

# Township of Bloomfield Stormwater/Drainage Study

September 9<sup>th</sup>, 2024



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& VERNICK  
ENGINEERS

# Representatives



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# Agenda



Topic 1 - Stormwater  
Background



Topic 2 – Progress to  
Date



Topic 3 –  
Recommendations



Path Forward



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TOWNSHIP**  
*New Jersey*

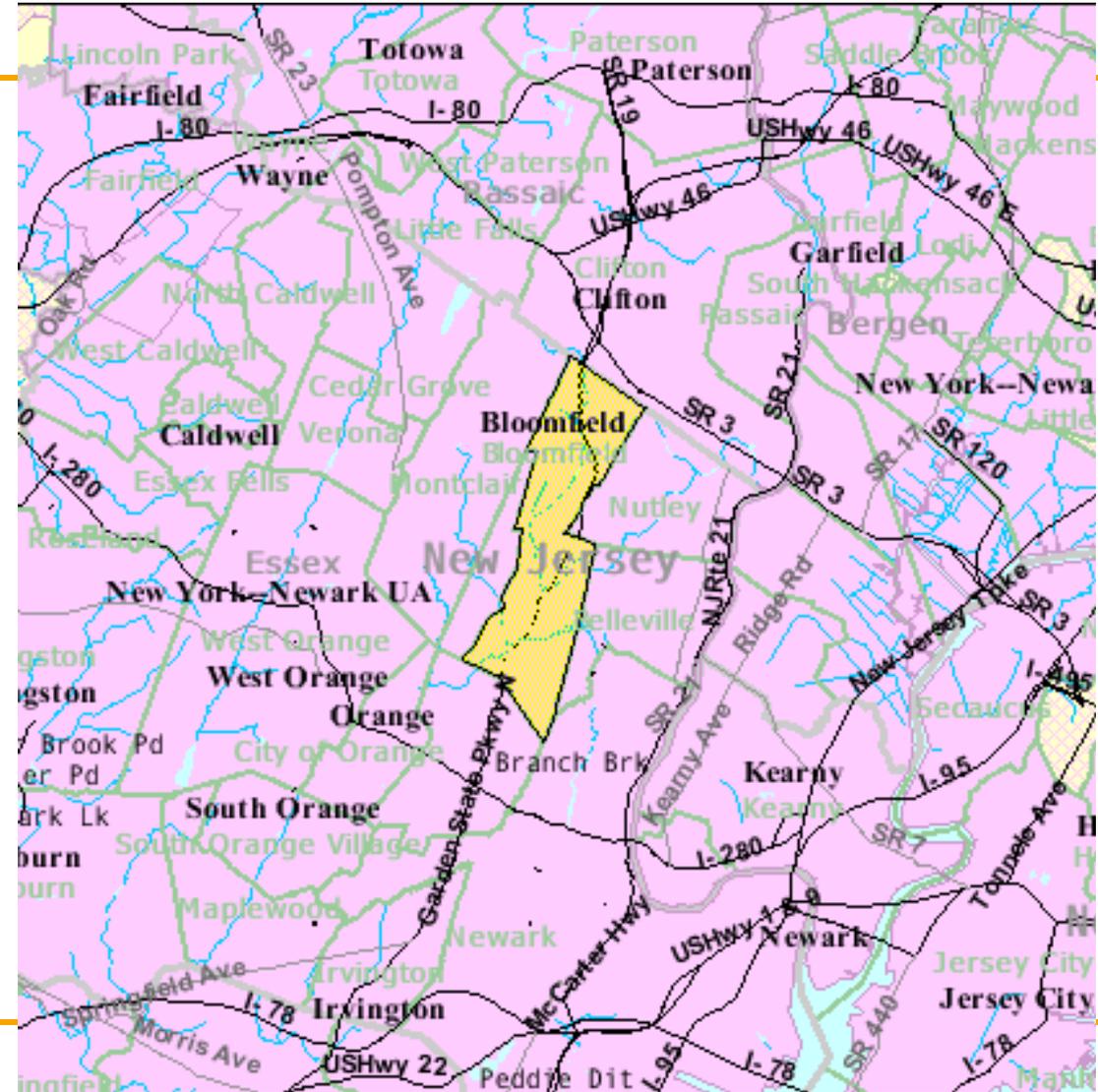


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# Background

Township shall comply with the New Jersey Pollutant Discharge Elimination System (NJPDES) Permit 01500096 Part IV.B.5d.

Flooding is not a new problem, however, it appears the frequency has increased.



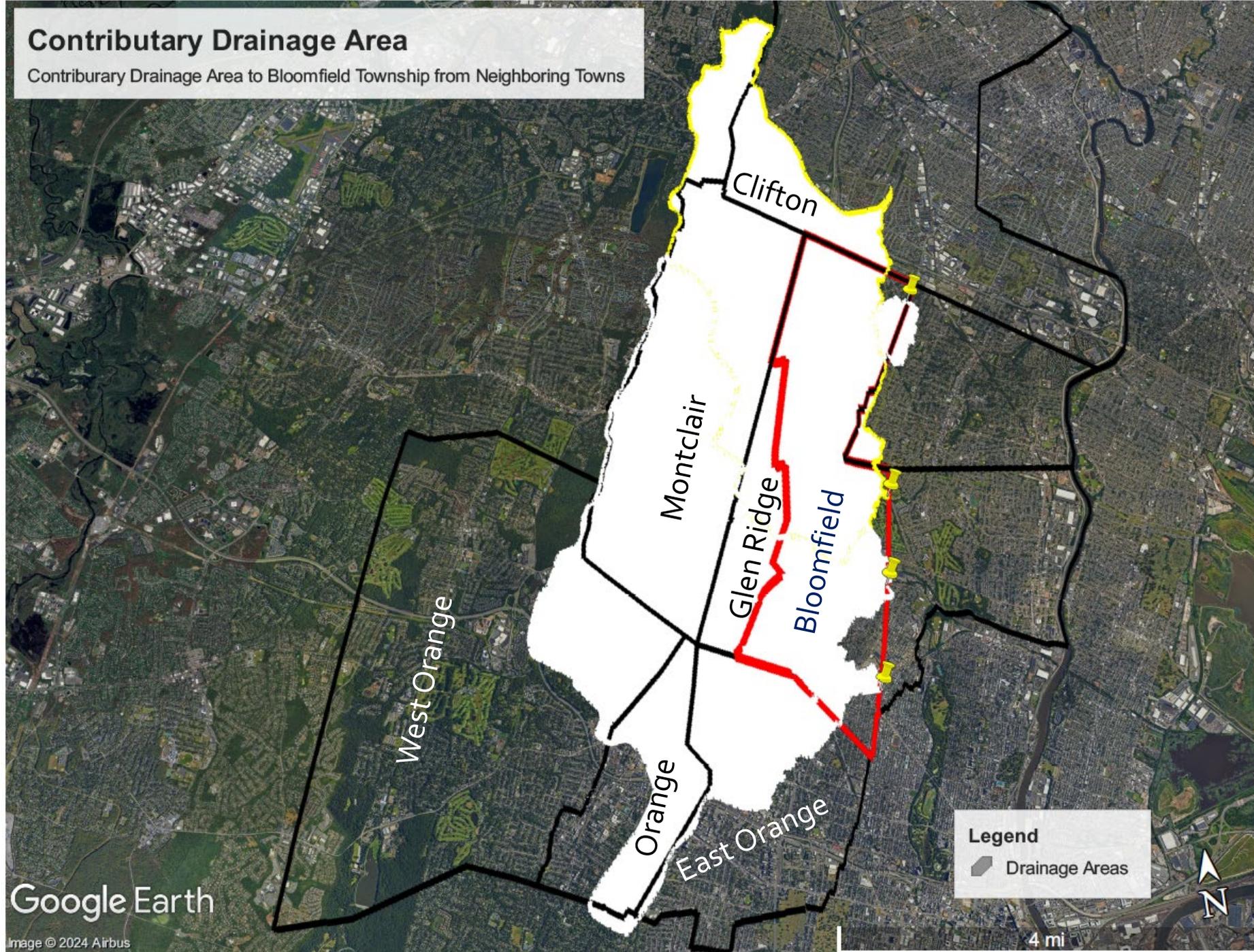
## Goals of the Study

- Mapping the existing stormwater/drainage infrastructure as per MS4 permit requirement in GIS.
- Prepare Hydraulic and Hydrologic models from the collected information in order to propose flood control plans.

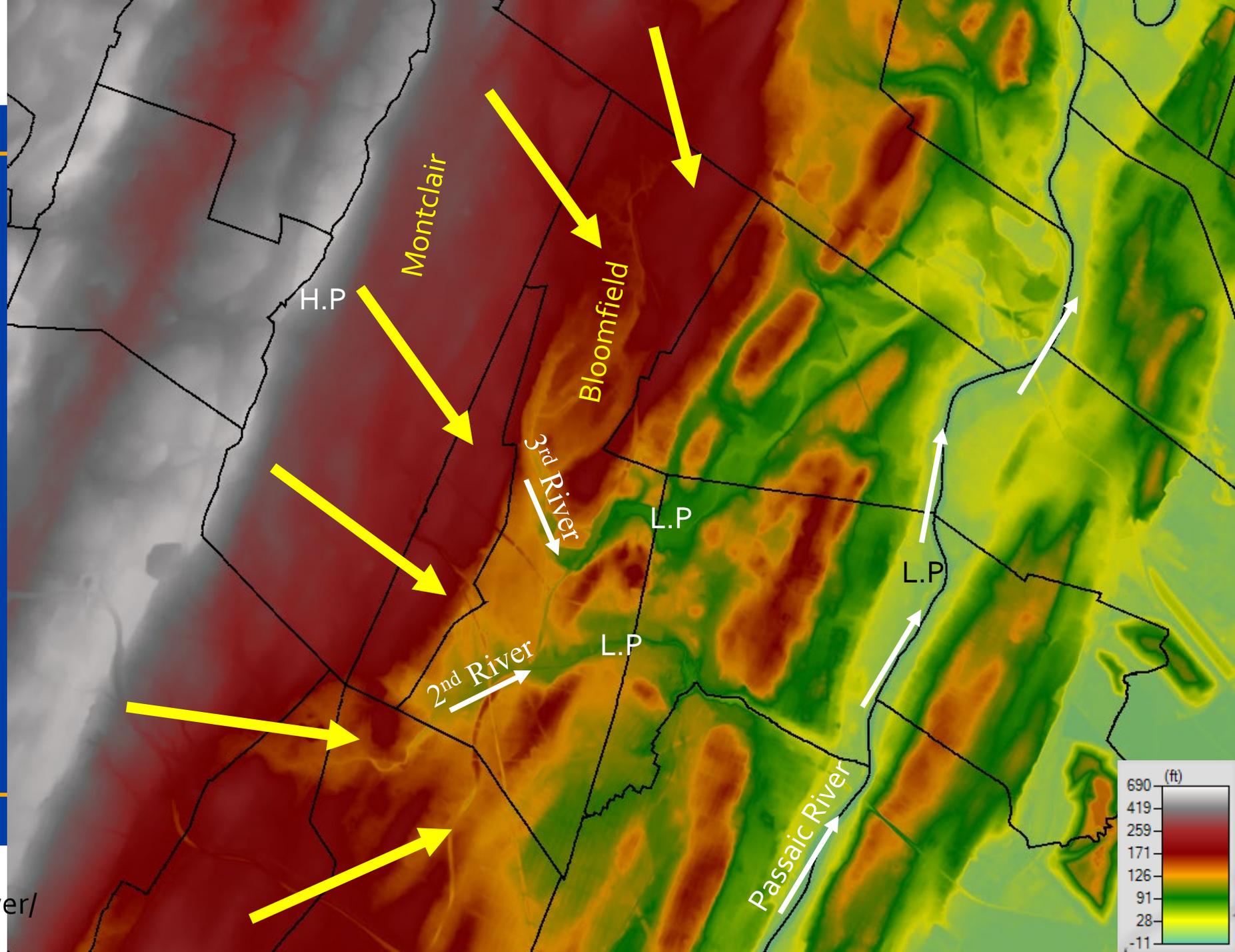




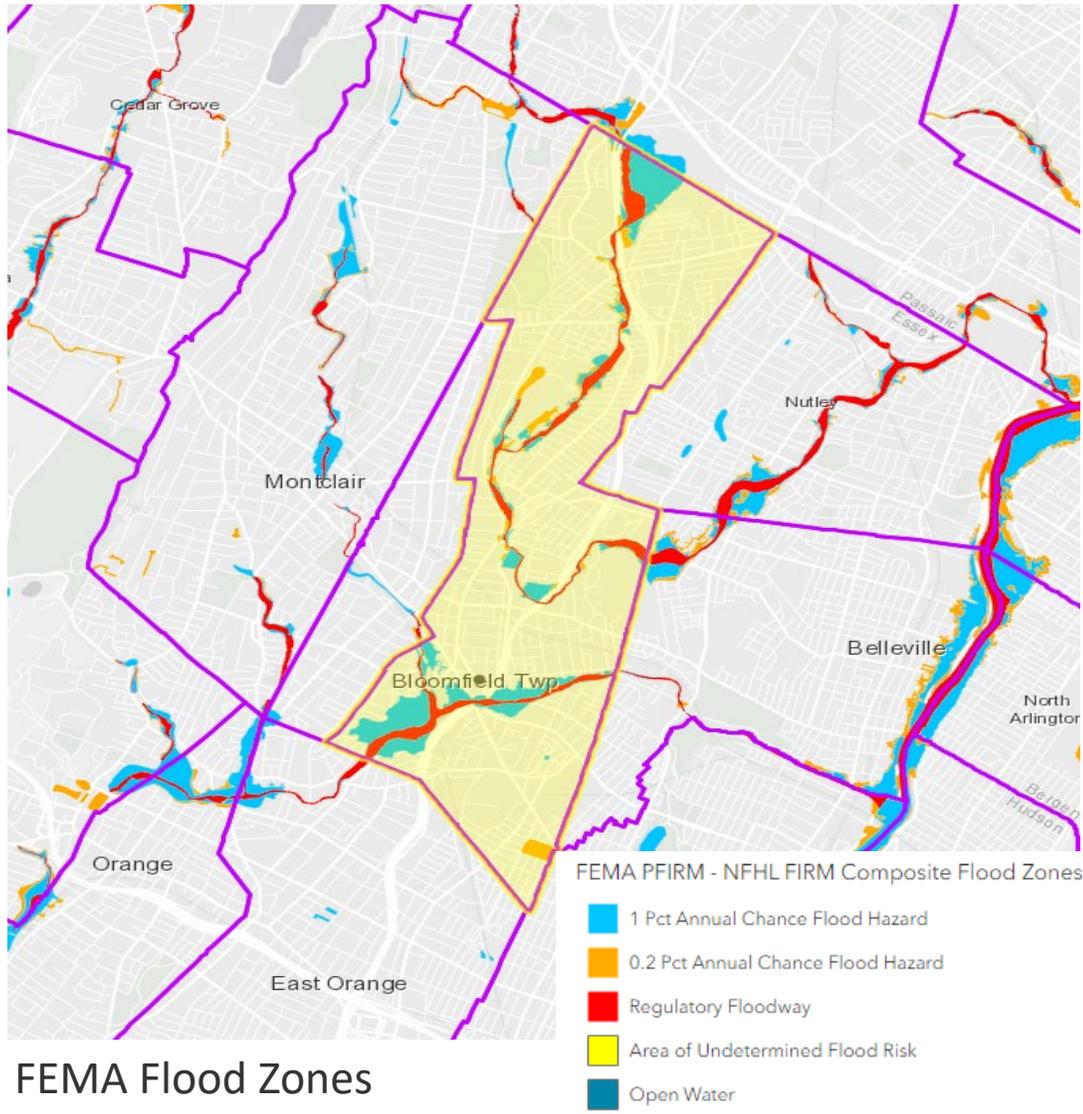
- **60 % of** stormwater flow originates from within the watershed outside the Township (Montclair, Glen Ridge & Orange) discharging to the Second and Third Rivers.
- Bloomfield is situated downstream of several contributing drainage areas including **104** outfalls discharging from the Garden State Parkway.



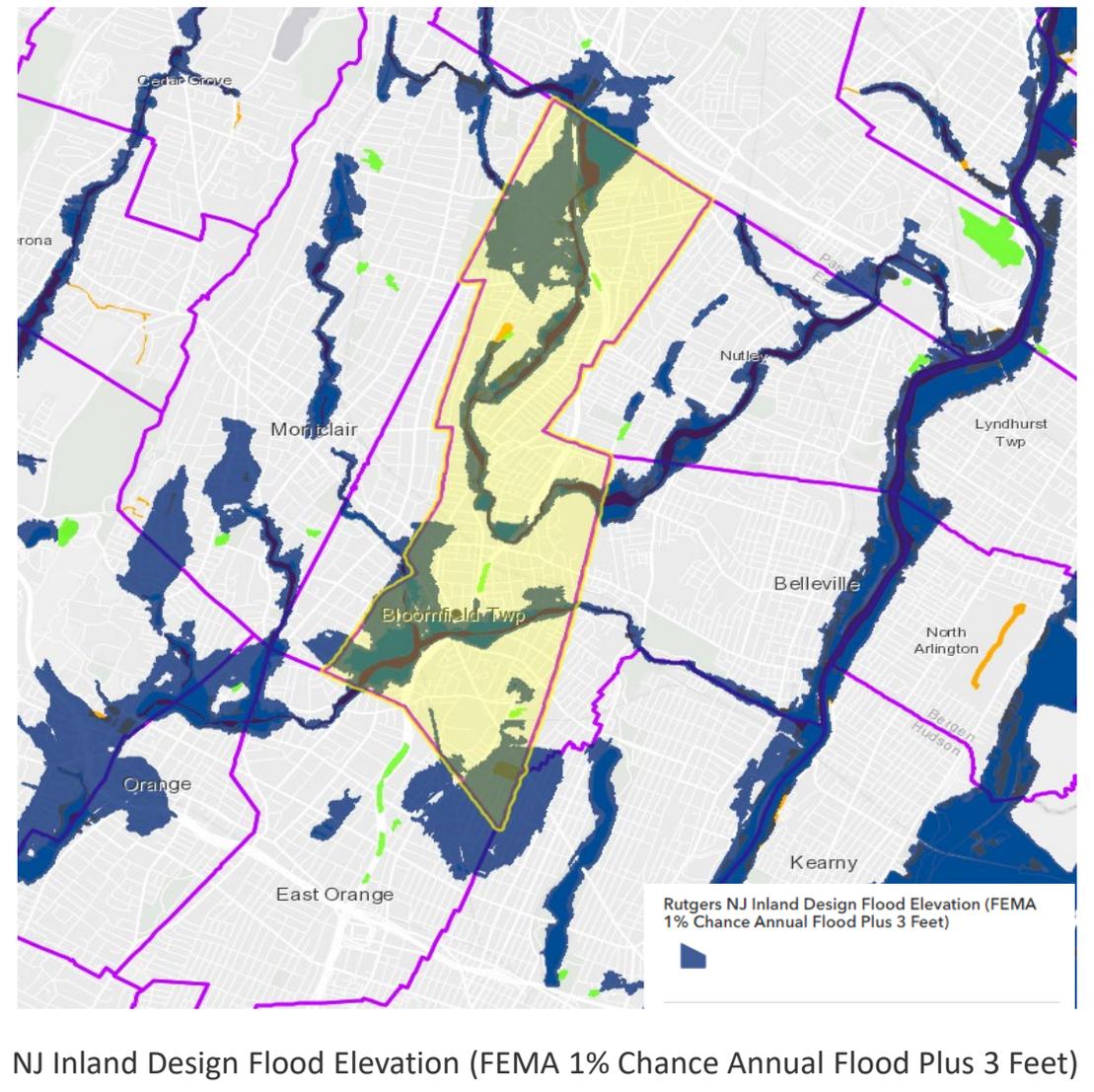
Bloomfield is located at Low point of the surrounding towns



## Seven (7)% of the Township Footprint

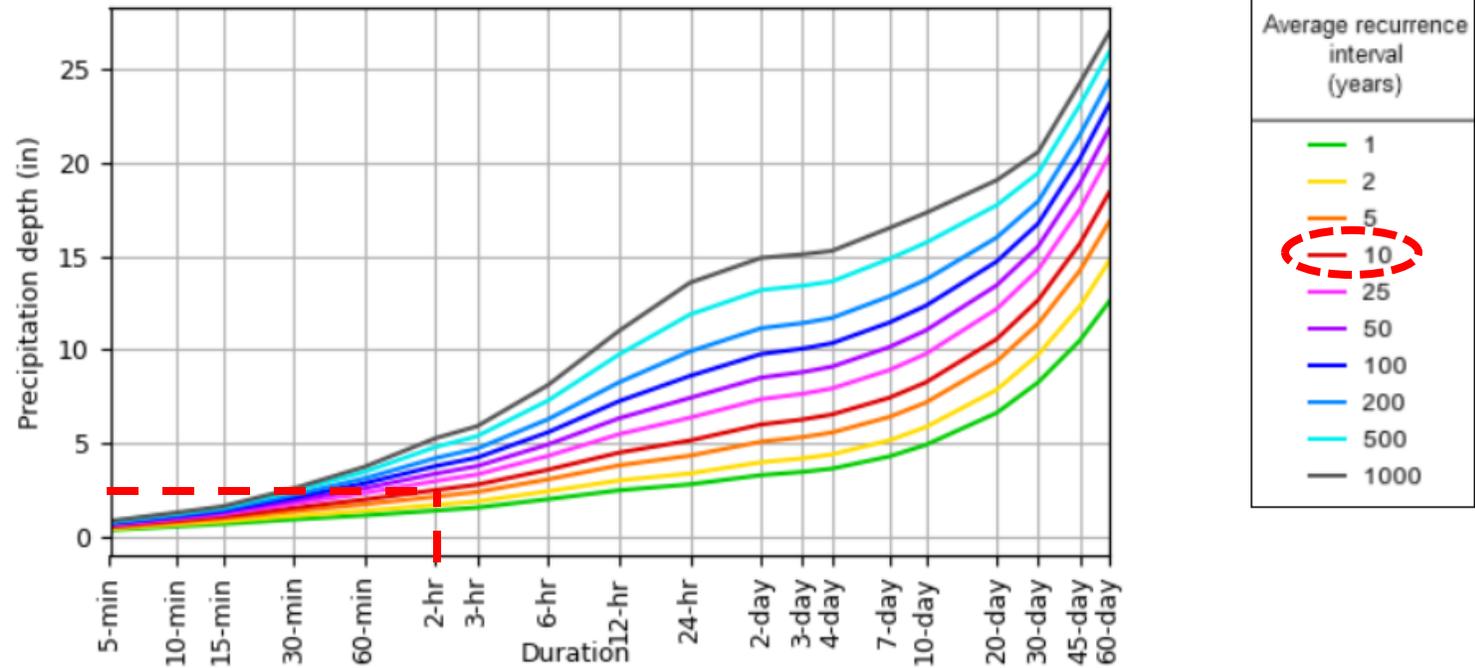


## A bigger Area will be in Floodplain in the Near Future



# Recent Rainfall (August 18<sup>th</sup> 2024)

PDS-based depth-duration-frequency (DDF) curves  
Latitude: 40.7921°, Longitude: -74.1950°



Caldwell Airport (2.15 inches in 2 hours)



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# Background

- The existing stormwater system contains 2,000 segments
- Most of the elements were installed in 1930
- Observation showed many of those are undersized, broken and clogged.
- The storm drain on Maoils Avenue is an example of undersized pipe
- Insufficient hydraulic capacity to handle today's storms.



# Outfalls Requiring Maintenance



Near Davey Street



Lindbergh Blvd



Broad Street Third River



Lions Gate Drive



## The Township DWP's Role

The Township of Bloomfield DPW implements Permit required Best Management Practices (BMPs) which includes inspection, maintenance, and repairs of :

57.44 miles of road surfaces

147 outfalls (**16 need immediate attention**)

2,566 curb inlets

1,125 manholes

DPW has initiated the selection of Contractors to assist with the outfalls needing attention.



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# Annual Training

## Annual Training Requirements Achieved for:

- DPW employees
- Stormwater Program Coordinators
- Township Floodplain Manager
- Members of the Town Board
- Members of the Planning Commission



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## Action Taken by Township

### Purchase of Properties for Stormwater Improvements:

- Essex County Vocational Technical High School
- Clinton Street half acre lot for transformation into a tree farm.
- Roxy Florist Property for conversion to a stormwater management asset.
- Lion Gate Park which resulted in converting an 18 acre industrial site to recreational facilities and 4.2 acres of wetland which increased flood storage.



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## Action Taken by Township

**Upgraded Storm Sewer facilities on roads being resurfaced as part of the Town's road resurfacing program: Upsized storm drainage pipes.**

- Chester Avenue
- Ampere Parkway
- Waldo Avenue



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## Ordinance Adoption

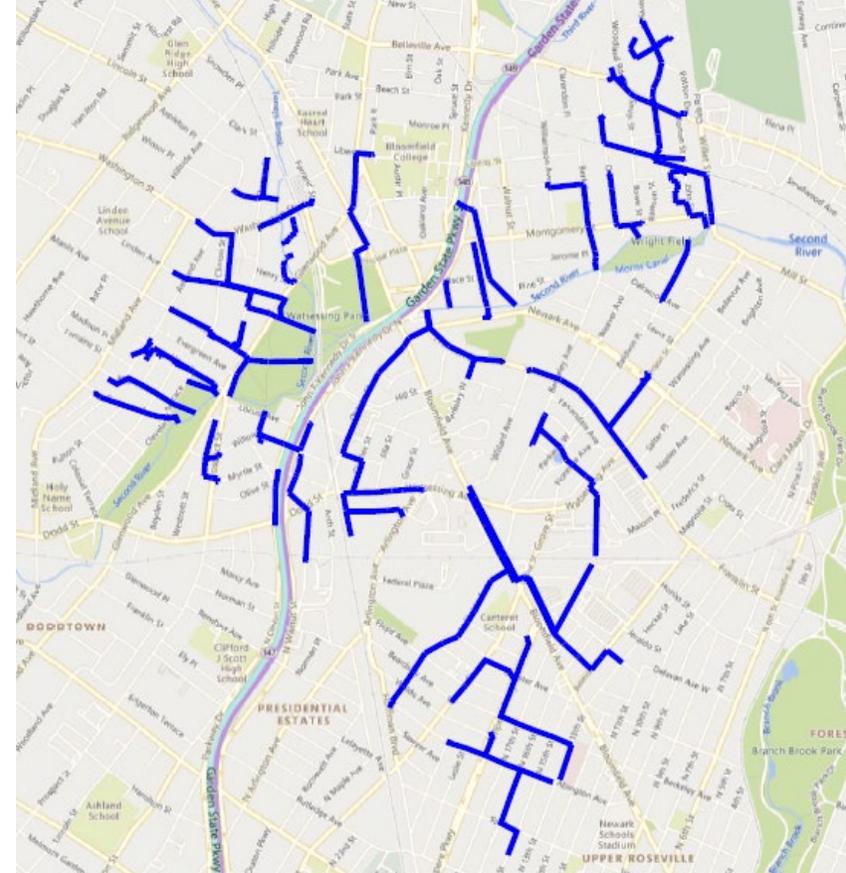
The Township is required to prepare and adopt 16 ordinances related to stormwater management, all of which have been adopted excluding four (4), planned for adoption by December 31, 2024.



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# Developed Hydraulic Models

# Proposed Improvements

Stormwater Inlet Additions (135)

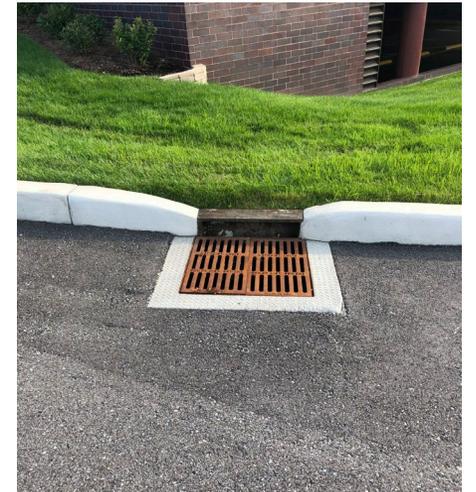
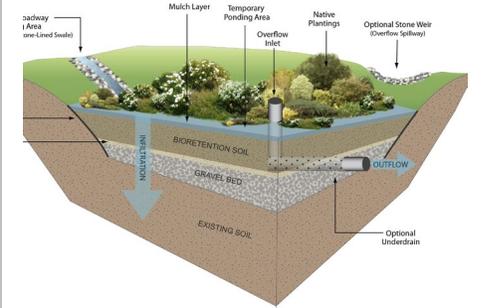
Replacing Existing Storm Sewer Pipes (10,000 LF)

Outfall Rehabilitation (18)

Proposed Bioretention/Raingardens

Underground Retention System

Surface Wetlands



# Area of Flooding Concerns

## General Notes and Data Sources:

This Geographic Information System (GIS) map is for demonstration purposes only, any use of this product with respect to accuracy and precision shall be the sole responsibility of the end user.

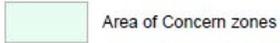
The various data sources used in this map are referenced, in part, from ground surveys, aerial surveys and recorded plans, and documents, and users should verify for appropriate location purposes only.

Additional GIS resource data was provided by the New Jersey Geographic Information Network (NJGIN), the New Jersey Department of Transportation (NJDOT), the New Jersey Department of Environmental Protection (NJDEP), the New Jersey Office of Information Technology (NJOOIT), and the New Jersey Office of Information Technology (NJOOIT). The data was obtained and provided by the various New Jersey Departments at the New Jersey Geographic Information Network (NJGIN) and is not guaranteed to be accurate or complete. This secondary product has not been verified by the New Jersey Department of Transportation (NJDOT) and is not state authorized.

All positions are based on the following:  
 - NAD 83 (North American Datum)  
 - New Jersey State Plane Coordinate System  
 - English units (feet)

The geographic accuracy and precision of the Geographic Information System (GIS) data contained in this mapping has not been developed nor verified by a professional land surveyor and should not be used to make any claims regarding the determination and location of true ground horizontal and/or vertical control.

### Legend

	Area of Concern zones		Blocks
	5' Contours		Parcels
	Municipal Boundary		Railroad
			Water Body



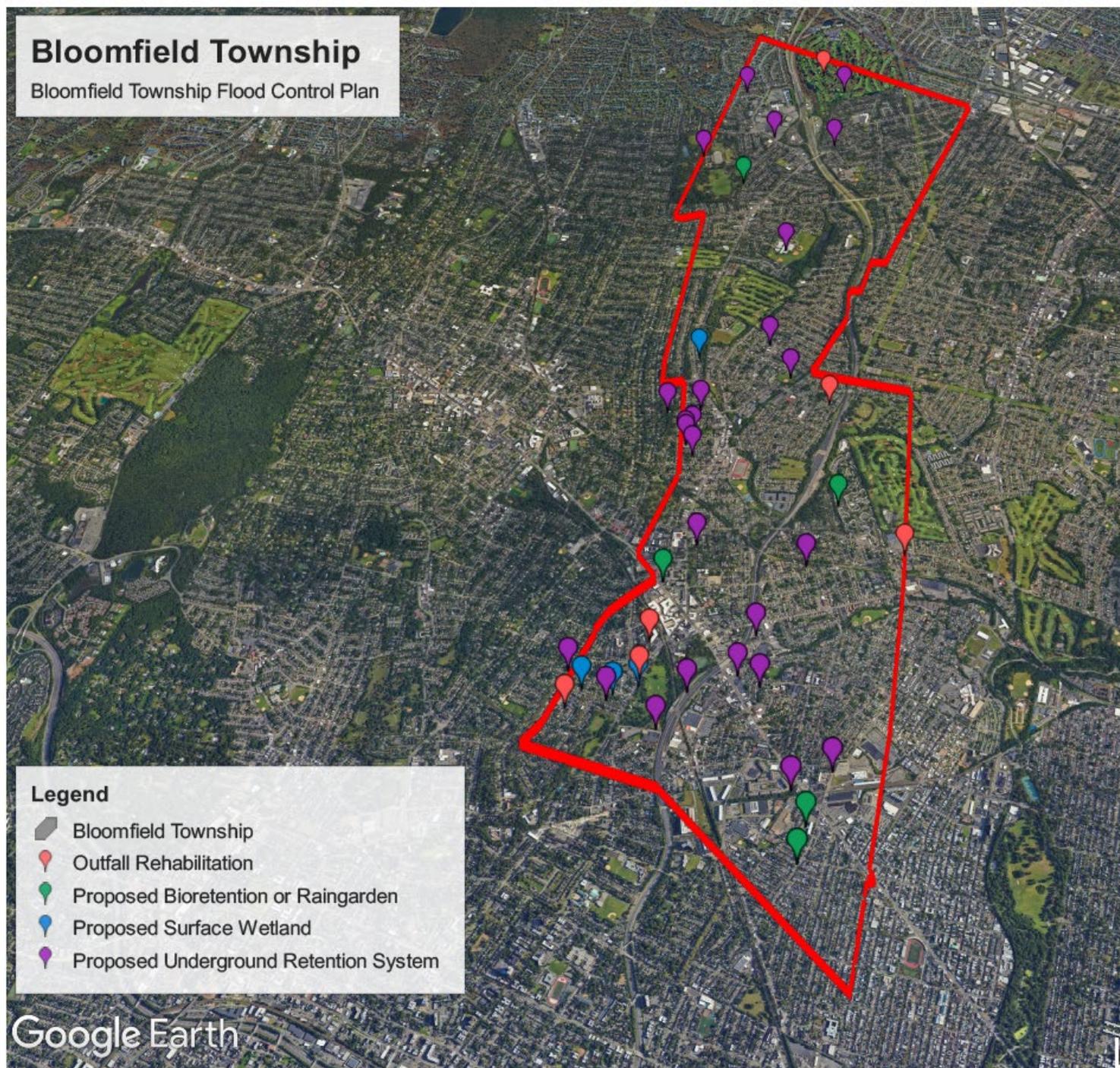
**STORMWATER DRAINAGE SYSTEM**  
 BLOOMFIELD TOWNSHIP  
 ESSEX COUNTY NEW JERSEY  
 12/22/2022 SCALE: 1" = 500'

**DRAFT**

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 OFFICE OF AUTHORITY TO THE PUBLIC  
 Established December 2004

# Bloomfield Township

Bloomfield Township Flood Control Plan



## Legend

- Bloomfield Township
- Outfall Rehabilitation
- Proposed Bioretention or Raingarden
- Proposed Surface Wetland
- Proposed Underground Retention System

Google Earth

- Carteret Elementary School Parking Lot
- Staples Parking Lot
- Berkeley Elementary School Parking Lot
- Watsessing Elementary School Parking Lot
- Llewellyn Avenue Parking Lot
- Fairview Elementary School Parking Lot
- Bloomfield College Parking Lot
- Almira Street Parking Lot
- 300 Broad Street Parking Lot
- 314 Broad Street Parking Lot
- 324 Broad Street Parking Lot
- Brookside Manor Parking Lot
- Baldwin Street at Broad Street Parking Lot
- Home Depot Parking Lot
- Franklin Elementary School Parking Lot
- Pulaski Park Baseball Outfield
- Ackerman Street Parking Lot & Tennis Court
- South Meadow Open Space
- St Thomas Church Parking Lot
- Brookdale Elementary School Parking Lot
- Broadacres Drive Parking Lot
- Oak View School Parking Lot
- Myrtle Street Parking Lot
- Berkeley Heights Park
- 209 Franklin Street- Former Essex County Vo-T...
- Ampere PKW and Abington
- Ampere PKW & Chester
- Davey Street Median Island
- Broad Street at Watchung Avenue
- Broad Street at Bloomfield Ave
- 71 Locust Avenue- Abandoned Lot
- Watsessing Park Open Space (Cleveland Terra...
- Watsessing Elementary School
- Brookside Park Open Space (Outfield)
- Cleveland Terrace- Undersized Outfall
- 950 ft east of Locust ave- Stream Scour
- Montgomery Street- BW, Scour
- Near Davey Street
- 2nd River, 680 ft upstream of Wigwam Brook
- Lindberg Blvd- Outfall Blockage

# Proposed Flood Control Plan

# Estimated Construction Cost

Program	Number of Location/LF	Retention Volume (Gallons)	Cost (\$)
Stormwater Retention Facilities	25	51,000,000	145 million
Stormwater Bioretention Facilities	5	8,000,000	3 million
Outfall Rehabilitation	18	na	200,000.00
Surface Wetland/Stream restoration	4	na	18 million
Stormwater Inlet Installation	125	na	2 million
Drainage Pipe Replacement	10,000	na	3 million
<b>Total</b>			<b>171.2 million</b>

## Priority I- Immediate Action

- **Limiting future development in flood plain areas.**
- **Continuance of training, best management practices, Stormwater Pollution Prevention Plans (SPPP).**
- **Authorize the preparation of an updated Stormwater Management Plan (SWMP), the prior SWMP is 20 years old and requires renewal under NJPDES rules.**
- **Upgrading stormwater facilities on areas “I” floodplain areas**

## Priority I- Immediate Action

- **Upgrading stormwater facilities on piping identified as having insufficient capacity such as Maolis Avenue and Ampere Parkway.**
- **Review outfall's location and potential upgrade.**
- **Upgrading stormwater facility as part of annual road resurfacing program (stormwater pipe replacement, Inlet addition, ...)**

# Priority I- Immediate Action

- **Other streets in need of immediate action:**
  - Linden St.
  - Washington St.
  - Charles Street
  - Lindberg Blvd
  - Windsor Place
  - Appleton Place
  - Chambers St.
- **Video critical pipelines to ensure that current flows are not impeded by clogs and broken pipes.**

**On August 18, 2024, a 2.3-inch rainfall caused flooding on Ampere Parkway and Beardsley Street.**



## Priority II- Interim Action Plan

- **Issuance of an updated Stormwater Ordinance conforming with the latest NJDEP rules and requirements for owners and operators of private stormwater.**
- **Start a joint Township Stormwater Management Review Committee with the neighboring municipalities.**
- **Upgrading DPW inspection/cleaning equipment**
- **Continuing efforts to install subsurface drainage retention facilities in critical areas.**

## Priority II- Interim Action Plan

- **Continuing efforts to have operators of private stormwater assets to inspect, maintain, and repair assets under private control.**
- **Continuing purchasing property to be utilized as future stormwater retention facilities.**

## Priority II- Interim Action Plan

- **Upgrading stormwater facility as part of annual road resurfacing program (stormwater pipe replacement, Inlet addition, ...)**
- **Design and installation of stormwater bioretention facility**
- **Design and implementation of surface wetland and stream restoration.**

## Priority III-Long Term Action Plan

- **Design and installation of underground retention systems**
- **Upgrading stormwater facility as part of annual road resurfacing program (stormwater pipe replacement, Inlet addition, ...).**
- **Design and installation of stormwater bioretention facility**

## Source of Funding

- **NJDCA Resilient Community Program (RCP) Grant**
- **Congressional Grants**
- **Green Acres**
- **Freshwater Wetlands Mitigation Council**
- **Passaic River Natural Resources Restoration**
- **State ibank or Water Bank**
- **USDA/NRCS Emergency Watershed Protection (EWP)**
- **FEMA Funds**



# Thank you!, Contact Us!

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