



TMDL Assessment Summary

Unnamed Tributary to the Androscoggin River (near Water Street)

Watershed Description

This **TMDL** assessment summary applies to the 0.56-mile Unnamed Tributary to the Androscoggin River (near Water Street), located in the City of Brunswick, Maine. The watershed begins near McKen Street. The intersection of the Maine Central Springfield Terminal Railroad and the Maine Eastern Railroad are at the center of the watershed. The impaired stream begins near Charles Court, and flows north before crossing Columbus Drive and US Route 1. The stream then flows through a small forested area and enters the Androscoggin River near Water Street. The watershed covers 211 acres in the City of Brunswick, Maine.

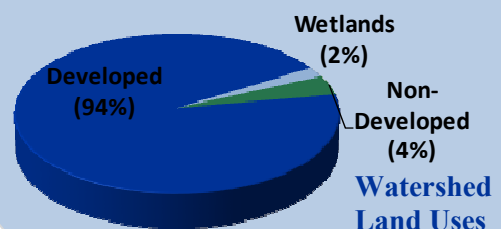
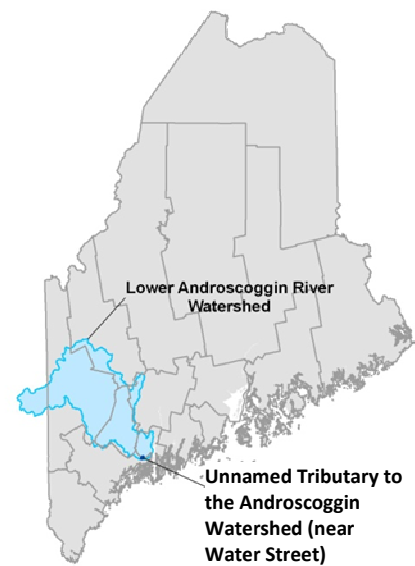
- Stormwater runoff from **impervious cover (IC)** is likely the largest source of pollution to the Unnamed Tributary to the Androscoggin River (near Water Street). Stormwater falling on IC flows quickly off impervious surfaces, carrying pollutants, and sending high volumes of flow to the nearest section of the stream.
- The Unnamed Tributary watershed is mostly developed (94%) and characterized by high intensity development.
- A small area near the mouth of the stream is forested. This area will absorb and filter some stormwater pollutants.
- The Unnamed Tributary to the Androscoggin River (near Water Street) is on Maine’s Urban Impaired Streams list (DEP, 2010).

Definitions

- **TMDL** is an acronym for **Total Maximum Daily Load**, representing the total amount of a pollutant that a water body can receive and still meet water quality standards.
- **Impervious cover** refers to landscape surfaces (e.g. roads, sidewalks, driveways, parking lots, and rooftops) that no longer absorb rain and may direct large volumes of stormwater runoff into the stream.

Waterbody Facts

- **Segment ID:**
ME0104000210_420R02
- **City:** Brunswick, ME
- **County:** Cumberland
- **Impaired Segment Length:** 0.56 miles
- **Classification:** Class B
- **Direct Watershed:** 0.33 mi² (211 acres)
- **Watershed Impervious Cover:** 50%
- **Major Drainage Basin:**
Lower Androscoggin River Watershed



Why is a TMDL Assessment Needed?

The Unnamed Tributary to the Androscoggin River (near Water Street), a Class B freshwater stream, has been assessed by DEP as not meeting water quality standards for aquatic life use and has been listed on the 303(d) list of impaired waters. The Clean Water Act requires that all 303(d)-listed waters undergo a TMDL assessment that describes the impairments and establishes a target to guide the measures needed to restore water quality. The goal is for all waterbodies to comply with state water quality standards.

The impervious cover TMDL assessment for the Unnamed Tributary addresses the water quality impairments to aquatic life use (based on stream habitat and benthic macroinvertebrate assessments). These impairments are associated with a variety of pollutants in urban stormwater as well as erosion, habitat loss and unstable stream banks caused by excessive amounts of runoff.



Unnamed Tributary to the Androscoggin River (near Water Street) downstream at station 642
(Photo: DEP Biomonitoring Program)

Sampling Results & Pollutant Sources

Sampling Station	Sample Date	Statutory Class	Model Results
S-642	8/29/2002	B	NA

DEP makes aquatic life use determinations using a statistical model that incorporates 30 variables of data collected from rivers and streams, including the richness and abundance of streambed organisms, to determine the probability of a sample meeting Class A, B, or C conditions. Biologists use the model results and supporting information to determine if samples comply with standards of the class assigned to the stream or river (Davies and Tsomides, 2002).

The Unnamed Tributary to the Androscoggin River (near Water Street) impairment is based on DEP stream habitat assessments. Benthic-macroinvertebrate data were also collected by DEP in 2002 at a sampling station located upstream of Water Street (642). Data collected at this station indicate Class B Unnamed Tributary is “non attaining” (NA), meaning it does not meet Class A, B, or C conditions.

Impervious Cover Analysis

Increasing the percentage of impervious cover (%IC) in a watershed is linked to decreasing stream health (CWP, 2003). Because the Unnamed Tributary’s impairment is not caused by a single pollutant, %IC is used for this TMDL to represent the mix of pollutants and other impacts associated with excessive stormwater runoff. The Unnamed Tributary to the Androscoggin River (near Water Street)

*8% IC represents an approximate **84% reduction** in stormwater runoff volume and associated pollutants when compared to existing pollutant loads.*

watershed has an impervious surface area of **50%** (Figure 1). DEP has found that in order to support Class B aquatic life use, the Unnamed Tributary watershed may require the characteristics of a watershed with **8%** impervious cover. This WLA & LA target is intended to guide the application of Best Management Practices (BMP) and Low Impact Development (LID) techniques to reduce the *impact*

Impervious Cover GIS Calculations

The Impervious Cover Calculations are based on analysis of GIS coverage’s presented in Figure 1. The impervious area is derived from 2007 1 meter satellite imagery and the watershed boundary is an estimation based on contours and digital elevation models.

of impervious surfaces. Ultimate success of the TMDL will be the Unnamed Tributary's compliance with Maine's water quality criteria for aquatic life.

Next Steps

Because Unnamed Tributary to the Androscoggin River (near Water Street) is an impaired water, specific sources of stormwater runoff in the watershed should be considered during the development of a watershed management plan to:

- Encourage greater citizen involvement through the development of a watershed coalition to ensure the long term protection of the Unnamed Tributary;
- Address existing stormwater problems in the Unnamed Tributary watershed by installing structural and applying non-structural best management practices (BMPs); and
- Prevent future degradation of Unnamed Tributary through the development and/or strengthening of local stormwater control ordinances.

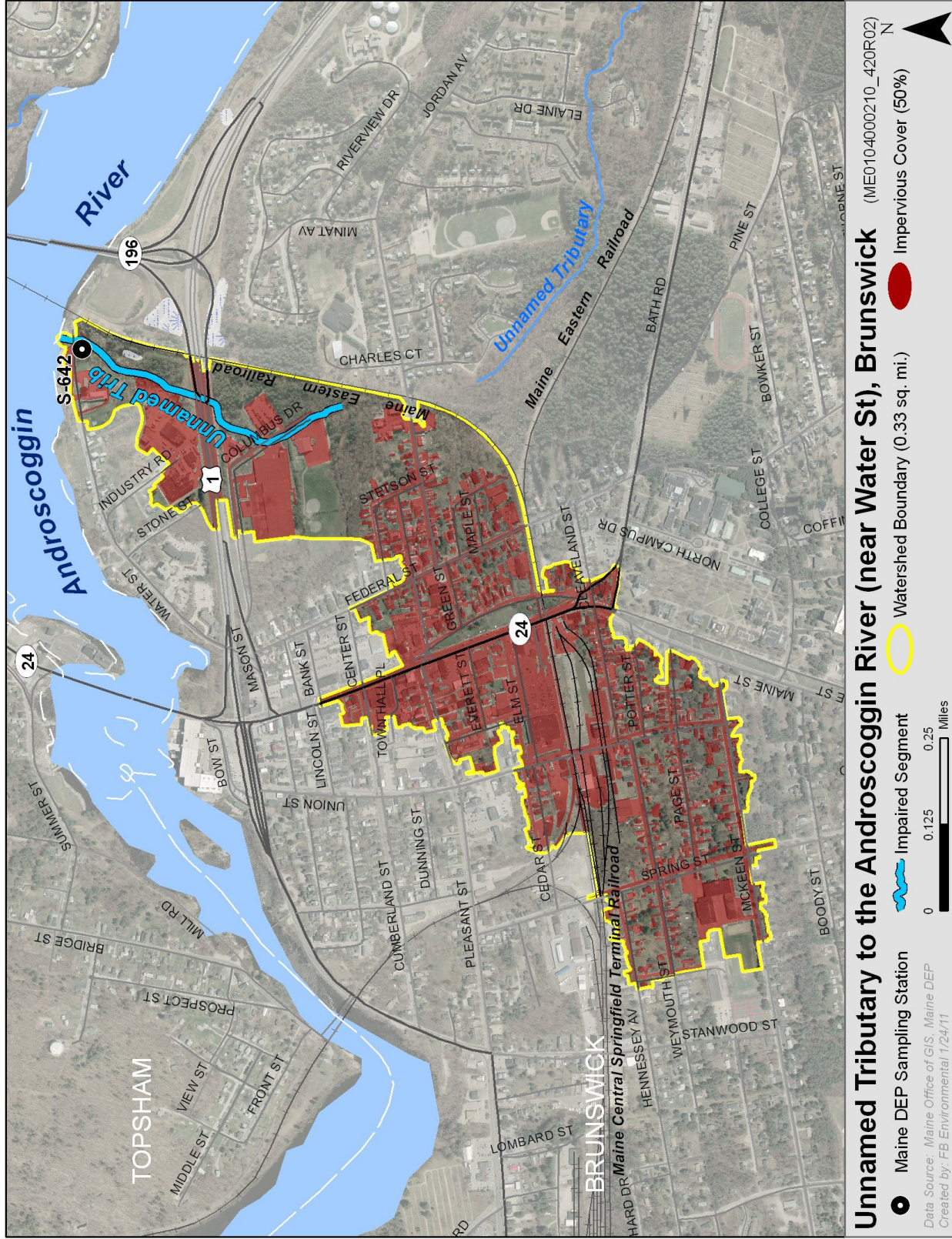


Figure 1: Map of the Unnamed Tributary to the Androscoggin River (near Water Street) watershed impervious cover.

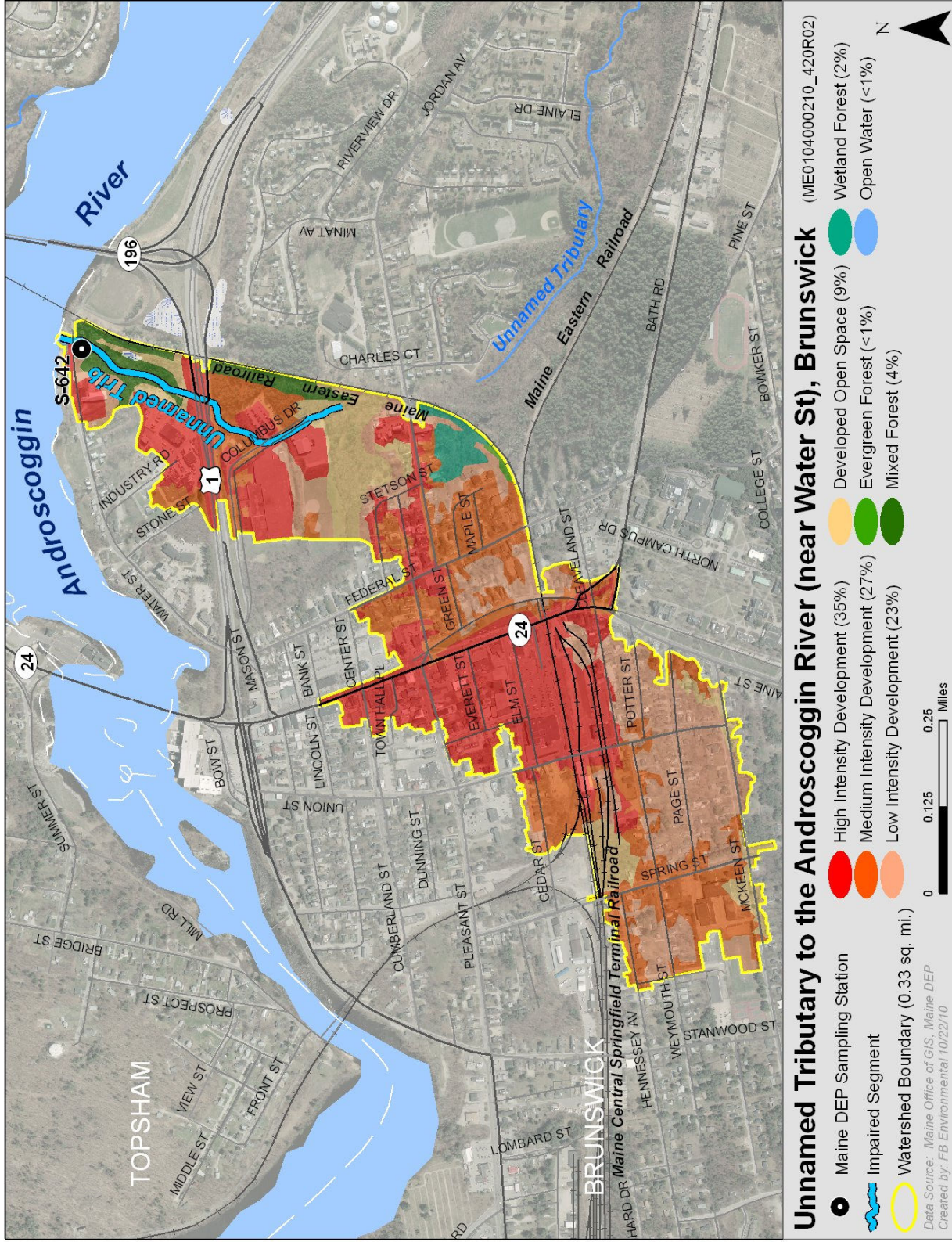


Figure 2: Map of the Unnamed Tributary to the Androscoggin River (near Water Street) watershed land cover.

References

- Center for Watershed Protection (CWP). 2003. Impacts of Impervious Cover on Aquatic Systems. Watershed Protection Research Monograph No. 1. Center for Watershed Protection, Ellicott City, MD. 142 pp.
- Davies, Susan P. and Leonidas Tsomides. 2002. Methods for Biological Sampling and Analysis of Maine's Rivers and Streams. Maine Department of Environmental Protection. Revised August, 2002. DEP LW0387-B2002.
- Maine Department of Environmental Protection (DEP). 2010. Assessment Database Detail Report for the Unnamed Tributary to the Androscoggin River (near Water Street). Bureau of Land and Water Quality, Augusta, ME.