown Redevelopment Area based on other data published in the MOD-IV database where that data conflicted with the recorded number of dwelling units for a property.

DMR did not consider in its analysis any lot which did not meet minimum lot dimensions prescribed by their respective zones, in order to limit the analysis to potential buildout from properties which could be developed as-of-right or in a manner wholly consistent with conditional use standards for a residential use.

DMR removed from its buildout analysis any lots which are substantially wetland or wetland transition area encumbered. DMR also removed from its analysis any publicly owned lots including those that are used for open space, school, or public works purposes.

DMR did *not* remove from its analysis lots which are flood plain encumbered, but recorded the number of dwelling units that could be added to the Borough by-right in the Special Flood Hazard Area in order to understand how much of the Borough's build-out potential lies in flood prone areas. DMR also did *not* remove from its analysis any properties that are contaminated, as contamination may be remediated to allow for development.

ANALYSIS RESULTS

RA ZONE: The RA Single-Family Zone District permits single-family dwellings on lots which are at least 5,000 square feet in area and have at least 100 feet of lot depth and 50 feet of lot width. DMR identified 66 lots in the RA Zone that had the requisite lot depth, a lot area of at least 10,000 square, and a lot width of at least 100 feet, and which are not publicly owned or prohibitively wetland encumbered. The majority of these lots are single-family lots, but some are occupied by churches, pre-existing businesses, two-family dwellings, or apartment houses. DMR calculated the maximum number of single-family lots that these properties could be subdivided into while complying with the minimum lot area, depth, and width requirements, and determined that these lots could be subdivided to create an additional 74 single-family dwellings. Twenty (20) of these lots would be located in the current effective special flood hazard area.

RB ZONE: The RB One- and Two-Family Zone district permits single-family dwellings on lots which are at least 6,500 square feet in area and have at least 100 feet of lot depth and 50 feet of lot width. It also permits two-family dwellings on lots which are at least 7,500 square feet in area and have 75 feet of width, and conditionally permits multi-family dwellings at a density of 12 units per acre on lots having an area of at least 12,000 square feet and a width of 75 feet. DMR identified 32 lots in the RB zone which met or exceeded the minimum lot dimensions for a two-family dwelling or multi-family dwelling. The majority of these lots have already been developed with two-family or multi-family dwellings. DMR's analysis is that redevelopment of these lots to the full degree permitted by the zoning, conditionally or otherwise, would add 36 dwelling units to the Borough's housing stock, of which 27 would be in the special flood hazard

area.

B ZONE AND "REMAINING PARCELS" OF THE DOWNTOWN REDEVELOPMENT AREA: The B Business Zone overlaps substantially with the "Remaining Parcels" area of the Downtown Redevelopment Area, which generally extends the length of North Avenue (Route 28). The lot requirements for the B Zone include a lot area of 7,500 square feet, 50-foot lot widths and 100-foot lot depths. The Downtown Redevelopment Plan does not contain minimum lot size standards. Both the B Zone and the Downtown Redevelopment Plan permit mixed-use development with commercial uses on the ground floor and residential or commercial uses on the upper levels with a maximum permitted height of three (3) stories (mixed-use is conditional in the B zone but permitted as-of-right in the redevelopment area). For the purposes of analyzing the buildout potential of the B Zone and Downtown Redevelopment Area "Remaining Parcels", DMR made the following assumptions:

- Rather than be redeveloped on a lot-by-lot basis, developers would likely attempt to assemble multiple properties in this area. Therefore, DMR attempted to calculate the development potential for the B Zone and Redevelopment Area as a whole (excluding public properties) rather than the potential redevelopment of each lot, and, therefore, did not filter properties based on the minimum lot dimensions required by the B Zone.
- DMR assumed that full redevelopment of the downtown would involve an average building coverage of 50%, with the ground floor occupied by commercial uses and the two upper stories occupied by apartments at a rate of one apartment per 1,125 square feet of gross floor area (assumes an average apartment size of 900 square feet and 225 square feet of common area per apartment). DMR also assumes that 80% of the ground floor area represents commercial square footage and that each upper story has the same floor area as the ground floor;
- Where properties have already been approved for development, the approved number of units supersedes DMR's calculation;

DMR analyzed a combination of the MOD-IV data recorded by the Borough Tax Assessor for each lot, current as of December of 2021, and the 2015 Impervious Coverage shapefile published by the NJ DEP to determine the current amount of development in the B Zone and the Remaining Parcels portion of the Redevelopment Area. Based on this data and adjusting for the MOD-IV data's over-count of housing units in the Downtown, DMR calculates that the B Zone, including the "Remaining Parcels" portion of the Downtown Redevelopment Area, currently contain 612,464 square feet of gross commercial floor area and 337 dwelling units that include apartments, single-family dwellings, two-family dwellings, and other forms of housing that may exist in the downtown. DMR's buildout analysis, based on the assumptions and methods described above, concludes that these areas could potentially be developed with up to 913,194 square feet in ground floor commercial space and up to 1,772 dwelling units on two-stories above the ground floor based on the current zoning standards. This would reflect an increase of at least 300,730 square feet of commercial space and 1,435 dwelling units.

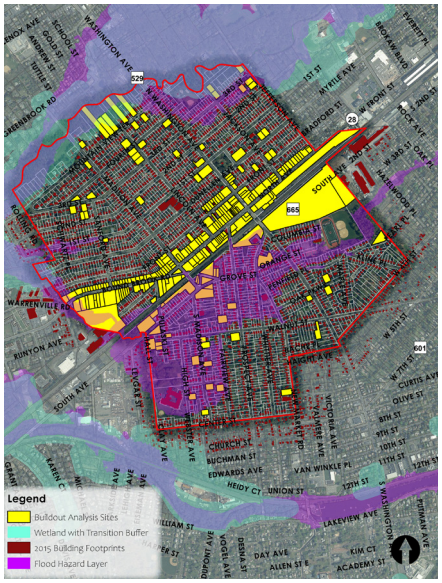
Of that, 113,703 square feet of ground floor commercial and 229 upper-level housing units in these areas would be located in a special flood hazard area, whereas there are currently only 10 flood prone dwelling units and 66,346 square feet of flood prone commercial space in the B Zone. Such buildout would reflect an increase of 219 flood prone units and 47,357 square feet of commercial area to the flood prone portions of the B Zone

I INDUSTRIAL ZONE: There are currently two lots in the Borough's I Industrial Zone district, which are split between Dunellen Borough and Middlesex Borough, to the southwest, of which only one lot has the area and access to be redeveloped. The lot contains two buildings that are also split between the two Boroughs. One building is 70,520 square feet of which 43,235 square feet are located in Dunellen, and the other is 7,571 square feet of which 2,002 square

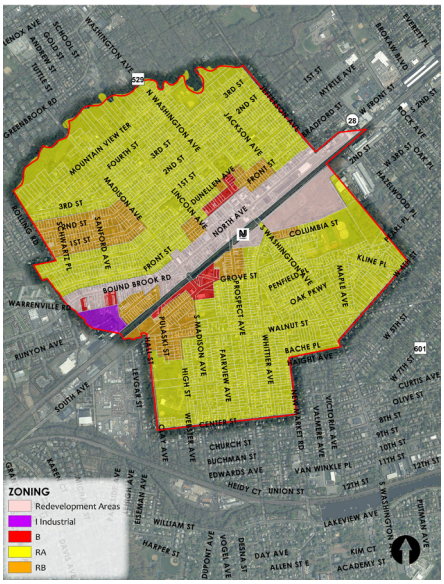
feet are located in Dunellen. If the lot were redeveloped based on the I Zone standards it could theoretically be developed with 341,636 square feet over 3 stories (based on a building coverage of 113,878.6667 square feet), or an increase of 296,399 square feet of gross floor area. Realistically, much of the lot is wetland encumbered and would not likely be able to accommodate such a large footprint. Much of the lot is also within a special flood hazard area.

REDEVELOPMENT SITES 1, 2 AND 3: Redevelopment Site 2 (the Dunellen Station Parking Lot South and Dunellen Library) and Site 3 (currently vacant, former industrial site), have been approved for a total of 419 housing units, of which 37 would be located on Site 2 and 382 would be located on Site 3. Site 2 is substantially within the special flood hazard area. Site 3 was previously approved for 10,000 square feet of ground floor retail. Site 1, which consists of public parking areas, police parking, a bank building, and a gas station on the north side of the NJ Transit Train Station, with approximately 12,877 square feet of existing commercial floor area, could be developed with 31,435 square feet of ground story commercial space and 67 apartments or condo units on the upper 2 stories based on the assumptions DMR applied to the B Zone and Remaining Parcels of the Downtown Redevelopment Plan. Redevelopment sites 1, 2, and 3, would therefore add a total of 474 new dwelling units and a net of 28,558 square feet of non-residential space to the Borough at full buildout, and 37 units to the Borough's flood prone areas.

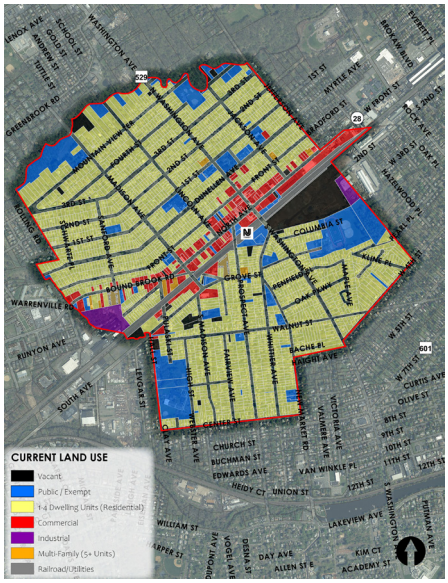
CONCLUSION: DMR's buildout analysis concludes that full buildout of the Borough based on what is allowed in the Borough's current zoning and Redevelopment Plan documents would permit an additional 2,031 dwelling units and 625,687 square feet of commercial and industrial square footage to the Borough, of which 303 dwelling units and 343,756 square feet of commercial and industrial space would be located in a special flood hazard area.



Build Out Analysis Map



Zoning Map



Land Use Map

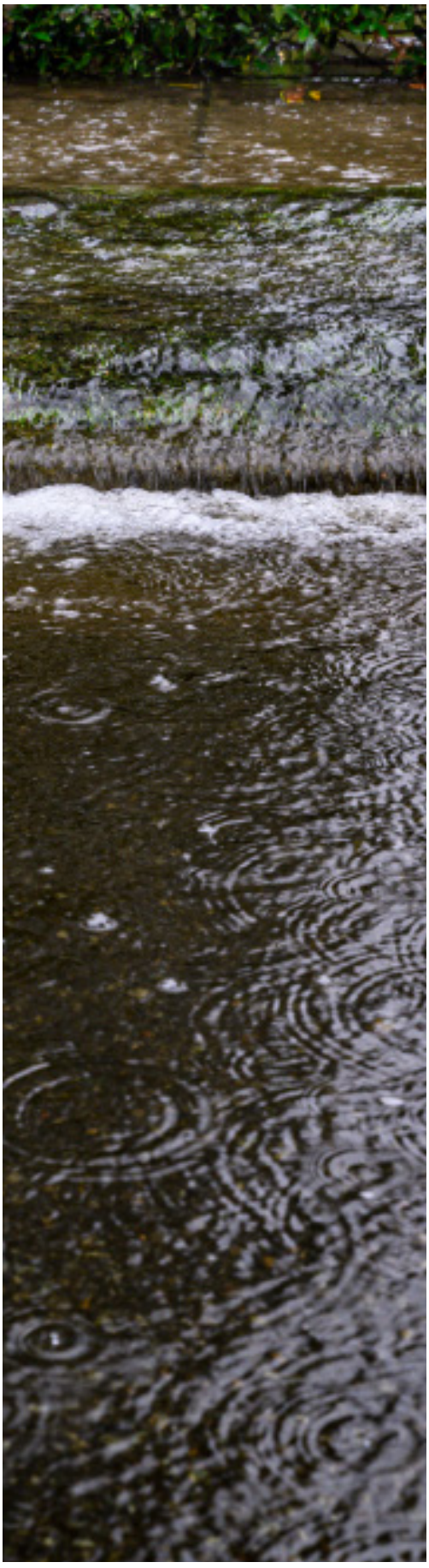
IDENTIFY CRITICAL FACILITIES, UTILITIES, ROADWAYS, AND OTHER INFRASTRUCTURE THAT IS NECESSARY FOR EVACUATION PURPOSES AND SUSTAINING QUALITY OF LIFE DURING A NATURAL DISASTER, TO BE MAINTAINED AT ALL TIMES IN AN OPERATIONAL STATE

The Borough adopted an Emergency Operations Plan (EOP) in March of 2021, the purpose of which is to protect life and property in emergencies by coordinating response activities of municipal and volunteer entities to ensure their optimal use. The EOP establishes actions to be taken to mitigate, prepare for, respond to, and recover from the emergency incidents. Climate-related hazards identified in the plan which may affect Dunellen include severe weather, flooding, and power failures.

The command center during the event of an emergency is the Borough's Office of Emergency Management. This operations center is vital to sustain quality of life during a natural disaster. The chain of command for emergency management operations is the 1) Mayor, 2) Emergency Management Coordinator, 3) Deputy OEM Coordinator, 4) Borough Administrator, and 5) Chief of Police.

The critical roadways of the Borough are state roads North Avenue and Bound Brook Road (which are sections of NJ-28) and Washington Avenue (a.k.a. Middlesex County Road 529). NJ-28 crosses southwest to northeast through the Borough, connecting to the City of Plainfield (Union County) and Borough of Middlesex (Middlesex County). Washington Avenue southeast to northwest connecting to Piscataway Township (Middlesex County) and Green Brook Township (Somerset County). These roadways provide evacuation routes in the events of emergency; however, they also both pass through the special flood hazard areas associated with Green Brook and Bonygutt Brook and are therefore likely to be flooded during major storms.

As previously noted, water service is provided by NJ American Water (NJAW). This infrastructure is aging, with replacements taking place on an as needed basis rather than proactively to prevent system failures. The quality and supply of water is dependent on this infrastructure. As it continues to age, the water infrastructure is susceptible to water main breaks, pollutant infiltration and other damage that could impact water supply to Dunellen's residents. NJAW invested nearly $5 million to update their water utility infrastructure in Dunellen in 2021 as well as repave roads.



ANALYZE THE POTENTIAL IMPACTS OF NATURAL HAZARDS ON RELEVANT COMPONENTS OF THE MASTER PLAN

A Master Plan is a blue print for a municipality that is a broad policy statement that guides a municipality's future development. The Borough's last Master Plan was completed in 2011. Currently the Borough is preparing a Master Plan Re-examination report. This Climate Resiliency Plan will be integrated in several sections within the 2022 Master Plan Re-examination report with overlaps of the recommendations, goals, and objectives within these plans.

THE 2011 MASTER PLAN HAS THE FOLLOWING SECTIONS:

1. Goals and Objectives
2. Historic Preservation Plan Element
3. Land Use Plan Element
4. Economic Plan Element
5. Summary of Housing Element and Fair Share Plan
6. Circulation Plan Element
7. Urban Design Plan Element
8. Utility Service Plan Element
9. Recycling Plan Element
10. Community Facilities Plan Element
11. Recreation Plan Element

The following is a discussion of the relationship of the potential impacts of natural hazards to the various components of the 2011 Master Plan report.

GOALS OF THE 2011 MASTER PLAN (OVERALL)

- To redevelop the Borough downtown and promote the Redevelopment Plan
- To promote an aesthetically pleasing and safe downtown with a mix of uses
- To promote an aesthetically pleasing and safe train station
- To preserve any remaining open space and environmentally sensitive lands in the Borough
- To facilitate the current and future demand for parking in the downtown to sufficiently accommodate existing and future parking demands, especially in consideration of increased residential and commercial densities permitted and encouraged within the Redevelopment Areas of the Borough
- To encourage pedestrian and bicycle activity throughout the Borough
- To encourage properly designed commercial and professional office uses
- To alleviate the traffic congestion on the major arterials
- To work with appropriate agencies to discourage flooding in the Borough

POTENTIAL IMPACTS OF THE OVERALL GOALS OF MASTER PLAN

Redevelopment and improvement of the Downtown and the area around and including the NJ Transit commuter train station is the focus of several of the Master Plan goals and objectives.

The Borough adopted a Redevelopment Plan in 2003, replacing the zoning for the downtown corridor to further promote and guide development. The impetus of this Redevelopment Plan was to redevelop underutilized and stagnant properties and to provide new residential and business opportunities within the downtown corridor, particularly around Dunellen's NJ Transit train station and increase tax ratables. The Redevelopment Plan, which has undergone several amendments and updates, has jump-started development within the Borough.

Two significant properties in the Downtown Redevelopment Plan Area are located in the flood zone: Redevelopment Site 2, comprised of the NJ Transit Train Station south parking lot and municipal library, and Redevelopment Site 3, comprised of the former Art Color industrial site. Site 3, which is located in the X Flood Zone is undergoing redevelopment consisting of 382 units with 252 one and two bedroom units and 130 townhomes and 10,000 square feet of retail under the name Dunellen Station. There is interest in development for Site 2, which is located in the 100-year flood zone, but as of this writing no plans have been approved or formally submitted.

The "remaining parcels" portion of the Downtown Redevelopment Area and Redevelopment Site 1, consisting of properties just north of the NJ Transit Station and generally fronting on North Avenue and Bound Brook Road (Route 28), are mostly outside of the flood plain. There are currently 140 new residential units being proposed within this corridor. Notwithstanding, increased precipitation rates and storm intensity related to climate change could result in increased flooding along the Route 28 corridor. Therefore, redevelopment within this area needs to balance development and environmental impacts.

Dunellen's NJ Transit station is the major public transportation artery of the Borough. The rail line itself is elevated and is not prone to flooding. However, the train station itself is in the flood zone and is impacted by flooding. When flooding occurs, this limits access to the train station and the transportation corridor.

The Borough has developed relationships with key stakeholders and agencies to discuss and promote ways to alleviate flooding within Dunellen. Such key agencies include but are not limited to NJ DEP, the Green Brook Flood Control Commission, the Lower Raritan Watershed Commission, and the office of U.S. Representative Bonnie Watson Coleman.

POTENTIAL IMPACTS ON THE HISTORIC PRESERVATION ELEMENT

There are no historic properties in the Borough that are listed with the State Historic Preservation Office (SHPO). Two properties - the Edward Maurer House located at 500 Mountainview Terrace and the Aluminum Press Company Plant at 3-4 Smalley Avenue - are partially in the flood zone and are identified in the NJ DEP's historic properties database as "Eligible" to be registered as historic properties. As with other properties in and just outside the flood zone, climate change and the increase of flooding may impact these properties.

POTENTIAL IMPACTS ON THE LAND USE ELEMENT

Land use is the type of use for each parcel within the Borough. The use can be residential in the form of single family, two family, multi family, commercial and business, mixed use with commercial and business on the ground floor and residential above, industrial, transportation and public use.

Climate change related flooding, increased wind speeds, snow fall, and water supply will have an impact on all the land uses within the Borough. The 2011 Master Plan Land Use Element identifies as a priority the protection of historic residential neighborhood character. The destruction of homes in the flood plain by severe storms may result in the loss of buildings which may be

considered to have architectural or historic value or to be exemplary of a character that defines the Borough's history.

POTENTIAL IMPACTS ON THE ECONOMIC PLAN ELEMENT

The economic core of the Borough is along North Avenue and Bound Brook Road from the Plainfield to Middlesex Border. Along this corridor is a mix of stand alone buildings of commercial, office, food establishments uses, mixed use buildings, single family, and multi-family development. The Economic Plan Element of the 2011 Master Plan emphasized the use of various strategies to boost redevelopment and enhancement of the downtown corridor

The only area of this economic corridor that is within the flood zone is the western gateway of the Borough. However, due to increase precipitation and storms occurrences, this area could be prone to future flooding, wind damage and power outages, impacting the economic core of Dunellen. Additionally, Redevelopment Sites 2 and 3, which are in flood zones, are expected to bring new commercial uses to the Borough.

POTENTIAL IMPACTS ON THE CIRCULATION ELEMENT

With respect to the planning of any new roads and improvement to any existing roads, climate-related changes to precipitation patterns, extreme storms, and extreme temperatures will place a greater emphasis on designing roads for effective stormwater removal, snow removal, freeze-resistant qualities, and use of street trees or paving materials that help reduce or limit the heat island effect.

POTENTIAL IMPACTS ON THE URBAN DESIGN ELEMENT

The Urban Design Element includes recommendations for contributing to a "railroad town" character, improving aesthetics, wayfinding, and streetscaping, and enhancing sustainability. It does not include specific design recommendations related to climate resiliency.

Urban design recommendations that should be included in a future update or amendment to the Urban Design Element could include use of rain gardens in the public right-of-way to collect, absorb, and remove stormwater, increasing tree cover in the street right-of-way and on developed properties, and using materials or landscaping to reduce the heat island effect. These are already included in the Downtown Redevelopment Plan.

NJ DEP regulates buildings and other improvements in the flood zone. Local land use boards and construction departments, including those in Dunellen, require a permit to be issued from NJ DEP for any construction in a flood zone. This building design must conform to the regulations to minimize any impact from flood damage.

The Borough recently updated its Stormwater Management Plan to comply with the new NJ DEP regulations. This Stormwater Management Plan includes Best Management Practices (BMP) for flood control, groundwater recharge, and pollutant reduction including the use of green infrastructure. All buildings must comply or exceed these stormwater requirements. Green infrastructure is encouraged to comply with these requirements.

Building design can also use natural light to reduce the reliance on cooling and heating mechanical systems. Additionally, the use of solar panels has become more common. Solar panels can be utilized by existing residential, commercial, public and industrial buildings to limit the use of electricity or heating fuels.

These design building and design elements should be implemented and promoted to limit the impacts of climate change.

POTENTIAL IMPACTS ON THE UTILITY SERVICE PLAN ELEMENT

The Utility Service Plan Element analyzes the current status and adequacy of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal, and the stormwater management plan.

Climate change, by way of stormwater runoff, groundwater recharge, flood damage, pollutants and aging of infrastructure, can impact the quality of the water supply. The Borough adopted a Municipal Stormwater Management Plan (MSWMP) in 2005 to provide guidance on this. This MSWMP should be reviewed to determine if any needed updates are required.

As previously noted, the Borough updated their Stormwater Management ordinance to comply with new NJ DEP requirements. Increased precipitation will impact the Borough's utilities by having increase runoff resulting in an overabundance of the Borough's stormwater capacity. Additionally, increased precipitation will lead to flooding which can result in pollutants infiltrating the Borough's water supply.

POTENTIAL IMPACTS ON THE RECYCLING PLAN ELEMENT

Dunellen's Department of Public Works is responsible for collection of recyclable materials for the Borough's residents. The Borough, under contract for curbside collection with the Middlesex County Improvement Authority (MCIA), maintains curbside and drop-off recycling services for its residents. Businesses located in the Borough are responsible for their own recycling. Recycling reduces household waste and is a positive action for the environment.

The threat of climate change can disrupt recycling services as severe storms may delay collection or knock over recyclable-waste bins and blow their contents into the streets or even into the Green and Bonygutt Brooks.

POTENTIAL IMPACTS ON THE COMMUNITY FACILITIES ELEMENT

The community facilities element is the Borough's municipal services, including police, fire, rescue squad, library and schools.

Increased regularity of severe storms, heavy precipitation, wild fires, and high heat events will likely place a greater toll on police, fire, and rescue services as they assist in rescue operations, traffic redirection away from flooded roads or hazardous conditions, or other consequences of climate change. Flooding or other hazards on roads can also impede the movement of

emergency vehicles through the Borough when responding to regular emergency calls.

Public facilities may also become increasingly regular destinations as "cooling centers" providing air conditioning and other services and amenities during high heat events.

Community facilities that are within the 1% chance of flooding include but are not limited to the Faber Elementary Building, the Public Works building, the Fire Department, and the municipal library.

POTENTIAL IMPACTS ON THE RECREATION ELEMENT

According to the 2011 Master Plan there are a total of 27.11 acres of open space and recreational land in the Borough. There are 5 parks within the Borough with Columbia Park being the biggest.

Climate threat can cause damage to the recreational areas thus resulting in a loss of quality of life during the event of climate change storms. There are also opportunities presented, as the encroachment of flood plains on private properties may incentivize owners of those properties to sell to the Borough for open space purposes. The Borough may even pursue grants from the State to facilitate such exchanges through programs like Blue Acres.

DEVELOP RESILIENCE STRATEGIES AND DESIGN STANDARDS THAT MAY BE IMPLEMENTED TO REDUCE OR AVOID RISKS ASSOCIATED WITH NATURAL HAZARDS

- **Streetscape Improvements**
  - Street tree planting - ***Required in the Downtown Redevelopment Area, should be expanded to residential neighborhoods***
  - Rain gardens and bio-retention *swales* in sidewalk - ***Required in the Downtown Redevelopment Area, should be encouraged on major streets such as Washington Avenue***
- **Volunteer Activities and Initiatives**
  - Cleanups of Bonygutt and Green Brook ***- Mayor established Mayors' Alliance for Clean Green Brook Waterway in partnership with the Lower Raritan Watershed Project***
- **Infrastructure Improvements**
  - Pulaski Street utility upgrade project ***– In progress***
  - Undertake drainage projects ;
  - Culvert enhancement on Pulaski Street and Bonygutt Brook – Alleviate stormwater flooding ***This is a County project that is expected to start in the Winter or Spring of 2023***
  - Culvert enhancement on S. Madison Ave and Bonygutt Brook to Alleviate stormwater flooding - ***This is a County project that has been completed***
  - Culvert enhancement under railroad at Bonygutt Brook – install two 70" pipes under the railroad and through industrial property end of North Avenue extension (south of Pulaski Street) ***- This initiative is in progress.***
  - US Army Corps of Engineers levee and floodwall installation of properties in Green Brook basin - ***This has been an ongoing project.***
- **Zoning, Land Use, and Site Design Initiatives**
  - Investigate tree-planting requirements for single-family homes;
  - Apply flood- and hazard-resilient design guidelines and building codes;
  - Modify landscaping requirements to prioritize native or adapted plant species;
  - Adopt polices to reduce stormwater runoff;
  - Flood resilience zoning / overlay – require new or enlarged buildings to incorporate flood resilience through grading, materials, green and gray infrastructure, pervious pavers, and reduced impervious cover;
  - Limit or restrict new development in flood plain area;

RESILIENCE STRATEGY	IMPACTS ADDRESSED	IMPLEMENTATION
Flood Water Management	Flooding	Work with Municipal Engineer on Flooding Projects through Borough
Culvert Enhancements	Flooding	Work with county on culvert enhancements on Pulaski Street at the Bonygutt Brook
Culvert Enhancements	Flooding	Work with county on culvert enhancements on S. Madison Avenue at the Bonygutt Brook
Culvert Enhancements	Flooding	Borough project to install two 70" pipes under railroad and through industrial property on north avenue
Participate with Green Brook Flood Commission	Flooding	Work with Commission on initiatives to limit flooding
Participate with US Army Corps of Engineers (USACE) Green Brook	Flooding	USACE to install levees and flood walls west of Washington Avenue then east to Plainfield
Bonygutt Brook Clean Up	Flooding	Volunteers to clean up Bonygutt Brook to remove waste and debris that decreases quality of water
Green Brook Clean Up	Flooding	Volunteers to clean up Green Brook to remove waste and debris that decreases quality of water
Pilot Projects with NJ DEP and Lower Raritan Watershed Project	Flooding	Work with NJ DEP and Lower Raritan Watershed Project on pilot projects such as Floating Trash Trap
Pursue Community Rating System (CRS) with FEMA	Flooding	CRS status is an incentive program for floodplain practices to exceed minimum requirements of National Flood Insurance Program (NFIP)
Property Acquisition of Chronic Flood Prone Properties	Flooding	Utilize funding sources such as Blue Acres to purchase flood prone properties
Require Pervious Pavers for New Developments	Flooding	For new developments 5 or more residential units require pervious pavers for walkways and streetscape improvements
Create a Debris Management Plan for Hazard Evennts	Flooding	Work with DPW and OEM Manager on how to manage and discard of debris after flooding events
Update Municipal Stormwater Management Plan (MSWMP)	Flooding	The MSWMP was last updated in 2005. With new NJ DEP regulations an update should be examined to comply and exceed new regulations
Promote the Use of Rain Gardens on North Avenue / Bound Brook Road	Flooding	Install rain gardens to limit stormwater runoff along North Avenue and Bound Brook Road
Utilize Conservation Easements	Flooding	Borough to purchase land prone to flooding through grants and make them conservation easements
Relationship with Climate Change Stakeholders/Organizations	Flooding / Extreme Weather	Continue key relationships with stakeholders/organizations involved with efforts to battle climate change
Resilient Design and Land Use Guidelines/Standards	Flooding / Extreme Weather	Develop a design guideline book to provide information on resilient design beyond building code requirements, and enhance zoning standards to reduce impervious coverage
Develop Flood Hazard Overlay Districts	Flooding / Extreme Weather	Requirements for new buildings to have flood hazard mitigation strategies such as stormwater and green infrastructure exceeding what is required
New Developments to Provide Funding to Shade Tree Commission	Extreme Weather	Provide new funding opportunities for increased tree planting in the Borough to mitigate climate impacts
Solar Panels	Extreme Weather	Promote the use of solar panels and install them on public facilities
Add a Line Item in Capital Improvement Plan for Resilience	Extreme Weather	Provide funding reserves for climate resilience change. Such funding can include flood mitigation, drought resilience measures, utility infrastructure
Native Species for Landscaping	Extreme Weather	For new developments require landscaping to have native species
Communication / Continuation to reach Population	Extreme Weather	Provide communication forums in both english and spanish for extreme weather utilizing websites, social media and print
Maintenance and Upgrade of Utility Infrastructure	Extreme Weather	Work with utility companies on the continuation and upgrade of utility infrastructure
Grants	Extreme Weather	Apply for grants with Federal and State entities for climate resiliency funding initiatives

- » Encourage builders to pursue green building certification such as LEED or Green Globes;
- » Create a green builidng checklist that developers are required to complete to indicate what green builidng practices they are using to address climate resilience;
- » Require financial contribution to shade tree commission where tree replacement is not practical;
- » Encourage rainwater harvesting for use in flush-plumbing fixtures or landscape irrigation, or practices like green and blue roofs;
- » Promote compact, mixed use development outside of flood zones;
- » Reduce impervious coverage in flood zones;
- » Adopt stricter regulations for outdoor storage in flood zones;
- » Explore transfer of development rights, cluster zoning, or non-contiguous cluster zoning as a way to discourage rebuilding and expansion of damaged homes in flood prone areas;

- **Public Building Improvements**
  - » Explore solar panels, battery energy storage, and electric vehicle charging on public properties to facilitate continuity of service during storms and reduce climate-changing emissions;
  - » Improve McCoy Park and Columbia Park with stormwater retention infrastructure, or use green design techniques such as berms and grading within parks to slow flood encroachment into neighborhoods.
- **Intergovernmental Coordination / Cooperation**
  - » Participate in Green Brook Flood Control Commission;
  - » Join National Flood Insurance Program (NFIP) and the Community Rating System (CRS) program;
  - » Flood-prone property buyouts through Blue Acres and other programs - ***Borough is working with Blue Acres to acquire damaged and at risk properties.***
- **Grant and Low-Interest Loan Programs**
  - » Pilot project with NJDEP and Lower Raritan Watershed Project – floating trash trap;
  - » NJ Clean Energy grants for electric fleet vehicles and charging infrastructure;
  - » SuSI (Successor Solar Incentive) program;
  - » Direct pay from federal government for energy improvements through Inflation Reduction Act;
- **Studies, Plans, and Reports**
  - » Identify areas outside of the flood zone that regularly flood;
  - » Develop a debris management plan for hazard events;
  - » Conduct an impervious surface assessment;
  - » Create critical infrastructure plan;
- **Borough Investments and Spending**
  - » Use conservation easements to protect or enhance undisturbed land in flood prone areas for natural drainage;
  - » Add a capital improvement line item for resiliency efforts in the Borough budget;
  - » Investigate creation of a municipal stormwater utility program to fund municipal stormwater reduction projects.
- **Other**
  - » Enforce or exceed DEP's new stormwater requirements;
  - » Create a Climate / Green Team - ***Completed in May of 2023***;
  - » Require water conservation during drought conditions;

INCLUDE A SPECIFIC POLICY STATEMENT ON THE CONSISTENCY, COORDINATION, AND INTEGRATION OF THE CLIMATE CHANGE RELATED HAZARD VULNERABILITY ASSESSMENT WITH CERTAIN OTHER PLANS ADOPTED BY THE MUNICIPALITY

The vulnerability assessment identifies the natural features, cultural assets and critical

infrastructure of Dunellen and those assets' potential impacts from, vulnerabilities to, and adaptive capacities to climate change. The vulnerability assessment is coordinated, consistent and integrated with Dunellen's Master Plan and Master Plan Re-Examination, Stormwater Management Plan, Municipal Management Stormwater Plan, and Transit Hub Study. Any future plans will refer to this Climate Resiliency Plan to be consistent and to be integrated to guide, direct and plan for the future of Dunellen.

GRANTS

Grants are a vital component of providing the necessary funding to make improvements to battle climate change. Below are Federal and State grant programs that will be applicable to Dunellen. As these grants become available, Dunellen should readily apply for these opportunities to protect, educate, and communicate with the community resulting from climate change.

RESILIENT NJ GRANTS	WEBSITE
Natural Climate Solutions	https://www.nj.gov/dep/climatechange/mitigation/ncs-grant.html
Resource for funding options	https://experience.arcgis.com/experience/9daab51c2f5542969d50437522e012c4/page/FUNDING-AND-FINANCE-OPTIONS/?views=INNOVATE
Resilient NJ	https://www.nj.gov/dep/bcrp/
Mitigation Resource Guide	https://www.fema.gov/sites/default/files/2020-09/fema_region-03_mitigation-funding-resource-guide_new-jersey_09-24-2020.pdf
FEMA Hazard Mitigation Grants	https://www.fema.gov/grants/mitigation
FEMA Building Resilient Infrastructure in Communities (BRIC)	https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
HUD Community Development Block Grant Disaster Recovery Program	https://www.hud.gov/program_offices/comm_planning/cdbg-dr
DOT Rebuilding America Infrastructure with Sustainability and Equity (RAISE)	https://www.transportation.gov/RAISEgrants/about
EPA Office of Sustainable Growth	https://www.epa.gov/smartgrowth
Grants.gov	https://www.grants.gov/
NJ Clean Energy: Electric Vehicles	https://www.njcleanenergy.com/ev

12 • CONCLUSION

CONCLUSION

This Climate Resiliency Plan is a comprehensive analysis, assessment, and investigation to guide, direct, educate, and prepare for the threat of climate change upon Dunellen. With the furtherance of grants, and relationships with applicable parties, this will assist Dunellen in preparing for the impact of climate change. This Climate Resiliency Plan is a guiding document. Implementation of the action matrix within this report, and future recommendations, will provide the steps necessary to prepare Dunellen for the future and the impacts of climate change.