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Watershed Inventory Report

Phase 1 of the Watershed Improvement Plan-
INITIAL DRAFT = Pre January 1, 2026 filing deadline

**City of Atlantic City
Atlantic County**

Permit #: NJG0153168

Stormwater Program Coordinator: Crystal Lewis, Director of Public Works

Date Approved: Pending

RVE Project No. Job #0102T024

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Acknowledgements

The City of Atlantic City (Atlantic County) Watershed Inventory Report has been prepared by Remington & Vernick Engineers.

Funding for this project was provided by the City of Atlantic City.

Introduction

The City of Atlantic City (also referred to in this report as “The City”) is in Atlantic County New Jersey. Atlantic City is located on the Island of Absecon with Ventnor City, Margate City and the Borough of Longport located to the Southwest. Other municipalities that border Atlantic City include the Cities of Absecon, Brigantine and Pleasantville and the Townships of Egg Harbor and Galloway. Atlantic City covers approximately 17.21 square miles. The population according to the 2020 US Census is 38497 people. The land use within Atlantic City can be found in Table 1.

Table 1: Land Use Types within Atlantic City

Land Use Area	Acres	Percentage
BARREN LAND	88.34	0.87%
FOREST	70.69	0.69%
URBAN	2772.73	27.24%
WATER	3633.39	35.69%
WETLANDS	3614.07	35.50%

Atlantic City , NJ, primarily sits within the Great Egg Harbor Watershed, a large natural area with forests, farms, and development, impacting local water quality and requiring City stormwater management for runoff control.

Key Watersheds & Water Bodies:

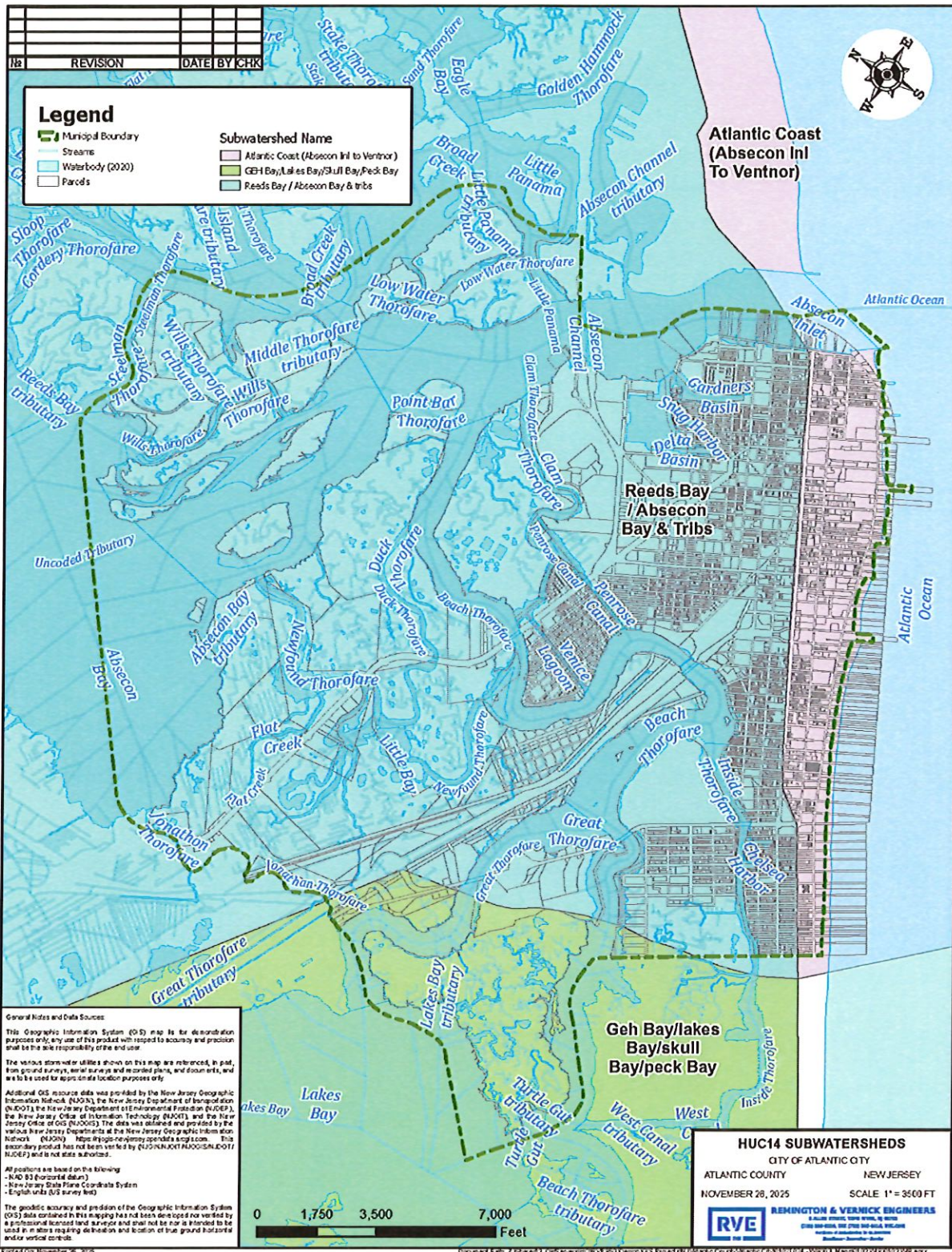
- **Great Egg Harbor Watershed (Area #15):** Most of Atlantic City falls here, featuring tributaries like Babcock Creek, Deep Run, and South River, plus Lake Lenape.
- **Stormwater Management:** The City actively plans and maintains systems for managing runoff from development and everyday sources.

Flooding

Atlantic City has extensive information regarding flooding on the Stormwater Management Webpage.

The Goal for the Watershed Improvement Plan (WIP) is to provide a comprehensive procedure for how the City of Atlantic City will comply with the new MS4 regulations put in place by the NJDEP. The WIP is required to identify opportunities to improve water quality, reduce contribution of pollutants to water bodies with impairments and TMDLs, and to address stormwater flooding to protect human health, safety, and the environment. Phase 1 is to complete stormwater inventory by mapping required features, data, and to complete a Watershed Inventory Report. Phase 2 will evaluate the information found in Phase 1 to determine what potential improvement projects may be implemented to address water quality and quantity concerns. In Phase 3, permittees will identify which of the potential improvement projects they are choosing to implement and identify schedules.

Figure 1: HUC14 Sub watersheds within the City of Atlantic City



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Electronic Data to be Uploaded to NJDEP Online

- Drainage Areas for Outfalls
 - o Topographical Map
 - o Shape File
- Stormwater Interconnections
 - o Shape File
- Drainage Area for Each Interconnections
 - o Topographical Map
 - o Shape File
- Non-Municipally Owned Stormwater Infrastructure
 - o Shape File

Acronyms & Definitions

1. Acronyms

- i. "BMP" – Best Management Practice
- ii. "DO" – Dissolved Oxygen
- iii. "EPA" – U.S. Environmental Protection Agency
- iv. "GIS" – Geographic Information System
- v. "HUC 14" – Hydrologic Unit Code 14
- vi. "MS4" – Municipal Separate Storm Sewer System
- vii. "MTD" – Manufactured Treatment Device
- viii. "NJPDDES" – New Jersey Pollutant Discharge Elimination System
- ix. "NJ-WET" – New Jersey Watershed Evaluation Tool
- x. "TDS" – Total Dissolved Solids

- xi. *"TMDL" – Total Maximum Daily Load*
- xii. *"TSS" – Total Suspended Solids*
- xiii. *"WIP" – Watershed Improvement Plan*
- xiv. *"DEM" – Digital Elevation Model*

2. Definitions

- i. *"HUC 14" or "hydrologic unit code 14" means an area within which water drains to a particular receiving surface water body, also known as a sub watershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey. (N.J.A.C. 7:9B)*
- ii. *"Municipal separate storm sewer" (or MS4 conveyance) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) as defined in more detail at N.J.A.C. 7:14A-1.2.*
- iii. *"Outfall" means any point source which discharges directly to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.*
- iv. *"Storm drain inlet" means the point of entry into the storm sewer system.*
- v. *"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities or is conveyed by snow removal equipment.*
- vi. *"Stormwater facility" means stormwater infrastructure including, but not limited to, catch basins, infiltration basins, detention basins, green infrastructure (GI), filter strips, riparian buffers, infiltration trenches, sand filters, constructed wetlands, wet basins, bioretention systems, low flow bypasses, Manufactured Treatment Devices (MTDs), and stormwater conveyances.*
- vii. *"Stormwater management basin" means a stormwater management basin as defined in N.J.A.C. 7:8.*
- viii. *"Stormwater management measure" means a stormwater management measure as defined in N.J.A.C. 7:8.3*
- ix. *"Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.*
- x. *"Total maximum daily load" or "TMDL" means a total maximum daily load formally established pursuant to Section 7 of the Water Quality Planning Act (N.J.S.A. 58:11A-7) and Section 303(d) of the Clean Water Act, 33 U.S.C. §§12512 et seq. A TMDL is the sum of individual waste load allocations for point sources, load allocations for nonpoint sources of pollution, other sources such as tributaries or adjacent segments, and allocations to a reserve or margin of safety for an individual pollutant.*

- xi. *“Waters of the State” means the Atlantic and its estuaries, all springs, streams and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction” (see N.J.A.C. 7:9B-1.4).*

Public Participation

The City plans on having several meetings with the Stakeholders. Stakeholders are listed below. Engaging with stakeholders opens a channel of communication and collaboration.

- **List of stakeholders**

- Marty Small, Sr. – Atlantic City Mayor
- Council Members
- Anthony Swan – Business Administrator
- Crystal Lewis – Director of Public Works
- New Jersey Department of Transportation
- Atlantic County
- Remington & Vernick Engineers

- **Future Scheduled Meetings**

- Public Meetings for the Watershed Improvement Plan will be scheduled during the Public Council Meetings. Public Council Meeting are the 3rd Wednesday of every month.

First Meeting will be scheduled in March 2026 where the WIP will be introduced and open for public comment.

Second meeting will be scheduled for May of 2026.

Meeting minutes and notes and a summary of feedback from stakeholders will be written up at each meeting and reported in WIP phase 2.

- The Watershed Improvement Plan Phase 1 will be put on the dedicated stormwater webpage:

[The Official Website of City of Atlantic City, NJ - Stormwater Management](#)

Stormwater Outfall(s)

The information utilized in this section was digitized from documents provided by the City and using the Municipal Stormwater Infrastructure data field collected by Remington & Vernick Engineers as part of the MS4 Infrastructure Mapping Project done in 2025. This data was processed using ArcGis Pro software. Water Quality Classification Data was gathered from the NJDEP Open Data Portal. The data was accessed in December 2025. The findings are summarized below in Table 2 and Figure 2.

Stormwater Outfalls Owned/Operated by Permittee

- There are 102 outfalls owned and operated by the City of Atlantic City.

Receiving Surface Waters

- See Table 2

Water Quality Classifications

- See Table 2

Table 2: Receiving Surface Water Bodies & Water Quality Classifications

Local Outfall ID	Receiving Surface Water Body	Water Quality Classification
OF-46A	Inside Thorofare	FW2-NT/SE1
OF-046	Inside Thorofare	FW2-NT/SE1
OF-043	Inside Thorofare	FW2-NT/SE1
OF-042	Inside Thorofare	FW2-NT/SE1
OF-43A	Inside Thorofare	FW2-NT/SE1
OF-45A	Inside Thorofare	FW2-NT/SE1
OF-044	Inside Thorofare	FW2-NT/SE1
OF-41A	Inside Thorofare	FW2-NT/SE1
OF-041	Inside Thorofare	FW2-NT/SE1
OF-040	Inside Thorofare	FW2-NT/SE1
OF-39A	Inside Thorofare	FW2-NT/SE1
OF-039	Inside Thorofare	FW2-NT/SE1
OF-038	Inside Thorofare	FW2-NT/SE1
OF-026	Atlantic Ocean	FW2-NT/SE1
OF-110	Atlantic Ocean	SE1C1
OF-024	Atlantic Ocean	SE1C1
OF-23S	Atlantic Ocean	SE1C1
OF-23N	Atlantic Ocean	SE1C1
OF-050	Atlantic Ocean	SE1C1
OF-006	Atlantic Ocean	SE1C1
OF-005	Atlantic Ocean	FW2-NT/SE1
OF-004	Atlantic Ocean	FW2-NT/SE1
OF-003	Atlantic Ocean	FW2-NT/SE1
OF-111	Atlantic Ocean	SCC1

Local Outfall ID	Receiving Surface Water Body	Water Quality Classification
OF-112	Atlantic Ocean	SCC1
OF-068	Absecon Channel	FW2-NT/SE1
OF-069	Absecon Channel	FW2-NT/SE1
OF-070	Absecon Channel	FW2-NT/SE1
OF-060	Absecon Channel	FW2-NT/SE1
OF-049	Inside Thorofare	FW2-NT/SE1
OF-052	Inside Thorofare	FW2-NT/SE1
OF-054	Inside Thorofare	FW2-NT/SE1
OF-053	Inside Thorofare	FW2-NT/SE1
OF-056	Inside Thorofare	FW2-NT/SE1
OF-055	Inside Thorofare	FW2-NT/SE1
OF-057	Inside Thorofare	FW2-NT/SE1
OF-57A	Inside Thorofare	FW2-NT/SE1
OF-058	Inside Thorofare	FW2-NT/SE1
OF-048	Inside Thorofare	FW2-NT/SE1
OF-047	Inside Thorofare	SE1C1
OF-059	Inside Thorofare	SE1C1
OF-59A	Beach Thorofare	SE1C1
OF-007	Absecon Channel	FW2-NT/SE1
OF-073	Absecon Channel	FW2-NT/SE1
OF-022	Penrose Canal	FW2-NT/SE1
OF-021	Penrose Canal	FW2-NT/SE1
OF-010	Absecon Channel	FW2-NT/SE1
OF-008	Absecon Channel	FW2-NT/SE1
OF-60A	Absecon Channel	FW2-NT/SE1
OF-071	Absecon Channel	FW2-NT/SE1
OF-072	Absecon Channel	FW2-NT/SE1
OF-082	Absecon Channel	FW2-NT/SE1
OF-093	Absecon Channel	FW2-NT/SE1
OF-092	Absecon Channel	FW2-NT/SE1
OF-75A	Absecon Channel	FW2-NT/SE1
OF-75B	Absecon Channel	FW2-NT/SE1
OF-091	Absecon Channel	FW2-NT/SE1
OF-090	Absecon Channel	FW2-NT/SE1
OF-074	Absecon Channel	FW2-NT/SE1
OF-077	Venice Lagoon	FW2-NT/SE1
OF-108	Venice Lagoon	FW2-NT/SE1
OF-076	Beach Thorofare	SE1C1
OF-113	Venice Lagoon	FW2-NT/SE1
OF-016	Venice Lagoon	FW2-NT/SE1

Local Outfall ID	Receiving Surface Water Body	Water Quality Classification
OF-015	Venice Lagoon	FW2-NT/SE1
OF-017	Beach Thorofare	SE1C1
OF-078	Venice Lagoon	FW2-NT/SE1
OF-013	Venice Lagoon	FW2-NT/SE1
OF-018	Venice Lagoon	FW2-NT/SE1
OF-15A	Venice Lagoon	FW2-NT/SE1
OF-020	Penrose Canal	FW2-NT/SE1
OF-019	Penrose Canal	FW2-NT/SE1
OF-035	Inside Thorofare	FW2-NT/SE1
OF-034	Inside Thorofare	FW2-NT/SE1
OF-061	Beach Thorofare	SE1C1
OF-114	Beach Thorofare	SE1C1
OF-089	Beach Thorofare	SE1C1
OF-27B	Beach Thorofare	SE1C1
OF-27A	Beach Thorofare	SE1C1
OF-027	Inside Thorofare	FW2-NT/SE1
OF-030	Inside Thorofare	FW2-NT/SE1
OF-029	Inside Thorofare	FW2-NT/SE1
OF-028	Inside Thorofare	FW2-NT/SE1
OF-031	Inside Thorofare	FW2-NT/SE1
OF-31C	Inside Thorofare	FW2-NT/SE1
OF-31A	Inside Thorofare	FW2-NT/SE1
OF-31B	Inside Thorofare	FW2-NT/SE1
OF-097	Atlantic Ocean	FW2-NT/SE1
OF-115	Atlantic Ocean	FW2-NT/SE1
OF-116	Atlantic Ocean	FW2-NT/SE1
OF-117	Atlantic Ocean	FW2-NT/SE1
OF-118	Atlantic Ocean	FW2-NT/SE1
OF-119	Atlantic Ocean	FW2-NT/SE1
OF-120	Atlantic Ocean	FW2-NT/SE1
OF-121	Atlantic Ocean	FW2-NT/SE1
OF-122	Atlantic Ocean	FW2-NT/SE1
OF-123	Atlantic Ocean	FW2-NT/SE1
OF-124	Atlantic Ocean	FW2-NT/SE1
OF-125	Atlantic Ocean	FW2-NT/SE1
OF-126	Atlantic Ocean	FW2-NT/SE1
OF-127	Atlantic Ocean	FW2-NT/SE1
OF-128	Absecon Channel	FW2-NT/SE1

Legend

- Streams
- Waterbody (2020)
- Parcels
- Municipal Boundary
- Outfalls

General Notes and Data Sources:

This Geographic Information System (GIS) map is for demonstration purposes only; any use of this product without permission and/or approval shall be the sole responsibility of the user.

The various information shown on this map are derived, in part, from ground surveys, aerial imagery, and existing plans and documents, and are to be used for approximate location purposes only.

Additional GIS income data are 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 were obtained and provided by the various New Jersey departments at the time they were created. This secondary product has not been verified by digital data accuracy checks, and it may contain errors.

All positions are based on the following:
 - NAD 83 horizontal datum
 - North American Datum 1983
 - English units, US survey foot

The profile accuracy and precision of the Geographic Information Systems (GIS) data contained in this report have not been independently verified by a professional licensed land surveyor and shall not be used or intended to be used in matters requiring delineation and location of true ground horizontal position or vertical control.

OUTFALL LOCATIONS
 CITY OF ATLANTIC COUNTY
 ATLANTIC COUNTY NEW JERSEY
 DECEMBER 18, 2025 SCALE: 1" = 3500 FT

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Stormwater Interconnection(s)

The information utilized in this section was digitized from documents provided by the city and using the Municipal Stormwater Infrastructure data field collected by Remington & Vernick Engineers as part of the MS4 Infrastructure Mapping Project done in 2025. County stormwater infrastructure was provided by Atlantic County. This data was processed using ArcGIS Pro software. Water Quality Classification Data was gathered from the NJDEP Open Data Portal. The data was accessed in December 2025. The findings are summarized below in Table 3 and Figure 3.

Interconnections from the permittee's MS4 into another entity

There are 13 interconnections from the City of Atlantic City's MS4 infrastructure into other entities MS4 systems. These systems are owned and operated by Atlantic County and the State of New Jersey.

- Each of these interconnections are directed piped connection.

Interconnection(s) into the permittee's MS4 from another entity (for Tier A permittees only)

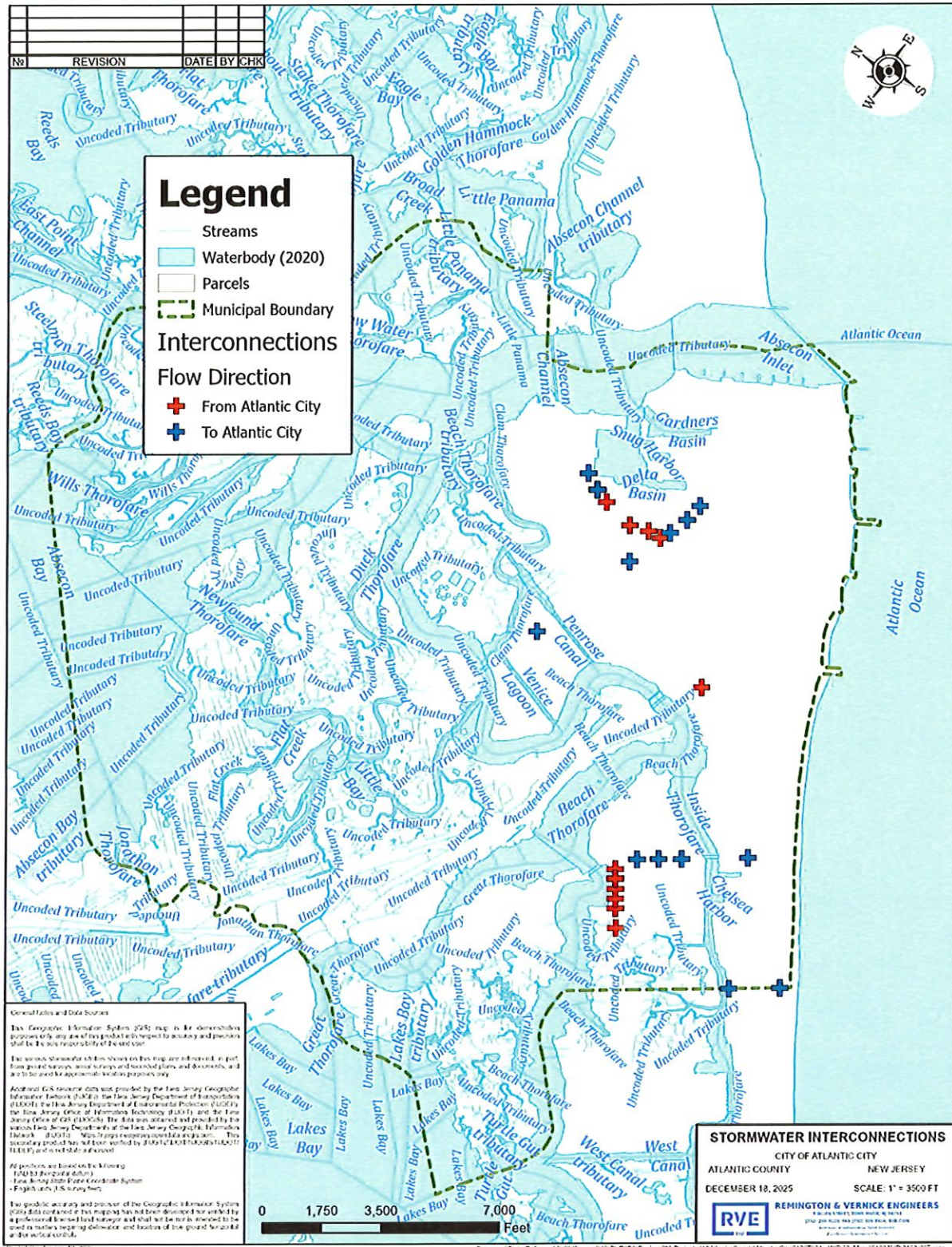
- There are 3 interconnections owned and operated by Atlantic County that convey stormwater flow to infrastructure owned and operated by Atlantic City.
- All interconnections are directed piped connection.
- There are 8 interconnections owned by State of New Jersey that convey stormwater flow to interconnections owned and operated by Atlantic City.
- There are 2 interconnections owned by Ventnor City that convey stormwater flow to interconnections owned and operated by Atlantic City.

Table 3: Stormwater Interconnections from and Into the City of Atlantic City

Local ID	Type	Upstream Entity	Downstream Entity
IC-01	Pipe	Ventnor City	Atlantic City
IC-02	Pipe	Ventnor City	Atlantic City
IC-03	Pipe	State	Atlantic City
IC-04	Pipe	State	Atlantic City
IC-05	Pipe	Atlantic City	State
IC-06	Pipe	State	Atlantic City
IC-07	Pipe	Atlantic City	State
IC-08	Pipe	Atlantic City	State
IC-09	Pipe	State	Atlantic City
IC-10	Pipe	State	Atlantic City
IC-11	Pipe	State	Atlantic City
IC-12	Pipe	State	Atlantic City
IC-13	Pipe	Atlantic City	Atlantic County
IC-14	Pipe	Atlantic City	Atlantic County
IC-15	Pipe	Atlantic City	Atlantic County

Local ID	Type	Upstream Entity	Downstream Entity
IC-16	Pipe	Atlantic City	Atlantic County
IC-17	Pipe	Atlantic City	Atlantic County
IC-18	Pipe	Atlantic City	Atlantic County
IC-19	Pipe	Atlantic City	Atlantic County
IC-20	Pipe	Atlantic County	Atlantic City
IC-21	Pipe	Atlantic City	Atlantic County
IC-22	Pipe	Atlantic County	Atlantic City
IC-23	Pipe	Atlantic County	Atlantic City
IC-24	Pipe	Atlantic City	State
IC-25	Pipe	State	Atlantic City
IC-26	Pipe	Atlantic City	State
IC-27	Pipe	State	Atlantic City

Figure 3: Interconnections into and from the Permittee's MS4



Drainage Area(s) for Stormwater Outfalls and Stormwater Interconnections

The information utilized in this section was digitized from documents provided by the City and using the Municipal Stormwater Infrastructure data field collected by Remington & Vernick Engineers as part of the MS4 Infrastructure Mapping Project done in 2025. County stormwater infrastructure was provided by Atlantic County. This data was processed using ArcGis Pro software. Water Quality Classification Data was gathered from the NJDEP Open Data Portal. The data was accessed in December 2025. The findings are summarized below in Table 4 and Figure 4 and Figure 5.

Storm Drain Inlets

- The City of Atlantic City owns and operates 2289 storm drain inlets and catch basins.

MS4 Outfall Drainage Areas

- Utilizing QGIS, SAGA, PCRaster, and GDAL, the DEM from the LiDAR flyover was clipped to the City's Boundary with a 500-foot buffer.
- The clipped DEM was pre-processed to make it hydraulically correct with a max fill depth of 1 foot.
- Flow directions were determined from the pre-processed DEM.
- Outfall drainage areas were determined by calculating and vectorizing the upslope areas of each outfalls' upstream stormwater network.

Drainage area of interconnection(s) from the permittee to another entity

- Utilizing QGIS, SAGA, PCRaster, and GDAL, the DEM from the LiDAR flyover was clipped to the City's Boundary with a 500-foot buffer.
- The clipped DEM was pre-processed to make it hydraulically correct with a max fill depth of 1 foot.
- Flow directions were determined from the pre-processed DEM.
- The interconnection pipe network was categorized by receiving interconnections
- The Interconnection drainage areas were determined by calculating and vectorizing the upslope areas of each interconnect's upstream stormwater network.

Figure 4: Outfall Drainage Area(s)

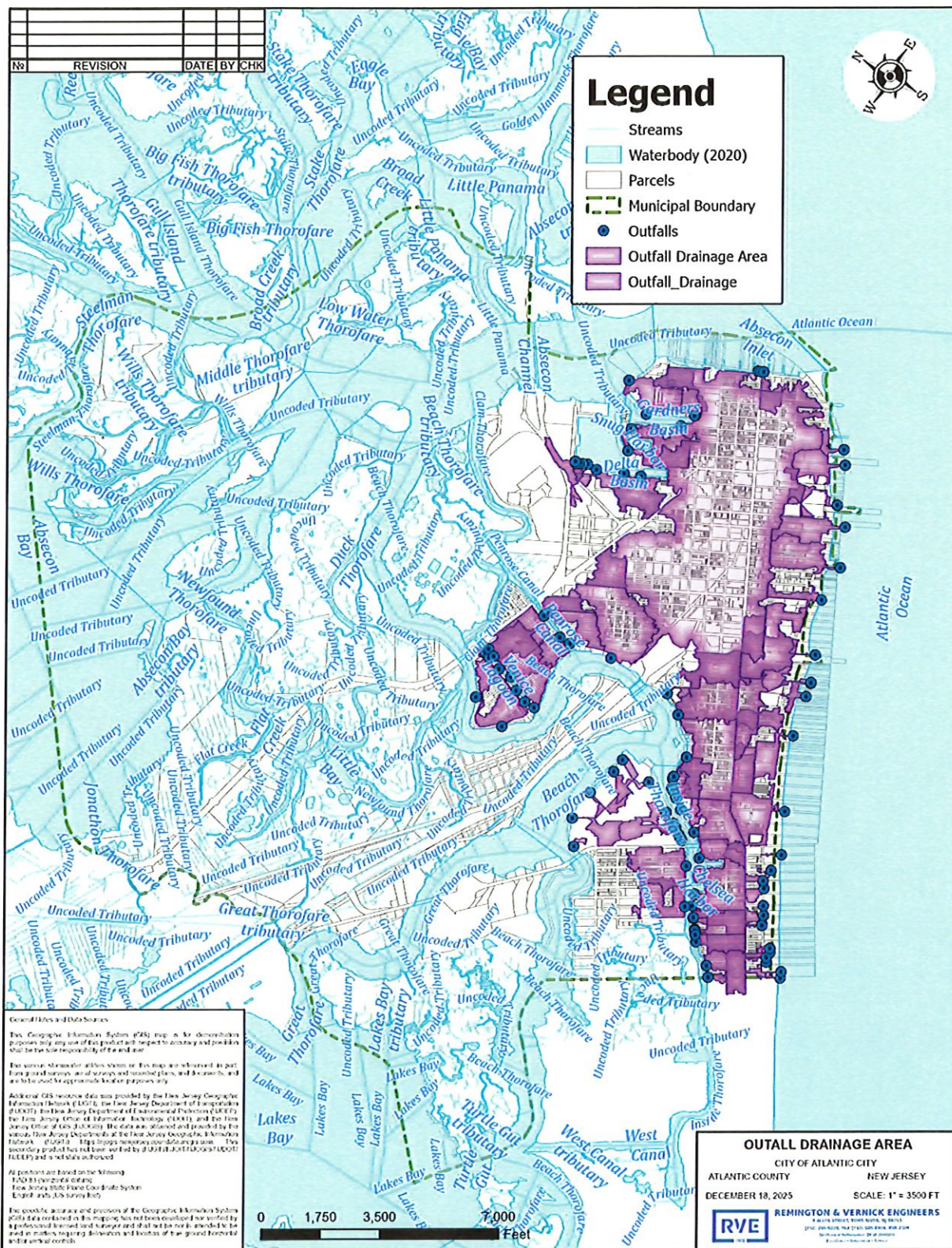


Figure 5: Interconnection Drainage Area(s)

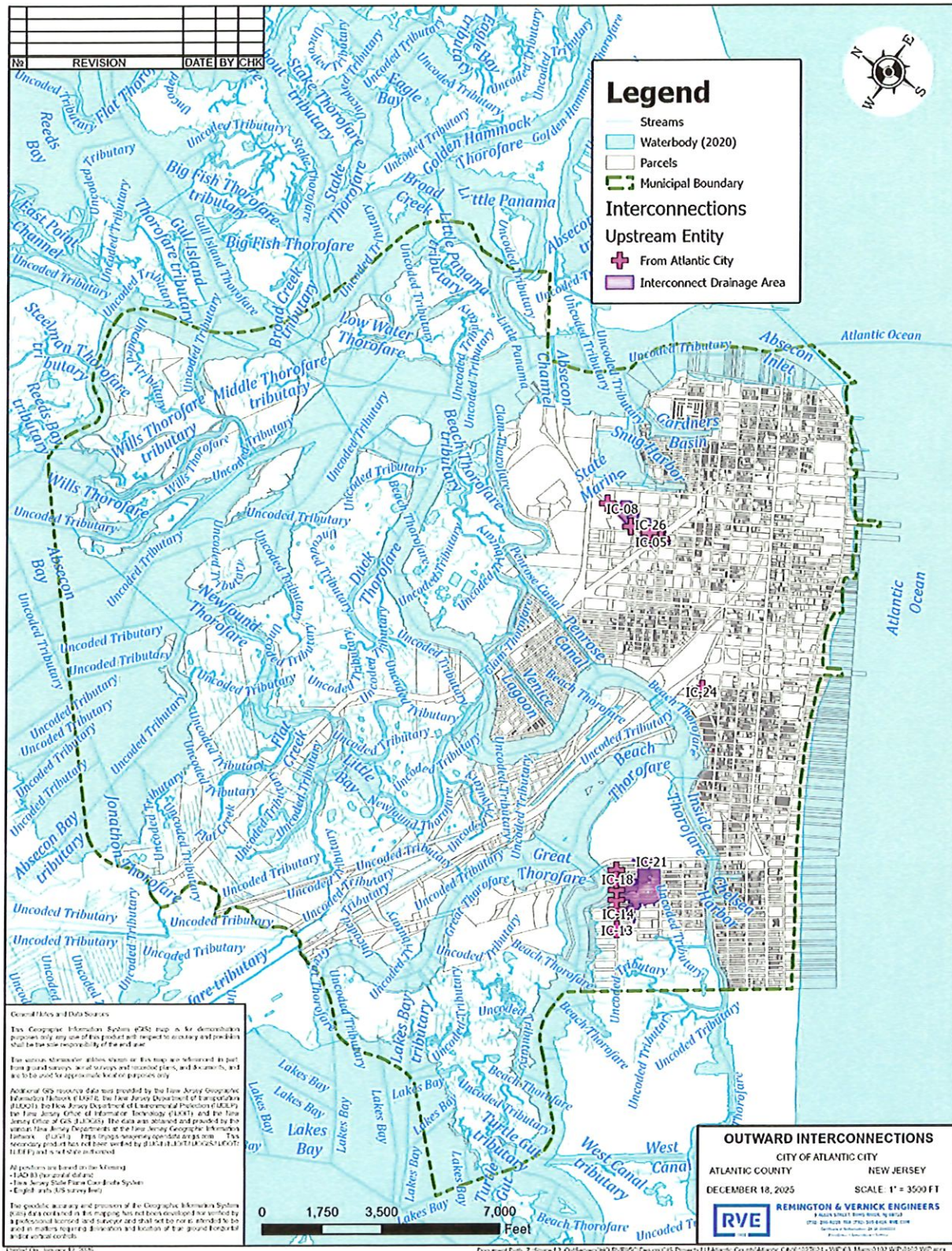


Table 4: Drainage Areas for Outfalls and Outward Interconnections

Drainage Area ID	Drainage Area (acres)	Outfall	Primary Contributing Drainage Area Type
OF-59A	92.92	MS4 Outfall OF-59A	Residential
OF-46A	18.67	MS4 Outfall OF-46A	Residential
OF-055	0.00	MS4 Outfall OF-055	Residential
OF-75A	1.05	MS4 Outfall OF-75A	Commercial
OF-23N	0.81	MS4 Outfall OF-23N	Commercial
OF-110	47.39	MS4 Outfall OF-110	Commercial
OF-074	10.45	MS4 Outfall OF-074	Commercial
OF-010	0.99	MS4 Outfall OF-010	Commercial
OF-60A	24.59	MS4 Outfall OF-60A	Residential
OF-020	15.20	MS4 Outfall OF-020	Residential
OF-112	4.06	MS4 Outfall OF-112	Commercial
OF-116	0.37	MS4 Outfall OF-116	Residential
OF-039	48.85	MS4 Outfall OF-039	Residential
OF-128	0.26	MS4 Outfall OF-128	Residential
OF-015	0.48	MS4 Outfall OF-015	Residential
OF-048	163.36	MS4 Outfall OF-048	Residential
OF-016	2.57	MS4 Outfall OF-016	Residential
OF-108	0.32	MS4 Outfall OF-108	Residential
OF-097	0.86	MS4 Outfall OF-097	Residential
OF-123	0.05	MS4 Outfall OF-123	Residential
OF-118	3.96	MS4 Outfall OF-118	Residential
OF-071	24.29	MS4 Outfall OF-071	Residential
OF-031	1.80	MS4 Outfall OF-031	Commercial
OF-119	0.74	MS4 Outfall OF-119	Residential
OF-091	0.03	MS4 Outfall OF-091	Commercial
OF-27B	5.54	MS4 Outfall OF-27B	Commercial
OF-053	0.00	MS4 Outfall OF-053	Park/Open Space
OF-093	1.91	MS4 Outfall OF-093	Commercial
OF-125	0.31	MS4 Outfall OF-125	Commercial
OF-028	4.81	MS4 Outfall OF-028	Commercial
OF-069	1.15	MS4 Outfall OF-069	Park/Open Space
OF-007	34.46	MS4 Outfall OF-007	Residential
OF-113	1.87	MS4 Outfall OF-113	Residential
OF-026	33.30	MS4 Outfall OF-026	Commercial
OF-111	20.61	MS4 Outfall OF-111	Commercial
OF-076	12.27	MS4 Outfall OF-076	Residential
OF-030	1.18	MS4 Outfall OF-030	Commercial
OF-122	3.35	MS4 Outfall OF-122	Residential

Drainage Area ID	Drainage Area (acres)	Outfall	Primary Contributing Drainage Area Type
OF-050	48.80	MS4 Outfall OF-050	Commercial
OF-089	5.19	MS4 Outfall OF-089	Commercial
OF-022	31.50	MS4 Outfall OF-022	Residential
OF-121	0.03	MS4 Outfall OF-121	Residential
OF-090	0.15	MS4 Outfall OF-090	Commercial
OF-31C	0.01	MS4 Outfall OF-31C	Commercial
OF-047	101.66	MS4 Outfall OF-047	Residential
OF-077	0.45	MS4 Outfall OF-077	Commercial
OF-054	18.19	MS4 Outfall OF-054	Residential
OF-070	10.54	MS4 Outfall OF-070	Commercial
OF-035	27.05	MS4 Outfall OF-035	Residential
OF-052	5.08	MS4 Outfall OF-052	Residential
OF-078	0.10	MS4 Outfall OF-078	Park/Open Space
OF-018	39.46	MS4 Outfall OF-018	Residential
OF-049	32.71	MS4 Outfall OF-049	Residential
OF-027	1.12	MS4 Outfall OF-027	Commercial
OF-39A	0.00	MS4 Outfall OF-39A	Residential
OF-120	0.88	MS4 Outfall OF-120	Residential
OF-013	21.64	MS4 Outfall OF-013	Residential
OF-072	0.19	MS4 Outfall OF-072	Residential
OF-019	11.37	MS4 Outfall OF-019	Residential
OF-008	28.29	MS4 Outfall OF-008	Residential
OF-15A	53.04	MS4 Outfall OF-15A	Residential
OF-046	23.53	MS4 Outfall OF-046	Residential
OF-034	37.16	MS4 Outfall OF-034	Residential
OF-021	13.05	MS4 Outfall OF-021	Residential
OF-114	12.46	MS4 Outfall OF-114	Commercial
OF-073	0.60	MS4 Outfall OF-073	Residential
OF-23S	0.99	MS4 Outfall OF-23S	Commercial
OF-092	0.02	MS4 Outfall OF-092	Commercial
OF-006	70.91	MS4 Outfall OF-006	Commercial
OF-126	3.79	MS4 Outfall OF-126	Residential
OF-003	7.49	MS4 Outfall OF-003	Commercial
OF-068	0.17	MS4 Outfall OF-068	Park/Open Space
OF-124	0.93	MS4 Outfall OF-124	Commercial
OF-115	2.05	MS4 Outfall OF-115	Residential
OF-005	31.60	MS4 Outfall OF-005	Commercial
OF-060	770.65	MS4 Outfall OF-060	Residential
OF-029	13.03	MS4 Outfall OF-029	Commercial
OF-024	5.14	MS4 Outfall OF-024	Commercial

Drainage Area ID	Drainage Area (acres)	Outfall	Primary Contributing Drainage Area Type
OF-27A	2.75	MS4 Outfall OF-27A	Commercial
OF-082	9.22	MS4 Outfall OF-082	Residential
OF-127	1.83	MS4 Outfall OF-127	Residential
OF-004	24.58	MS4 Outfall OF-004	Commercial
OF-75B	1.99	MS4 Outfall OF-75B	Commercial
OF-117	0.64	MS4 Outfall OF-117	Residential
OF-017	20.59	MS4 Outfall OF-017	Residential
OF-061	1.04	MS4 Outfall OF-061	Commercial
OF-041	17.23	MS4 Outfall OF-041	Residential
OF-41A	1.11	MS4 Outfall OF-41A	Residential
OF-038	17.64	MS4 Outfall OF-038	Commercial
OF-040	0.56	MS4 Outfall OF-040	Residential
OF-043	31.45	MS4 Outfall OF-043	Residential
OF-45A	15.13	MS4 Outfall OF-45A	Residential
OF-57A	3.06	MS4 Outfall OF-57A	Residential
OF-044	0.01	MS4 Outfall OF-044	Residential
OF-042	0.00	MS4 Outfall OF-042	Residential
OF-43A	0.47	MS4 Outfall OF-43A	Residential
OF-057	0.00	MS4 Outfall OF-057	Residential
OF-058	0.26	MS4 Outfall OF-058	Residential

TMDLs and Water Quality Impairments

In accordance with Section 305(b) and 303(d) of the Federal Clean Water Act, the State of New Jersey is required to assess the overall water quality of the State's waters and identify those waterbodies with a water quality impairment for which Total Maximum Daily Loads (TMDL) may be necessary. NJDEP fulfills its assessment obligation under the Clean Water Act through the Integrated Water Quality Monitoring and Assessment Report (Integrated Report), which includes the Integrated List of Waterbodies, issued biennially. The Integrated Report can be found at:

<https://dep.nj.gov/wms/bears/integrated-wq-assessment-report-2022>

The New Jersey Integrated Water Quality Assessment Report (Integrated Report) is a compilation of information about the quality of New Jersey's surface waters. The New Jersey Department of Environmental Protection (DEP) prepares the Integrated Report as a biennial assessment of statewide water quality that identifies and prioritizes waters for protection, restoration, and additional monitoring or research. The Integrated Report thus serves as an effective tool for enhancing, maintaining, and restoring water quality in all surface waters of the State to support their use for aquatic life, recreation, water supply, fish consumption, and shellfish harvest for consumption.

Under this obligation, NJDEP has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. The AMNET Program is a sampling program that supports the water quality inventory report and list of impaired waters. The AMNET site is found at:

<https://www.nj.gov/dep/wms/bfbm/amnet.html>

There are over 760 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrate by the NJDEP on a five-year cycle. Streams are classified as nonimpaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. Based on the Integrated Report, the Department identifies waterbodies for which a Total Maximum Daily Load (TMDL) may be necessary.

A Total Maximum Daily Load (TMDL) is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMPs.

Total Maximum Daily Load (TMDL) Information

Municipality and County

Atlantic City

Atlantic County

Applicable Stream TMDL(s)

None

Applicable Lake TMDL(s)

None

Applicable Shellfish TMDL(s)

- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Absecon Bay-A, Absecon Bay-C : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Absecon Bay-B : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Absecon Bay-C : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Lakes Bay-A, Lakes Bay-B : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Lakes Bay-B : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Lakes Bay-B, Lakes Bay-C : [View the TMDL Document](#)
- Six Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 15
Total coliform - 2006 : Reeds Bay-D : [View the TMDL Document](#)

Pathogens (Enterococcus, E. Coli, Fecal Coliform, Total Coliform)

Pathogens, including enterococcus, E. Coli, fecal coliform, and total coliform, enter the receiving waters when stormwater comes into contact with sources of these pathogens, such as pet waste, animal waste from geese and other wildlife, some farming activities, illicit discharges, failing sewage conveyance systems and septic systems, combined sewage overflows, and sanitary sewer overflows (SSOs). While sewage treatment plants contribute a steady input of treated sewage to their receiving waters, stormwater runoff is the primary contributor to pathogen loads in surface waters of the state (*Pollutants of Concern document*).

When receiving surface waters include shellfish harvesting as a designated use, pathogens also pose additional concerns. Proximity to potential sources such as marinas, development served by septic systems and concentrated stormwater outfall locations warrant precautionary closures of shellfish waters on a seasonal or full-time basis. The National Shellfish Sanitation Program has established criteria for pathogens that are used to determine support of the shell-fishing use (*Pollutants of Concern document*).

Dissolved Oxygen

Dissolved oxygen (DO) refers to the concentration of oxygen gas incorporated into the water. Low levels of oxygen (hypoxia) or no oxygen levels (anoxia) can occur when excess organic materials are decomposed by microorganisms. During this decomposition process, the DO in the water is consumed. As DO levels drop, some sensitive animals may move away, decline in health, or even die. Due to this, DO is considered an important measure of water quality as it is a direct indicator of a water body's ability to support aquatic life. While each organism has its own DO tolerance range, generally, DO levels below 3 mg/L are of concern and waters with levels below 1 mg/L are considered hypoxic and usually cannot support life.

Atlantic City's water supply comes from the Doughty Pond Reservoir, Kuehnle Pond Reservoir, and wells tapping into the Kirkwood-Cohansey aquifer system. The Atlantic County Utilities Authority (ACUA) also has surface water reservoirs if needed.

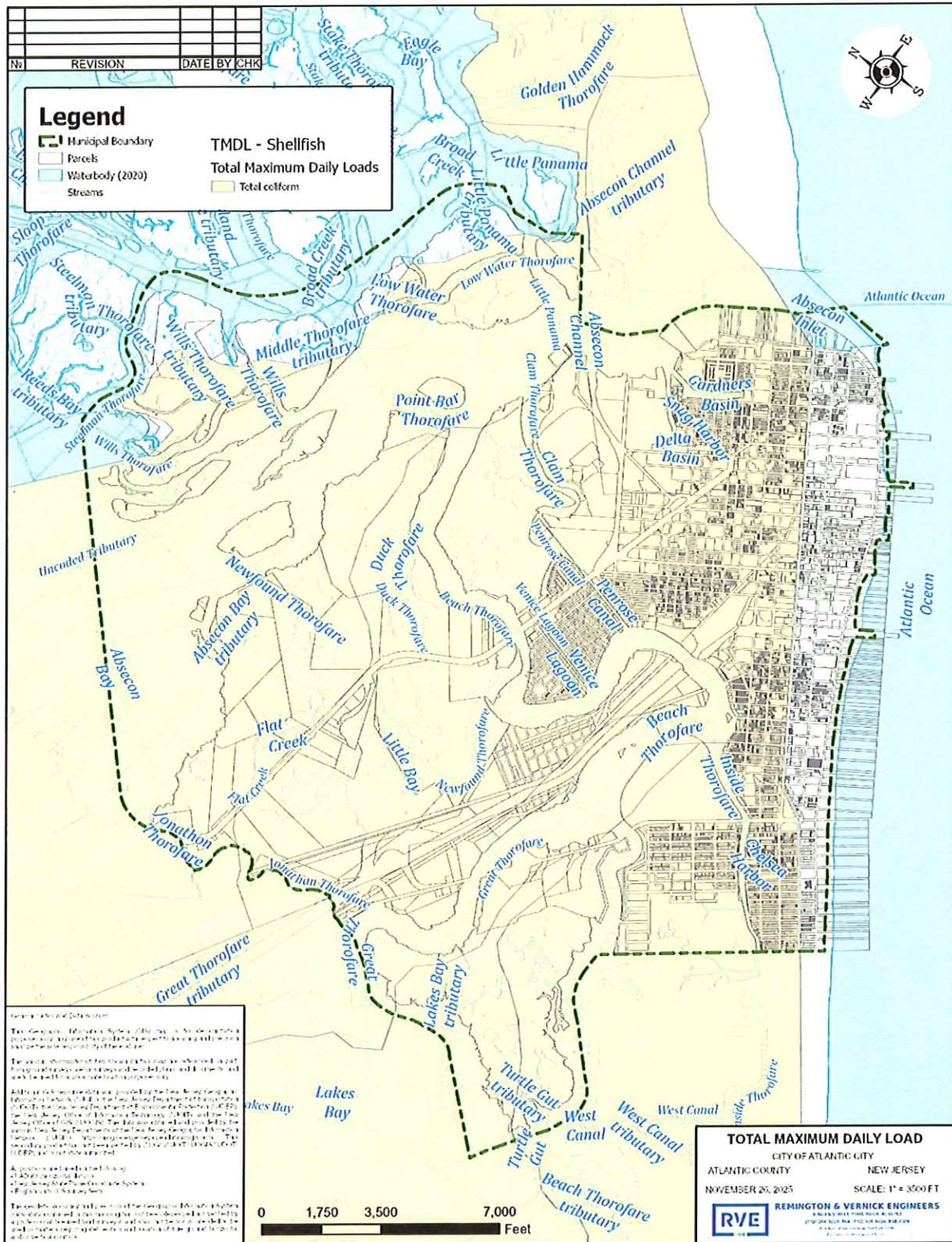
The NJDEP's Bureau of Environmental Analysis, Restoration and Standards has an interactive Geographic Information System (GIS) mapping tool, NJ-GeoWeb, that allows users to view and analyze various environmental data, including water quality. You can view water quality data for specific monitoring stations within the state's watersheds.

- **NJ-GeoWeb:** dep.nj.gov/wms/bears/water-quality-assessment/gis-and-resources/
- **NJDEP Open Data:** gisdata-njdep.opendata.arcgis.com/

Table 5: TMDLs and Impairments for Sub watersheds within or bordering the City of Atlantic City

HUC14	Sub watershed Name	TMDL	Impairments
2040302010010	Reeds Bay / Absecon Bay & tribs	<u>Shellfish</u>	Dissolved Oxygen
		Total Coliform	
2040302920010	Atlantic Coast (Absecon Inl to Ventnor)		Dissolved Oxygen
2040302060040	GEH Bay/Lakes Bay/Skull Bay/Peck Bay	<u>Shellfish</u>	Turbidity
		Total Coliform	

Figure 6: TMDLs by Parameter for Atlantic City



Overburdened Communities (*for Tier A permittees only*)

Atlantic City is listed as an overburdened community in Atlantic County, New Jersey, according to a map from the New Jersey Department of Environmental Protection. Overburdened communities are defined by specific criteria related to low-income households, minority populations, or limited English proficiency. The state's Environmental Justice Law requires the NJDEP to evaluate the impact of certain facilities on these communities.

Impervious Area

Information regarding impervious cover was gathered using NJ-WET and NJDEP Open Data. The impervious areas within the city are shown in Figure 7.

Impervious cover can have considerable impacts on ecosystem and stream health. Due to an increase in stormwater runoff caused by impervious cover, the potential for pollutants to be carried to streams, rivers, bays and the ocean increases, which in turn can impact stream quality. Additionally, stormwater runoff discharging into streams increases the volume of water traveling within those streams. Increases in stream volume can lead to changes in stream conditions as it reaches equilibrium, such as increases in erosion, sediment load, and other stream attributes.

Using Scheuler's Model of Impervious Cover (Schueler, 2009), which predicts stream quality based on the corresponding impervious cover in the corresponding watershed, the following conclusions can be drawn about the streams in the HUC14 sub watersheds of Atlantic City:

GEH Bay/Lakes Bay/Skull Bay/Peck Bay is considered a sensitive stream quality watershed, having less than 10% impervious cover.

Reeds Bay / Absecon Bay & tribs is an impacted stream quality watershed, having more than 10% impervious cover.

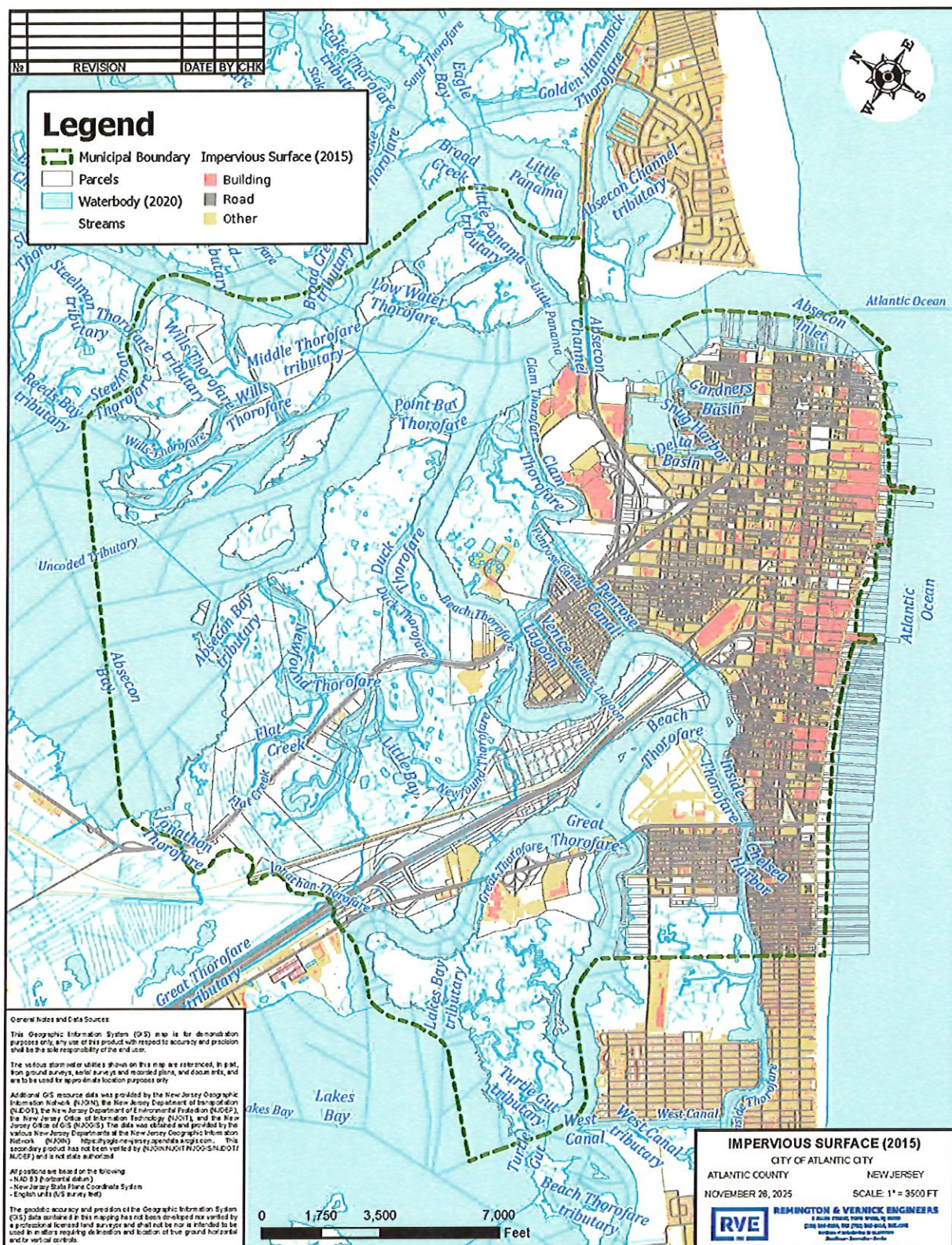
Atlantic Coast (Absecon Inl to Ventnor) is a non-supporting stream quality watershed, having more than 25% impervious cover.

All of these sub watersheds have TMDL's for shellfish impaired waters. These TMDL's can be addressed by filtering or treating stormwater runoff before it enters waterways within Atlantic City.

Table 6: Impervious Coverage by HUC14 Sub watersheds within Atlantic City

HUC14	Sub watershed Name	HUC14 Acres	Impervious Cover Type	Impervious Acres	HUC14 % Impervious
02040302010010	Reeds Bay / Absecon Bay & tribs	8499.40	Overall	1697.70	19.97%
			Building	412.01	4.85%
			Other	741.11	8.72%
			Road	544.58	6.41%
02040302060040	GEH Bay/Lakes Bay/Skull Bay/Peck Bay	927.28	Overall	28.46	3.07%
			Building	3.98	0.43%
			Other	10.08	1.09%
			Road	14.40	1.55%
02040302920010	Atlantic Coast (Absecon Inl to Ventnor)	752.55	Overall	514.93	68.43%
			Building	213.25	28.34%
			Other	193.89	25.76%
			Road	107.80	14.32%

Figure 7: Impervious Area within the City of Atlantic City



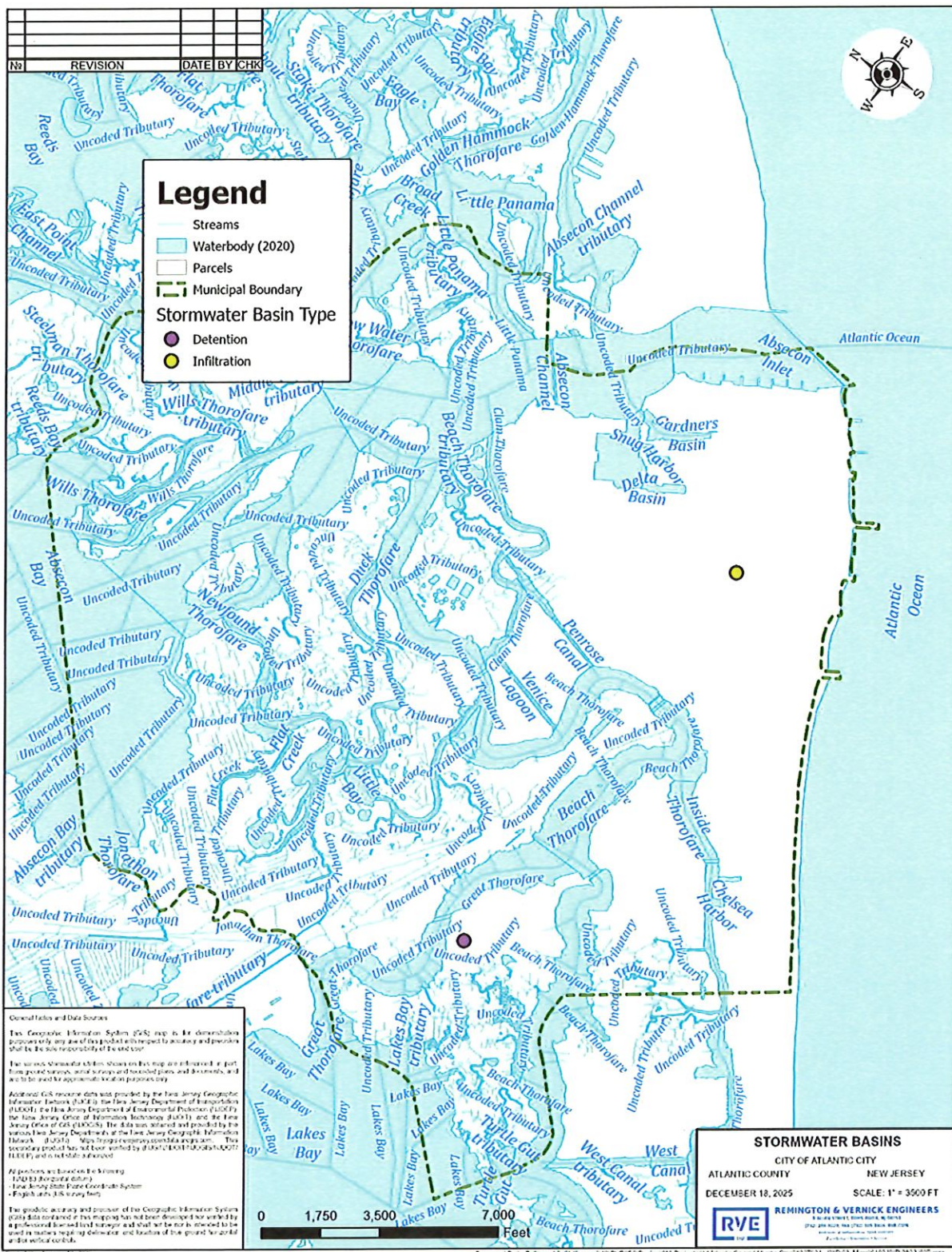
Non-Municipally Owned or Operated Stormwater Facilities *(for Tier A permittees only)*

There are 4 stormwater facilities within the City of Atlantic City that are not municipally owned. Their locations are shown in Figure 8 below as well as summarized in Table 7.

Table 7: Non-municipally Owned/Operated Stormwater Infrastructure in the City of Atlantic City

Basin ID	Project Name	HUC14	Project Block	Project Lot	Basin Type Name
108141	Atlantic City High School	2040302010010	200	31.01,52.03,56	Detention
113152	Atlantic City High School	2040302010010	200	31.01,52.03,56	Detention
114785	Head Start Operations Center Off Site Parking	2040302010010	320 & 321	many	Infiltration
114788	Head Start Operations Center Off Site Parking	2040302010010	320 & 321	many	Infiltration

Figure 8: Non-municipally Owned/Operated Stormwater Infrastructure in the City of Atlantic City



Conclusion

This Watershed Inventory Report, Phase 1 of the Watershed Improvement Plan, identifies stormwater infrastructure, as required in the MS4 permits. It also summarizes water quality data, including stream classifications, TMDLs, and water quality impairments. The data that accompanies this inventory report has been compiled as an electronic map and submitted to the NJDEP through NJDEP Online via Document Submittal Service. The information from this inventory report will be used to make informed decisions during the creation of the Watershed Assessment Report, Phase 2 of the Watershed Improvement Plan. The work done in Phase 2 will identify areas of potential concern and where potential water quality improvement projects may be implemented to address any water quality and quantity issues identified in this inventory report.

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