

RAFT

Watershed Assessment Report

Phase 2 of the Watershed Improvement Plan

STOCKTON UNIVERSITY
ATLANTIC COUNTY



Date Approved: _____

Permit Number: NJG _____

Stormwater Program Coordinator: Amber Berry

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Acronyms & Definitions

1. Acronyms

- i. "BMP" – Best Management Practice
- ii. "CFU" – Colony-Forming Unit
- iii. "EJMAP" – Environmental Justice Mapping, Assessment and Protection
- iv. "EPA" – Environmental Protection Agency
- v. "FEMA" – Federal Emergency Management Agency
- vi. "GHCND" – Global Historical Climatology Network Daily
- vii. "GIS" – Geographic Information System
- viii. "HUC 14" – Hydrologic Unit Code 14
- ix. "MS4" – Municipal Separate Storm Sewer
- x. "MTD" – Manufactured Treatment Device
- xi. "NLCD" – National Land Cover Database
- xii. "NJ-WET" – New Jersey Watershed Evaluation Tool
- xiii. "NJDEP" – New Jersey Department of Environmental Protection
- xiv. "NJPDES" – New Jersey Pollutant Discharge Elimination System
- xv. "NOAA" – National Oceanic and Atmospheric Administration
- xvi. "NRCS" – Natural Resource Conservation Service
- xvii. "NWIS" – National Water Information System
- xviii. "TMDL" – Total Maximum Daily Load
- xix. "UNT" – Untitled
- xx. "USGS" – United States Geological Survey
- xxi. "WIP" – Watershed Improvement Plan

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 subwatershed, 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.
- ix. N.J.A.C. 7:8.
- x. "Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

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- xi. “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 wasteload 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.
 - xii. “Waters of the State” means the ocean 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.).

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Acknowledgements

Stockton University's Watershed Inventory Report has been prepared by AKRF. The University used no external funding sources to develop this report.

Executive Summary

This Watershed Assessment Report defines Stockton University's proposed strategy to address water quality and quantity issues within the Morses Mill Stream HUC14 subwatershed (02040301200100). As a Public Complex permittee, Stockton's key objectives are to improve water quality by reducing pollutants, mitigate localized flooding, and enhance ecosystem health across its campus. The major findings of the Watershed Assessment Report reveal that the subwatershed has a total coliform TMDL requiring a 58% annual pollutant reduction (removing 1.5 quadrillion units out of the University's estimated 2.6 quadrillion CFU annual load) alongside a pH impairment affecting aquatic life. Localized drainage issues have also been identified which are known to cause flooding during significant rain events.

To address these challenges, Stockton proposes nine potential improvement projects, phased over four years. Phase 1 prioritizes low-cost, high-impact public education and source control: installing strategic pet waste stations to prevent fecal coliform from entering the subwatershed; a littering communication plan to mitigate pH impacts; a wildlife feeding campaign that may prevent fecal coliform from entering the watershed by discouraging geese and other wildlife from remaining on campus; and a fats, oils, and grease campaign to prevent sewer blockages and overflows. Phase 2 implements maintenance-based projects, including removal of goose feces from the athletic fields to reduce fecal coliform loading and strategic additional street sweeping. Finally, Phase 3 initiates professional planning, including development of a water quality design framework for future Best Management Practice (BMP) development, a localized flooding analysis and strategic plan to identify priorities for addressing flooding, and a Lake Fred riparian buffer analysis to identify improvements to the physical barriers against geese and pollutant runoff.

Public involvement has guided this assessment through a staff focus group, two public sessions, and a 60-day public comment and revision period. The entire program, costing an estimated \$65,090, will be funded incrementally through Stockton's Facilities & Operations Annual Budget. Implementing these recommendations is expected to yield benefits that include pathogen reduction, restored pH levels, flood mitigation, enhanced campus aesthetics, and improved recreational safety. Immediate next steps after the approval of the Watershed Assessment Report include the drafting and approval of Watershed Improvement Plan, allocation of the Year 1 budget for approved projects, and continuing the maintenance of Stockton's 22 existing BMPs.

General Permittee Information

Permittee Location

Stockton University is located at 101 Vera King Farris Drive, Galloway Township, Atlantic County, New Jersey and falls within the Morses Mill Stream HUC14 subwatershed (02040301200100). The permittee is a Public Complex and has a history of satisfying MS4 permit requirements.

Overview of Watershed Inventory Findings (Phase 1)

Subwatersheds

Stockton University falls within one HUC14 subwatershed, Morses Mill Stream (02040301200100). Bordering subwatersheds include Clarks Mill Stream (02040301200090), Nacote Creek (below/incl Mill Pond) (020403012001200), Mattix Run (Nacote Creek) (02040301200110), Absecon Creek NB (0204302020010), and Babcock Creek (GEHR) (02040302050020).

Impairments and TMDLs

The impairment and TMDL parameters for the subwatershed within or bordering Stockton University are listed below in Table 1:

Table 1: TMDL and impairment for Stockton University subwatershed

HUC 14	Subwatershed	TMDL(s)	Impairment(s)
02040301200100	Morses Mill Stream	Five Total Maximum Daily Loads for Total Coliform to Address Shellfish Impaired Waters in Watershed Management Area 14 Atlantic Coastal Water Region	pH, Aquatic Life

Flooding

Stockton University is not located within a mapped FEMA flood zone. The closest 100-year flood zone is located to the southwest for the Lower Branch of the Absecon Creek, as shown in Figure 1.

There are reports of localized flooding on campus at the parking lot and loading area in the West Quad, located at the intersection of Lakeside Lane and Louisville Avenue behind the Stockton Performing Arts Center. Lot 7 drains to several inlets and trench drains that connect to a subsurface detention system; however, this underground system is closed, lacks a positive outlet, and consists of 48-inch pipes with minimal slope. As a result, water frequently ponds at the low point of Lot 7 near the loading area. To address this issue, a retrofit was previously installed that included three trench drains designed to convey stormwater westward into the adjacent wooded area and into a surface infiltration basin. This basin now appears to be clogged, with standing water observed during site visits. During significant rain events, the loading docks for the Performing Arts Center are known to flood and must be pumped out.

Overburdened Communities

Stockton University falls within a designated Overburdened Community (44.3% Minority and 83.3% Low Income) according to EJMAP, which was accessed on July 16, 2026.

Impervious Coverage

The University contains 4,951,658 square feet (113.7 acres) of impervious area, approximately 7.25% of landcover within the campus boundary, as shown in Figure 2.

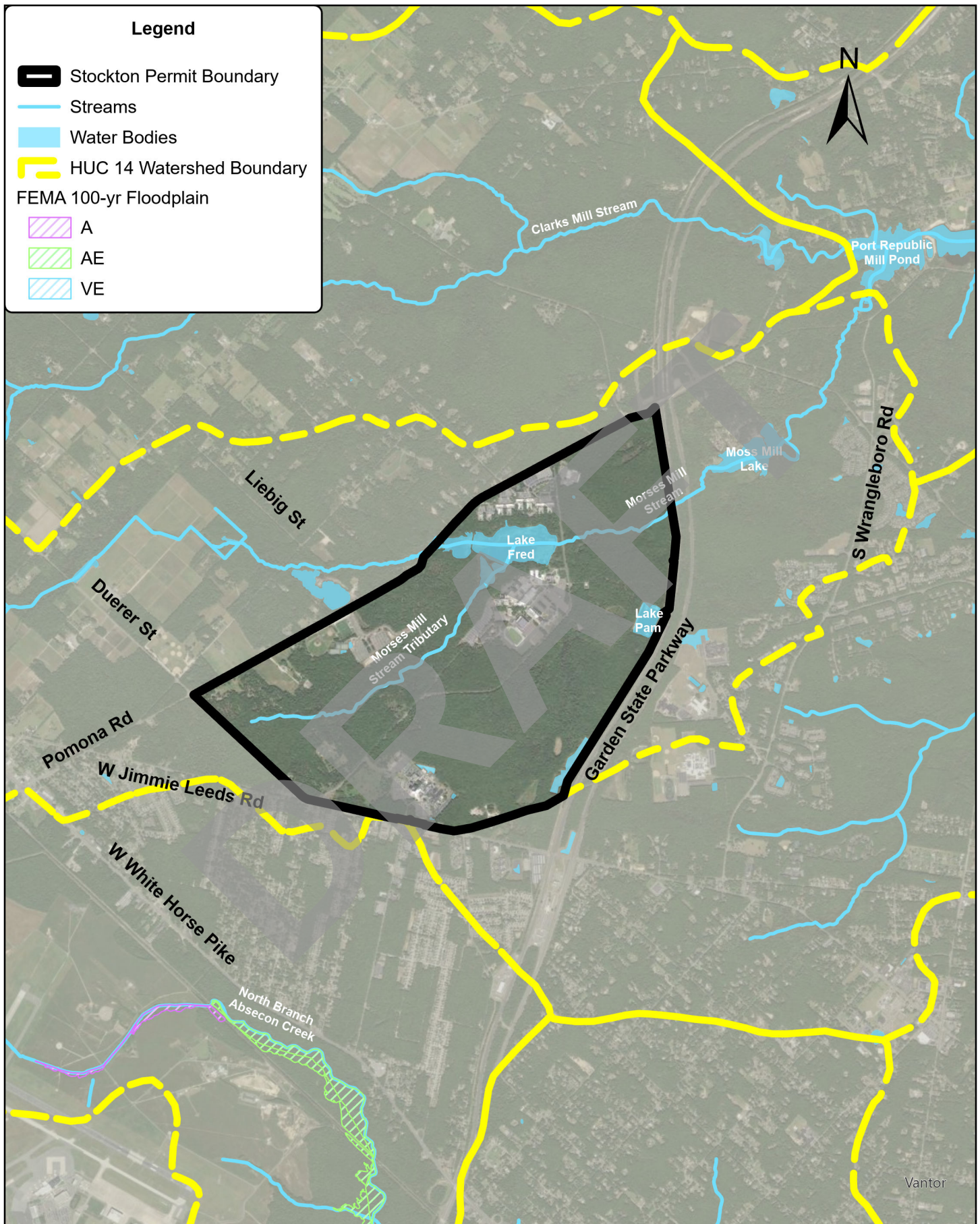


FIGURE 1: ADJACENT 100-YEAR FEMA FLOODPLAIN MAP
STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN

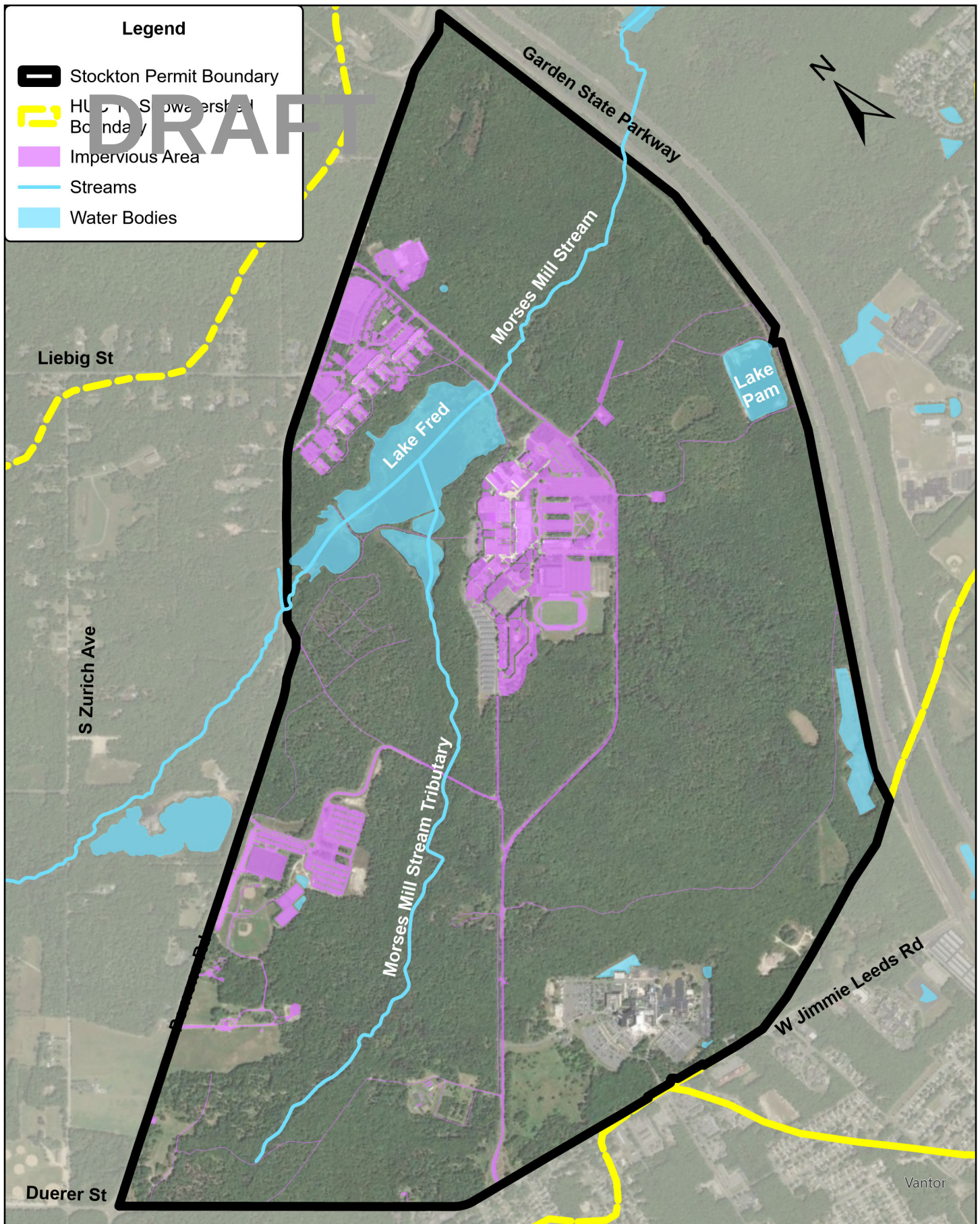
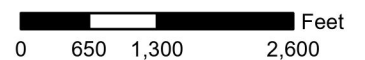


FIGURE 2: IMPERVIOUS COVERAGE MAP

STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN



Community Engagement

Stakeholders within Stockton University's jurisdiction include University faculty, staff, and students as well as Galloway Township representatives. During Phase 1 of the Watershed Improvement Plan, stakeholders including staff representatives (from the Office of Facilities Management Plant Operations, Environmental Health and Safety Specialists, and the office of Facilities Planning and Construction), students, and Galloway Township representatives were engaged through a combination of a focus group and public information sessions. Input from these stakeholders included:

- Detailed information related to de-icing, organic waste, erosion, and flooding as they related to identified impairments and TMDLs
- Current campus maintenance, pollution prevention measures, and stormwater management
- Current challenges related to water quality and flooding, including the observed failure of a perforated piping system and connected infiltration sand pit during high intensity rain events
- Wildlife as the likely primary source of fecal coliform

Moving forward through the remainder of the Watershed Improvement Plan planning process, the University will continue to engage stakeholders through strategic focus groups, public information sessions, and opportunities for public review and feedback on strategies and report drafts.

General Assessment of Subwatersheds within the Permittee's Jurisdiction

Geology and Geomorphology

Stockton University's campus is 1,526.0 acres, with an average elevation of 43.6 ft and an average relatively flat slope of 0.7%, though some undeveloped regions of the campus are as steep as 7.0%. Figure 3 provides a drainage area map of Stockton University.

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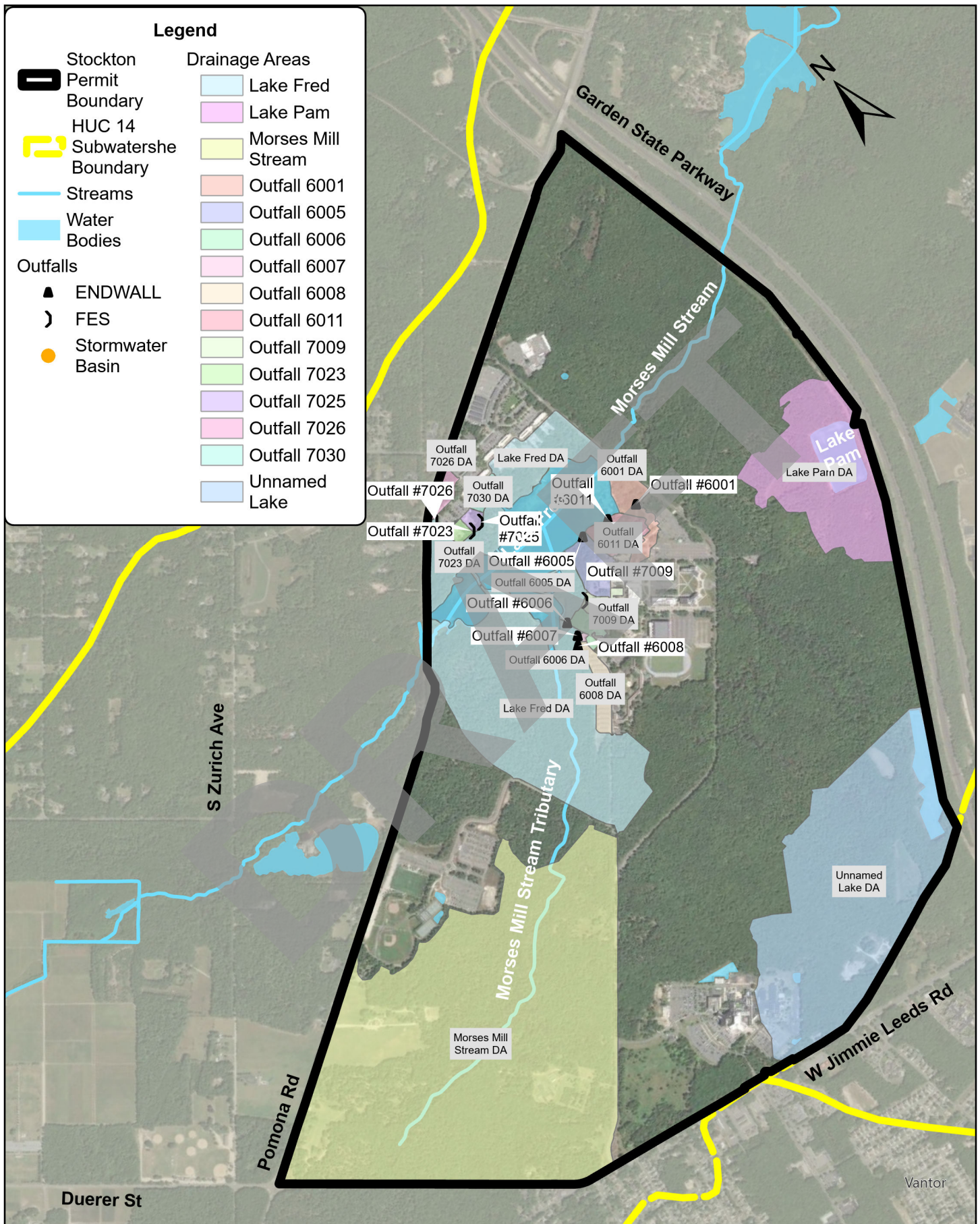


FIGURE 3: DRAINAGE AREA MAP

STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN

0 750 1,500 3,000 Feet

Climate

The average monthly precipitation that Galloway Township has experienced over the past 5 years, according to data from NOAA's Climate Data Online, is graphed below in Figure 4.

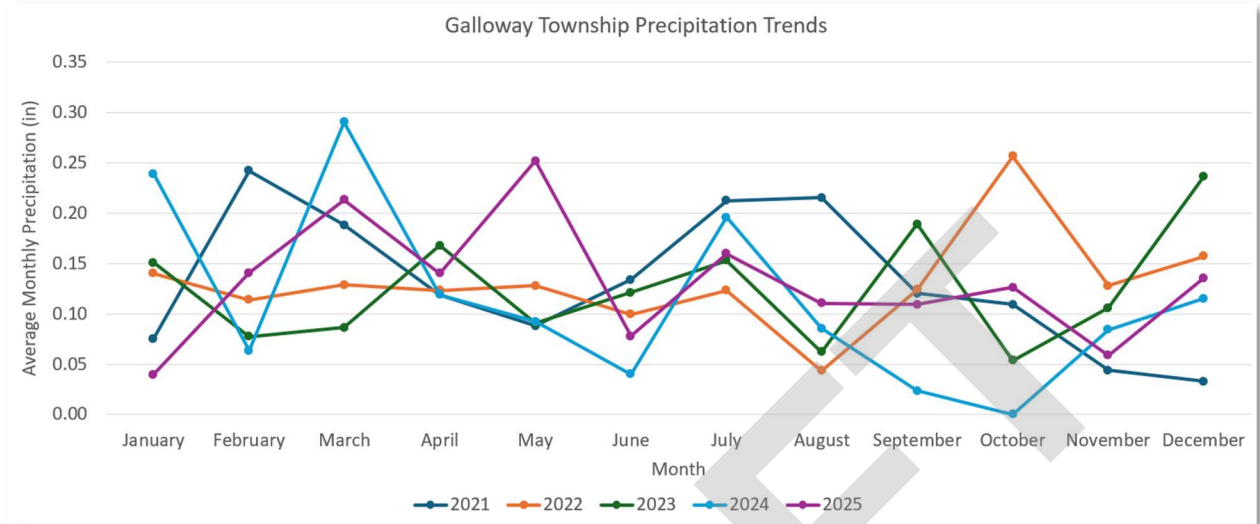


Figure 4: 5 years of average monthly precipitation data for Galloway Township

The average and maximum monthly temperatures that Galloway Township has experienced over the past 5 years, according to data from NOAA's Climate Data Online, are graphed below in Figure 5 and Figure 6, respectively.

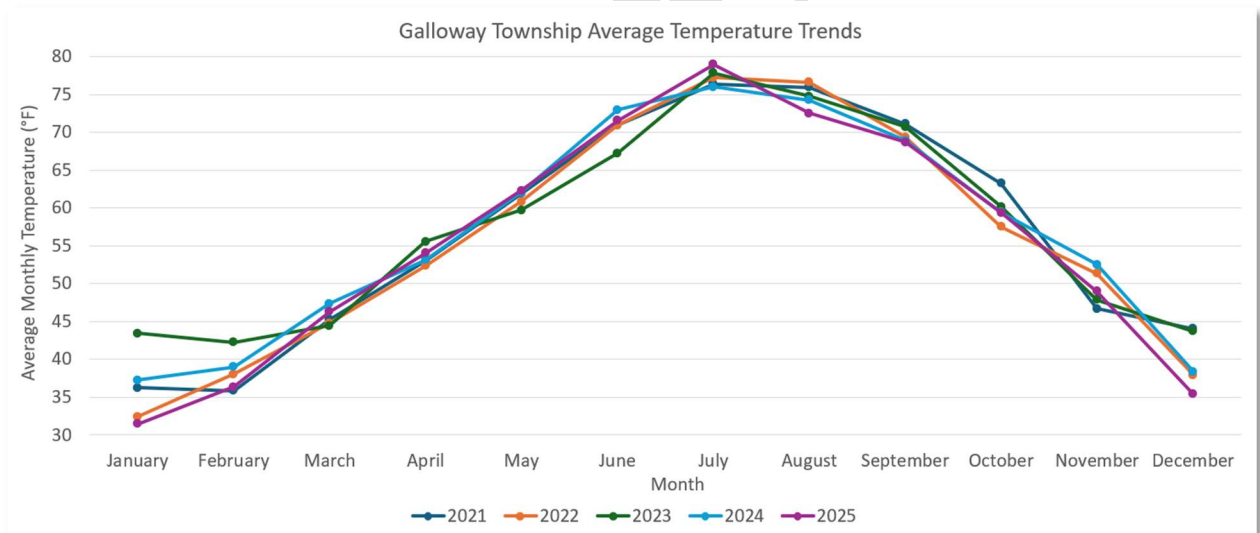


Figure 5: 5 years of average monthly temperature data for Galloway Township

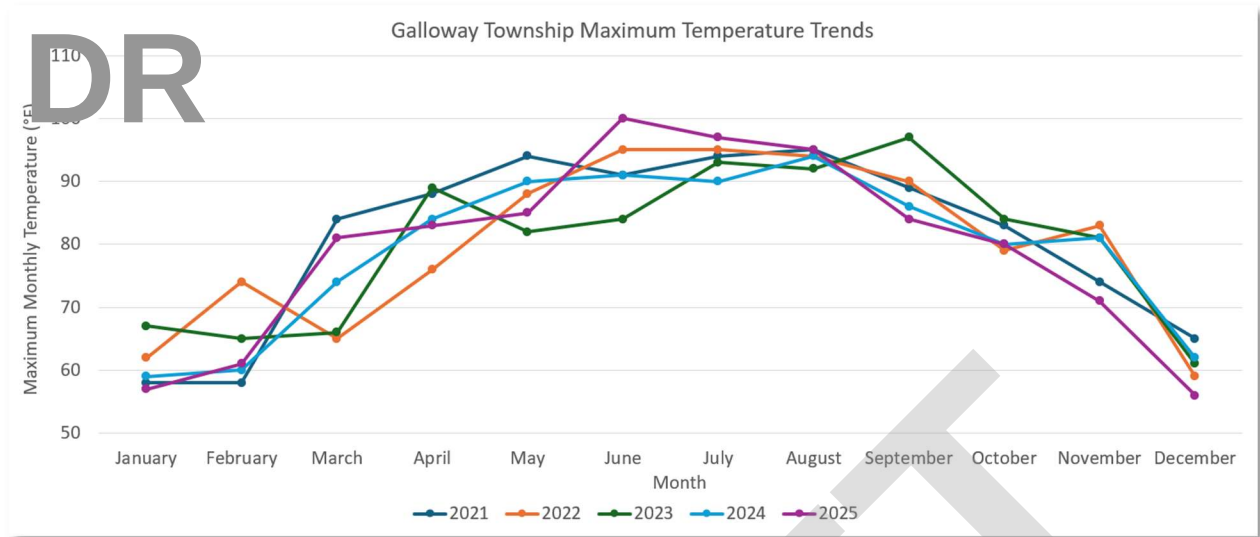


Figure 6: 5 years of maximum monthly temperature data for Galloway Township

These temperature and precipitation patterns do not reveal any significant trends regarding rainfall or temperature at Stockton University that would directly impact the findings of this report. However, it can be expected that general long-term climate projections for the region will apply, including more frequent and intense storm events in the coming years and increased temperatures.

Hydrologic Conditions

The large percentage of undeveloped forest on the property results in a significant amount of the precipitation that falls onto Stockton University's campus being infiltrated into groundwater. Other precipitation travels as surface runoff and drains to the 11 outfalls owned and operated by the University. These outfalls flow into the Morses Mill Stream subwatershed via overland flow or the storm sewer system. Outfalls owned by Stockton University discharge to five surface water bodies: Morses Mill Stream, Morses Mill Stream UNT, Lake Fred, Lake Pam, Lake Naomi, and an unnamed lake by the intersection of W Jimmie Leeds Rd and the Garden State Parkway. Four of the six receiving water bodies are artificial lakes and two are creeks that are both classified as Pinelands Waters (PL). Lake Naomi and Lake Fred are both inline along Morses Mill Stream. Lake Pam and the unnamed lake are disconnected from Morses Mill Stream and both are localized low points with no apparent discharge points.

As described in the previous section above, there have been reports of localized flooding on campus at the parking lot and loading area in the West Quad, located at the intersection of Lakeside Lane and Louisville Avenue behind the Stockton Performing Arts Center, during significant rain events. Additionally, water is frequently observed to pond at the low point of Lot 7 near the loading area. During significant rain events, the loading docks for the Performing Arts Center are also known to flood and must be pumped out.

The closest gauging station to Stockton University is Station GHCND:US1NJAT0046, located at 6th Avenue and Charles Drive in Galloway Township.

Existing Stormwater Improvement Project(s)

Stockton University maintains and operates a robust system of existing stormwater improvement features across its campus, which provide both stormwater management and water quality benefits, including reduction of stormwater volume, reduction of peak flow rates, and filtration of pollutants. Table 2 below lists the existing best management practices (BMPs) currently on campus, which are also shown in Figure 7. These existing structural water quality improvement strategies work collectively to reduce total coliform and pH loading in the subwatershed as well as campus flooding.

Table 2: List of existing BMPs on campus

BMP No.	BMP Type
1013	Surface Infiltration Basin
1036	Subsurface Basin
3006	Surface Infiltration Basin
3078	Subsurface Basin
6002	Surface Infiltration Basin
7012	Surface Infiltration Basin
7013	Surface Infiltration Basin
7020	Surface Infiltration Basin
7024	Subsurface Basin
8009	Surface Infiltration Basin
8030	Subsurface Basin
8036	Subsurface Basin
9002	Surface Infiltration Basin
9003	Surface Infiltration Basin
9005	Surface Infiltration Basin
9006	Surface Infiltration Basin
9007	Surface Infiltration Basin
9008	Surface Infiltration Basin
9009	Surface Infiltration Basin
9011	Surface Infiltration Basin
9012	Surface Infiltration Basin
N/A	Porous Paving in Overflow Parking Lot

The ongoing maintenance, operation, and inspection of existing campus BMPs is completed by facilities staff. The annual cost associated with this work is approximately \$3,000, which is funded annually by Stockton's Facilities and Operations Annual Budget.

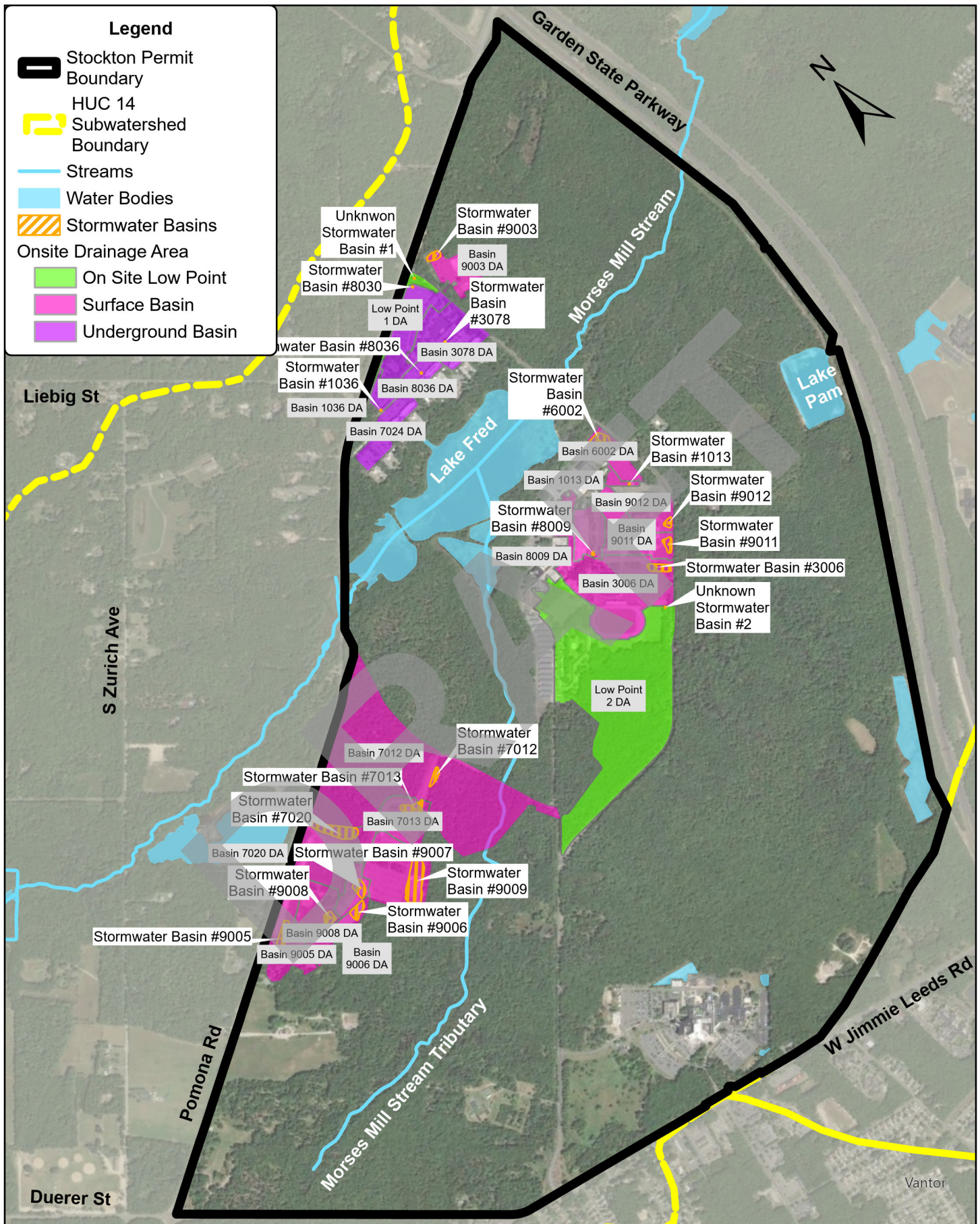


FIGURE 7: STORMWATER BMP MAP

STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN

0 650 1,300 2,600 Feet

Potential Sources of Pollution

The potential point sources of pollution in Stockton University's subwatershed are the stormwater outfalls on campus that discharge into the subwatershed; there are no wastewater treatment plants that drain directly to Stockton University. Nonpoint sources include stormwater runoff, fertilizer runoff, sewer leakage, streambank erosion, wildlife, pets, trash, and air pollution. Of these point and nonpoint sources, the identified major sources of concern for Stockton University's subwatershed include stormwater runoff, wildlife, and pets.

Table 3 below lists the MS4 permit holders, including Stockton University, that have facilities discharging into the Morses Mill Stream (HUC 02040301200100) subwatershed.

Table 3: MS4 permit holders with facilities discharging into the Morses Mill Stream (HUC 02040301200100) subwatershed

Facility Name	Facility Address	Municipality	County	Discharge Category Description
Matador Tours Inc.	Odessa Ave & Aloe St Galloway Twp, NJ 08240	Galloway Twp	Atlantic	Basic Industrial Stormwater (GP) (5G2)
Swan Lake Resort	106 E Mossmill RD Galloway Twp, NJ 08240	Galloway Twp	Atlantic	Sanitary Subsurface Disposal (GP) (T1)
Ricci Transportation Co Inc.	400 W Aloe Galloway Twp, NJ 08240	Galloway Twp	Atlantic	Basic Industrial Stormwater (GP) (5G2)
Stockton University	Pomona Rd Galloway, NJ 08240	Galloway Twp	Atlantic	MS4 - Public Complex Stormwater (GP) (R11)
Richard Stockton College of NJ	Vera King Ferris Dr, Plant Management Storage Facility Pomona, NJ 08240	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
GSP Interchange 41 & 44 Improvements	Garden State Parkway Galloway Twp, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Garden State Parkway Widening-MP 42.3-48.0	Garden State Parkway Galloway Twp, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
6th Avenue Plaza	254 Jim Leeds Road Galloway, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Stockton University Unified Science & Classroom	Vera King Farris Drive Galloway, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Barlow Parking Improvements	Pomona Road Galloway Twp, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Pomona Rd & Barlow Blvd Improvements	Pomona Rd & Barlow Blvd Galloway Twp, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Maintenance & Operations Building	103 South Reeds Road Galloway, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Perfect Storage – Phase 3	301 Aloe Street Galloway Twp, NJ 08215	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)
Reeds Rd. Elementary School Paving Project	103 S Reeds Road Galloway Twp, NJ 08205	Galloway Twp	Atlantic	Construction Activity Stormwater (GP) (5G3)

Summary of Existing Watershed-Based Plan(s)

There are no applicable existing Watershed-Based Plans.

Subwatershed Specific Assessment

1 - HUC 02040301200100 and Morses Mill Stream

TMDL and Impairment Parameter Review

This section details the information for each TMDL and water quality impairment within Stockton University's campus boundary. Impairment and TMDL information was retrieved from NJ-WET, the NJDEP Lookup Tool, and the 303(d) Impaired waters list on November 2, 2025.

Parameter #1 – Total Coliform

Total coliform is a pathogen harmful to human and animal health. Adverse effects include intestinal disease, respiratory problems, fever, headaches, and skin rashes. Potential sources of total coliform impairment according to the TMDL include domestic and industrial wastewater treatment plants, stormwater runoff, leaking septic systems, sewer leaks, wildlife, livestock, and pets. Of these sources, stormwater runoff, sewer leaks, wildlife, and pets are most likely to be found on or adjacent to the University's campus.

The Morses Mill Stream subwatershed has a total coliform TMDL report that was approved on September 27, 2006. The report provides a methodology for determining total coliform loading by calculating fecal coliform loads and extrapolating total coliform values using an equation: $TC = 1.22 * FC^{1.061}$. Fecal coliform loads are calculated based on land cover values as outlined below in Table 4.

Table 4: Loading variables for fecal coliform based on land use

Land Use Type	Fecal Coliform Loading Variable
High, Medium Density Residential	20,000 CFU/100mL
Low Density Residential	20,000 CFU/100mL
Commercial	20,000 CFU/100mL
Industrial	20,000 CFU/100mL
Urban, Mixed Urban, Other Urban	20,000 CFU/100mL
Agricultural	39 billion CFU/acre
Forest	12 billion CFU/acre
Barren	12 billion CFU/acre

Based on Stockton University's land use types, which are outlined below in Table 5, and an average annual rainfall of 48.3 in, the above methodology results in a total coliform load of approximately 2.6 quadrillion units annually. The Morses Mill Stream subwatershed is part of the larger 303(d) Listing Site of Nacote & Mott Rivers Estuary, which the TMDL report defines as having a total coliform reduction requirement of 58%. This results in a total of 1.5 quadrillion units of total coliform required to be removed from the University's subwatershed annually. The calculations to support these values are located in Appendix A.

Parameter #2 – pH

pH is a measure of the concentration of hydrogen ions and describes the acidity and alkalinity of the water. When pH falls outside of typical values for a waterbody, biodiversity of aquatic-dependent biota can be reduced. The subwatershed is impaired by pH in terms of aquatic life and does not have a TMDL report available.

Potential sources of pH impairment within the Morses Mill Stream subwatershed could include air pollution, fertilizer runoff, livestock, and erosion. Of these sources, air pollution and erosion are the most likely to be found on or adjacent to the University's campus.

Area(s) prone to flooding

Stockton University is not located within a mapped FEMA flood zone. The closest 100-year flood zone is located to the southwest for the Lower Branch of the Absecon Creek.

There are reports of localized flooding on campus at the parking lot and loading area in the West Quad, located at the intersection of Lakeside Lane and Louisville Avenue behind the Stockton Performing Arts Center. Lot 7 drains to several inlets and trench drains that connect to a subsurface detention system; however, this underground system is closed, lacks a positive outlet, and consists of 48-inch pipes with minimal slope. As a result, water frequently ponds at the low point of Lot 7 near the loading area. To address this issue, a retrofit was previously installed that included three trench drains designed to convey stormwater westward into the adjacent wooded area and into a surface infiltration basin. This basin now appears to be clogged, with standing water observed during site visits. We understand that, during significant rain events, the loading docks for the Performing Arts Center flood and must be pumped out.

Land Cover and Land Use

The land cover of Stockton University's campus is mostly mixed forest, woody wetlands, and surface waters, with some high, medium, and low density residential and open space, as summarized below in Table 5 and Figure 8.

Table 5: Land use distribution of Stockton University campus

Land Use Type	Area (Acres)	Percentage of Total Area
High, Medium Density Residential	140.58	9.21%
Low Density, Rural Residential	143.46	9.40%
Commercial	0.00	0.00%
Industrial	0.00	0.00%
Urban, Mixed Urban, Other Urban	0.00	0.00%
Agricultural	54.99	3.60%
Forest, Water, Wetlands	1,186.71	77.77%
Barren Land/Transitional Area	0.22	0.01%

Over the last 30 years, this parcel has consistently remained a University campus with minimal land use changes. Updates have included additional parking lots and the construction of the Campus Center building in 2008 on land which was previously wooded.

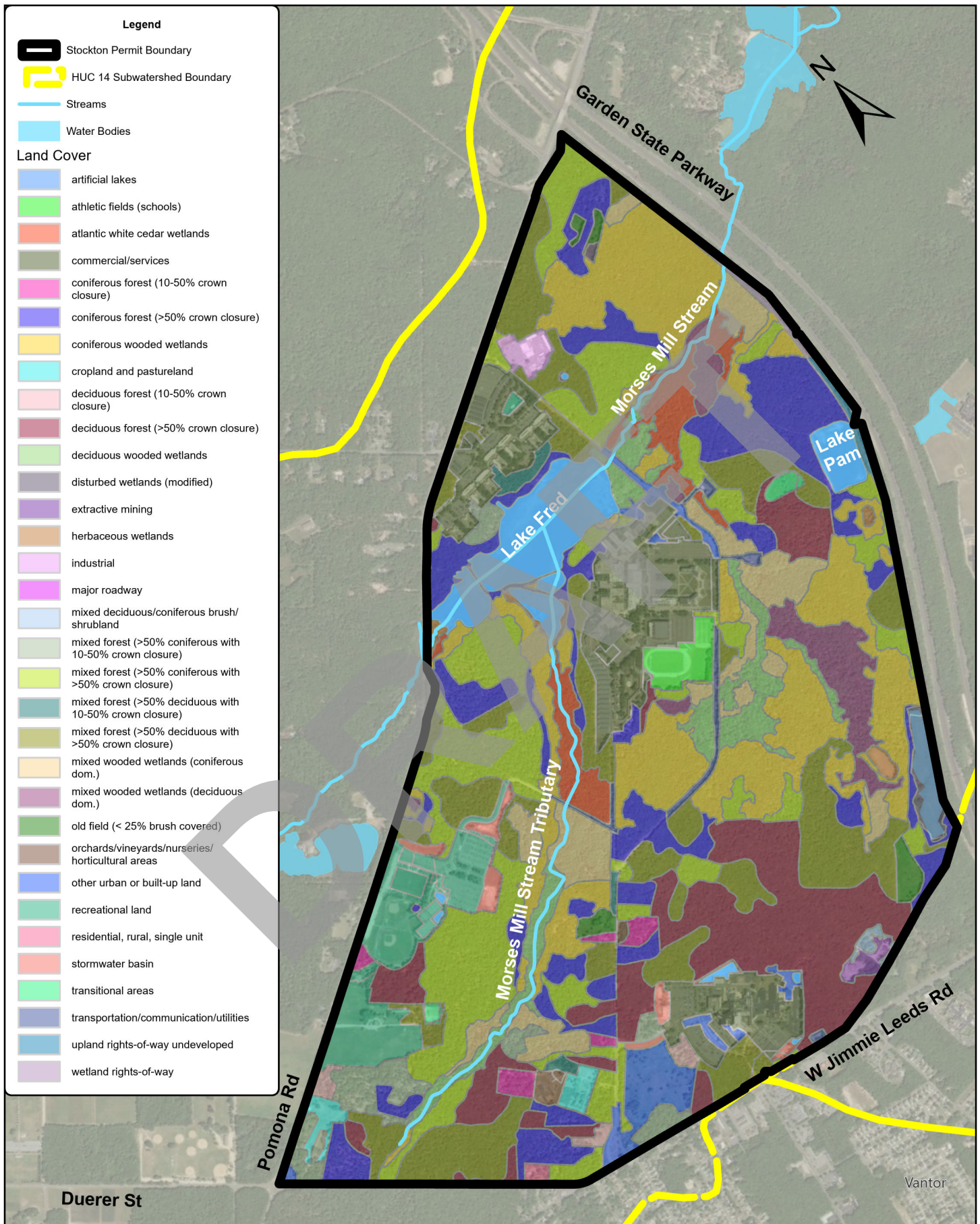
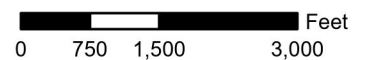


FIGURE 8: LAND COVER MAP

STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN



Potential Improvement Projects

Stockton University is proposing eight (8) potential improvement projects to address water quality and pollutant loading in the Morses Mill Stream subwatershed. Figure 9 at the end of this section shows each project on a map of campus.

Potential Improvement Project #1 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #1 is **Strategic Pet Waste Station and Communication Plan**. In recognition of the connection between pet waste and total coliform loading, Stockton University proposes to install up to four (4) pet waste stations with signage at strategic locations on campus where uncollected pet waste is commonly found. Each pet waste station will consist at minimum of a trash can, a supply of pet waste bags, and clear signage requesting that pet owners use the free supplies to clean up after their dogs. Additionally, Stockton University proposes to improve communications to students, faculty, and staff by providing clear and regular reminders to properly dispose of pet waste. This improved communication will include an added section to an email sent to students, faculty, and staff at the start of each semester that forbids littering and details the harm done by doing so. Digital signage with the same message will also be added to the rotation of digital signs shown on dedicated television screens in campus buildings.

Runoff and pollutants from campus flow into nearby Morses Mill Stream and Lake Fred, negatively impacting the water quality of the stream, lake, and larger watershed. The objective of this project is to encourage pet owners, including students living on campus and off-campus neighbors who walk their dogs on Stockton's grounds, to clean up after their pets by giving them a reminder and an easy opportunity to do so.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Improved Source Control and Public Education categories for pollutant load reduction. The goal of this strategy is to reduce total coliform loading in the subwatershed, though it is also expected address pH, by reducing the amount of pet waste reaching the University's surface waters.

Estimated Load Reduction

There is an average of 23 million CFU per gram of dog feces. Additionally, an average adult dog defecates approximately 340 g of feces per day over an average of 3 deposits, or approximately 113 g per deposit. To estimate the load reduction associated with four (4) pet waste stations, the assumption was made that two (2) dogs are defecating near each of these strategic locations per week whose owners are not properly disposing of the waste due to the lack of nearby trash cans and pet waste bags. This contributes 20.8 billion units of fecal coliform, a subset of total coliform, to the subwatershed weekly by way of runoff into Morses Mill Stream and Lake Fred, which equates to 1.1 trillion units of fecal coliform that may be prevented from entering the subwatershed annually due to this proposed improvement.

Other Benefits

In addition to the water quality benefits associated with this proposed project, it also provides recreational and aesthetic enhancements to both the University and its surrounding community. Unmanaged pet waste creates a visual and odorous blight and limits the activities that can be safely and comfortably performed in the area.

Funding Needs

It is estimated that four (4) pet waste stations with associated signage will cost approximately \$300.00 each, with approximately two (2) hours of admin staff time (\$80.00/hr) required for ordering the stations and approximately twelve (12) hours of facilities staff time (\$50.00/hr) required for installing them. An additional estimated eight (8) hours of admin staff time (\$80.00/hr) will be required for designing the digital sign and drafting the email. The

resulting total proposed cost for this project is \$2,600.00, to be funded by Stockton's Facilities & Operations Annual Budget. It is assumed that regularly emptying and maintaining the trash cans will be included as part of existing janitorial maintenance, so no additional associated costs have been added.

Potential Improvement Project #2 to address pH for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #2 is the **Littering Communication Plan**. Stockton University proposes to improve communications to students, faculty, and staff by providing clear and regular reminders to properly dispose of waste and not leave it on the ground. This improved communication will include an added section to an email sent to students, faculty, and staff at the start of each semester that forbids littering and details the harm done by doing so. Digital signage with the same message will also be added to the rotation of digital signs shown on dedicated television screens in campus buildings.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Public Education category for pollutant load reduction. The goal of this strategy is to reduce pH loading in the subwatershed by limiting the pollutants that reach the subwatershed by way of litter reaching the surface waters.

Estimated Load Reduction

There is a known connection between excessive trash in a watershed and pH impairment. Litter made of organic matter will release carbon dioxide as it decomposes, which forms carbonic acid when it reacts with water and may lower the pH of a waterway. Alternatively, waste such as detergents may introduce more alkalinity to a subwatershed, raising the pH. By encouraging individuals at Stockton University to properly dispose of trash, this potential improvement project may reduce the pH-altering effects of various types of waste within its subwatershed.

Other Benefits

In addition to the water quality benefits associated with this proposed project, it also provides recreational and aesthetic enhancements to both the University and its surrounding community. Litter may create a visual and odorous blight and can limit the activities that can be safely and comfortably performed in the area.

Funding Needs

An estimated eight (8) hours of admin staff time (\$80.00/hr) will be required for designing the physical sign and drafting the email. The resulting total proposed cost for this project is \$640.00, to be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #3 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #3 is the **Wildlife Feeding Communication Plan**. Stockton University proposes to improve communications to students, faculty, and staff by providing clear and regular reminders to not feed wildlife. This improved communication will include an added section to an email sent to students, faculty, and staff at the start of each semester that forbids feeding wildlife and details the harm done by doing so. Digital signage with the same message will also be added to the rotation of digital signs shown on dedicated television screens in campus buildings. Additionally, physical signage will be installed at locations with known recurring populations of geese and other wildlife.

There is a significant population of Canadian geese found regularly on campus, whose feces are transported via rainfall runoff into the University's surface waters and which contributes significantly to the fecal coliform

pollution in the watershed. Reducing the goose population on campus is an effective way to reduce fecal coliform loading in the subwatershed as it directly reduces the amount of goose feces deposited onto the University's grounds that may runoff into surface waters. Geese that have been fed by humans are more likely to return to the location where they were fed to look for more food, so by further discouraging the feeding of wildlife – such as geese – the University will contribute to reduced fecal coliform in the subwatershed.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Public Education category for pollutant load reduction. The goal of this strategy is to reduce total coliform loading in the subwatershed, though it is also expected to address pH, by reducing the amount of goose feces reaching the University's surface waters.

Estimated Load Reduction

It can be quantified from a study by Alderisio and DeLuca that each gram of goose feces contains approximately 15,300 CFU of fecal coliform and that a goose defecates an average of 8.35 g of feces per dropping up to 100 times per day. Therefore, for each goose that does not return to campus as a result of this project, 12.8 million CFUs may be prevented from entering the watershed daily, or 4.7 billion CFUs per goose over the course of a year.

Other Benefits

Discouraging the University's community from feeding wildlife not only addresses pollutant loading but also contributes to campus safety. Wild animals, including geese, deer, squirrels, raccoons, and more, are unpredictable and can be dangerous. In addition to leaving feces behind, which can contribute to both aesthetic and health concerns, wildlife may break into trash cans, resulting in possible property damage, additional pollution, and public safety concerns.

Funding Needs

It is estimated that five (5) physical signs will cost approximately \$50.00 per sign. Additionally, an estimated eight (8) hours of admin staff time (\$80.00/hr) will be required for designing the physical and digital signs and drafting the email, plus an additional eight (8) hours of facilities staff time (\$50.00/hr) for installing the physical signage at strategic locations. The resulting total proposed cost for this project is \$1,290.00, to be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #4 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #4 is the **Fats, Oils, and Grease Communication Plan**. Stockton University proposes to improve communications to students, faculty, and staff by providing clear and regular reminders to not dump fats, oils, and grease into campus drains. This improved communication will include an added section to an email sent to students, faculty, and staff at the start of each semester that forbids dumping of fats, oils, and grease down drains and details the harm done by doing so. Digital signage with the same message will also be added to the rotation of digital signs shown on dedicated television screens in campus buildings. Additionally, physical signs will be posted in each of the 320 residential kitchen and kitchenette to discourage students from dumping fats, oils, and grease down kitchen sinks after cooking, as kitchen sinks have been identified as the most likely locations for dumping.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Public Education category for pollutant load reduction. The goal of this strategy is to reduce total coliform loading in the subwatershed, though it is also expected to address pH, by limiting what is dumped into drains and reducing sewer blockages and overflows.

Estimated Load Reduction

Sewer blockages are regularly caused by fats, oils, and grease that have been poured down drains and then congeal inside sewer pipes. These blockages may lead to sewer overflows, during which raw sewage flows directly into the watershed without first being treated. This can result in significant amounts of fecal coliform, which is found in human waste, entering the subwatershed, and can lead to increased pH and total phosphorus impairment as well. This public education campaign is expected to lead directly to fewer instances of students dumping fats, oils, and grease down residential kitchen sinks, reducing sewer overflows from blockages.

Other Benefits

In addition to preventing sewer blockages and overflows, discouraging the University's students and staff from pouring fats, oils, and grease down drains also leads to fewer service disruptions for the community as well as a longer lifespan for the University's sewer infrastructure.

Funding Needs

It is estimated that 320 physical "no dumping" signs will cost approximately \$10.00 per sign. Additionally, an estimated four (4) hours of admin staff time (\$80.00/hr) will be required for designing the physical and digital signs and drafting the email, plus an additional sixteen (16) hours of facilities staff time (\$50.00/hr) for installing the signage in the residence halls. The resulting total proposed cost for this project is \$4,320.00, to be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #5 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #5 is **Athletic Field Goose Feces Removal**. Stockton University proposes to use vacuum field sweepers to remove and properly dispose of goose feces from the athletic fields. A significant number of geese are frequently found grazing on the athletic fields and are known to leave large quantities of feces behind, which can result in an uncomfortable or dangerous situation for individuals taking part in activities on the fields and which also leads to increased fecal coliform loading in the subwatershed. The University currently uses vacuum field sweepers, which they own, to remove plugs from the fields when aeration is performed. This potential improvement project would increase the frequency of field sweeping to include doing so before any large events that occur at the athletic fields. The University estimates that an average of 5 to 10 of these large events happen per year.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Improved Source Control category for pollutant load reduction. The goal of this strategy is to reduce total coliform loading in the subwatershed, though it is also expected address pH, by reducing the amount of goose feces reaching the University's surface waters.

Estimated Load Reduction

As quantified under Potential Improvement Project #3 above, each gram of goose feces contains 10,000 CFU of fecal coliform, and a goose defecates an average of 900 g of feces per day. Assuming that an average of ten geese spend their days on the athletic fields, using the field sweeper to vacuum and properly dispose of one day's worth of feces before a large event would result in the prevention of 90 million CFU from entering the subwatershed, or 450 million CFU annually across a minimum of five (5) large events in a single year. This estimate is intentionally conservative, as the vacuum field sweeper would pick up more than a single day's worth of feces at a time, so the actual load reduction would likely be higher.

Other Benefits

In addition to the water quality benefits associated with this proposed project, it also provides recreational and aesthetic enhancements to the University. Excessive amounts of goose feces may create a visual blight and can limit the activities that can be safely and comfortably performed on the University's athletic fields.

Funding Needs

Stockton University already owns the vacuum field sweeper that would be used for this potential improvement project, and the operations and maintenance fees associated with the equipment are already accounted for in the University's annual budget. Beyond this cost, it is estimated that facilities staff will spend two (2) hours using the field sweepers up to ten (10) additional times per year, before large events on the athletic fields. At a facilities staff rate of \$50.00/hr, the resulting total proposed cost for this project is \$1,000.00, to be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #6 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #6 is the **Strategic Street Sweeping Frequency Increase**. Stockton University proposes to go above and beyond their minimum MS4 permit requirements by providing additional street sweeping at strategic times throughout the year, such as before or after large campus events. Street sweeping removes pollutants from the roadway before they have a chance to enter the subwatershed by way of runoff into the sewer system or surface waters.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Improved Source Control category for pollutant load reduction. The goal of this strategy is to reduce total coliform loading in the subwatershed, though it is also expected address pH, by reducing the amount of roadway surface pollutants reaching the University's surface waters.

Estimated Load Reduction

This potential improvement project is aimed at reducing the amount of organic material, wildlife waste, and litter that enter the sewer system and the University's surface waters by increasing the frequency with which these materials are removed from the roadways and properly disposed of. By preventing the introduction of these items to the subwatershed, the method also prevents the introduction of the pollutants they carry.

Other Benefits

Providing additional street sweeping on Stockton University's campus will improve the aesthetics of the campus, particularly before large events where families, partners, and donors will be present. Additionally, performing the sweeping after these large events ensures that campus roads remain navigable and safe even after a large crowd of individuals may have left waste behind.

Funding Needs

Stockton University already owns the vacuum street sweeper that would be used for this potential improvement project, and the operations and maintenance fees associated with the equipment are already accounted for in the University's annual budget. Beyond this cost, it is estimated that facilities staff will spend two (2) hours using the street sweepers up to six (6) additional times per year. At a facilities staff rate of \$50.00/hr, the resulting total proposed cost for this project is \$600.00, to be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #7 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #7 is the **Water Quality Design Framework for Future BMP Development**. Stockton University proposes to hire a consultant to develop a framework that will become a required part of any future BMP design on campus. This procedure will ensure that the water quality benefits of any stormwater management strategy will be maximized, with special consideration to the specific impairments and TMDLs of the Morses Mill Stream subwatershed, both present and future. Any framework developed as part of this improvement project will ensure that all applicable local, state, and federal regulatory requirements are met as well as appropriate consideration given to the specific stormwater management needs of the site. The exact format of this procedure will be determined during an iterative development process, where the consultant will elicit feedback from campus stakeholders to decide the most effective strategies.

Impairment and/or TMDL Parameters Addressed

This project has the potential to address every water quality parameter of concern for the subwatershed, including total coliform and pH.

Estimated Load Reduction

By creating a campus-specific framework to improve the way that water quality and pollutant control is prioritized during the BMP design process, future campus improvements will be more intentional in reducing subwatershed pollutant loads.

Other Benefits

This water quality design framework may encourage the use of vegetative BMPs with natural water quality benefits from media filtration, which could result in aesthetic enhancements to campus, increased biodiversity, improved air quality, and decreased urban heat island effect.

Funding Needs

This project would be developed for Stockton University by a consultant, who would develop the procedure iteratively, with revisions based on reviews by the University. The estimated time spent by the consultant on this process is 80 hours, and it is assumed that the consultant will charge the University a rate of \$225.00/hr. This results in an overall estimated fee of \$18,000.00 to complete this project, which will be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #8 to address Flooding for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #8 is the **Localized Flooding Analysis and Strategic Plan**. Stockton University proposes to employ a consultant to analyze the locations where flooding is currently experienced on campus. Based on this analysis, the consultant will work with the University to identify projects to address this localized flooding, possibly including retrofits of existing stormwater infrastructure or the design of new systems. The outcome of this potential improvement project will be a strategic plan that outlines and prioritizes these projects, including estimated schedules, costs, and funding sources.

Impairment and/or TMDL Parameters Addressed

This project is intended to address localized flooding on campus.

Estimated Load Reduction

The analysis and prioritization that results from this project will help determine future steps taken by the University to address campus flooding. These future steps are expected to have a calculable impact on the amount and frequency of flooding experience at the University.

Other Benefits

Future steps that are taken to address campus flooding as a result of this analysis may simultaneously address water quality concerns. This is particularly true once the water quality design framework for future BMP development, as described above in Project #7, is designed and implemented.

Funding Needs

This project would be developed for Stockton University by a consultant team, who would perform the analysis and prepare recommendations iteratively, with revisions based on input by the University. The estimated time spent by the consultant team (\$225.00/hr) on this process is 80 hours, including background research and base mapping, a site visit, report preparation with updated mapping, and revisions per Stockton University's review and input. It is assumed that Stockton University admin staff (\$80.00/hr) will spend up to eight (8) hours reviewing a draft analysis and plan. This results in an overall estimated fee of \$18,320.00 to complete this project, which will be funded by Stockton's Facilities & Operations Annual Budget.

Potential Improvement Project #9 to address Total Coliform for Subwatershed HUC 02040301200100 (Morses Mill Stream)

Description

Potential Improvement Project #8 is the **Lake Fred Riparian Buffer Analysis**. Stockton University proposes to employ a consultant to analyze the existing riparian buffer around Lake Fred and determine opportunities for restoration, such as gaps in the existing buffer or low-quality plant varieties. There are multiple potential water quality benefits that could come from the restoration of the lake's riparian buffer, depending on the deficiencies found during the analysis. One example could be to provide a more robust or complete physical barrier to prevent both pollutants in stormwater runoff and geese from entering the lake.

Impairment and/or TMDL Parameters Addressed

This strategy falls into NJDEP's Tree and Vegetative Planting and Improved Source Control categories, and successful restoration of the riparian buffer according to the analysis has the potential to reduce loading for total coliform, pH, and flooding.

Estimated Load Reduction

While the potential load reduction associated with restoration of the Lake Fred riparian buffer will depend on the results of the analysis, identifying current gaps and deficiencies and proposing measures for addressing them may have significant impacts on reducing the total coliform entering the subwatershed from wildlife as well as pH impairments and flooding issues.

Other Benefits

In addition to the water quality benefits associated with restoring the Lake Fred riparian buffer where appropriate, the strategies proposed by this analysis may improve the campus viewshed, improve biodiversity, and reduce heat island effect.

Funding Needs

This project would be developed for Stockton University by a consultant team consisting of at least an engineer and a landscape architect, who would perform the analysis and prepare recommendations iteratively, with revisions based on input by the University. The estimated time spent by the consultant team (\$225.00/hr) on this process is 80 hours, including background research and base mapping, a site visit, report preparation with updated

mapping, and revisions per Stockton University's review and input. It is assumed that Stockton University admin staff (\$80.00/hr) will spend up to eight (8) hours reviewing a draft analysis and plan. This results in an overall estimated fee of \$18,320.00 to complete this project, which will be funded by Stockton's Facilities & Operations Annual Budget.

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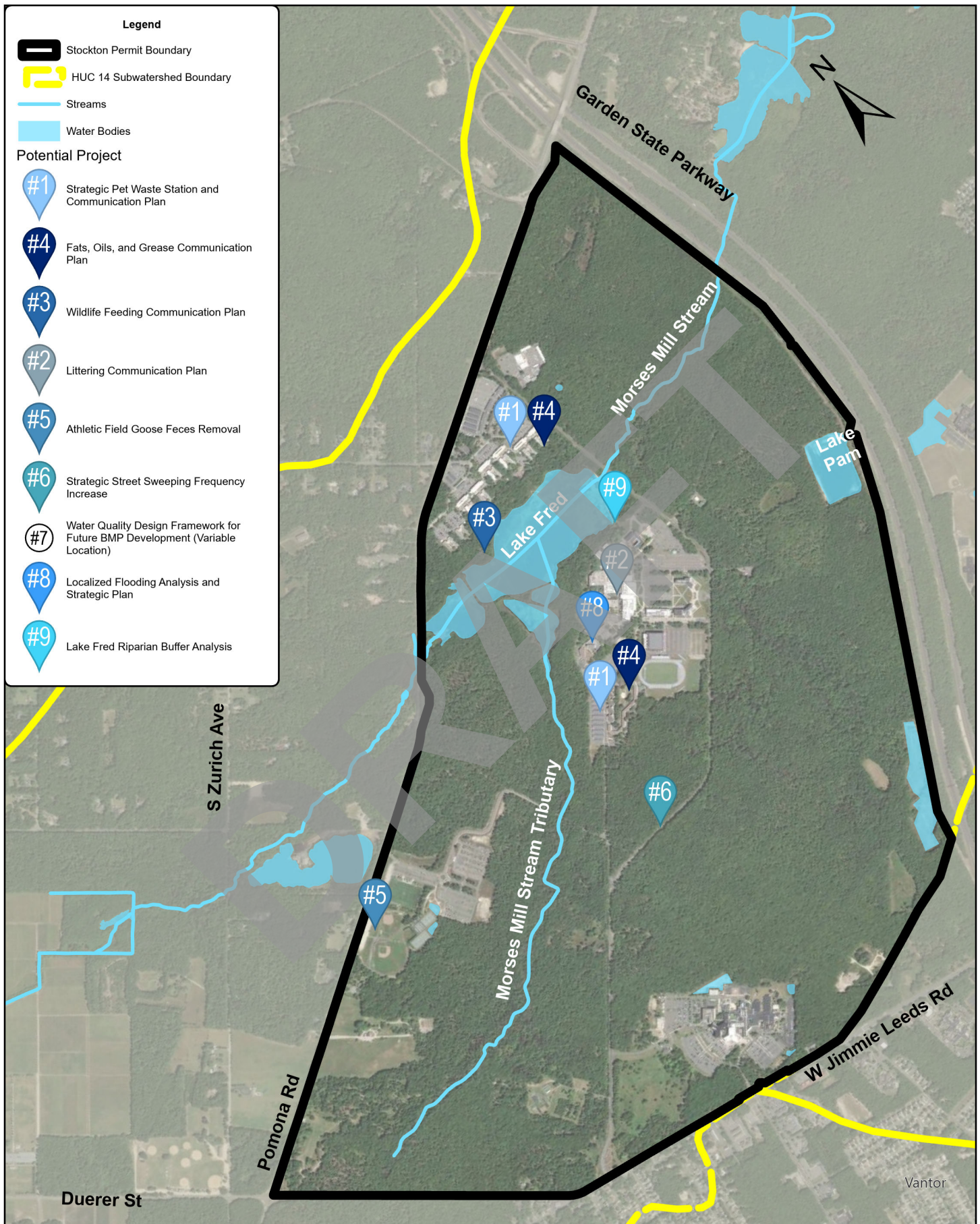


FIGURE 9: POTENTIAL IMPROVEMENTS PROJECT MAP
STOCKTON UNIVERSITY - WATERSHED IMPROVEMENT PLAN

0 750 1,500 3,000 Feet

Overview of Funding Needs and Potential Funding Sources

Table 6 below provides an estimate of funding and potential funding sources for all proposed projects.

Table 6: Potential funding for proposed projects

			Estimated Cost		Estimated Timeline of Funding Acquisition
Project 1	Strategic Pet Waste Station and Communication Plan	02040301200100	\$2,600	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 2	Littering Communication Plan	02040301200100	\$640	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 3	Wildlife Feeding Communication Plan	02040301200100	\$1,290	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 4	Fats, Oils, and Grease Communication Plan	02040301200100	\$4,320	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 5	Athletic Field Goose Feces Removal	02040301200100	\$1,000	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 6	Strategic Street Sweeping Frequency Increase	02040301200100	\$600	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 7	Water Quality Design Framework for Future BMP Development	02040301200100	\$18,000	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 8	Localized Flooding Analysis and Strategic Plan	02040301200100	\$18,320	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*
Project 9	Lake Fred Riparian Buffer Analysis	02040301200100	\$18,320	Private (Stockton Facilities & Operations Annual Budget)	Annual Budget*

*Stockton University will incorporate the cost of the project into the annual budget of the applicable fiscal year following plan approval.

Estimate Implementation Schedule

Table 7 below provides an estimated implementation schedule for potential improvement projects.

Table 7: Proposed implementation schedule

Phase 1	Project 1	Strategic Pet Waste Station and Communication Plan	Install pet waste stations at strategic locations and promote proper disposal to prevent pollutant runoff into surface waters.	total coliform, pH	Year 1
	Project 2	Littering Communication Plan	Develop and distribute materials to discourage littering to pollutant runoff into surface waters.	pH	Year 1
	Project 3	Wildlife Feeding Communication Plan	Develop and distribute materials to discourage feeding of wildlife to naturally diminish populations and prevent fecal runoff into surface waters.	total coliform, pH	Year 1
	Project 4	Fats, Oils, and Grease Communication Plan	Develop and distribute materials to discourage dumping down residential drains to prevent sewer blockages and subsequent overflows.	total coliform, pH	Year 1
Phase 2	Project 5	Athletic Field Goose Feces Removal	Increase frequency of removal and proper disposal of goose feces from athletic fields to reduce pollutant runoff into subwatershed.	total coliform, pH	Year 2
	Project 6	Strategic Street Sweeping Frequency Increase	Increase frequency of street sweeping of campus roads to reduce pollutant runoff into subwatershed.	total coliform, pH	Year 2
Phase 3	Project 7	Water Quality Design Framework for Future BMP Development	Develop framework for ensuring future BMP design incorporates water quality considerations specific to subwatershed impairments and TMDLs.	total coliform, pH	Year 3
	Project 8	Localized Flooding Analysis and Strategic Plan	Analyze extents of localized flooding experienced on campus and propose future projects to mitigate these concerns.	flooding	Year 4
	Project 9	Lake Fred Riparian Buffer Analysis	Analyze condition and quality of existing riparian buffer and propose improvement methods for reducing wildlife access and pollutant runoff into lake.	total coliform, pH, flooding	Year 5

Public Involvement and Feedback

As part of the development of this Watershed Inventory Report, the University hosted two public information sessions in coordination with Galloway Township and AKRF. The public information sessions were open to all of the University's community, including campus residents, students, and employees. In order to prepare for the meetings, a focus group meeting was also held with select University staff and AKRF to gather information on current water quality and flooding mitigation and source control measures and to discuss potential improvement projects.

Stakeholders

The stakeholders who provided input for this report are as follows:

- Amber Berry, Director of Environmental Health & Safety
- Jake Glaser, Environmental Health & Safety
- William Albertson, Assistant Head Grounds Worker
- Dan Sernotti, Director of Facilities Planning & Construction Facilities Planning
- David Wood, Supervisor of Landscape Maintenance

Previously Held Meetings

Focus Group

An in-person focus group was held in Stockton University's Plant Management building on April 15, 2026. Topics of discussion at the focus group included an overview of the Watershed Improvement Plan development process, findings from Phase I, possible sources of identified pollutants of concern, and proposed pollutant reduction strategies, followed by open discussion. Meeting minutes from this focus group are located in Appendix B.

Public Information Session #1

The first in-person public information session was held in Stockton University's Campus Center the morning of September 22, 2026. Topics of discussion included an overview of the Watershed Improvement Plan phases, Stockton's subwatershed characteristics and impairments, and the potential improvement projects currently identified to address water quality issues, followed by open discussion. Meeting minutes from this public information session are located in Appendix B.

Public Information Session #2

The first in-person public information session was held in Stockton University's F-Wing Hall the evening of September 22, 2026. Topics of discussion included an overview of the Watershed Improvement Plan phases, Stockton's subwatershed characteristics and impairments, and the potential improvement projects currently identified to address water quality issues, followed by open discussion. Meeting minutes from this public information session are located in Appendix B.

Summary of Feedback

Feedback from Stockton stakeholders highlighted that the University already does efficient and effective work to meet MS4 stormwater management and water quality requirements. Stakeholders noted that there is opportunity for improvement regarding public education, particularly surrounding pet waste and litter.

Future Scheduled Meetings

Additional stakeholder meetings will be held according to the requirements of Phase 3 of the Watershed Improvement Plan, including at least one focus group and at least two public information sessions. These meetings are not yet scheduled but will be announced and posted on Stockton University's dedicated stormwater webpage alongside all other Watershed Improvement Plan information: <https://www.stockton.edu/facilities-construction/water-usage.html>.

Public Comment Review Process

Stockton University is currently holding a 60-day public comment period, beginning with an email sent to stakeholders, including University students, staff, and faculty as well as Galloway Township representatives. This email included a description of the Watershed Improvement Plan and Watershed Assessment Report, a link to the draft report, a link to an online feedback form, and a clear timeline and guidelines for submitting feedback.

Stockton University and AKRF will review every comment received during the public comment period and reasonably adjust the plan accordingly. A second email will be sent to stakeholders at the conclusion of the review and revision period to provide a matrix of responses to each individual comment. Stakeholders will be offered the opportunity to reach out for a follow-up discussion if desired.

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Appendix A: Total Coliform Loading Calculations

Stockton University Total Coliform Load Calculation

Total Annual Rainfall (in)	48.3	from NOAA U.S. Climate Normals
100-YR Precipitation Depth (in)	8.90	from NOAA PFDS
Soil Type Assumption	A	from USDA Web Soil Survey

	Area (SF)	Pervious %	Impervious %	Average CN	Storage (1000/CN) - 10	P _e (in)	Pervious Runoff (L)	Impervious Runoff (L)	Total Runoff Volume (L)	Fecal Coliform Loading Variable	Fecal Coliform Load (CFU)
High, Medium Density Residential	6,123,589	25%	75%	59	7	41	147,598,783	523,453,418	671,052,201	20,000 CFU/100mL	134,210,440,146,421
Low Density, Rural Residential	6,249,151	50%	50%	50	10	38	281,593,881	356,124,460	637,718,341	20,000 CFU/100mL	127,543,668,257,947
Commercial	0	15%	85%	89	1	47	0	0	0	20,000 CFU/100mL	0
Industrial	0	15%	85%	81	2	46	0	0	0	20,000 CFU/100mL	0
Urban, Mixed Urban, Other Urban	0	15%	85%	77	3	45	0	0	0	20,000 CFU/100mL	0
Agricultural	2,395,347	-	-	-	-	-	-	-	-	39,000,000,000 CFU/acre	2,144,594,376,722
Forest, Water, Wetlands	51,693,133	-	-	-	-	-	-	-	-	12,000,000,000 CFU/acre	14,240,532,385,675
Barren Land/Transitional Area	9,659	-	-	-	-	-	-	-	-	12,000,000,000 CFU/acre	2,660,787,879

Fecal Coliform Load (CFU)	278,141,895,954,643
Total Coliform Load (CFU) $\approx 1.22 * FC^{1.061}$	34,461,070,400
Required 58% Reduction (CFU)	67,987,420,830

Appendix B: Minutes from Phase 2 Stakeholder Meetings

Memorandum

To: Amber Berry, Director of Environmental Health & Safety
From: Jordan Shuster, AKRF
Date: May 4, 2026
Re: Stockton University Watershed Improvement Plan
Phase II Focus Group

Meeting Date:

April 15, 2026, 10:30am-11:30am
Meeting Location: Building 70

Attendees:

Amber Berry, Director of Environmental Health & Safety
Jake Glaser, Environmental Health & Safety
William Albertson, Assistant Head Grounds Worker
Dan Sernotti, Director of Facilities Planning & Construction Facilities Planning
Carolyn Paone, AKRF
Jordan Shuster, AKRF

Meeting Notes:

General

- Successful pollution reduction strategies will center around increased frequency, signage, and education related to existing MS4 permit requirements.
- Possibilities exist for collaborating with environmental college courses, which would provide the college with project opportunities while also providing student education that would help meet public education requirements of pollution reduction strategies.

Pet Waste

- There are ~15-20 pet waste stations with signage on campus already (15-20 stations on campus), but there is potential to add new stations or signage in strategic locations.
- Email communication to staff/students and/or PSAs on campus TVs would enhance this strategy beyond base permit requirements.

Wildlife Feeding

- Signage can be posted at strategic locations to remind students not to feed geese or wildlife.
- This can also be done in an email blast or a PSA on campus TVs.

Litter Control

- Additional trash cans can be added at strategic locations, alongside added signage about not littering.
- Exploring a composting program isn't a preferred solution.

Improper Disposal of Waste

- Signage in strategic locations and educational messaging such as email blasts can be enacted to discourage students from dumping fats, oils, or grease down drains.
- A solids interceptor is being built for the archeology group, which may earn credits towards pollution reduction requirements.

Yard Waste

- Leaves are picked up and composted to make soil in-house. No anticipated opportunities here for pollution reduction credit.

Street Sweeping

- It could be possible to increase frequency by adding extra sweeping at strategic times, such as after large campus events.

Roadside Vegetative Waste Management

- Sticks are picked up after storms and removed from campus. No anticipated opportunities here for pollution reduction credit.

Roadside Erosion Control

- Erosion of trails, which are mostly gravel, is not a problem experienced on campus. No anticipated opportunities here for pollution reduction credit.

BMP Maintenance

- The street sweeper vacuum is used to clean out inlets, but it's challenging to get the drain fully clean with that tool; leaves are removed but some debris at bottom remains.
- Potential enhancements could include a BMP maintenance training program or video for staff.

Stream Scouring

- No anticipated opportunities here for pollution reduction credit.

Goose Management

- Analyzing the Lake Fred riparian buffer for restoration is a big opportunity to minimize fecal coliform from geese entering the water.
 - Near the smoking pavilion is an area of missing/worn down riparian buffer where geese walk right onto the lake, which could be an area of targeted restoration and/or evaluation.
- Any work on the riparian buffer can be done in coordination with the Biodiversity Committee.
- AKRF will follow up with Dave to get more history about the goose chasers Stockton used to use.
- There is a potential opportunity to use a vacuum sweeper to remove goose poop from the athletic fields rather than blowing off.
 - This would take longer than blowing but could remove more fecal matter from the watershed than just moving it around.

UV Treatment

- AKRF and Stockton agree that this measure is expensive and not an option to explore.

Project: Stockton University Watershed Improvement Plan
Date and Time of Meeting: September 22, 2026, 9:30am
Summary Prepared By: Carolyn Paone
Meeting Location: Stockton University, Campus Center Meeting Room 1

1.0	Purpose of Meeting
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Public Meeting #1

Name	Agency / Company / Organization		
Carolyn Paone	AKRF		
John Hallagon	Stockton – Arts & Sciences Dept.		
Emily Walsh	Stockton – NAMS (Hazardous Waste Lab)		
Christine Schairer	Stockton		
Jake Glaser	Stockton		

3.0	Meeting Notes, Decisions, Issues
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- Participants noted that the quad is a common area for dog walking and other pet activity and is also prone to litter accumulation.
- Participants expressed concerns that upstream development and land management practices may be contributing to downstream water quality issues.
- Participants suggested increased street sweeping around the traffic circle with the flagpole, noting that the area experiences significant bus traffic from the Atlantic City campus and may be subject to oil and fluid drippings.
- Parking Lots 3 and 4 were identified as having the most litter on campus.
- Participants noted the presence of a birding club that conducts bird monitoring and studies on campus.
- Wildlife documented by campus nature cameras includes coyotes, foxes, deer, otters, beavers, opossums, skunks, flying squirrels, and mice.

Project: Stockton University Watershed Improvement Plan
Date and Time of Meeting: September 22, 2026, 5:30pm
Summary Prepared By: Carolyn Paone
Meeting Location: Stockton University, F-Wing Hall Room F121

1.0	Purpose of Meeting		
Public Meeting #2			
2.0	Attendees		
Name		Agency / Company / Organization	
Carolyn Paone		AKRF	
Amber Berry		Stockton	
Chase Bringel		Stockton (student)	
Liam Stockel		Stockton (student)	
Maya Swift		Stockton (student)	
Josh Hutchinson		Stockton (student)	
Tyler Murnaghan		Stockton (student)	
3.0	Meeting Notes, Decisions, Issues		

- Participants noted that Lake Pam supports a variety of wildlife, but concerns were raised about visitors camping in the area and leaving behind litter.
- Participants expressed concerns about the use of fertilizers on campus, including potential impacts on water quality and pH levels.
- It was noted that mulch generated on campus is reused to support soil health and landscaping efforts.
- Participants shared that the campus water supply is sourced from on-site wells.