

GREAT BAY WATERSHED PARCEL ANALYSIS

TASK 3B / TASK 4 TECHNICAL REPORTS

GREAT BAY WATERSHED PROPERTY PARCEL AND ENVIRONMENTAL JUSTICE ANALYSES

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Prepared for:

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Prepared by:

Paradigm Environmental



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Table of Contents

1 Introduction 5

2 Methodology 6

 2.1 Data Inventory 9

 2.2 Parcel Preprocessing 9

 2.3 Python-Based Summary Analysis 14

 2.4 Quality Assurance / Quality Control (QA/QC) 15

 2.5 Limitations..... 15

3 Preprocessing Results 16

4 Results and Discussion..... 20

 4.1 Great Bay Parcel Overview 22

 4.2 New Hampshire Parcels..... 25

 Commercial, Industrial, and Institutional Parcels..... 28

 4.3 Maine Parcels..... 36

 Commercial, Industrial, and Institutional Parcels..... 39

5 Environmental Justice Concerns in the Great Bay Watershed 46

 5.1 Applicable Environmental Justice Factors..... 46

 Definitions 46

 5.2 Environmental Justice Data Analyses..... 47

 Alternative Environmental Justice Targeting Approaches..... 48

 5.3 Analysis of Parcels in Areas with Environmental Justice Concerns 51

 New Hampshire CII Parcels..... 55

 Additional Effects of Stormwater Control in Areas with Environmental Justice Concerns..... 60

6 Conclusions..... 61

7 References 63

Appendix A – Manually Reclassified Parcels 64

Appendix B – Preprocessed Parcel Use Code Example 68

Appendix C – NH CII Plots 102

Appendix D – ME CII Plots..... 108

Appendix E – Summary of Additional Environmental Justice Data 114

Figures

Figure 2-1. Parcel analysis workflow, including relevant requirements, inputs, and outputs.	7
Figure 3-1. Map of parcel Use Groups within the Great Bay Watershed. Note that the resolution of this map is parcel-scale; streams and waterbodies can exist within parcel boundaries and were added for visual clarity. It should also be noted that due to missing attribute data for Maine parcels, “Forest” is likely overestimated in Maine.....	18
Figure 4-1. Private/Public summaries for all parcels within the Great Bay Watershed.....	22
Figure 4-2. Private CII parcel count and total TN load by parcel IC area in the New Hampshire portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.	30
Figure 4-3. . Private CII parcel count and total TP load by parcel IC area in the New Hampshire portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.	31
Figure 4-4. Percentage of total IC TN load that can be captured from IC runoff in the New Hampshire portion of the Great Bay watershed, assuming a 60% treatment efficiency, and the corresponding number of private CII parcels based on IC threshold. Labels for IC thresholds correspond to the dark blue dots.	35
Figure 4-5. Private CII parcel count and total TN load by parcel IC area in the Maine portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.	41
Figure 4-6. Private CII parcel count and total TP load by parcel IC area in the Maine portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.	42
Figure 5-1. Map of census tracts in areas with environmental justice concerns by criteria.	48
Figure 5-2. Map of census block groups identified through modified Inflation Reduction Act Disadvantaged Community Map criteria.....	50
Figure C-1. Private commercial parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.....	102
Figure C-2. Private industrial parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.	103
Figure C-3. Private institutional parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.	104
Figure C-4. Private commercial parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.....	105
Figure C-5. Private industrial parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.....	106
Figure C-6. Private institutional parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.	107
Figure D-1. Private commercial parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.	108
Figure D-2. Private industrial parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.	109
Figure D-3. Private institutional parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.....	110
Figure D-4. Private commercial parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.	111
Figure D-5. Private industrial parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.	112
Figure D-6. Private institutional parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.....	113

Tables

Table 2-1. Parcel-level summary attributes to be calculated	8
Table 2-2. Data used in the parcel analysis	9
Table 2-3. Initial Use Group categories developed for the Great Bay watershed	10
Table 2-4. Mapping dominate parcel HRU to parcel Use Group	10
Table 2-5. Owner keywords for initial public parcel filtering.....	12
Table 2-6. Owner keywords and corresponding Use Groups for initial private parcel filtering	13
Table 2-7. Mapping of Use Group to public/private designation for parcels with no owner information..	13
Table 3-1. Count of parcels by Use Group within the Great Bay Watershed	17
Table 3-2. Parcel area by Use Group within the Great Bay Watershed.....	17
Table 3-3. Distribution of public and private parcel areas by Use Group	19
Table 4-1. Stormwater annual average TN load for municipalities with the Great Bay watershed	20
Table 4-2. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TN*.....	23
Table 4-3. Summary of parcel attributes by Use Group and Public/Private designation with TP*	24
Table 4-4. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TN*	26
Table 4-5. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TP*	27
Table 4-6. Summary of private commercial, industrial, and institutional parcel attributes in the New Hampshire portion of the Great Bay watershed	29
Table 4-7. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.25$ ac in New Hampshire	32
Table 4-8. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.5$ ac in New Hampshire	32
Table 4-9. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.75$ ac in New Hampshire	33
Table 4-10. Summary of private commercial, industrial, and institutional parcels with $IC \geq 1$ ac in New Hampshire	33
Table 4-11. Summary of private commercial, industrial, and institutional parcels with $IC \geq 2$ ac in New Hampshire	34
Table 4-12. Summary of private commercial, industrial, and institutional parcels with $IC \geq 5$ ac in New Hampshire	34
Table 4-13. Summary of parcel attributes within the Maine portion of the Great Bay watershed by Use Group and Public/Private designation with TN*	37
Table 4-14. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TP*	38
Table 4-15. Summary of private commercial, industrial, and institutional parcel attributes in the Maine portion of the Great Bay watershed.....	40
Table 4-16. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.25$ ac in Maine	43
Table 4-17. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.5$ ac in Maine	43
Table 4-18. Summary of private commercial, industrial, and institutional parcels with $IC \geq 0.75$ ac in Maine	44
Table 4-19. Summary of private commercial, industrial, and institutional parcels with $IC \geq 1$ ac in Maine	44
Table 4-20. Summary of private commercial, industrial, and institutional parcels with $IC \geq 2$ ac in Maine	45
Table 4-21. Summary of private commercial, industrial, and institutional parcels with $IC \geq 5$ ac in Maine	45
Table 5-1. Summary of tracts in areas with environmental justice concerns by municipality and criteria*	47

Table 5-2. Potential environmental justice concerns associated with stormwater in Great Bay cities..... 51

Table 5-3. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TN*..... 52

Table 5-4. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TP* 53

Table 5-5. Summary of private commercial, industrial, and institutional attributes for parcels within areas with environmental justice concerns in the Great Bay watershed..... 54

Table 5-6. Summary of private commercial, industrial, and institutional attributes for parcels within areas with environmental justice concerns in the New Hampshire portion of the Great Bay watershed 56

Table 5-7. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 0.25$ ac in New Hampshire..... 56

Table 5-8. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 0.5$ ac in New Hampshire..... 57

Table 5-9. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 0.75$ ac in New Hampshire..... 57

Table 5-10. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 1$ ac in New Hampshire 58

Table 5-11. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 2$ ac in New Hampshire 58

Table 5-12. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with $IC \geq 5$ ac in New Hampshire 59

Table 6-1. Summary of private CII parcels installing SCMs based on parcel IC area and the reduction achieved in New Hampshire and Great Bay watershed total TN load..... 62

1 INTRODUCTION

The Great Bay Watershed is experiencing rapid land development which is increasing pollutant loads to the nationally significant Great Bay estuary and further degrading water quality from nutrient enrichment. Land development in the Great Bay Watershed, which consists of 42 municipalities in New Hampshire and 10 in Maine, is primarily characterized by the conversion of forested or undeveloped land to impervious cover. Between 2010 and 2015, the watershed's population increased by 6% and 1,257 acres were converted to impervious cover. This kind of land conversion is increasing pollutant loads to the Great Bay estuary, with an additional estimated 2,350 pounds of total phosphorus (TP) and 18,226 pounds of total nitrogen (TN) per year entering the estuary from new development (USEPA, 2023). This nutrient enrichment leads to eutrophication which is characterized by degradation of water quality through toxic algal blooms, declining eelgrass biomass, increased turbidity, and low dissolved oxygen.

Many Great Bay communities are currently committed to reducing nutrient loads from existing impervious cover; 18 communities are subject to MS4 permits and 12 have been participating in the Great Bay Total Nitrogen General Permit (TNGP) since 2021, which is a unique permitting program that allows participating municipalities to explore cost-effective, point and non-point source (stormwater) nutrient reduction strategies to achieve water quality targets through an adaptive management framework. However, additional effort is necessary to address the increasing load from development in order to achieve water quality targets and improve the health of the Great Bay estuary. On February 15, 2023, the U.S. Environmental Protection Agency Region 1 (EPA R1) received a petition from the Conservation Law Foundation (CLF) for the Great Bay Watershed (Conservation Law Foundation, 2023). The petition requests that EPA R1 use its residual designation authority (RDA) to permit stormwater from certain commercial, industrial, and institutional (CII) properties in the Great Bay Watershed under the National Pollutant Discharge Elimination System (NPDES) in order to meet water quality standards in Great Bay and its tributaries.

To respond to the RDA petition, EPA R1 needs to conduct a parcel analysis to quantify the nutrient load from private parcels within the watershed. This project supports ongoing adaptive stormwater management under the Great Bay TNGP by examining the potential water quality impacts at the property level, assisting EPA R1 in responding to the RDA petition to designate certain private property in the watershed as needing permit coverage, and investigating possible stormwater management performance standards suitable for adoption by the Great Bay communities to address nutrient loading and build community resilience. As part of its response to these petitions, EPA Region 1 will ensure that environmental justice (EJ) considerations for relevant property holders and communities impacted by this RDA action will be addressed through its permitting action and stakeholder outreach efforts.

This report presents a methodology to develop and analyze parcel-level stormwater TN and TP loading within the Great Bay Watershed that may be used by EPA R1 to support decision making regarding the RDA petition. Key information presented in this report includes an analysis of CII parcels, their characteristics such as the amount of impervious cover (IC), and their estimated stormwater nutrient loads. Areas with environmental justice concerns were identified and the parcels within these areas were further evaluated.

2 METHODOLOGY

The general methodology presented here follows the process used in the Charles River Watershed (CRW) Total Phosphorous analysis (USEPA, 2022) and the Mystic River and Neponset River Watersheds parcel analyses (Paradigm Environmental, 2023a, 2023b), as shown in Figure 2-1. Parcel analysis includes two main components: 1) GIS and spreadsheet-based parcel preprocessing and 2) summary analysis using a python-based tool. These steps are described below and were formulated to be as accurate, transparent, and reproducible as feasible. The results of the parcel analysis include summary attributes for each parcel, as shown in Table 2-1, and additional summaries aggregating the parcel data with other conditions and spatial scales as detailed in Section 4.

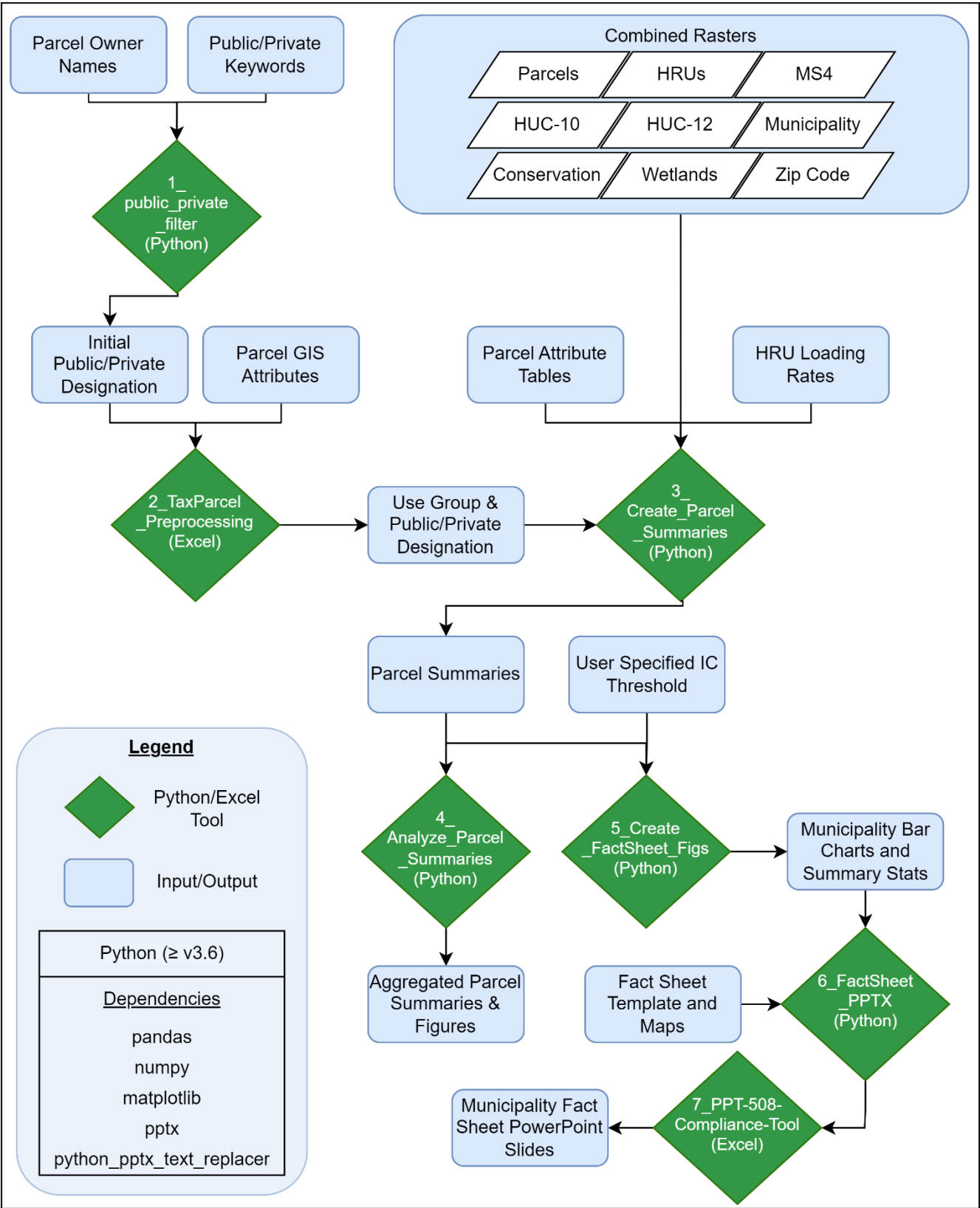


Figure 2-1. Parcel analysis workflow, including relevant requirements, inputs, and outputs.

Table 2-1. Parcel-level summary attributes to be calculated

Attribute	Description
Parcel ID	Unique parcel ID
Municipality	City or Town name and State
Owner	Property owner's name
Owner Address	Property owner's address
Owner City	Property owner's city
Owner Country	Property owner's country
Owner State	Property owner's state
Owner Zip Code	Property owner's zip code
Lot Size (ac)	Deed area (converted to acres in this analysis)
Site Address	Site address
Site Zip Code	Site address zip code
Public/Private	Owner type (public/private) based on filtering described in Section 2.2
MS4 (binary)	Whether parcel is within 2017 MS4 boundary (NH) or ME DEQ MS4
MS4 Status	MS4 status (MS4, Non-MS4, Waivered)
Subbasin	HUC-12 name(s) and percentages if multiple
Use Code	Use code from Tax Assessor
Parcel Use Group	Land use classification in the current analysis (from Use Code)
Total Area (ac)	Parcel area calculated in the current analysis
Conserved Area (ac)	Area within parcel designated as conserved
IC Area (ac)	The impervious cover area
IC Percent	Percent impervious cover
Wetland Area (ac)	Wetland area on the parcel
Wetland Percent	Wetland percent on the parcel
Water Area (ac)	Water area on the parcel
Water Percent	Water percent on the parcel
Forest Area (ac)	Forest area on the parcel
Forest Percent	Forest percentage on the parcel
Pervious Area (ac)	Pervious area
Pervious Percent	Percent pervious
Total Pervious Load (lb/yr)	TN and TP load from the parcel's pervious cover
IC Load (lb/yr)	TN and TP load from the parcel's impervious cover
Total parcel load (lb/yr)	Total TN and TP load from parcel

2.1 Data Inventory

Readily available data necessary for parcel analysis were collected, reviewed, and assessed. Data were obtained from online repositories as well as from EPA staff. Table 2-2 provides an inventory of the GIS data collected and indicates the use of that dataset.

Table 2-2. Data used in the parcel analysis

Name	Use	Source	Source Link	Date Accessed
Parcel boundaries and attribute tables ¹	Spatial boundary	ME and NH GIS Portals	NH , ME	Nov. 15, 2023
Conservation Areas	Summary attributes	ME and NH GIS Portals	NH , ME	Feb. 8, 2024
Hydrologic Response Units (HRUs)	Loading rate and load calculations, IC calculation	EPA	See Task 3A HRU Review memo (Paradigm Environmental, 2023c)	--
Great Bay Watershed	Spatial boundary	EPA		--
HUC-10 boundaries	Spatial boundary	EPA		--
HUC-12 boundaries	Spatial boundary	EPA		--
Municipal boundaries	Spatial boundary	EPA		--
Municipal separate storm sewer system (MS4) boundaries	Summary attributes	EPA		--
Wetlands	Summary attributes	EPA		--

¹ Note that expanded NH parcel attributes including owner name were not publicly accessible and had to be requested from the NH Dept. of Revenue Administration.

2.2 Parcel Preprocessing

Parcel preprocessing is a critical step in ensuring accurate and meaningful parcel summary analyses that can inform RDA decisions. Preprocessing uses several tools (GIS, Excel, python) in steps 1 and 2 of Figure 2-1.

The GIS processing is raster-based and assembles the required data for parcel-level analysis and summaries at other spatial scales. The output of this step is a combined raster layer and attribute table listing the unique combinations of all input rasters. The combined raster attribute table is converted into an Excel spreadsheet and the pollutant load is calculated based on the HRU by multiplying the area of each unique combination by the appropriate loading rate. The development of loading rates is described in the Task 3A memo (Paradigm Environmental, 2023c). The major GIS processing steps are:

1. Ensure all layers use the same projection (EPSG: 32110, NAD 1983 State Plane New Hampshire FIPS 2800).
2. Clip all layers to the area of interest (Great Bay Watershed boundary).

3. Convert all polygon layers to rasters with 1-square meter cells (e.g., parcel layer). The raster cell value is a unique identifier (e.g., Parcel ID) to allow the joining of attributes in later steps.
4. Overlay all rasters using the ESRI Combine tool. The output is a combined raster and an attribute table with a unique identifier for each unique combination of input raster values.

The spreadsheet-based preprocessing step was performed on the tax parcel polygon layer to create a second input to the python-based processing described in Section 2.3. Namely, once all the parcels were clipped to the Great Bay Watershed, all the unique Land Use Codes were mapped to a single Use Group meaningful for RDA decision making. This allows users to easily update parcel classifications as additional parcel details or corrections become available, without having to modify the python code. The 10 initial Use Groups developed for the Great Bay watershed are shown in Table 2-3.

Table 2-3. Initial Use Group categories developed for the Great Bay watershed

Use Group	
Commercial	Private Institutional
Forest	Public Institutional
Industrial	Single Family Residential
MultiFamily Residential	Transportation
Open Land	Water

The Land Use Codes used to derive a parcel's Use Group differ between states and municipalities. For each state, all unique Land Use Codes were examined and assigned an appropriate Use Group when descriptions were available. For Land Use Codes without descriptions, alternate data sources were used to provide initial Use Group assignments. For example, the City of Portsmouth, NH (City of Portsmouth, n.d.), the Maine Geolibrary Land Use Code Committee (Maine Geolibrary Land Use Code Committee, 2014), and the MA Department of Revenue (MA Dept. of Revenue Division of Local Services, 2016). A public or private designation was also assigned to each parcel during this preprocessing step.

The main steps in parcel Use Group classification are listed below. In general, each step reclassifies unknowns from the preceding steps.

1. Assign from Land Use Code with available description
2. Assign from Land Use Code based on alternate sources of descriptions
3. If no Land Use Code, assign from majority HRU category (Table 2-4)
4. Reclassify odd parcels based on owner use group from public/private classification if available (Table 2-6). For example, Private Public Institutional or Public Private Institutional
5. Manually reclassify select parcels (listed in Appendix A)

Appendix B lists all the unique Use Codes, Use Groups, and Public/Private categories within the watershed; all preprocessing steps are detailed in the accompanying excel file (AppendixB_TaxParcel_PreprocessingWorkbook.xlsx).

Table 2-4. Mapping dominate parcel HRU to parcel Use Group

HRU ID	HRU Name	Use Group
100	Water	Water
210	Low Intensity Development Impervious	Commercial
310	Medium Intensity Development Impervious	Commercial
410	High Intensity Development Impervious	Commercial

HRU ID	HRU Name	Use Group
510	Very High Intensity Development Impervious	Commercial
601	Other Pervious A	Forest
602	Other Pervious B	Forest
603	Other Pervious C	Forest
604	Other Pervious D	Forest
610	Other Impervious	Commercial
701	Forest Pervious A	Forest
702	Forest Pervious B	Forest
703	Forest Pervious C	Forest
704	Forest Pervious D	Forest
710	Forest Impervious	Commercial
801	Open Land Pervious A	Open Land
802	Open Land Pervious B	Open Land
803	Open Land Pervious C	Open Land
804	Open Land Pervious D	Open Land
810	Open Land Impervious	Commercial
901	Agriculture Pervious A	Open Land
902	Agriculture Pervious B	Open Land
903	Agriculture Pervious C	Open Land
904	Agriculture Pervious D	Open Land
910	Agriculture Impervious	Commercial
1101	Developed Pervious A	Open Land
1102	Developed Pervious B	Open Land
1103	Developed Pervious C	Open Land
1104	Developed Pervious D	Open Land

Public/Private Classification

A binary public/private classification was developed for parcels within the Great Bay watershed based on any available owner information. Binary classification is important to help distinguish between parcels already subject to regulation. The public/private designation uses keyword filters on the owner name attribute as an initial designation which is then further refined by looking at the assigned Use Group (Table 2-4). For example, any Public Institutional parcels that were not classified as public in the keyword filtering were changed to public. The keywords are listed in Table 2-5 and Table 2-6 and were selected by visual inspection of unique owner names.

The main steps in creating the public/private designation and owner-based Use Group are:

1. Filter public parcels based on public keywords and assign a Public Institutional Use Group
2. Filter private parcels based on private keywords and assign the corresponding Use Group
3. Assign Unknowns based on Use Group (Table 2-7)
4. Reclassify odd parcels based on Use Group. For example, Private Public Institutional or Public Private Institutional
5. Manually reclassify select parcels (Appendix A)

Table 2-5. Owner keywords for initial public parcel filtering

Public Keywords	
CITY OF	STATE PARK
COMMON LAND	THE UNIVERSITY OF NH
COUNTY OF	TOWN HALL
DEPARTMENT OF	TOWN OF
DEPT OF	TOWN OFFICE BUILDING
DEVELOPMENT AUTHORITY	U S POST OFFICE
DEPT. OF	U S POSTAL SERVICE
FIRE DEPARTMENT	U.S GOVERNMENT D.O.D
FIRE DEPT	U.S. GOVERNMENT D.O.D.
HOUSING AUTH	UNITED STATES DEPARTMENT OF AGRICULTURE
LIBRARY	UNITED STATES GOVERNMENT
NATIONAL GUARD	UNITED STATES GOVT
NEW HAMPSHIRE AIR NATIONAL GUARD	UNITED STATES OF AMERICA
NEW HAMPSHIRE DOT	UNITED STATES OF AMERICA, FAA
NEW HAMPSHIRE FISH & GAME	UNITED STATES POST OFFICE
NEW HAMPSHIRE FISH + GAME DEPT	UNITED STATES POSTAL SERVICE
NEW HAMPSHIRE HOUSING FINANCE AUTHORITY	UNITED STATES POSTAL SERVICE
NEW HAMPSHIRE STATE DOT	UNH
NEW HAMPSHIRE, UNIVERSITY OF	UNIVERSITY OF NEW HAMPSHIRE
NH FISH & GAME DEPT	UNIVERSITY OF NH
NH FISH AND GAME DEPARTMENT	US DEPARTMENT OF STATE
NH WATER RESOURCES	US GOVERNMENT
POST OFFICE	US GOVERNMENT FEDERAL BUILDING
REDEVELOPMENT ASSOC	US POSTAL SERVICE
REDEVELOPMENT AUTH	US SEC OF HOUSING & URBAN DEV
SCHOOL DIST	WATER DISTRICT
SEWER DISTRICT	WATER PRECINCT
STATE OF	WATER & SEWER DISTR

Table 2-6. Owner keywords and corresponding Use Groups for initial private parcel filtering

Private Keywords	Use Group
ACADEMY	Private Institutional
AMERICAN LEGION	Private Institutional
ASSOC	Private Institutional
CEMETARY	Open Land
Church	Private Institutional
Company	Commercial
CONDO	MultiFamily Residential
CORP	Commercial
Credit Union	Commercial
ESTATE OF	Unknown
INC	Commercial
Incorporated	Commercial
LAND TRUST	Forest
Limited	Commercial
LIVING TRUS	Single Family Residential
LLC	Commercial
LTD	Commercial
Parish	Private Institutional
PROJECT	Private Institutional
RAILROAD	Commercial
Realty	Single Family Residential
RLTY	Single Family Residential
SOCIETY	Private Institutional
Temple	Private Institutional
TRS	Single Family Residential
Trust	Single Family Residential

Table 2-7. Mapping of Use Group to public/private designation for parcels with no owner information

Use Group	Public/Private
Commercial	Private
Forest	Private
Industrial	Private
MultiFamily Residential	Private
Open Land	Private
Private Institutional	Private
Public Institutional	Public
Single Family Residential	Private
Transportation	Public
Water	Public

2.3 Python-Based Summary Analysis

The raster attribute table output from GIS processing was further processed using a tool developed in python (Figure 2-1). Python is a commonly used programming language for data management and analysis due to its ease of use and readability; all python software and packages used in this analysis are freely available and open source. The output of this processing is an Excel-compatible spreadsheet file including every parcel and additional summaries based on aggregating the data with different conditions and spatial scales. The major python processing steps include:

1. Read the combined raster attribute table into a data frame using the pandas python package.
 - This is a powerful data structure that allows for a wide variety of data manipulation and evaluation.
 - Efficient for large-size datasets.
2. Join relevant attribute tables.
 - The parcel ID was used to join parcels with the preprocessed parcel data and the relevant CAMA data tables, which provide parcel details such as site address, owner information, and year built.
 - Performing this step outside of a GIS environment should reduce processing time and potential data overlap errors.
3. Calculate parcel-level information.
 - The information shown in Table 2-1 was calculated for each parcel.
4. Generate parcel-level summary tables.
 - A summary spreadsheet file was generated and saved. The file includes all the necessary information as shown in Table 2-1 for each property parcel.
 - The code can also optionally generate a summary table for multiple attributes (e.g., the unique intersection of parcel, municipality, and subbasin). This is useful for additional QA of areas and loads.
5. Generate additional summaries.
 - Additional summaries of the calculated parcel data were created by aggregating with other conditions and spatial scales.
 - For example, TN loading from IC areas can be summarized for parcels of varying IC areas and Use Groups.

Outputs of the python-based processing are presented and evaluated in the Results and Discussion section. The outputs can be visualized by joining with the parcel ID in the parcel polygon layer.

2.4 Quality Assurance / Quality Control (QA/QC)

Several QA/QC steps have been performed to ensure the highest level of accuracy feasible. One of the greatest sources of uncertainty in this analysis is the parcel attributes from the respective states and individual towns. As seen in Table 2-5, owner names and other details like land use codes are not standardized and may have typos that make automated processing difficult.

QA/QC checks include:

- Ensuring that parcel counts and areas are conserved.
- Evaluating the fraction of public and private ownership for feasibility.
- Visually inspecting parcel classifications in GIS.
- Visually inspecting parcels with a large amount of IC (≥ 20 ac).

2.5 Limitations

Two of the primary limitations of this analysis are that neither New Hampshire nor Maine has standardized formats for assessed parcel data and that municipalities are not required to submit parcel assessor data for incorporation in each state's parcel GIS data; this data is typically maintained by municipalities. EPA R1 staff gathered additional parcel data from municipalities in New Hampshire with missing parcel polygons in the state-wide layer (Brookfield, Candia, East Kingston, Newington, and North Hampton). These data were incorporated into the New Hampshire state-wide parcel layer to create a complete parcel layer for the Great Bay watershed. EPA R1 also contacted and received parcel attribute data for several municipalities in Maine including Kittery, Eliot, Acton, and York. These data improved the parcel classifications within these municipalities however, as of this report date two municipalities (Wells and North Berwick) are still missing owner and other parcel attribute information for all of their parcels within the Great Bay watershed. It should be noted that Maine parcels without complete attribute information were largely classified by the dominant HRU within the parcel. This led to an overestimation of "Forest" parcels in Maine and an underestimation of other parcel types (primarily Single Family Residential).

An additional limitation of this analysis is that parcels crossing the boundary of the Great Bay Watershed will only be evaluated for the portion of their area within the watershed. This is not expected to impact the calculation of load within the watershed, but will impact the calculation of area for different land uses at the parcel scale. For example, a parcel may have IC outside of the watershed boundary, but only the IC area and load within the watershed was accounted for. The percentage of IC area was calculated as the IC area within the watershed divided by the total parcel area within the watershed. The impact of splitting parcels on the watershed boundary should be negligible given that this is a small portion of the total number of parcels.

3 PREPROCESSING RESULTS

Results of the parcel preprocessing, in terms of total distribution within the Great Bay Watershed, are shown in Table 3-1 and Table 3-2 and mapped in Figure 3-1. It should be noted that a small number of parcels overlap the NH/ME state boundary; this overlap is a small portion of each parcel’s area and represents a total of 39 ac. The state area totals shown in Table 3-2 exclude this area overlap, however, no parcels overlap and all parcel area is accounted for in the watershed total.

This analysis shows that over three-quarters (68.8%) of the parcels are classified as single-family residences and 8.2% are multi-family residential. When combined, commercial, industrial, and private institutional parcels account for 5.9% of parcels. When evaluated by area, single family residential parcels make up 47.6%, forest represents 29.3%, and multi-family residential represents 5.1%. By area, commercial, industrial, and private institutional parcels account for 8.5% of the watershed. The distribution of public/private parcels, grouped by Use Code group, is shown in Table 3-3.

Table 3-1. Count of parcels by Use Group within the Great Bay Watershed

Use Group	Maine		New Hampshire		Great Bay	
	Count	%	Count	%	Count	%
Commercial	1,089	4.5%	3,928	4.3%	5,017	4.3%
Forest	6,780	27.9%	4,828	5.2%	11,608	9.9%
Industrial	271	1.1%	696	0.8%	967	0.8%
MultiFamily Residential	1,055	4.3%	8,533	9.2%	9,588	8.2%
Open Land	3,097	12.7%	1,418	1.5%	4,515	3.9%
Private Institutional	151	0.6%	693	0.8%	844	0.7%
Public Institutional	289	1.2%	3,193	3.5%	3,482	3.0%
Single Family Residential	11,339	46.7%	68,971	74.7%	80,310	68.8%
Transportation	137	0.6%	58	0.1%	195	0.2%
Water	97	0.4%	72	0.1%	169	0.1%
Unknown	0	0.0%	0	0.0%	0	0.0%
Total	24,305	100.0%	92,390	100.0%	116,695	100.0%

Table 3-2. Parcel area by Use Group within the Great Bay Watershed

Use Group	Maine		New Hampshire		Great Bay	
	Area (ac)	%	Area (ac)	%	Area (ac)	%
Commercial	8,111.9	5.4%	23,910.4	5.3%	32,027.1	5.3%
Forest	84,796.5	56.5%	92,071.8	20.3%	176,880.7	29.3%
Industrial	4,077.1	2.7%	8,590.3	1.9%	12,669.2	2.1%
MultiFamily Residential	2,101.3	1.4%	28,379.9	6.3%	30,484.0	5.1%
Open Land	4,827.3	3.2%	6,219.8	1.4%	11,047.8	1.8%
Private Institutional	1,146.2	0.8%	5,385.0	1.2%	6,531.5	1.1%
Public Institutional	2,629.4	1.8%	38,179.8	8.4%	40,810.7	6.8%
Single Family Residential	39,781.7	26.5%	247,653.4	54.6%	287,448.5	47.6%
Transportation	1,098.6	0.7%	2,135.7	0.5%	3,234.4	0.5%
Water	1,511.9	1.0%	796.6	0.2%	2,309.4	0.4%
Unknown	0.0	0.0%	0.0	0.0%	0.0	0.0%
Total	150,081.8	100.0%	453,322.8	100.0%	603,443.3	100.0%

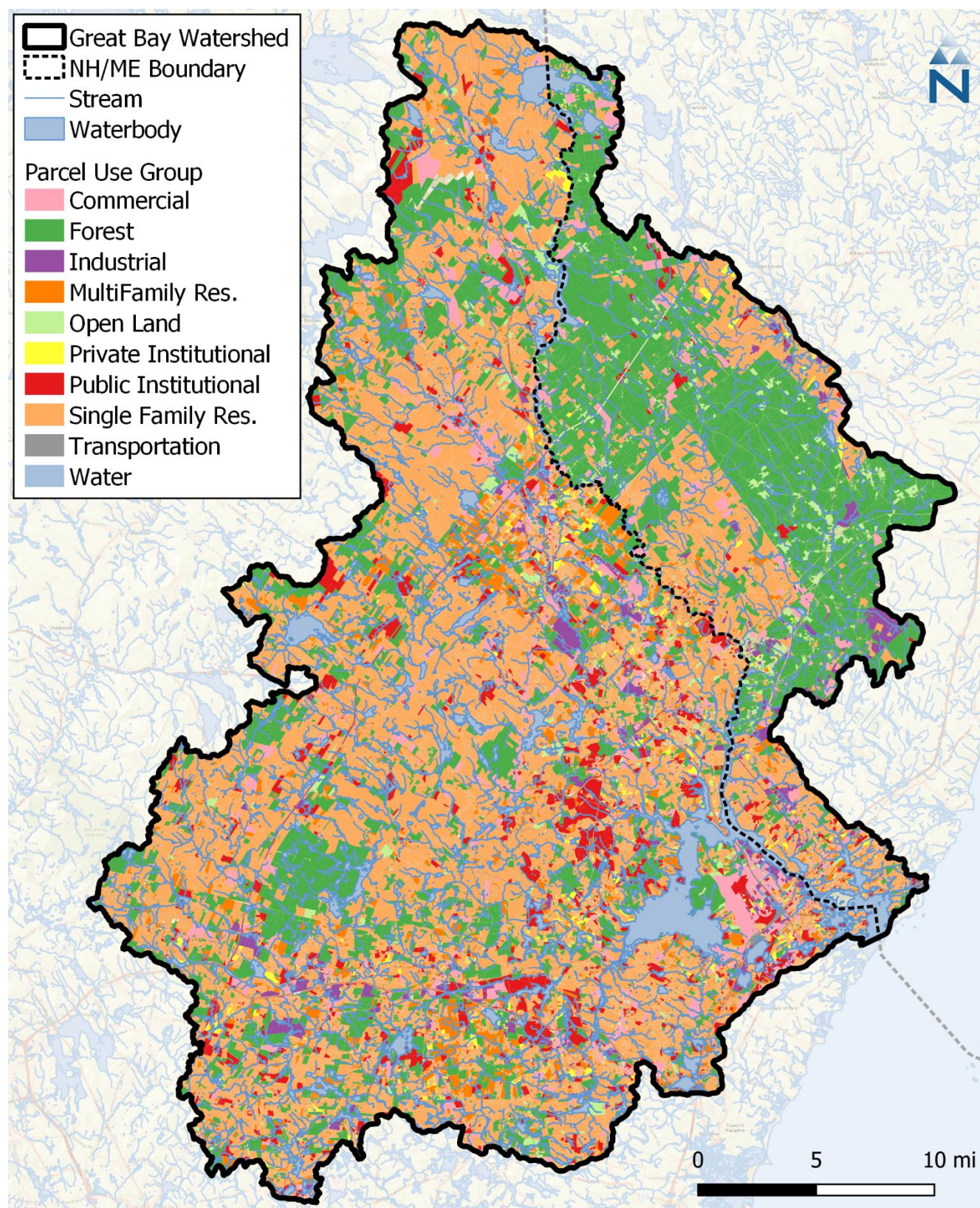


Figure 3-1. Map of parcel Use Groups within the Great Bay Watershed. Note that the resolution of this map is parcel-scale; streams and waterbodies can exist within parcel boundaries and were added for visual clarity. It should also be noted that due to missing attribute data for Maine parcels, “Forest” is likely overestimated in Maine.

Table 3-3. Distribution of public and private parcel areas by Use Group

Public/Private	Use Group	Count	Count (%)	Area (ac)	Area (%)
Private	Commercial	5,000	4.3%	31,756.2	5.3%
	Forest	11,510	9.9%	163,375.6	27.1%
	Industrial	860	0.7%	10,699.8	1.8%
	MultiFamily Residential	9,575	8.2%	30,277.7	5.0%
	Open Land	4,514	3.9%	11,013.0	1.8%
	Private Institutional	844	0.7%	6,531.5	1.1%
	Public Institutional	0	0.0%	0.0	0.0%
	Single Family Residential	80,282	68.8%	287,093.1	47.6%
	Transportation	132	0.1%	385.8	0.1%
	Water	149	0.1%	858.3	0.1%
	Unknown	0	0.0%	0.0	0.0%
	Subtotal	112,866	96.7%	541,991.1	89.8%
Public	Commercial	17	0.0%	270.9	0.0%
	Forest	98	0.1%	13,505.2	2.2%
	Industrial	107	0.1%	1,969.4	0.3%
	MultiFamily Residential	13	0.0%	206.2	0.0%
	Open Land	1	0.0%	34.7	0.0%
	Private Institutional	0	0.0%	0.0	0.0%
	Public Institutional	3,482	3.0%	40,810.7	6.8%
	Single Family Residential	28	0.0%	355.4	0.1%
	Transportation	63	0.1%	2,848.6	0.5%
	Water	20	0.0%	1,451.1	0.2%
	Unknown	0	0.0%	0.0	0.0%
	Subtotal	3,829	3.3%	61,452.2	10.2%
Total		116,695	100%	603,443.3	100%

4 RESULTS AND DISCUSSION

This section describes the calculated TN and TP loads from private and public properties based on the parcel Use Group with results presented for all Great Bay parcels and by state. Analyses include the proportional impact of different private property classes, the proportional impact of different property sizes based on the amount of impervious cover on each property, and a range of the IC size thresholds to reduce the greatest amount of TN and TP while potentially regulating the fewest number of properties.

Pollutant loads calculated in this analysis are based on the HRUs and corresponding loading rates developed by EPA R1 for the Great Bay watershed as documented in the Task 3A Technical Memo (Paradigm Environmental, 2023c). These loading rates represent the long-term annual average values developed through continuous simulation using EPA R1's regionally calibrated Opti-Tool Stormwater Management Model (SWMM) for the period January 1, 2003 to December 31, 2021. The total baseline nutrient loads used in this parcel analysis represent unattenuated stormwater TN loads of 1,317,168 lb/yr. The contributions by municipality and state are shown in Table 4-1.

Table 4-1. Stormwater annual average TN load for municipalities with the Great Bay watershed

Municipality	State	MS4 Status ¹	Annual Average TN Load			
			Public (%)	Private (%)	Non-Parcel (%) ²	Unattenuated (lb/yr) ³
Alton	NH	No MS4	25%	70%	5%	687.2
Barrington	NH	Waivered	5%	80%	15%	46,576.1
Brentwood	NH	Waivered	8%	73%	19%	23,741.0
Brookfield	NH	No MS4	12%	86%	3%	18,862.3
Candia	NH	Waivered	15%	84%	2%	17,568.4
Chester	NH	Waivered	7%	75%	18%	18,878.0
Danville	NH	MS4	5%	73%	22%	2,339.6
Deerfield	NH	No MS4	6%	83%	11%	31,182.2
Derry	NH	MS4	0%	97%	2%	369.6
Dover	NH	MS4	8%	69%	23%	69,362.9
Durham	NH	MS4	26%	60%	14%	46,885.9
East Kingston	NH	Waivered	10%	87%	3%	7,437.5
Epping	NH	Waivered	5%	73%	22%	29,697.9
Exeter	NH	MS4	12%	69%	19%	35,580.9
Farmington	NH	No MS4	4%	84%	13%	37,651.9
Fremont	NH	Waivered	4%	82%	14%	12,670.6
Greenland	NH	MS4	7%	76%	18%	21,857.1
Hampstead	NH	MS4	6%	71%	23%	2,149.4
Hampton	NH	MS4	2%	39%	59%	1,239.9
Hampton Falls	NH	Waivered	7%	90%	3%	559.4
Kensington	NH	No MS4	7%	83%	10%	9,500.4
Kingston	NH	MS4	3%	71%	25%	6,102.0
Lee	NH	Waivered	19%	81%	0%	29,008.2
Madbury	NH	Waivered	9%	80%	11%	17,384.2
Middleton	NH	No MS4	6%	71%	24%	11,668.2
Milton	NH	MS4	4%	77%	19%	29,602.0

Municipality	State	MS4 Status ¹	Annual Average TN Load			
			Public (%)	Private (%)	Non-Parcel (%) ²	Unattenuated (lb/yr) ³
New Castle	NH	MS4	12%	58%	30%	2,377.8
New Durham	NH	No MS4	3%	84%	14%	17,370.6
Newfields	NH	Waivered	11%	75%	14%	8,398.7
Newington	NH	Waivered	23%	72%	6%	24,658.0
Newmarket	NH	MS4	9%	76%	15%	19,910.9
North Hampton	NH	MS4	18%	71%	12%	9,056.6
Northwood	NH	No MS4	10%	79%	11%	14,670.5
Nottingham	NH	No MS4	11%	74%	15%	30,480.3
Pittsfield	NH	No MS4	0%	100%	0%	6.5
Portsmouth	NH	MS4	21%	65%	14%	53,246.6
Raymond	NH	MS4	5%	71%	24%	33,815.0
Rochester	NH	MS4	5%	74%	20%	80,321.5
Rollinsford	NH	MS4	5%	81%	15%	12,422.4
Rye	NH	MS4	0%	67%	33%	314.0
Sandown	NH	MS4	3%	77%	19%	12,466.2
Somersworth	NH	MS4	7%	74%	19%	23,415.1
Strafford	NH	No MS4	8%	85%	7%	42,012.7
Stratham	NH	MS4	5%	78%	17%	28,345.7
Wakefield	NH	No MS4	5%	83%	12%	37,784.6
Wolfeboro	NH	No MS4	1%	91%	8%	944.3
New Hampshire Subtotal						980,580.8
Acton	ME	No MS4	2%	90%	8%	24,952.3
Berwick	ME	MS4	4%	86%	9%	45,392.0
Eliot	ME	MS4	16%	84%	0%	31,392.3
Kittery	ME	MS4	6%	68%	27%	39,183.4
Lebanon	ME	No MS4	1%	92%	7%	67,721.3
North Berwick	ME	No MS4	1%	89%	10%	45,626.0
Sanford	ME	No MS4	19%	81%	0%	28,061.5
Shapleigh	ME	No MS4	2%	98%	0%	1,017.9
South Berwick	ME	MS4	9%	79%	12%	37,520.7
Wells	ME	No MS4	0%	88%	12%	11,975.7
York	ME	MS4	3%	96%	2%	3,744.2
Maine Subtotal						336,587.5
Great Bay Total						1,317,168.3

¹New Hampshire MS4 status as of 2017 permit; Maine 2022 MS4 status as determined by ME DEQ <https://www.maine.gov/dep/water/wd/ms4/2022-Municipal-MS4-GP.pdf>.

²“Non-Parcel” represents areas within a municipality that were not covered by a parcel polygon (often roadways).

³“Unattenuated” refers to direct stormwater runoff

4.1 Great Bay Parcel Overview

Based on the parcel preprocessing results, a total of 116,695 parcels within the Great Bay watershed were analyzed. The parcels are predominately private Single Family Residential, which represents 69% of all parcels by count and 48% by land area. Other major parcel types include private Forest and private Multi-Family Residential which make up 10% and 8% of the total parcel, respectively; by area these categories make up 27% and 5% of the watershed total, respectively.

Figure 4-1 illustrates the distribution of summary attributes by Public/Private designation for all parcels in the Great Bay watershed. Private parcels account for 97% of parcels and 90% of the total parcel area. The impervious cover makes up approximately 4% of the total area, however, 88% of the IC area is private. In terms of nutrient loading, private parcels contribute 90% of the total TN and total TP. Loading from IC within private parcels amounts to 34% of the total TN and 30% of the total TN load from private parcels. Private IC load represents 30% and 27% of total TN and total TP, respectively, from all parcels. These results indicate that private parcels contribute the vast majority of the nutrient load, with nearly one-third of the total TN from private IC, and may require further stormwater controls for the watershed to meet its water quality goals. Table 4-2 and Table 4-3 provide additional details summarizing the IC area and load for all parcels by Use Group and Private/Public designation for TN and TP, respectively.

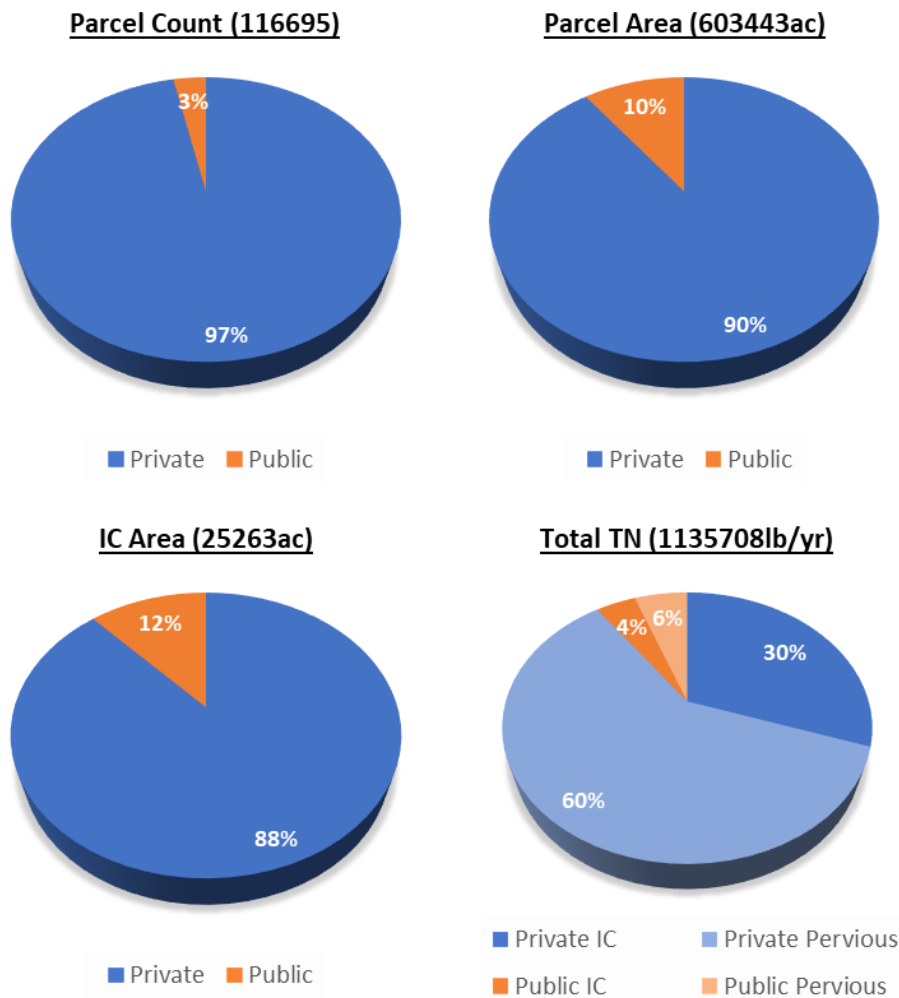


Figure 4-1. Private/Public summaries for all parcels within the Great Bay Watershed.

Table 4-2. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TN*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TN Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	5,000	4.28	31,756.2	5.26	4,891.3	15.40	0.98	79,060.37	36,935.16	115,995.53	10.21	23.20
	Forest	11,510	9.86	163,375.6	27.07	1,929.4	1.18	0.17	28,177.32	199,778.89	227,956.21	20.07	19.81
	Industrial	860	0.74	10,699.8	1.77	1,663.0	15.54	1.93	26,372.88	12,217.06	38,589.94	3.40	44.87
	MultiFamily Res.	9,575	8.21	30,277.7	5.02	1,889.4	6.24	0.20	29,581.78	40,602.52	70,184.30	6.18	7.33
	Open Land	4,514	3.87	11,013.0	1.83	742.8	6.74	0.16	11,647.68	19,094.32	30,742.00	2.71	6.81
	Private Inst.	844	0.72	6,531.5	1.08	426.1	6.52	0.50	6,791.53	7,381.42	14,172.95	1.25	16.79
	Public Inst.	0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	80,282	68.80	287,093.1	47.58	10,686.9	3.72	0.13	161,440.01	363,446.50	524,886.51	46.22	6.54
	Transportation	132	0.11	385.8	0.06	43.3	11.22	0.33	672.14	569.92	1,242.07	0.11	9.41
	Water	149	0.13	858.3	0.14	6.1	0.71	0.04	60.34	788.18	848.52	0.07	5.69
	Subtotal	112,866	96.7	541,991.1	89.8	22,278.3	4.1	--	343,804.05	680,813.97	1,024,618.03	90.2	--
Public	Commercial	17	0.01	270.9	0.04	20.8	7.68	1.22	341.82	275.13	616.95	0.05	36.29
	Forest	98	0.08	13,505.2	2.24	56.3	0.42	0.57	801.57	7,593.61	8,395.18	0.74	85.67
	Industrial	107	0.09	1,969.4	0.33	22.9	1.16	0.21	355.37	2,683.67	3,039.04	0.27	28.40
	MultiFamily Res.	13	0.01	206.2	0.03	8.9	4.29	0.68	138.60	288.85	427.45	0.04	32.88
	Open Land	1	0.00	34.7	0.01	0.8	2.39	0.83	12.45	74.97	87.42	0.01	87.42
	Private Inst.	0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	3,482	2.98	40,810.7	6.76	1,670.8	4.09	0.48	26,628.42	48,303.46	74,931.88	6.60	21.52
	Single Family Res.	28	0.02	355.4	0.06	8.6	2.41	0.31	122.25	350.09	472.34	0.04	16.87
	Transportation	63	0.05	2,848.6	0.47	1,195.2	41.96	18.97	19,193.50	3,568.01	22,761.51	2.00	361.29
	Water	20	0.02	1,451.1	0.24	0.7	0.05	0.03	7.10	350.99	358.09	0.03	17.90
	Subtotal	3,829	3.3	61,452.2	10.2	2,984.9	4.9	--	47,585.95	63,405.07	110,991.01	9.8	--
Total		116,695	100	603,443.3	100	25,263.2	4.2	--	391,405.14	744,302.75	1,135,707.89	100	--

* A darker color gradient represents increasing value within a column.

Table 4-3. Summary of parcel attributes by Use Group and Public/Private designation with TP*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TP Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	5,000	4.28	31,756.2	5.26	4,891.3	15.40	0.98	10,446.67	5,156.10	15,602.78	9.16	3.12
	Forest	11,510	9.86	163,375.6	27.07	1,929.4	1.18	0.17	3,618.72	34,983.43	38,602.14	22.67	3.35
	Industrial	860	0.74	10,699.8	1.77	1,663.0	15.54	1.93	3,462.01	1,697.00	5,159.01	3.03	6.00
	MultiFamily Res.	9,575	8.21	30,277.7	5.02	1,889.4	6.24	0.20	4,146.48	5,956.29	10,102.77	5.93	1.06
	Open Land	4,514	3.87	11,013.0	1.83	742.8	6.74	0.16	1,574.63	2,309.00	3,883.63	2.28	0.86
	Private Inst.	844	0.72	6,531.5	1.08	426.1	6.52	0.50	933.07	1,140.83	2,073.90	1.22	2.46
	Public Inst.	0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	80,282	68.80	287,093.1	47.58	10,686.9	3.72	0.13	21,329.91	56,468.81	77,798.72	45.69	0.97
	Transportation	132	0.11	385.8	0.06	43.3	11.22	0.33	92.81	83.88	176.69	0.10	1.34
	Water	149	0.13	858.3	0.14	6.1	0.71	0.04	7.70	142.54	150.24	0.09	1.01
	Subtotal	112,866	96.7	541,991.1	89.8	22,278.3	4.1	--	45,612.00	107,937.89	153,549.89	90.2	--
Public	Commercial	17	0.01	270.9	0.04	20.8	7.68	1.22	45.31	39.66	84.97	0.05	5.00
	Forest	98	0.08	13,505.2	2.24	56.3	0.42	0.57	102.92	1,399.07	1,501.99	0.88	15.33
	Industrial	107	0.09	1,969.4	0.33	22.9	1.16	0.21	49.27	499.60	548.88	0.32	5.13
	MultiFamily Res.	13	0.01	206.2	0.03	8.9	4.29	0.68	19.76	35.89	55.65	0.03	4.28
	Open Land	1	0.00	34.7	0.01	0.8	2.39	0.83	1.54	7.98	9.53	0.01	9.53
	Private Inst.	0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	3,482	2.98	40,810.7	6.76	1,670.8	4.09	0.48	3,598.94	7,784.97	11,383.91	6.69	3.27
	Single Family Res.	28	0.02	355.4	0.06	8.6	2.41	0.31	16.18	62.42	78.60	0.05	2.81
	Transportation	63	0.05	2,848.6	0.47	1,195.2	41.96	18.97	2,613.07	378.11	2,991.18	1.76	47.48
	Water	20	0.02	1,451.1	0.24	0.7	0.05	0.03	0.90	57.45	58.36	0.03	2.92
	Subtotal	3,829	3.3	61,452.2	10.2	2,984.9	4.9	--	6,447.90	10,265.16	16,713.06	9.8	--
Total		116,695	100	603,443.3	100	25,263.2	4.2	--	52,059.90	118,203.05	170,262.95	100	--

* A darker color gradient represents increasing value within a column.

4.2 New Hampshire Parcels

Parcels within New Hampshire represent 79% of all parcels within the Great Bay watershed and 75% of the total parcel area. The breakdowns of TN and TP load for these parcels, by use group and public/private designation, are shown in Table 4-4 and Table 4-5, respectively. NH parcels follow similar trends seen at the watershed scale; Single Family Residential makes up three-quarters of the parcels (55% by area) and 96% of the parcels are private (88% by area).

Table 4-4. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TN*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TN Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	3,914	4.24	23,734.48	5.24	4,224.38	17.80	1.08	68,668.64	25,977.78	94,646.41	11.39	24.18
	Forest	4,740	5.13	79,854.49	17.62	463.41	0.58	0.10	6,801.61	81,171.56	87,973.17	10.58	18.56
	Industrial	694	0.75	8,587.18	1.89	1,352.76	15.75	1.95	21,589.24	8,774.11	30,363.35	3.65	43.75
	MultiFamily Res.	8,523	9.23	28,186.79	6.22	1,678.32	5.95	0.20	26,266.87	36,630.56	62,897.43	7.57	7.38
	Open Land	1,418	1.53	6,219.83	1.37	306.06	4.92	0.22	4,854.95	9,977.26	14,832.21	1.78	10.46
	Private Inst.	693	0.75	5,385.05	1.19	371.08	6.89	0.54	5,936.05	5,949.36	11,885.41	1.43	17.15
	Public Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	68,948	74.63	247,299.73	54.55	9,074.40	3.67	0.13	137,112.50	299,034.53	436,147.03	52.48	6.33
	Transportation	8	0.01	89.48	0.02	0.50	0.56	0.06	8.38	134.83	143.21	0.02	17.90
	Water	72	0.08	796.57	0.18	1.63	0.20	0.02	22.04	753.60	775.64	0.09	10.77
	Subtotal	89,010	96.3	400,153.62	88.3	17,472.53	4.4	--	271,260.28	468,403.58	739,663.85	89.0	--
Public	Commercial	14	0.02	175.97	0.04	18.64	10.59	1.33	307.23	163.01	470.23	0.06	33.59
	Forest	88	0.10	12,217.26	2.70	39.28	0.32	0.45	563.72	6,574.36	7,138.09	0.86	81.11
	Industrial	2	0.00	3.10	0.00	0.19	6.30	0.10	3.37	0.59	3.96	0.00	1.98
	MultiFamily Res.	10	0.01	193.09	0.04	3.70	1.92	0.37	55.16	279.17	334.33	0.04	33.43
	Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	3,193	3.46	38,179.85	8.42	1,518.01	3.98	0.48	24,250.97	44,121.06	68,372.03	8.23	21.41
	Single Family Res.	23	0.02	353.67	0.08	8.11	2.29	0.35	115.09	348.62	463.70	0.06	20.16
	Transportation	50	0.05	2,046.25	0.45	740.85	36.21	14.82	11,930.35	2,758.23	14,688.58	1.77	293.77
	Water	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal	3,380	3.7	53,169.18	11.7	2,328.78	4.4	--	37,225.88	54,245.03	91,470.92	11.0	--
Total		92,390	100	453,322.79	100	19,801.31	4.4	--	308,486.16	522,648.61	831,134.77	100	--

* A darker color gradient represents increasing value within a column.

Table 4-5. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TP*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TP Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	3,914	4.24	23,734.48	5.24	4,224.38	17.80	1.08	9,055.94	3,477.77	12,533.71	10.23	3.20
	Forest	4,740	5.13	79,854.49	17.62	463.41	0.58	0.10	889.28	14,041.20	14,930.48	12.19	3.15
	Industrial	694	0.75	8,587.18	1.89	1,352.76	15.75	1.95	2,826.39	1,171.23	3,997.62	3.26	5.76
	MultiFamily Res.	8,523	9.23	28,186.79	6.22	1,678.32	5.95	0.20	3,680.92	5,373.35	9,054.28	7.39	1.06
	Open Land	1,418	1.53	6,219.83	1.37	306.06	4.92	0.22	673.69	1,308.55	1,982.24	1.62	1.40
	Private Inst.	693	0.75	5,385.05	1.19	371.08	6.89	0.54	816.53	894.05	1,710.58	1.40	2.47
	Public Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	68,948	74.63	247,299.73	54.55	9,074.40	3.67	0.13	18,129.37	46,225.46	64,354.84	52.55	0.93
	Transportation	8	0.01	89.48	0.02	0.50	0.56	0.06	1.08	18.60	19.68	0.02	2.46
	Water	72	0.08	796.57	0.18	1.63	0.20	0.02	2.99	138.23	141.22	0.12	1.96
	Subtotal	89,010	96.3	400,153.62	88.3	17,472.53	4.4	--	36,076.20	72,648.45	108,724.64	88.8	--
Public	Commercial	14	0.02	175.97	0.04	18.64	10.59	1.33	40.72	20.22	60.95	0.05	4.35
	Forest	88	0.10	12,217.26	2.70	39.28	0.32	0.45	72.79	1,208.64	1,281.43	1.05	14.56
	Industrial	2	0.00	3.10	0.00	0.19	6.30	0.10	0.39	0.12	0.51	0.00	0.26
	MultiFamily Res.	10	0.01	193.09	0.04	3.70	1.92	0.37	7.56	34.97	42.54	0.03	4.25
	Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	3,193	3.46	38,179.85	8.42	1,518.01	3.98	0.48	3,272.77	7,073.78	10,346.55	8.45	3.24
	Single Family Res.	23	0.02	353.67	0.08	8.11	2.29	0.35	15.25	62.28	77.53	0.06	3.37
	Transportation	50	0.05	2,046.25	0.45	740.85	36.21	14.82	1,631.84	293.95	1,925.79	1.57	38.52
	Water	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal	3,380	3.7	53,169.18	11.7	2,328.78	4.4	--	5,041.33	8,693.97	13,735.30	11.2	--
Total		92,390	100	453,322.79	100	19,801.31	4.4	--	41,117.53	81,342.41	122,459.94	100	--

* A darker color gradient represents increasing value within a column

Commercial, Industrial, and Institutional Parcels

Within New Hampshire, private Commercial, Industrial, and Institutional parcels make up approximately 6% of parcels and 8% of total parcel area (Table 4-6). The greatest number of CII parcels are Commercial; Industrial and Private Institutional both have nearly 700 parcels. On average, Industrial parcels have the highest IC and load values, followed by Commercial and Institutional. CII parcels make up 30% of total IC area within the state and 31% of total TN and TP load from all IC. These parcels could be candidates for additional stormwater controls while excluding the regulation of the nearly 80,000 private single family residential and multi-family residential parcels. If all private CII parcels installed stormwater controls to reduce TN loads from IC by 60% (an assumed stormwater control measure (SCM) efficiency), the resulting reduction would be 57,716 lb/yr of TN. This equates to 13% of the estimated TN load reductions suggested in the draft GBTNGP.

Table 4-6. Summary of private commercial, industrial, and institutional parcel attributes in the New Hampshire portion of the Great Bay watershed

Use Group	Count	Total Area (ac)	IC Area			TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	Parcel Avg. (ac)	IC	Pervious	Parcel Total Avg.	IC	Pervious	Parcel Total Avg.
Commercial	3,914	23,734.5	4,224.4	17.8	1.1	68,668.6	25,977.8	24.2	9,055.9	3,477.8	3.2
Industrial	694	8,587.2	1,352.8	15.8	1.9	21,589.2	8,774.1	43.8	2,826.4	1,171.2	5.8
Private Institutional	693	5,385.0	371.1	6.9	0.5	5,936.0	5,949.4	17.2	816.5	894.0	2.5
Subtotal	5,301	37,706.7	5,948.2	15.8	--	96,193.9	40,701.2	--	12,698.9	5,543.0	--
State Total (%)	5.7	8.3	30.0	--	--	31.2	7.8	--	30.9	6.8	--

While regulating all CII parcels would yield the largest reduction in TN, it may be possible to regulate fewer CII properties while still getting the majority of the nutrient reduction. The relationship between the number of parcels, the amount of IC area within a parcel, and the total load was evaluated for private CII parcels in New Hampshire by varying thresholds of IC area as shown Figure 4-2 and Figure 4-3 (Appendix C presents similar plots by individual parcel use group). These plots show that while the IC threshold is relatively large (e.g., ≥ 2 ac), the number of parcels regulated is relatively small, but accounts for more than half of the private CII total load. As the IC threshold decreases below 1 ac, the number of parcels regulated sharply increases, but with lower increases in the total load.

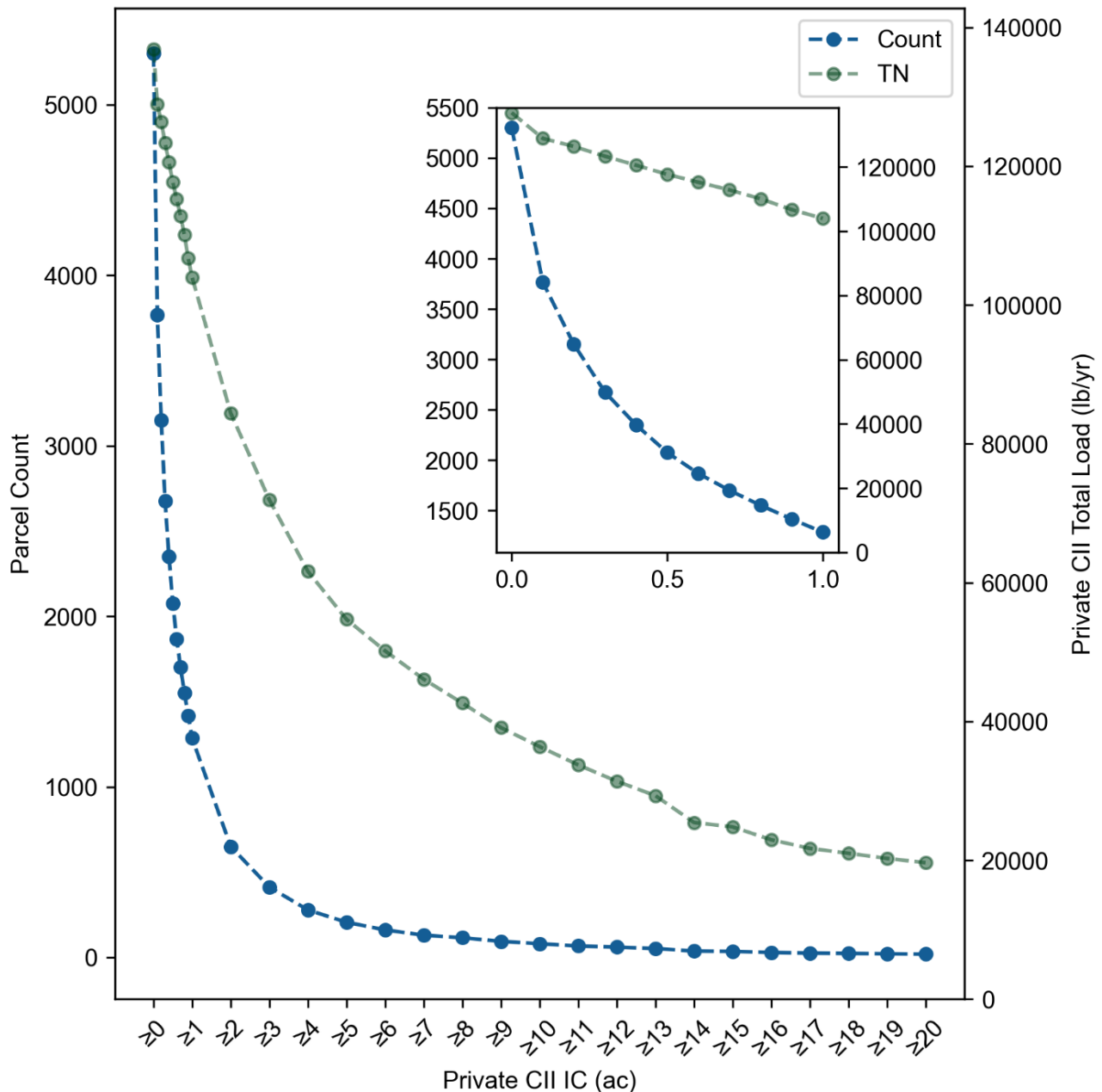


Figure 4-2. Private CII parcel count and total TN load by parcel IC area in the New Hampshire portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.

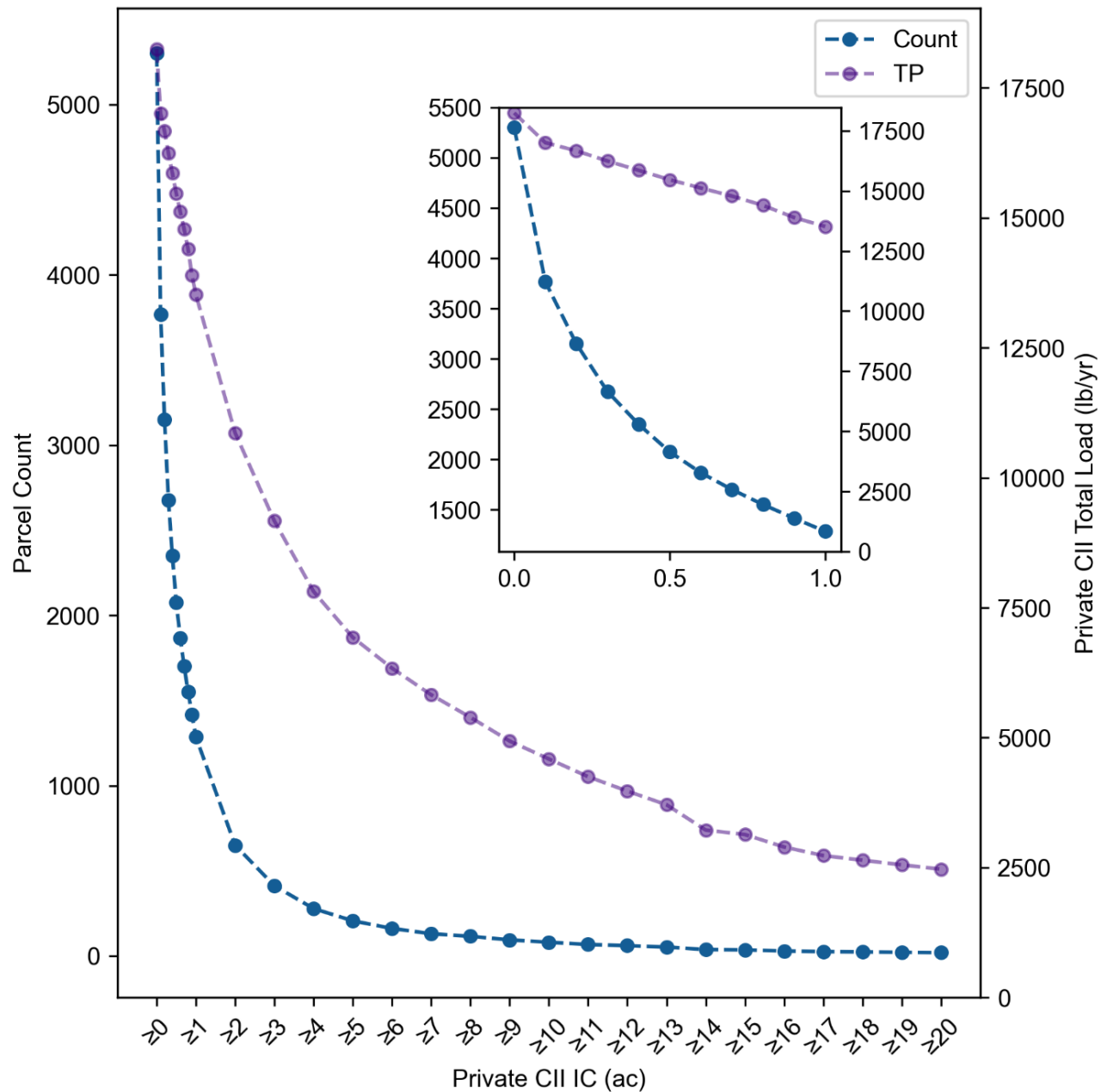


Figure 4-3. . Private CII parcel count and total TP load by parcel IC area in the New Hampshire portion of the Great Bay watershed. Note that a threshold of ≥ 0 ac IC includes all private CII parcels.

The parcel count, load, IC relationship was further analyzed for IC thresholds of 0.25 ac, 0.5 ac, 0.75 ac, 1 ac, 2 ac, and 5 ac as shown in Table 4-7 to Table 4-12. These tables show that, for a small percentage of the total number of parcels, a larger proportion of the IC nutrient load can be controlled. For example, private CII parcels with ≥ 0.25 ac of IC represent 3% (2,903) of the total number of parcels in the state but account for 30% of the IC TN and TP load. Larger IC thresholds require regulating fewer parcels, but with the potential to treat less of the nutrient load.

Table 4-7. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.25 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	2,225	20,645.5	4,070.9	19.7	66,152.3	22,848.6	89,001.0	8,711.5	3,023.0	11,734.6
Industrial	426	6,553.7	1,339.7	20.4	21,386.0	6,839.6	28,225.6	2,798.5	876.9	3,675.4
Private Institutional	252	2,147.7	345.0	16.1	5,519.8	2,369.9	7,889.7	759.0	318.6	1,077.6
Subtotal	2,903	29,346.9	5,755.6	19.6	93,058.1	32,058.2	125,116.3	12,269.0	4,218.6	16,487.6
State Total (%)	3.1	6.5	29.1	--	30.2	6.1	15.1	29.8	5.2	13.5

Table 4-8. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.5 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	1,541	18,977.4	3,824.6	20.2	62,161.3	21,231.5	83,392.7	8,160.0	2,803.4	10,963.4
Industrial	371	5,994.0	1,319.4	22.0	21,060.4	6,351.9	27,412.3	2,754.1	809.6	3,563.7
Private Institutional	164	1,764.4	313.4	17.8	5,017.6	1,881.5	6,899.1	688.6	248.8	937.4
Subtotal	2,076	26,735.7	5,457.4	20.4	88,239.3	29,464.9	117,704.2	11,602.8	3,861.7	15,464.5
State Total (%)	2.2	5.9	27.6	--	28.6	5.6	14.2	28.2	4.7	12.6

Table 4-9. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.75 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	1,175	17,886.4	3,600.5	20.1	58,540.6	20,021.2	78,561.8	7,657.8	2,633.6	10,291.4
Industrial	326	5,701.7	1,291.5	22.7	20,619.9	6,154.6	26,774.4	2,693.5	785.6	3,479.1
Private Institutional	131	1,601.8	292.4	18.3	4,682.3	1,687.5	6,369.8	640.7	219.9	860.7
Subtotal	1,632	25,189.9	5,184.4	20.6	83,842.8	27,863.3	111,706.1	10,992.0	3,639.1	14,631.1
State Total (%)	1.8	5.6	26.2	--	27.2	5.3	13.4	26.7	4.5	11.9

Table 4-10. Summary of private commercial, industrial, and institutional parcels with IC \geq 1 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	904	15,906.7	3,364.4	21.2	54,772.4	17,733.8	72,506.2	7,137.0	2,263.5	9,400.5
Industrial	282	5,434.2	1,253.5	23.1	20,004.1	5,797.8	25,801.8	2,610.7	743.2	3,353.8
Private Institutional	99	1,385.9	264.8	19.1	4,250.3	1,430.3	5,680.7	581.7	183.8	765.5
Subtotal	1,285	22,726.8	4,882.7	21.5	79,026.8	24,961.9	103,988.7	10,329.4	3,190.4	13,519.8
State Total (%)	1.4	5.0	24.7	--	25.6	4.8	12.5	25.1	3.9	11.0

Table 4-11. Summary of private commercial, industrial, and institutional parcels with IC \geq 2 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	441	12,515.0	2,716.4	21.7	44,385.0	13,943.8	58,328.8	5,737.6	1,727.2	7,464.9
Industrial	164	4,423.9	1,080.0	24.4	17,227.5	4,812.5	22,040.0	2,235.7	617.8	2,853.5
Private Institutional	45	977.2	188.1	19.2	3,021.2	1,043.3	4,064.5	409.1	135.3	544.5
Subtotal	650	17,916.1	3,984.5	22.2	64,633.7	19,799.6	84,433.3	8,382.5	2,480.4	10,862.9
State Total (%)	0.7	4.0	20.1	--	21.0	3.8	10.2	20.4	3.0	8.9

Table 4-12. Summary of private commercial, industrial, and institutional parcels with IC \geq 5 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	141	7,068.0	1,795.9	25.4	29,541.3	8,221.6	37,762.9	3,772.6	973.0	4,745.6
Industrial	56	2,809.5	746.2	26.6	11,737.0	3,335.2	15,072.2	1,510.0	429.1	1,939.1
Private Institutional	9	293.1	91.3	31.2	1,478.0	405.9	1,883.9	197.9	46.2	244.1
Subtotal	206	10,170.5	2,633.4	25.9	42,756.3	11,962.7	54,719.0	5,480.5	1,448.4	6,928.8
State Total (%)	0.2	2.2	13.3	--	13.9	2.3	6.6	13.3	1.8	5.7

Figure 4-4 further illustrates the tradeoff between pollutant reduction and the number of private CII parcels in New Hampshire with IC area ranging from ≥ 20 ac to ≥ 0 ac (i.e., all private CII parcels) that would have to install SCMs. This figure assumes that runoff from IC within a parcel would be treated by SCMs sized to achieve a 60% treatment efficiency. The “knee” of the curve, where the slope begins to flatten, indicates the IC threshold where the fewest number of parcels can provide the greatest benefit in terms of TP reduction. For New Hampshire, this appears to lie between parcels with ≥ 0.5 ac and ≥ 1 ac of IC.

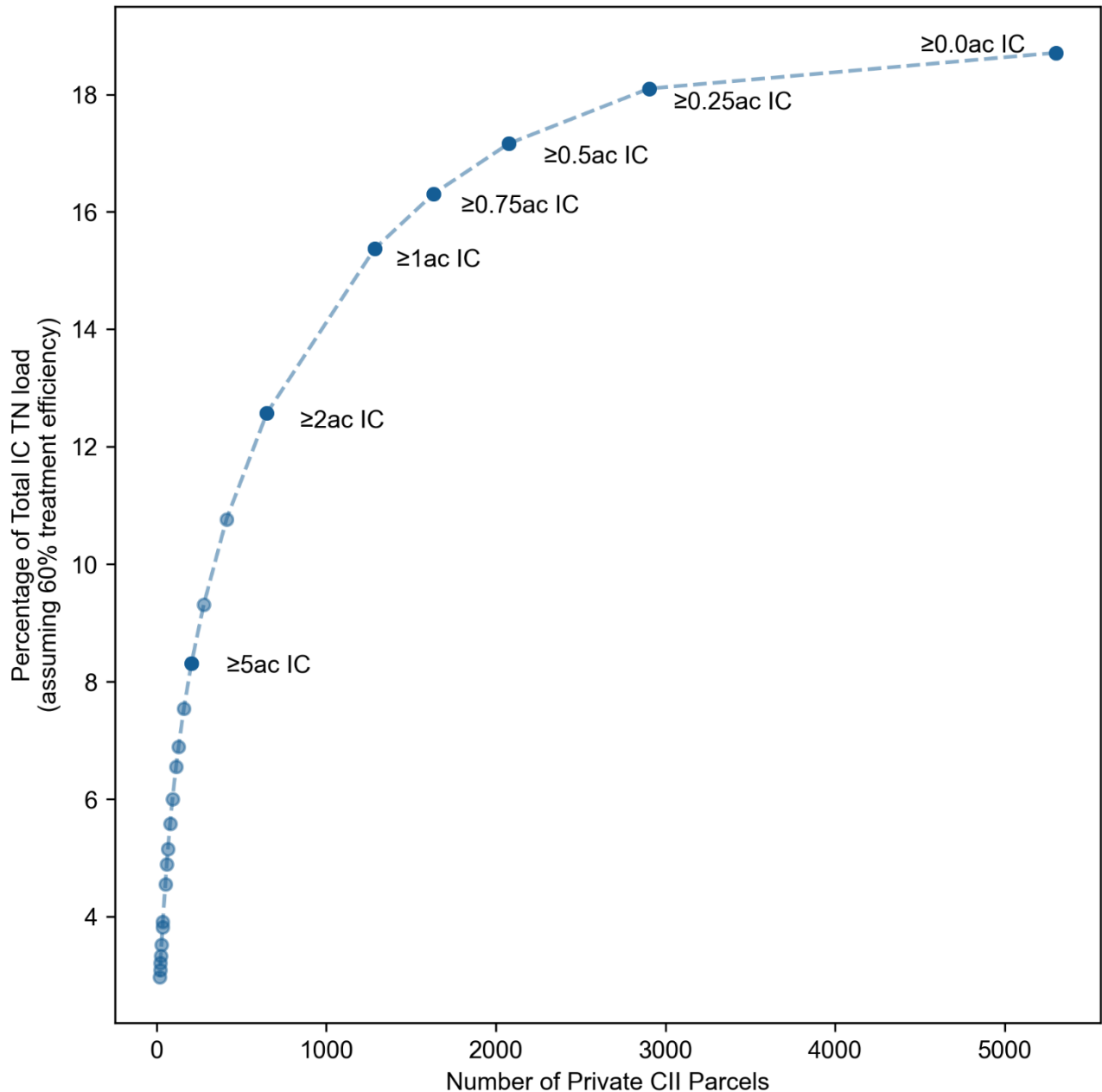


Figure 4-4. Percentage of total IC TN load that can be captured from IC runoff in the New Hampshire portion of the Great Bay watershed, assuming a 60% treatment efficiency, and the corresponding number of private CII parcels based on IC threshold. Labels for IC thresholds correspond to the dark blue dots.

4.3 Maine Parcels

Similar analyses to those presented for parcels in New Hampshire were developed for parcels in Maine. Parcels within Maine represent 21% of all parcels with the Great Bay watershed and 25% of total parcel area. The breakdowns of TN and TP load for these parcels, by use group and public/private designation, are shown in Table 4-13 and Table 4-14, respectively. Maine parcels follow similar trends seen at the watershed scale, although because of the lack of parcel information for some municipalities (as noted in Section 2.5), it is likely some Single Family Residential parcels are currently classified as forest. Single Family Residential makes up nearly half of the parcels by count (27% by area) and 98% of the parcels are private (95% by area).

Table 4-13. Summary of parcel attributes within the Maine portion of the Great Bay watershed by Use Group and Public/Private designation with TN*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TN Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	1,086	4.47	8,017.02	5.34	666.89	8.32	0.61	10,391.73	10,948.39	21,340.12	7.01	19.65
	Forest	6,770	27.85	83,508.91	55.64	1,466.03	1.76	0.22	21,375.71	118,592.13	139,967.84	45.96	20.67
	Industrial	166	0.68	2,110.79	1.41	310.23	14.70	1.87	4,783.51	3,439.75	8,223.26	2.70	49.54
	MultiFamily Res.	1,052	4.33	2,088.11	1.39	211.06	10.11	0.20	3,314.62	3,966.50	7,281.12	2.39	6.92
	Open Land	3,096	12.74	4,792.57	3.19	436.77	9.11	0.14	6,792.73	9,116.59	15,909.31	5.22	5.14
	Private Inst.	151	0.62	1,146.19	0.76	55.06	4.80	0.36	855.48	1,431.50	2,286.99	0.75	15.15
	Public Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	11,334	46.63	39,779.92	26.51	1,612.35	4.05	0.14	24,324.93	64,391.56	88,716.49	29.13	7.83
	Transportation	124	0.51	296.27	0.20	42.78	14.44	0.34	663.77	435.09	1,098.86	0.36	8.86
	Water	77	0.32	61.72	0.04	4.43	7.18	0.06	38.29	34.58	72.87	0.02	0.95
	Subtotal	23,856	98.2	141,801.51	94.5	4,805.60	3.4	--	72,540.77	212,356.10	284,896.87	93.6	--
Public	Commercial	3	0.01	94.91	0.06	2.17	2.28	0.72	34.60	112.12	146.72	0.05	48.91
	Forest	10	0.04	1,287.57	0.86	16.99	1.32	1.70	237.85	1,018.23	1,256.08	0.41	125.61
	Industrial	105	0.43	1,966.31	1.31	22.72	1.16	0.22	352.00	2,683.09	3,035.08	1.00	28.91
	MultiFamily Res.	3	0.01	13.15	0.01	5.16	39.21	1.72	83.44	9.68	93.12	0.03	31.04
	Open Land	1	0.00	34.72	0.02	0.83	2.39	0.83	12.45	74.97	87.42	0.03	87.42
	Private Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	289	1.19	2,629.35	1.75	152.81	5.81	0.53	2,377.45	4,178.56	6,556.01	2.15	22.69
	Single Family Res.	5	0.02	1.76	0.00	0.45	25.66	0.09	7.16	1.48	8.64	0.00	1.73
	Transportation	13	0.05	802.37	0.53	454.35	56.63	34.95	7,263.15	809.78	8,072.93	2.65	620.99
	Water	20	0.08	1,450.13	0.97	0.66	0.05	0.03	7.10	350.99	358.09	0.12	17.90
	Subtotal	449	1.8	8,280.27	5.5	656.13	7.9	--	10,375.20	9,238.89	19,614.09	6.4	--
Total		24,305	100	150,081.78	100	5,461.73	3.6	--	82,915.97	221,594.99	304,510.96	100	--

* A darker color gradient represents increasing value within a column.

Table 4-14. Summary of parcel attributes within the New Hampshire portion of the Great Bay watershed by Use Group and Public/Private designation with TP*

Public /Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TP Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	1,086	4.47	8,017.02	5.34	666.89	8.32	0.61	1,390.73	1,676.57	3,067.30	6.42	2.82
	Forest	6,770	27.85	83,508.91	55.64	1,466.03	1.76	0.22	2,729.44	20,939.35	23,668.79	49.52	3.50
	Industrial	166	0.68	2,110.79	1.41	310.23	14.70	1.87	635.60	525.16	1,160.76	2.43	6.99
	MultiFamily Res.	1,052	4.33	2,088.11	1.39	211.06	10.11	0.20	465.52	581.87	1,047.39	2.19	1.00
	Open Land	3,096	12.74	4,792.57	3.19	436.77	9.11	0.14	900.94	1,000.36	1,901.30	3.98	0.61
	Private Inst.	151	0.62	1,146.19	0.76	55.06	4.80	0.36	116.53	246.68	363.21	0.76	2.41
	Public Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	11,334	46.63	39,779.92	26.51	1,612.35	4.05	0.14	3,200.19	10,239.59	13,439.78	28.12	1.19
	Transportation	124	0.51	296.27	0.20	42.78	14.44	0.34	91.73	65.29	157.02	0.33	1.27
	Water	77	0.32	61.72	0.04	4.43	7.18	0.06	4.72	4.30	9.02	0.02	0.12
	Subtotal	23,856	98.2	141,801.51	94.5	4,805.60	3.4	--	9,535.40	35,279.17	44,814.57	93.8	--
Public	Commercial	3	0.01	94.91	0.06	2.17	2.28	0.72	4.58	19.44	24.02	0.05	8.01
	Forest	10	0.04	1,287.57	0.86	16.99	1.32	1.70	30.13	190.27	220.40	0.46	22.04
	Industrial	105	0.43	1,966.31	1.31	22.72	1.16	0.22	48.88	499.49	548.37	1.15	5.22
	MultiFamily Res.	3	0.01	13.15	0.01	5.16	39.21	1.72	12.20	0.91	13.11	0.03	4.37
	Open Land	1	0.00	34.72	0.02	0.83	2.39	0.83	1.54	7.98	9.53	0.02	9.53
	Private Inst.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	289	1.19	2,629.35	1.75	152.81	5.81	0.53	326.18	710.64	1,036.81	2.17	3.59
	Single Family Res.	5	0.02	1.76	0.00	0.45	25.66	0.09	0.93	0.14	1.07	0.00	0.21
	Transportation	13	0.05	802.37	0.53	454.35	56.63	34.95	981.23	84.16	1,065.39	2.23	81.95
	Water	20	0.08	1,450.13	0.97	0.66	0.05	0.03	0.90	57.45	58.36	0.12	2.92
	Subtotal	449	1.8	8,280.27	5.5	656.13	7.9	--	1,406.57	1,570.49	2,977.06	6.2	--
Total		24,305	100	150,081.78	100	5,461.73	3.6	--	10,941.97	36,849.65	47,791.62	100	--

* A darker color gradient represents increasing value within a column

Commercial, Industrial, and Institutional Parcels

Within Maine, private Commercial, Industrial, and Institutional parcels make up approximately 6% of parcels and 7% of total parcel area (Table 4-15). The greatest number of CII parcels are Commercial; Industrial and Private Institutional both have less than 200 parcels. On average, Industrial parcels have the highest IC and load values, followed by Commercial and Institutional. CII parcels make up 19% of total IC area within the state and 19% of total TN and TP load from all IC.

The relationship between the number of parcels, the amount of IC area within a parcel, and the total load was evaluated for private CII parcels in Maine by varying thresholds of IC area as shown Figure 4-5 and Figure 4-6 (Appendix D presents similar plots by individual parcel use group). The parcel count, load, IC relationship was further analyzed for IC thresholds of 0.25 ac, 0.5 ac, 0.75 ac, 1 ac, 2 ac, and 5 ac as shown in Table 4-16 to Table 4-21.

Table 4-15. Summary of private commercial, industrial, and institutional parcel attributes in the Maine portion of the Great Bay watershed

Use Group	Count	Total Area (ac)	IC Area			TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	Parcel Avg. (ac)	IC	Pervious	Parcel Total Avg.	IC	Pervious	Parcel Total Avg.
Commercial	1,086	8,017.0	666.9	8.3	0.6	10,391.7	10,948.4	19.7	1,390.7	1,676.6	2.8
Industrial	166	2,110.8	310.2	14.7	1.9	4,783.5	3,439.8	49.5	635.6	525.2	7.0
Private Institutional	151	1,146.2	55.1	4.8	0.4	855.5	1,431.5	15.1	116.5	246.7	2.4
Subtotal	1,403	11,274.0	1,032.2	9.2	--	16,030.7	15,819.6	--	2,142.9	2,448.4	--
State Total (%)	5.8	7.5	18.9	--	--	19.3	7.1	--	19.6	6.6	--

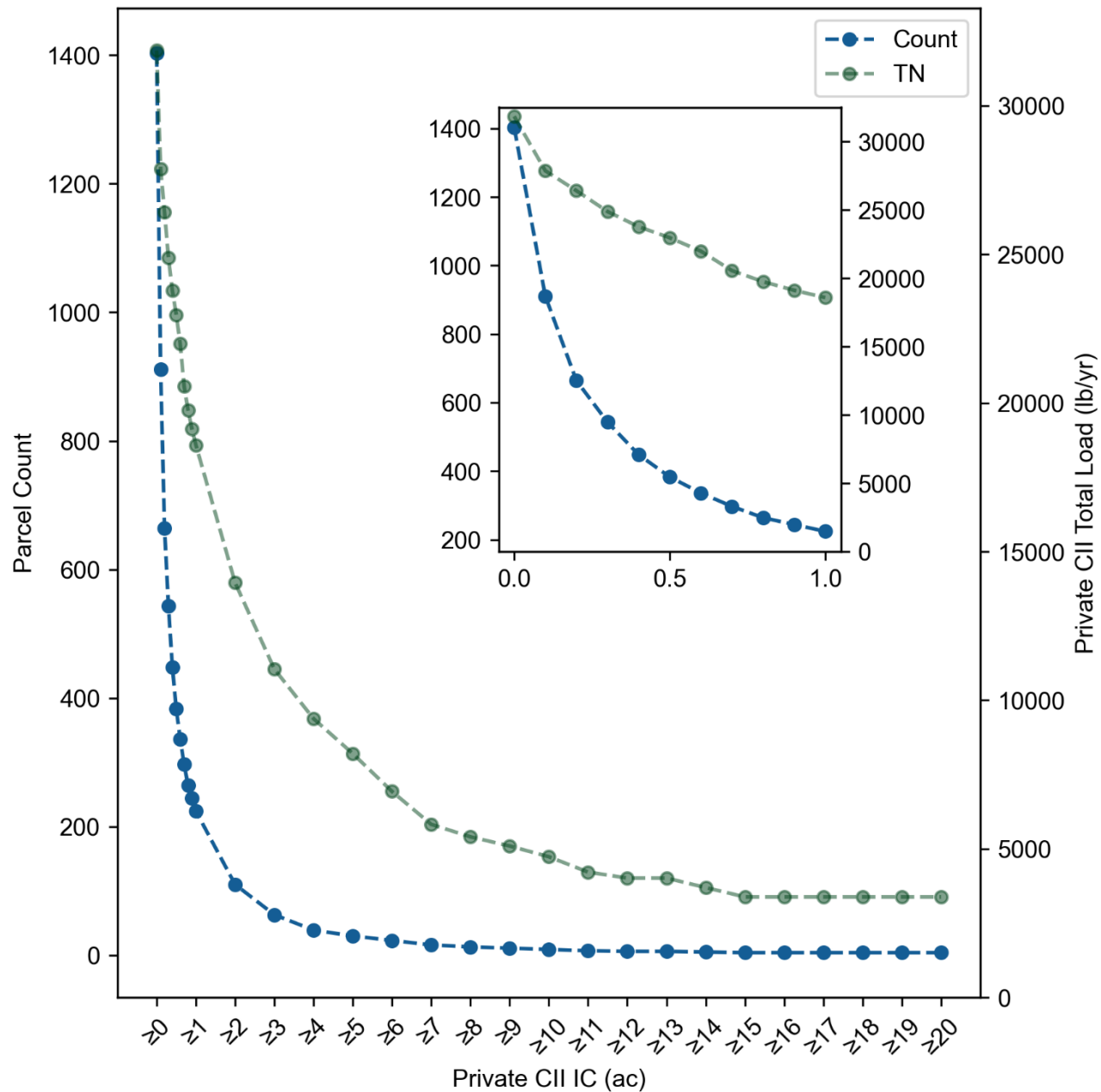


Figure 4-5. Private CII parcel count and total TN load by parcel IC area in the Maine portion of the Great Bay watershed.
Note that a threshold of ≥ 0 ac IC includes all private CII parcels.

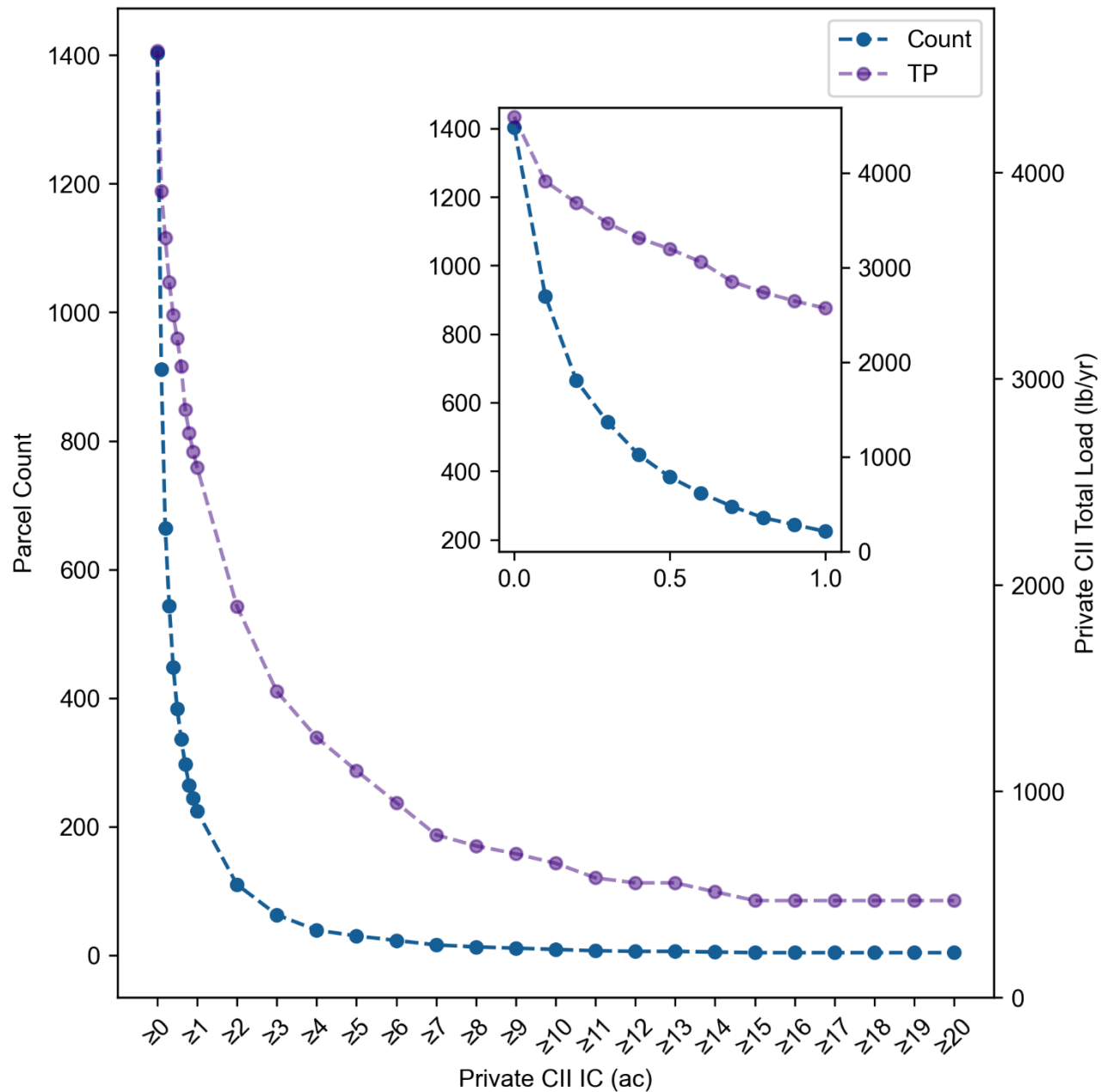


Figure 4-6. Private CII parcel count and total TP load by parcel IC area in the Maine portion of the Great Bay watershed.
Note that a threshold of ≥ 0 ac IC includes all private CII parcels.

Table 4-16. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.25 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	441	5,182.8	607.5	11.7	9,455.6	7,218.0	16,673.6	1,261.4	1,073.4	2,334.8
Industrial	97	1,655.5	306.9	18.5	4,732.1	2,672.1	7,404.1	628.5	394.3	1,022.8
Private Institutional	51	366.0	47.6	13.0	736.9	413.7	1,150.6	100.8	60.2	161.0
Subtotal	589	7,204.3	962.0	13.4	14,924.6	10,303.7	25,228.4	1,990.7	1,527.9	3,518.6
State Total (%)	2.4	4.8	17.6	--	18.0	4.6	8.3	18.2	4.1	7.4

Table 4-17. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.5 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	277	4,524.8	547.9	12.1	8,503.4	6,362.9	14,866.3	1,129.0	950.7	2,079.7
Industrial	79	1,596.6	300.3	18.8	4,631.4	2,536.5	7,167.9	614.0	374.0	988.0
Private Institutional	27	299.8	38.5	12.8	594.4	337.5	931.9	81.2	47.5	128.7
Subtotal	383	6,421.3	886.8	13.8	13,729.2	9,236.9	22,966.1	1,824.2	1,372.2	3,196.4
State Total (%)	1.6	4.3	16.2	--	16.6	4.2	7.5	16.7	3.7	6.7

Table 4-18. Summary of private commercial, industrial, and institutional parcels with IC \geq 0.75 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	193	3,707.0	496.5	13.4	7,696.4	4,844.0	12,540.5	1,018.9	729.5	1,748.4
Industrial	67	1,409.3	292.9	20.8	4,513.2	2,263.6	6,776.8	598.1	335.5	933.6
Private Institutional	22	239.4	35.5	14.9	551.5	236.5	788.0	75.6	30.0	105.6
Subtotal	282	5,355.7	824.9	15.4	12,761.1	7,344.2	20,105.2	1,692.6	1,095.0	2,787.6
State Total (%)	1.2	3.6	15.1	--	15.4	3.3	6.6	15.5	3.0	5.8

Table 4-19. Summary of private commercial, industrial, and institutional parcels with IC \geq 1 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	151	3,386.1	460.3	13.6	7,135.8	4,369.0	11,504.8	943.0	656.5	1,599.5
Industrial	58	1,296.7	284.9	22.0	4,393.1	2,048.1	6,441.2	581.9	303.8	885.7
Private Institutional	15	183.2	29.7	16.2	463.6	175.9	639.4	63.8	21.1	85.0
Subtotal	224	4,866.0	774.9	15.9	11,992.5	6,592.9	18,585.4	1,588.7	981.3	2,570.1
State Total (%)	0.9	3.2	14.2	--	14.5	3.0	6.1	14.5	2.7	5.4

Table 4-20. Summary of private commercial, industrial, and institutional parcels with IC \geq 2 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	68	2,106.5	349.7	16.6	5,390.8	2,542.6	7,933.4	702.7	369.1	1,071.8
Industrial	37	1,131.9	255.2	22.5	3,936.0	1,813.9	5,749.9	518.7	270.2	789.0
Private Institutional	5	98.5	14.3	14.5	224.5	43.9	268.4	30.5	5.7	36.2
Subtotal	110	3,336.9	619.1	18.6	9,551.3	4,400.4	13,951.7	1,251.9	645.1	1,897.0
State Total (%)	0.5	2.2	11.3	--	11.5	2.0	4.6	11.4	1.8	4.0

Table 4-21. Summary of private commercial, industrial, and institutional parcels with IC \geq 5 ac in Maine

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	% IC of total Area	IC	Pervious	Total	IC	Pervious	Total
Commercial	20	812.9	205.2	25.2	3,119.1	1,182.4	4,301.5	401.9	161.2	563.2
Industrial	10	753.9	173.5	23.0	2,672.2	1,232.2	3,904.3	350.2	187.0	537.1
Private Institutional	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	30	1,566.8	378.6	24.2	5,791.3	2,414.6	8,205.9	752.1	348.2	1,100.3
State Total (%)	0.1	1.0	6.9	--	7.0	1.1	2.7	6.9	0.9	2.3

5 ENVIRONMENTAL JUSTICE CONCERNS IN THE GREAT BAY WATERSHED

Several communities in areas with environmental justice (EJ) concerns are located within the Great Bay Watershed. These communities need further evaluation to better understand the effects of increased stormwater control requirements based on EPA Region 1's potential permitting decisions in response to the RDA petition. This section presents a description of the factors used to define areas with environmental justice concerns, an analysis of census tracts in areas with environmental justice concerns, and an analysis of the parcels, particularly CII parcels, within areas with environmental justice concerns.

5.1 Applicable Environmental Justice Factors

For the analyses presented in this report, areas with environmental justice concerns were defined by three different factors as identified by EPA Region 1 for this analysis based on data from the Climate and Economic Justice Screening Tool (CEJST). CEJST, available at <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>¹, is a national tool that was developed to help federal agencies locate and identify environmentally and economically disadvantaged communities. CEJST uses census tracts, which are a small unit of geography defined by the U.S. Census Bureau, giving users access to high-resolution information. The tool uses datasets, primarily from the 2010 census, as indicators of burdens. The burdens are organized into categories.

The three criteria used to identify areas with environmental justice concerns within the Great Bay Watershed for this analysis are consistent with those used by US EPA Region 1 for similar analyses in the Mystic, and Neponset River Watersheds (Paradigm Environmental, 2023d, 2023e). These criteria consist of:

- *Low Median Household Income*: Any census tract with greater than or equal to the 80th percentile for low median household income as a percent of area median income,
- *Linguistic Isolation*: Any census tract with greater than or equal to the 80th percentile for households in linguistic isolation,
- *Disadvantaged*: Any census tract defined as "Disadvantaged" in CEJST.

Definitions

Definitions of specific terms used in CEJST, and for the selected criteria, are given below. These, and additional information, can be found at <https://screeningtool.geoplatform.gov/en/methodology#3/33.47/-97.5> or the provided link.

Burden categories: there are several different burden categories, including, climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development.

Census tracts: are small units of geography. Census tract boundaries for [statistical areas](#) are determined by the U.S. Census Bureau once every ten years. The tool utilizes the census tract boundaries from 2010. This was chosen because many of the data sources in the tool currently use the 2010 census boundaries.

Disadvantaged: A community is highlighted as disadvantaged on the CEJST map if it is in a census tract that is: (1) at or above the threshold for one or more environmental, climate, or other burdens, and (2) at or above the threshold for an associated socioeconomic burden. In addition, a census tract that is surrounded by

¹ Additional information on CEJST can be found at: <https://screeningtool.geoplatform.gov/en/downloads#3/33.84/-76.34> (see links to the Technical Support Document and Instructions to Federal Agencies On the Use of CEJST).

disadvantaged communities and is at or above the 50% percentile for low-income is also considered disadvantaged.

Linguistic Isolation: is defined as “the share of households where no one over age 14 speaks English very well.” <https://screeningtool.geoplatform.gov/en/methodology#ling-iso>

Low Median Household Income: is defined as the percentage of a census tract's population in households where household income is at or below 200% of the Federal poverty level, not including students enrolled in higher education. <https://screeningtool.geoplatform.gov/en/methodology#low-income>

5.2 Environmental Justice Data Analyses

Within the Great Bay Watershed, there are 10 census tracts identified as having environmental justice concerns based on the criteria specified in Section 5.1, out of the 79 total census tracts in the watershed. Figure 5-1 shows that these areas are concentrated in the cities and towns along the rivers leading to the Great Bay and Piscataqua River; this figure also shows the overlap of the different criteria. The census tracts in areas with environmental justice concerns are within 6 of the 57 municipalities that intersect the watershed. Table 5-1 provides the breakdown of the areas with environmental justice concerns by criteria for each municipality. The dominate factor is low median household income; there is one tract in Durham, NH that meets the linguistic isolation criteria and two tracts in Sanford, ME that are classified as disadvantaged.

Table 5-1. Summary of tracts in areas with environmental justice concerns by municipality and criteria*

TOWN	Any Criteria ¹		Linguistic Isolation		Low Median Household Income		Disadvantaged	
	Area (ac)	Area (%)	Area (ac)	Area (%)	Area (ac)	Area (%)	Area (ac)	Area (%)
Sanford	2,548.2	20.6%	0.0	0.0%	3.9	0.0%	2,548.2	20.6%
Dover	2,206.4	17.8%	0.0	0.0%	2,206.4	17.8%	0.0	0.0%
Rochester	2,821.4	22.8%	0.0	0.0%	2,821.4	22.8%	0.0	0.0%
Exeter	1,589.6	12.8%	0.0	0.0%	1,589.6	12.8%	0.0	0.0%
Portsmouth	856.0	6.9%	0.0	0.0%	856.0	6.9%	0.0	0.0%
Durham	2,359.7	19.1%	1,030.6	8.3%	2,359.7	19.1%	0.0	0.0%
Total	12,381.3	100.0%	1,030.6	8.3%	9,837.0	79.5%	2,548.2	20.6%

*A darker color gradient represents increasing value within a column.

¹Any Criteria: at least one of the environmental justice criteria is met within a census tract. Note that no tracts met all three criteria.

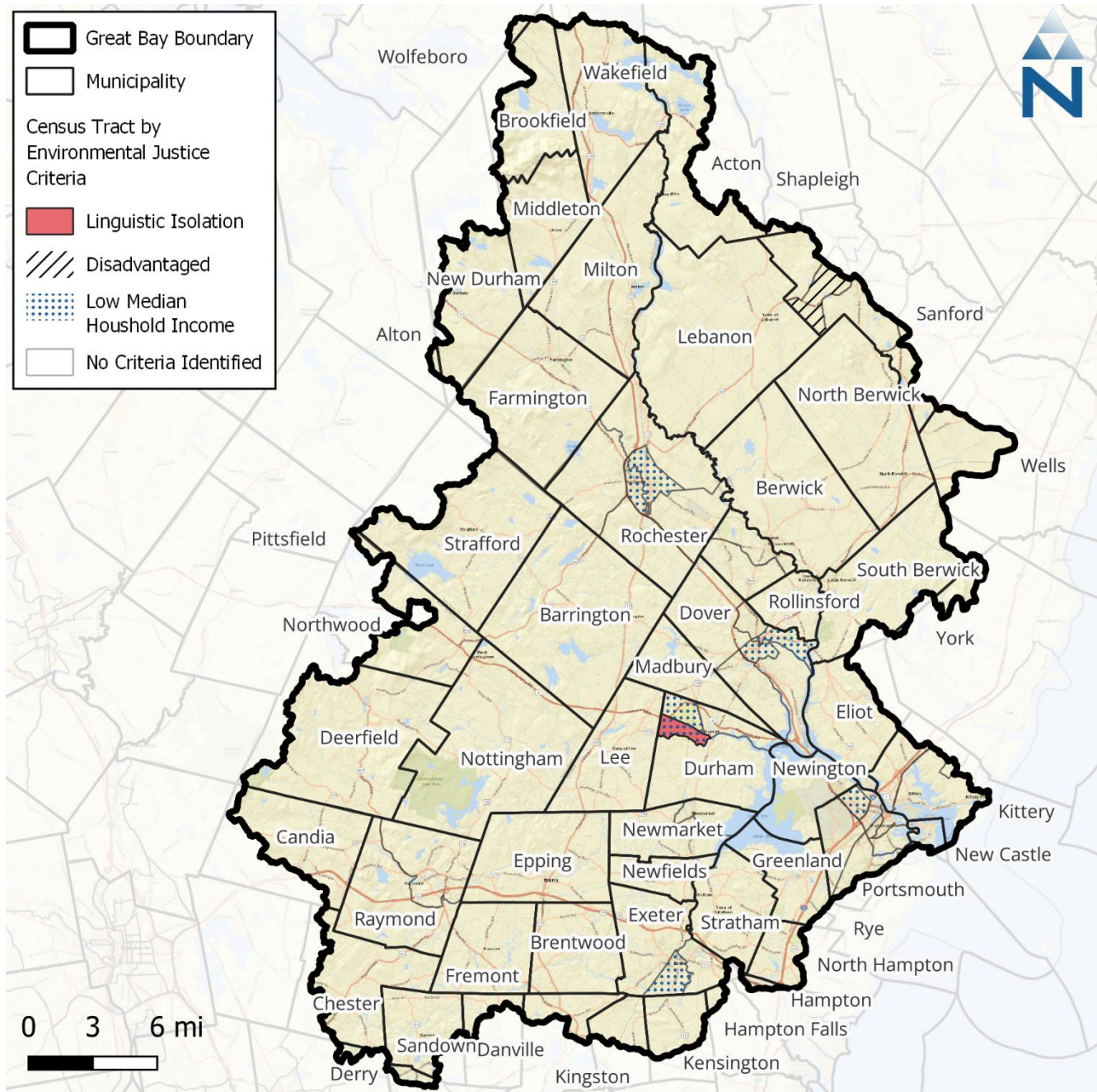


Figure 5-1. Map of census tracts in areas with environmental justice concerns by criteria.

Alternative Environmental Justice Targeting Approaches

There are relatively fewer census tracts identified as areas with environmental justice concerns in the Great Bay Watershed through use of the CEJST tool as compared to many more urbanized watersheds in New England.²² This result could in part reflect attributes of the CEJST method, which may not fully account for potential environmental justice factors present in less urbanized settings. To assist EPA R1 in considering

²² For example, compare to recent analysis of urban watershed areas with environmental justice concerns for the Mystic and Neponset Watersheds in Massachusetts (Paradigm Environmental, 2023d, 2023e). In contrast, the share of population in disadvantaged rural communities is much higher in the Southern and Southwestern regions of the United States (Shrestha et al., 2022).

whether application of the CEJST data and associated criteria accurately identify areas of the Great Bay Watershed with environmental justice concerns, two additional environmental justice evaluation methods were examined for this project.

First, EPA's Inflation Reduction Act (IRA) Disadvantaged Communities mapping tool was also used to identify disadvantaged communities in the Great Bay Watershed. Pursuant to the IRA, EPA created the IRA Disadvantaged Communities map (IRADCM) to assist applicants in determining whether a community is disadvantaged for the purposes of implementing programs under the IRA (see <https://www.epa.gov/environmentaljustice/inflation-reduction-act-disadvantaged-communities-map>).

The IRADCM definition of disadvantaged communities is somewhat more inclusive than the CEJST definition as it includes all census tracts identified as disadvantaged in CEJST and any tract at or above the 90th percentile in any of EPA's Environmental Justice Screening and Mapping Tool (EJScreen) supplemental indexes. EJScreen is an EJ mapping and screening tool that combines environmental and demographic indicators. The EJScreen supplemental demographic indexes include low income, unemployment rate, limited English capability, less than a high school education, and low life expectancy.

For this project, to be consistent with the approach used to evaluate data in the CEJST mapping tool, we identified all census tracts in Great Bay Watershed identified as disadvantaged in CEJST or exceeding the 80th percentile in any of the EJScreen supplemental indices. Figure 5-2 shows the census tracts identified as disadvantaged based on application of this modified version of the IRADCM methods. This figure represents tracts identified as disadvantaged through the CEJST method and tracts identified as disadvantaged through application of the IRADCM method. Application of this screening approach identified additional disadvantaged census block groups in the following communities that the CEJST method alone did not identify, including Kittery, Fremont, Farmington, Raymond, Candia, Rochester, Berwick, and others.³

³ The "less than high school education" and "low life expectancy" indicators in EJScreen are not included in CEJST as demographic indicators. When applied individually, these additional EJScreen mapping criteria resulted in identification of no additional urbanized areas of potential concern beyond those otherwise identified as disadvantaged through the IRADCM method.

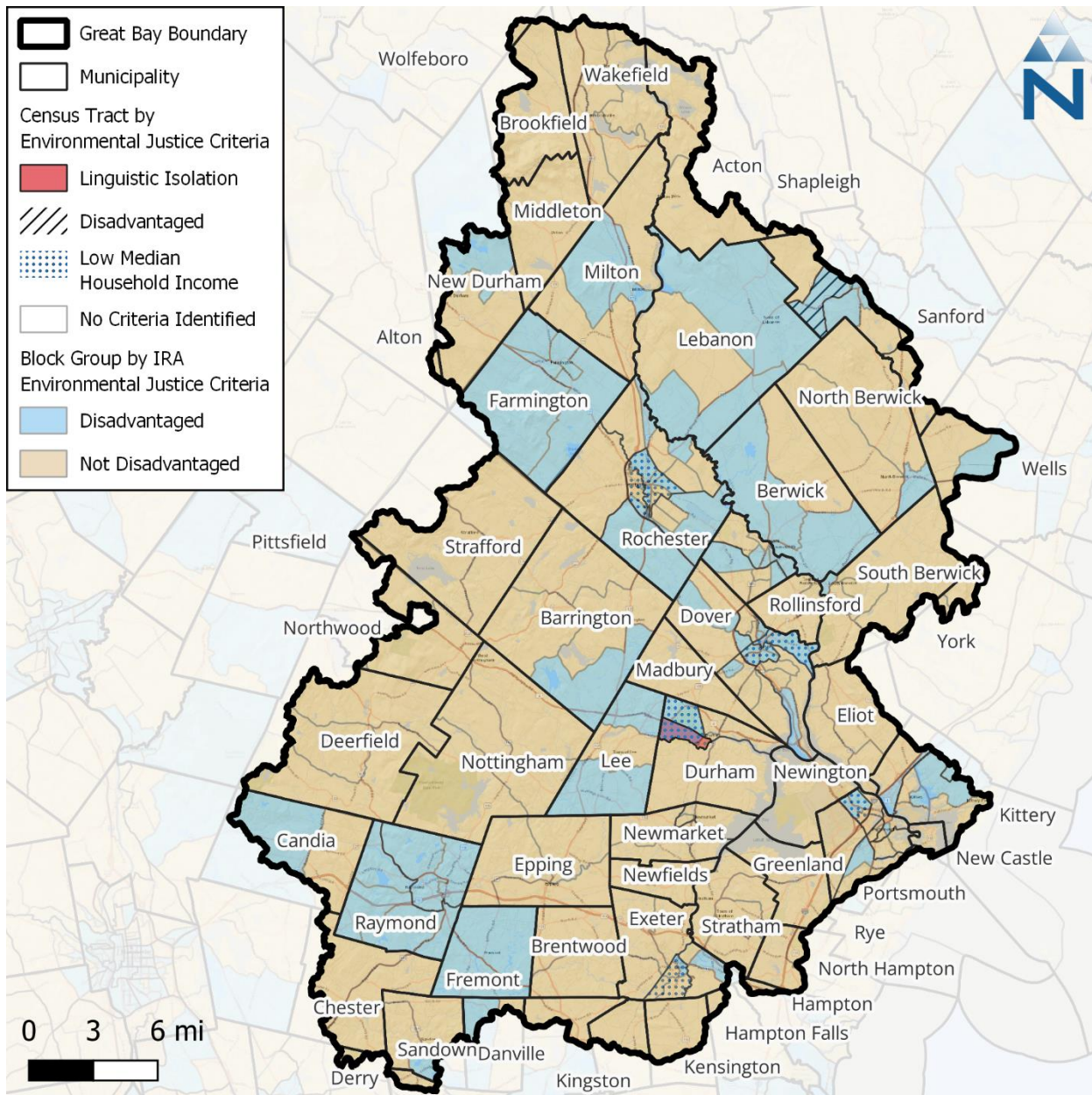


Figure 5-2. Map of census block groups identified through modified Inflation Reduction Act Disadvantaged Community Map criteria

Second, local and state sources of information about potential environmental justice issues were reviewed to complement the mapping-based assessments using the CJEST and IRADCM methods. A review of local information sources including climate action plans, hazard mitigation plans, climate vulnerability reports, and reports by environmental justice organizations identified several environmental justice issues of concern in specific communities within the Great Bay Watershed. Repeated references to urban flooding risk and heat island impacts were found. About half the reports reviewed also mentioned concerns about stormwater-born pollutant discharge impacts and drought risks to groundwater sources of public water supply. Table 5-2 summarizes issues identified by municipality through this literature review; additional details are found in Appendix E.

Table 5-2. Potential environmental justice concerns associated with stormwater in Great Bay cities

City	EJ Issue	Vulnerable Populations Identified
Dover, NH	<ul style="list-style-type: none">- Urban Flooding- Stormwater pollution impacts to habitat and recreation- Heat island impacts- Drought and Groundwater Recharge Impacts on Drinking Water Wells	<ul style="list-style-type: none">- Elderly- Low income- Disabled
Durham, NH	<ul style="list-style-type: none">- Urban flooding- Urban heat- Drought	<ul style="list-style-type: none">- Not specifically identified
Exeter, NH	<ul style="list-style-type: none">- Urban flooding- Undersized drainage infrastructure- Ecosystem and recreational impacts- Drought and groundwater recharge for drinking water wells	<ul style="list-style-type: none">- Not specifically identified
Kittery, ME	<ul style="list-style-type: none">- Urban flooding- Heat island effects- Stormwater pollution impacts on water bodies and habitat- Drought and groundwater recharge for drinking water/public water supply wells	<ul style="list-style-type: none">- Low income- Disabled- Elderly
Portsmouth, NH	<ul style="list-style-type: none">- Urban flooding- Heat island impacts	<ul style="list-style-type: none">- Not specifically identified

5.3 Analysis of Parcels in Areas with Environmental Justice Concerns

A total of 7,729 parcels intersect the census tracts identified as having environmental justice concerns within the Great Bay watershed. These parcels represent approximately 7% of all parcels in the watershed by count and 2% by area. Similar to the watershed as a whole, private parcels make up the vast majority of parcels in areas with environmental justice concerns (96% by count and 75% by area). The majority of these parcels are residential (62% single family and 22% multi-family); private CII parcels make up an additional 10% of these parcels by count and 17% by area. As a percentage, private CII parcels make up twice the number of parcels in areas with environmental justice concerns compared to the watershed as a whole.

As some urban areas within the watershed are subject to NPDES MS4 permitting while others are not, we evaluated the association of areas with environmental justice concerns with areas with existing MS4 permit coverage. Nearly all (93%) of the parcels in areas with environmental justice concerns are in areas covered by existing MS4 permits; 6.7% of these parcels are in areas not covered by MS4s. This does not necessarily suggest that existing MS4 or other stormwater permits adequately control stormwater runoff from CII parcels that those permits may not address.

The distribution of TN and TP load from parcels within areas with environmental justice concerns was evaluated as shown in Table 5-3 and Table 5-4, respectively. Approximately two-thirds of the nutrient load is from private parcels with private IC contributing 38% of the total load. In total, nutrient load from parcels within areas with environmental justice concerns makes up approximately 5% of the watershed total load. Across the Great Bay watershed, CII parcels in areas with environmental justice concerns account for approximately 12% of all CII parcels and less than 1% (0.7%) of all parcels (Table 5-5). Despite their small proportion of the total parcels and load, these parcels contribute a relatively larger proportion of the total load from IC in the watershed (2.6%).

Table 5-3. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TN*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TN Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	605	7.83	1,221.9	8.78	458.89	37.55	0.76	7,725.96	1,576.12	9,302.09	15.80	15.38
	Forest	139	1.80	1,486.7	10.68	18.83	1.27	0.14	297.30	2,304.07	2,601.37	4.42	18.71
	Industrial	63	0.82	410.1	2.95	78.49	19.14	1.25	1,296.89	586.94	1,883.83	3.20	29.90
	MultiFamily Res.	1,669	21.59	908.1	6.53	243.30	26.79	0.15	3,975.00	1,259.82	5,234.82	8.89	3.14
	Open Land	71	0.92	177.7	1.28	38.77	21.81	0.55	627.25	319.59	946.83	1.61	13.34
	Private Inst.	115	1.49	718.5	5.16	72.04	10.03	0.63	1,180.56	839.15	2,019.71	3.43	17.56
	Public Inst.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	4,772	61.74	5,449.0	39.16	468.30	8.59	0.10	7,448.10	9,665.73	17,113.82	29.07	3.59
	Transportation	6	0.08	32.6	0.23	0.49	1.50	0.08	8.24	78.56	86.80	0.15	14.47
	Water	1	0.01	3.2	0.02	0.04	1.17	0.04	0.60	1.61	2.21	0.00	2.21
	Subtotal	7,441	96.3	10,407.8	74.8	1,379.15	13.3	--	22,559.89	16,631.59	39,191.48	66.6	--
Public	Commercial	1	0.01	5.8	0.04	1.71	29.71	1.71	28.18	20.82	49.00	0.08	49.00
	Forest	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MultiFamily Res.	2	0.03	1.1	0.01	0.97	84.47	0.48	16.12	0.87	16.99	0.03	8.49
	Open Land	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private Inst.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	273	3.53	2,438.5	17.52	342.84	14.06	1.26	5,679.51	4,517.21	10,196.72	17.32	37.35
	Single Family Res.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Transportation	11	0.14	1,059.0	7.61	513.63	48.50	46.69	8,310.79	1,112.96	9,423.76	16.01	856.71
	Water	1	0.01	2.1	0.02	0.00	0.00	0.00	0.00	0.40	0.40	0.00	0.40
	Subtotal	288	3.7	3,506.5	25.2	859.16	24.5	--	14,034.60	5,652.26	19,686.87	33.4	--
Environmental Justice Total		7,729	100	13,914.3	100	2,238.31	16.1	--	36,594.49	22,283.86	58,878.35	100	--
Watershed Total		116,695	7%	603,443.3	2%	25,263.23	9%	--	391,405.14	744,302.75	1,135,707.89	5%	--

* A darker color gradient represents increasing value within a column.

Table 5-4. Summary of parcel attributes within the Great Bay watershed by Use Group and Public/Private designation with TP*

Public/ Private	Use Group	Count	Count (%)	Total Area (ac)	Total Area (%)	IC Area			TP Load (lb/yr)				
						Acre	%	Parcel Avg. (ac)	IC	Pervious	Total	Total (%)	Parcel Total Avg.
Private	Commercial	605	7.83	1,221.9	8.78	458.89	37.55	0.76	1,004.95	173.47	1,178.42	14.57	1.95
	Forest	139	1.80	1,486.7	10.68	18.83	1.27	0.14	38.88	383.69	422.57	5.22	3.04
	Industrial	63	0.82	410.1	2.95	78.49	19.14	1.25	168.56	73.39	241.95	2.99	3.84
	MultiFamily Res.	1,669	21.59	908.1	6.53	243.30	26.79	0.15	580.62	150.28	730.90	9.03	0.44
	Open Land	71	0.92	177.7	1.28	38.77	21.81	0.55	92.50	32.38	124.88	1.54	1.76
	Private Inst.	115	1.49	718.5	5.16	72.04	10.03	0.63	159.50	122.49	281.99	3.49	2.45
	Public Inst.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Single Family Res.	4,772	61.74	5,449.0	39.16	468.30	8.59	0.10	1,066.05	1,353.84	2,419.89	29.91	0.51
	Transportation	6	0.08	32.6	0.23	0.49	1.50	0.08	1.06	8.53	9.60	0.12	1.60
	Water	1	0.01	3.2	0.02	0.04	1.17	0.04	0.08	0.30	0.38	0.00	0.38
	Subtotal	7,441	96.3	10,407.8	74.8	1,379.15	13.3	--	3,112.19	2,298.38	5,410.57	66.9	--
Public	Commercial	1	0.01	5.8	0.04	1.71	29.71	1.71	4.01	2.11	6.11	0.08	6.11
	Forest	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MultiFamily Res.	2	0.03	1.1	0.01	0.97	84.47	0.48	2.32	0.09	2.41	0.03	1.20
	Open Land	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private Inst.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Public Inst.	273	3.53	2,438.5	17.52	342.84	14.06	1.26	785.18	634.19	1,419.37	17.54	5.20
	Single Family Res.	0	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Transportation	11	0.14	1,059.0	7.61	513.63	48.50	46.69	1,139.86	112.19	1,252.05	15.48	113.82
	Water	1	0.01	2.1	0.02	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.08
	Subtotal	288	3.7	3,506.5	25.2	859.16	24.5	--	1,931.36	748.65	2,680.02	33.1	--
Environmental Justice Total		7,729	100	13,914.3	100	2,238.31	16.1	--	5,043.56	3,047.03	8,090.59	100	--
Watershed Total		116,695	7%	603,443.3	2%	25,263.23	9%	--	52,059.90	118,203.05	170,262.95	5%	--

* A darker color gradient represents increasing value within a column.

Table 5-5. Summary of private commercial, industrial, and institutional attributes for parcels within areas with environmental justice concerns in the Great Bay watershed

Use Group	Count	Total Area (ac)	IC Area			TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	Parcel Avg. (ac)	IC	Pervious	Parcel Total Avg.	IC	Pervious	Parcel Total Avg.
Commercial	605	1,221.92	458.89	37.55	0.76	7,725.96	1,576.12	15.38	1,004.95	173.47	1.95
Industrial	63	410.14	78.49	19.14	1.25	1,296.89	586.94	29.90	168.56	73.39	3.84
Private Institutional	115	718.54	72.04	10.03	0.63	1,180.56	839.15	17.56	159.50	122.49	2.45
Subtotal	783	2,350.60	609.42	25.93	--	10,203.41	3,002.22	--	1,333.01	369.35	--
EJ Total (%)	10.1	16.9	27.2	--	--	27.9	13.5	--	26.4	12.1	--
All Private CII (%)	11.7	4.8	8.7	--	--	9.1	5.3	--	9.0	4.6	--
Watershed Total (%)	0.7	0.4	2.4	--	--	2.6	0.4	--	2.6	0.3	--

New Hampshire CII Parcels

Within New Hampshire, there are 745 CII parcels within areas identified as having environmental justice concerns (Table 5-6). The totals shown in Table 5-6 represent i) the CII parcels in areas with environmental justice concerns as a percentage of all parcels in areas with environmental justice concerns (“EJ Total”), ii) the CII parcels in areas with environmental justice concerns as a percentage of all private CII parcels in the state (“All Private CII”), iii) the CII parcels in areas with environmental justice concerns as a percentage of all parcels within the state (“State Total”), and iv) the CII parcels in areas with environmental justice concerns as a percentage of all parcels within the watershed (“Watershed Total”). For example, CII parcels in areas with environmental justice concerns represent 11% of all private CII parcels in the state, 0.8% of all parcels in the state, 3% of the total IC area in the state, 2.6% of the total TN and 2.5% of the total TP load from all IC in the watershed. Tables detailing similar information for parcels with varying IC thresholds are presented in Table 5-7 to Table 5-12.

Table 5-6. Summary of private commercial, industrial, and institutional attributes for parcels within areas with environmental justice concerns in the New Hampshire portion of the Great Bay watershed

Use Group	Count	Total Area (ac)	IC Area			TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	Parcel Avg. (ac)	IC	Pervious	Parcel Total Avg.	IC	Pervious	Parcel Total Avg.
Commercial	588	1,079.28	453.49	42.02	0.77	7,646.42	1,487.41	15.53	994.40	158.74	1.96
Industrial	57	391.59	76.64	19.57	1.34	1,266.88	564.18	32.12	164.51	70.07	4.12
Private Institutional	100	595.44	70.37	11.82	0.70	1,152.46	731.15	18.84	155.83	101.51	2.57
Subtotal	745	2,066.31	600.50	29.06	--	10,065.75	2,782.74	--	1,314.74	330.32	--
EJ Total (%)	10.3	19.3	31.4	--	--	32.0	16.2	--	30.3	14.9	--
All Private CII (%)	11.1	4.2	8.6	--	--	9.0	4.9	--	8.9	4.1	--
State Total (%)	0.8	0.5	3.0	--	--	3.3	0.5	--	3.2	0.4	--
Watershed Total (%)	0.6	0.3	2.4	--	--	2.6	0.4	--	2.5	0.3	--

Table 5-7. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC ≥ 0.25 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	290	983.52	418.69	42.57	7,061.62	1,372.19	8,433.81	916.41	144.60	1,061.01
Industrial	29	333.05	74.87	22.48	1,237.71	475.33	1,713.04	160.39	60.52	220.91
Private Institutional	42	383.00	65.84	17.19	1,078.27	337.45	1,415.72	144.95	42.04	186.99
Subtotal	361	1,699.56	559.41	32.91	9,377.61	2,184.97	11,562.58	1,221.75	247.16	1,468.91
EJ Total (%)	5.0	15.9	29.3	--	29.9	12.8	23.8	28.1	11.1	22.4
Threshold Private CIIM (%)	12.4	5.8	9.7	--	10.1	6.8	9.2	10.0	5.9	8.9
All Private CIIM (%)	5.4	3.5	8.0	--	8.4	3.9	6.9	8.2	3.1	6.4
State Total (%)	0.4	0.4	2.8	--	3.0	0.4	1.4	3.0	0.3	1.2
Watershed Total (%)	0.3	0.3	2.2	--	2.4	0.3	1.0	2.3	0.2	0.9

Table 5-8. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC ≥ 0.5 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	164	877.78	372.94	42.49	6,292.53	1,256.96	7,549.49	813.96	129.50	943.46
Industrial	20	318.77	71.35	22.38	1,179.95	463.05	1,643.00	152.10	58.84	210.94
Private Institutional	25	367.16	59.62	16.24	974.77	313.06	1,287.83	131.02	39.60	170.62
Subtotal	209	1,563.72	503.92	32.23	8,447.25	2,033.06	10,480.31	1,097.08	227.95	1,325.03
EJ Total (%)	2.9	14.6	26.4	--	26.9	11.9	21.6	25.3	10.3	20.2
Threshold Private CIIM (%)	10.1	5.8	9.2	--	9.6	6.9	8.9	9.5	5.9	8.6
All Private CIIM (%)	3.1	3.2	7.2	--	7.5	3.6	6.2	7.4	2.9	5.8
State Total (%)	0.2	0.3	2.5	--	2.7	0.4	1.3	2.7	0.3	1.1
Watershed Total (%)	0.2	0.3	2.0	--	2.2	0.3	0.9	2.1	0.2	0.8

Table 5-9. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC ≥ 0.75 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	122	829.10	347.99	41.97	5,871.70	1,190.45	7,062.14	757.80	123.37	881.17
Industrial	17	316.47	69.57	21.98	1,149.42	462.05	1,611.47	148.32	58.75	207.06
Private Institutional	20	356.62	56.44	15.83	922.19	306.27	1,228.46	123.22	38.93	162.15
Subtotal	159	1,502.20	473.99	31.55	7,943.31	1,958.77	9,902.08	1,029.33	221.05	1,250.38
EJ Total (%)	2.2	14.0	24.8	--	25.3	11.4	20.4	23.7	10.0	19.1
Threshold Private CIIM (%)	9.7	6.0	9.1	--	9.5	7.0	8.9	9.4	6.1	8.5
All Private CIIM (%)	2.4	3.1	6.8	--	7.1	3.5	5.9	6.9	2.8	5.5
State Total (%)	0.2	0.3	2.4	--	2.6	0.4	1.2	2.5	0.3	1.0
Watershed Total (%)	0.1	0.2	1.9	--	2.0	0.3	0.9	2.0	0.2	0.7

Table 5-10. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC ≥ 1 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	94	785.38	323.55	41.20	5,462.90	1,151.95	6,614.86	702.46	119.61	822.07
Industrial	16	297.21	68.67	23.10	1,134.50	397.56	1,532.05	146.38	52.76	199.14
Private Institutional	16	331.21	52.84	15.95	864.15	297.77	1,161.92	115.76	37.87	153.63
Subtotal	126	1,413.80	445.06	31.48	7,461.55	1,847.28	9,308.83	964.60	210.24	1,174.84
EJ Total (%)	1.7	13.2	23.3	--	23.8	10.8	19.2	22.2	9.5	17.9
Threshold Private CIIM (%)	9.8	6.2	9.1	--	9.4	7.4	9.0	9.3	6.6	8.7
All Private CIIM (%)	1.9	2.9	6.4	--	6.6	3.3	5.5	6.5	2.6	5.1
State Total (%)	0.1	0.3	2.2	--	2.4	0.4	1.1	2.3	0.3	1.0
Watershed Total (%)	0.1	0.2	1.8	--	1.9	0.2	0.8	1.9	0.2	0.7

Table 5-11. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC ≥ 2 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	48	648.93	259.88	40.05	4,395.51	1,007.63	5,403.15	561.52	105.36	666.88
Industrial	9	248.82	58.44	23.49	965.78	330.94	1,296.71	123.39	45.70	169.09
Private Institutional	8	299.68	41.54	13.86	675.19	241.13	916.32	90.02	32.31	122.33
Subtotal	65	1,197.42	359.86	30.05	6,036.48	1,579.70	7,616.18	774.94	183.37	958.31
EJ Total (%)	0.9	11.2	18.8	--	19.2	9.2	15.7	17.8	8.3	14.6
Threshold Private CIIM (%)	10.0	6.7	9.0	--	9.3	8.0	9.0	9.2	7.4	8.8
All Private CIIM (%)	1.0	2.4	5.2	--	5.4	2.8	4.5	5.2	2.3	4.2
State Total (%)	0.07	0.3	1.8	--	2.0	0.3	0.9	1.9	0.2	0.8
Watershed Total (%)	0.06	0.2	1.4	--	1.5	0.2	0.7	1.5	0.2	0.6

Table 5-12. Summary of private commercial, industrial, and institutional parcels within areas with environmental justice concerns with IC \geq 5 ac in New Hampshire

Use Group	Count	Total Area (ac)	IC Area		TN Load (lb/yr)			TP Load (lb/yr)		
			Acre	%	IC	Pervious	Total	IC	Pervious	Total
Commercial	16	299.72	168.09	56.08	2,857.25	262.26	3,119.51	362.28	24.90	387.18
Industrial	3	217.00	39.20	18.06	640.32	309.65	949.97	81.92	43.51	125.43
Private Institutional	1	47.97	20.86	43.48	346.57	60.55	407.11	46.16	5.74	51.90
Subtotal	20	564.68	228.14	40.40	3,844.14	632.46	4,476.59	490.35	74.16	564.51
EJ Total (%)	0.3	5.3	11.9	--	12.2	3.7	9.2	11.3	3.3	8.6
Threshold Private CIIM (%)	9.7	5.6	8.7	--	9.0	5.3	8.2	8.9	5.1	8.1
All Private CIIM (%)	0.3	1.2	3.3	--	3.4	1.1	2.7	3.3	0.9	2.5
State Total (%)	0.02	0.1	1.2	--	1.2	0.1	0.5	1.2	0.1	0.5
Watershed Total (%)	0.02	0.1	0.9	--	1.0	0.1	0.4	0.9	0.1	0.3

Additional Effects of Stormwater Control in Areas with Environmental Justice Concerns

As well as reducing pollutants reaching the Great Bay Estuary and its tributaries, thereby assisting in restoring and preventing further degradation of aquatic habitats and the beneficial uses dependent upon those ecosystem resources, implementation of additional stormwater controls can provide several other benefits including flood reduction, urban heat island reduction, and aquifer protection. On CII parcels within and upstream from areas with environmental justice concerns, implementation of additional stormwater controls can lessen the frequency and magnitude of localized flooding events by reducing stormwater runoff intensity and overall volumes from IC areas. Stormwater controls that enable parcels to absorb and infiltrate stormwater runoff help prevent water from overwhelming drainage networks and pooling in streets, basements, and low-lying areas (Atkins, 2015).

Installing green roofs and planting new trees and other vegetation as part of stormwater controls can provide an effective approach for reducing discharges of polluted stormwater while helping to address urban heating effects. Increased implementation of green stormwater control measures on CII parcels in areas with environmental justice concerns should help reduce heat buildup in these areas and provide more vegetated, shaded areas that cool air temperatures and provide places where people can find relief from intense heat events (USEPA, 2020). Stormwater projects implemented on CII parcels may also increase the quantity of water that infiltrates to groundwater aquifers and can help improve the quality of infiltrated water by filtering out pollutants in stormwater before they reach the aquifers. These measures should help maintain water levels and prevent contamination in these aquifers.

When commercial and industrial properties are refurbished or redeveloped, there may be opportunities to install green infrastructure solutions that provide greened areas where stormwater is captured for infiltration, or rainwater capture cisterns that can provide water for landscape irrigation. Reducing stormwater flow to the storm drain system should help reduce local flooding potential in low lying, heavily developed areas. Incorporating green infrastructure solutions to rooftops or parking areas in commercial and industrial areas can also yield additional benefits in the form of increased green space, shading, and groundwater replenishment.

SCMs in residential areas, while not specifically targeted in the Great Bay RDA petition, could be more straight forward to install than those in industrial areas. For example, rooftop disconnection linked with the installation of bioretention and infiltration cells should reduce the burden on the stormwater network during storms to help reduce local flooding. Rooftop disconnection linked with the use of rain barrels and cisterns can also yield other benefits by making water available for irrigation, which can reduce the demand on potable water sources. Opportunities for surface SCMs such as vegetated swales and bioretention cells can also increase recharge of filtered stormwater to aquifers, reduce the volume of runoff entering the stormwater drainage system, and allow for vegetation. Where possible, opportunities to convert impervious surfaces to permeable, vegetated spaces will help reduce urban heat island effects and lower communities' vulnerability to extreme heat.

6 CONCLUSIONS

This report presented a methodology for summarizing and evaluating stormwater pollutant load from parcels within the Great Bay Watershed that may be used by EPA Region 1 to support decisions regarding the control of stormwater runoff from certain private properties to improve water quality. Findings from this analysis include:

1. Private properties contribute the large majority (90%) of the watershed's total TN load.
2. Within New Hampshire, one-third (33%) of TN is generated from impervious cover on private properties.
3. Private commercial, industrial, institutional (CII) properties make up less than 6% of all parcels within New Hampshire, but have relatively high percentages of IC and therefore contribute a large proportion of the state's TN load (31%).
4. Selecting private CII parcels based on their IC area (which is a dominate factor in the nutrient load generated) can minimize the number of parcels installing stormwater controls, while providing the greatest nutrient reduction benefit (Table 6-1).
5. Parcels in areas with environmental justice concerns are predominately residential and make up 7% of all parcels and account for 5% of the watershed total load. CII parcels in these areas are less than 1% of all parcels but seem to contribute a disproportionately larger amount of the total load from IC in the watershed (2.6%). Nearly all (93%) of the parcels in areas with environmental justice concerns are in areas covered by existing MS4 permits.

The findings in this report indicate that unattenuated stormwater runoff from private parcels within the Great Bay Watershed contributes the majority of the nutrient load. While much of this load (46%) comes from private Single Family Residential parcels, which account for more than two-thirds of the parcels in the watershed (69%), private CII parcels also contribute 15% of the load but from only 5.7% of the parcels (6,704). Without additional controls on stormwater runoff and pollutant loads from both existing and newly developed parcels, making meaningful improvements to water quality could be difficult.

Designating stormwater discharges from certain classes of private properties for NPDES permits based on the amount of IC area will help reduce the burden on existing MS4s by targeting properties generating the largest amount of nutrients in stormwater on a per-property scale. Parcels within areas with environmental justice concerns form a relatively small portion of the Great Bay watershed, but could see some of the greatest benefits from increased stormwater management. In any scenario, municipalities will still need to engage the private property owners with smaller property size or IC size to eventually meet water quality goals. However, requiring action on private properties with larger amounts of IC now through NPDES permitting provides greater flexibility to the communities in deciding which private properties to target to meet their own existing or future MS4 permit obligations.

Table 6-1. Summary of private CII parcels installing SCMs based on parcel IC area and the reduction achieved in New Hampshire and Great Bay watershed total TN load

New Hampshire								Great Bay Watershed	
IC Threshold (ac)	Parcel Count	EJ Count	EJ %	Total TN Load (lb/yr)	IC TN Load (lb/yr)	IC TN Treated (%) ¹	Total TN Treated (%) ²	IC TN Treated (%) ³	Total TN Treated (%) ⁴
≥0 (All)	5,301	745	14.1%	136,895.2	96,193.9	18.7%	5.9%	14.7%	4.4%
≥0.25	2,903	361	12.4%	125,116.3	93,058.1	18.1%	5.7%	14.3%	4.2%
≥0.5	2,076	209	10.1%	117,704.2	88,239.3	17.2%	5.4%	13.5%	4.0%
≥0.75	1,632	159	9.7%	111,706.1	83,842.8	16.3%	5.1%	12.9%	3.8%
≥1	1,285	126	9.8%	103,988.7	79,026.8	15.4%	4.8%	12.1%	3.6%
≥2	650	65	10.0%	84,433.3	64,633.7	12.6%	4.0%	9.9%	2.9%
≥5	206	20	9.7%	54,719.0	42,756.3	8.3%	2.6%	6.6%	1.9%

¹Percentage calculated as IC load times a 60% treatment efficiency divided by the New Hampshire total TN load from IC of 308,486 lb/yr.

²Percentage calculated as IC load times a 60% treatment efficiency divided by the New Hampshire total TN load of 980,581 lb/yr.

³Percentage calculated as IC load times a 60% treatment efficiency divided by the Great Bay Watershed total TN load from IC of 391,405 lb/yr.

⁴Percentage calculated as IC load times a 60% treatment efficiency divided by the Great Bay Watershed total TN load of 1,317,168 lb/yr.

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APPENDIX A – MANUALLY RECLASSIFIED PARCELS

Table A-1. Manually reclassified Use Group and Public/Private designation for parcels within the Great Bay watershed

Parcel ID	Public/Private	Use Group	Note
19443108	Private	Transportation	Railroad
19443607	Private	Transportation	Railroad
19444006	Private	Transportation	Railroad
19444561	Private	Transportation	Railroad
19445053	Private	Transportation	Railroad
19446324	Private	Transportation	Railroad
19446539	Private	Transportation	Railroad
19446621	Private	Transportation	Railroad
19755847	Public	Transportation	Roads
19751411	Public	Transportation	Roads
19751666	Public	Transportation	Roads
19752856	Public	Transportation	Roads
19752666	Public	Transportation	Roads
31130_3-RR	Public	Transportation	Roads
31130_3-93	Public	Transportation	Roads
31130_4-RR01	Public	Transportation	Roads
31090_ROW	Public	Transportation	Roads
31090_Road	Public	Transportation	Roads
19751233	Public	Transportation	Roads
19752847	Public	Transportation	Roads
19752857	Public	Transportation	Roads
19752859	Public	Transportation	Roads
19754323	Public	Transportation	Roads
31230_R11-31C	Public	Commercial	MAINE PUBLIC BROADCASTING CORP
19755550	Private	Commercial	GSP SCHILLER LLC
31230_R8-13	Private	Single Family Residential	Was Public
31230_R11-77	Private	Single Family Residential	Was Public
31230_R11-52	Private	Single Family Residential	Was Public
31230_K38-5	Private	Single Family Residential	Was Public
31230_K38-14	Private	Single Family Residential	Was Public
19796366	Private	Single Family Residential	Was Public
19798030	Private	Single Family Residential	Was Public
19797683	Private	Single Family Residential	Was Public
19761395	Private	Single Family Residential	Was Public
19398247	Private	Single Family Residential	Was Public
19337404	Private	Single Family Residential	Was Public
19336814	Private	Single Family Residential	Was Public
19337501	Private	Single Family Residential	Was Public
19704553	Private	Single Family Residential	Was Public

Parcel ID	Public/Private	Use Group	Note
19437689	Private	Single Family Residential	Was Public
19815830	Private	Single Family Residential	Was Public
19485652	Private	Single Family Residential	Was Public
19399902	Private	Single Family Residential	Was Public
19717712	Private	Single Family Residential	Was Public
19595307	Private	Single Family Residential	Was Public
19777670	Private	Single Family Residential	Was Public
19304961	Private	Single Family Residential	Was Public
19654947	Private	Single Family Residential	Was Public
19882535	Private	Single Family Residential	Was Public
31230_Road	Public	Transportation	Was Water
19422520	Private	Commercial	Golf Course
19567241	Public	Transportation	Roads
19888305	Public	Forest	Was Water
19888304	Public	Forest	Was Water
19888303	Public	Forest	Was Water
31040_133	Private	Forest	Was Water
19796925	Public	Forest	Was Water
19888426	Public	Forest	Was Water
19888423	Public	Forest	Was Water
19888554	Public	Forest	Was Water
31010_217-020_217-020	Public	Forest	Was Water
19813606	Public	Forest	Was Water
19888339	Private	Forest	Was Water
19446332	Public	Forest	Was Water
19888644	Public	Forest	Was Water
31040_85	Private	Forest	Was Water
19769222	Public	Forest	Was Water
19722399	Public	Forest	Was Water
19397286	Public	Forest	Was Water
19888455	Public	Forest	Was Water
19721283	Public	Forest	Was Water
31040_476	Public	Forest	Was Water
31010_255-004_255-004	Public	Forest	Was Water
31250_012-058-A-000	Public	Forest	Was Water
19776036	Public	Forest	Was Water
19448038	Public	Forest	Was Water
31010_115-001_115-001	Public	Forest	Was Water
19338241	Private	Forest	Was Water
19774661	Public	Forest	Was Water

Parcel ID	Public/Private	Use Group	Note
19301145	Public	Forest	Was Water
19417581	Public	Forest	Was Water
19654783	Public	Forest	Was Water
31010_248-022_248-022	Private	Forest	Was Water
19690739	Public	Forest	Was Water
19721463	Private	Forest	Was Water
19888325	Public	Forest	Was Water
19361499	Private	Forest	Was Water
19337985	Private	Forest	Was Water
31040_3727	Public	Forest	Was Water
31130_62-09-7	Private	Commercial	Was Water
19888910	Public	Forest	Was Commercial
19888277	Public	Transportation	Roads
19888402	Public	Transportation	Roads
19888181	Public	Transportation	Roads
19361476	Public	Transportation	Roads
19360656	Public	Transportation	Roads
19881727	Public	Transportation	Roads
19399184	Public	Transportation	Roads
19844593	Public	Transportation	Roads
19842274	Public	Transportation	Roads
19841762	Public	Transportation	Roads
19842815	Public	Transportation	Roads
19400816	Public	Transportation	Roads
19400247	Public	Transportation	Roads
19846449	Public	Transportation	Roads
19845949	Public	Transportation	Roads
19844551	Public	Transportation	Roads
19843338	Public	Transportation	Roads
19843966	Public	Transportation	Roads
19399124	Public	Transportation	Roads
19846061	Public	Transportation	Roads
19399712	Public	Transportation	Roads
19842809	Public	Transportation	Roads
19843275	Public	Transportation	Roads
5317	Public	Transportation	Roads
19842031	Public	Transportation	Roads
5702	Public	Transportation	Roads
19842096	Public	Transportation	Roads
19845409	Public	Transportation	Roads
19844371	Public	Transportation	Roads

Parcel ID	Public/Private	Use Group	Note
19844604	Public	Transportation	Roads
4601	Public	Transportation	Roads
19846549	Public	Transportation	Roads
19305923	Public	Transportation	Roads
19845253	Public	Transportation	Roads
5830	Public	Transportation	Roads
19845437	Public	Transportation	Roads
19719707	Public	Transportation	Roads
19845663	Public	Transportation	Roads
19842039	Public	Transportation	Roads
19843569	Public	Transportation	Roads
19400829	Public	Transportation	Roads
19755823	Private	Commercial	Airport
19888459	Private	Industrial	
19888729	Private	Industrial	
31090_Water	Public	Water	Water
19689706	Public	Forest	
31130_5-WATER03	Public	Water	Water
31090_Water	Public	Water	Water
31190_19-29	Private	Industrial	Pratt & Whitney
19885788	Public	Transportation	Roads
19751461	Private	Commercial	
19769837	Private	Commercial	Skyhaven Airport
31190_3-57	Public	Public Institutional	Noble High School
19755550	Private	Industrial	
19444059	Private	Private Institutional	Phillips Exeter Academy
19400220	Private	Commercial	Deerfield Fair Grounds

APPENDIX B – PREPROCESSED PARCEL USE CODE EXAMPLE

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	0	Commercial	Private	PIKE INDUSTRIES INC
NH	031	Commercial	Private	BRENTWOOD REAL ESTATE TRUST
NH	036	Commercial	Private	RIVER RUN DEVELOPMENT LLC
NH	037	Commercial	Private	WENTWORTH DOUGLAS HOSPITAL
NH	0300	Commercial	Private	MITCHELL ALAN S TRUSTEE
NH	301	Commercial	Private	BRENTWOOD TRADING, LLC
NH	303	Commercial	Private	LAMPMAN REALTY ASSOC, LLC
NH	0310	Commercial	Private	665 MAIN STREET LLC
NH	311	Commercial	Private	BRENTWOOD TRUST
NH	313	Commercial	Private	RULLO CARL G.
NH	314	Commercial	Private	SAUNDERS M INC
NH	316	Commercial	Private	NINEMM, LLC
NH	0316	Commercial	Private	0
NH	0319	Commercial	Private	GP MADBURY 17 LLC
NH	321	Commercial	Private	RT 108 GLASS LLC
NH	0322	Commercial	Private	PRICE, JAMES R
NH	322	Commercial	Private	WAL-MART R E BUSINESS TRUST
NH	323	Commercial	Private	NE DRAGWAY
NH	325	Commercial	Private	WRISLEY ALBERT L.
NH	0325	Commercial	Private	ELLIS, EDWIN
NH	0326	Commercial	Private	DJV PROPERTIES LLC
NH	326	Commercial	Private	SCL REALTY LLC
NH	330	Commercial	Private	317 SOUTH ROAD, LLC
NH	0330	Commercial	Private	KELLY HOLDINGS LLC
NH	331	Commercial	Private	RICHARD AND GRACE ROWLAND LLC
NH	0331	Commercial	Private	MAYNARD, CHRISTOPHER L
NH	0332	Commercial	Private	JANZEGERS TTEE, REMI C
NH	332	Commercial	Private	MAHONEY REALTY TRUST
NH	333	Commercial	Private	144 ROUTE 108 LLC
NH	334	Commercial	Private	MARTIN G + LISA A ROULEAU REV
NH	335	Commercial	Private	IAN JOSEPH CAMPBELL LLC
NH	337	Commercial	Private	MRH METERS LLC
NH	0340	Commercial	Private	346 MAIN ST LLC
NH	340	Commercial	Private	21 BOYLSTON STREET LLC.
NH	341	Commercial	Private	PROFILE BANK FSB
NH	0341	Commercial	Private	GAUDREAU CHRISTOPHER A &
NH	342	Commercial	Private	DND REALTY LLC
NH	0342	Commercial	Private	COBB, MATTHEW A, COBB, DEBRA A
NH	343	Commercial	Private	BLACKSTONE PROPERTIES LLC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	344	Commercial	Private	KMT MANAGEMENT LLC
NH	0351	Commercial	Private	SOARING HAWK LLC
NH	0352	Commercial	Private	STASINOS, JENNIFER A
NH	354	Commercial	Private	NEW HAMPSHIRE NORTHCOAST CORP
NH	357	Commercial	Private	PATRICK J CRAGIN LIV REV TRST
NH	0360	Commercial	Private	WASTE MANAGEMENT OF NH INC
NH	376	Commercial	Private	BRENTWOOD FUSION, LLC
NH	0384	Commercial	Private	ESTHERS MARINA LLC
NH	388	Commercial	Private	AMERICAN TOWER
NH	399	Commercial	Private	MARY & ROLAND PARENTEAU TRUST
NH	908	Commercial	Private	SOMERSWORTH RAD LIMITED PARTNE
NH	3000	Commercial	Private	PORTSMOUTH ENTERPRISES LLC
NH	3010	Commercial	Private	BOUTIN REAL ESTATE LLC, DONNA
NH	3020	Commercial	Private	HAY CREEK EXETER
NH	3030	Commercial	Private	POPLIN ESTATES COOPERATIVE INC
NH	3040	Commercial	Private	BERNARD, MICHAEL J.
NH	3041	Commercial	Private	FHP AT HICKORY POND INN LLC
NH	3050	Commercial	Private	ROBERTSON, EILEEN TRSTEE
NH	3060	Commercial	Private	RESTORATION CHURCH
NH	3110	Commercial	Private	ONE TWENTY FIVE LAND INC.
NH	3120	Commercial	Private	AREC 41 LLC
NH	3130	Commercial	Private	MRCT REALTY CO. , LLC
NH	3140	Commercial	Private	CRONIN ROAD REALTY LLC
NH	3150	Commercial	Private	BLUEBIRD EPPING LLC
NH	3160	Commercial	Private	GULLIFA WILLAM A
NH	3170	Commercial	Private	BARTHELEMY REV TR, BRENDA
NH	3180	Commercial	Private	LANG & SONS LLC
NH	3190	Commercial	Private	BENNETT WAY LIMITED PARTNERSHIP
NH	3195	Commercial	Private	MOUSAWI SAYED AL
NH	3200	Commercial	Private	AVESTA THREE MEETING PLACE LP
NH	3210	Commercial	Private	9 ELM ST LLC
NH	3220	Commercial	Private	GOODMAN FAMILY REAL EST TRUST
NH	3221	Commercial	Private	INTEGRITY VENTURES INC
NH	3222	Commercial	Private	DOHERTY STEPHEN J TRUSTEE
NH	3230	Commercial	Private	0
NH	3240	Commercial	Private	SAMPSON SUPERMARKETS, INC
NH	3250	Commercial	Private	0
NH	3260	Commercial	Private	0
NH	3300	Commercial	Private	COYLE KEVIN L
NH	3310	Commercial	Private	MCGEE OF EPPING LLC
NH	3320	Commercial	Private	0

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	3330	Commercial	Private	0
NH	3340	Commercial	Private	GYT MA/NH LEASING, INC.
NH	3350	Commercial	Private	BUBBLES INC
NH	3360	Commercial	Private	LONZA BIOLOGICS INC
NH	3370	Commercial	Private	SPOFFORD LISA & STEPHEN REVOCABLE TRUST
NH	3380	Commercial	Private	DKERN LLC
NH	3400	Commercial	Private	0
NH	3401	Commercial	Private	25 29 RETAIL LLC C/O TWO INT. GROUP
NH	3410	Commercial	Private	0
NH	3420	Commercial	Private	BENASH HOLDINGS, LLC
NH	3421	Commercial	Private	RUSTY NAIL REALTY LLC
NH	3430	Commercial	Private	FMH HEALTH SERVICES LLC
NH	3440	Commercial	Private	DICKENSON PROPERTY CORPORATION
NH	3450	Commercial	Private	0
NH	3500	Commercial	Private	POSTAL BUILDING & LEASING CO
NH	3510	Commercial	Private	SOP GROUP, LLC
NH	3520	Commercial	Private	PLAY LAUGH N GROW CHILDCARE & PRESCHOOL, LLC
NH	3530	Commercial	Private	POLISH AMERICAN CLUB
NH	3540	Commercial	Private	JALBERT JAMES
NH	3550	Commercial	Private	9 PLEASANT STREET REALTY LLC
NH	3570	Commercial	Private	BOSTON & MAINE RAILROAD
NH	3620	Commercial	Private	IOKA PROPERTIES LLC
NH	3640	Commercial	Private	GUSTAVSON, PAUL JR. & ELISABETH, TRUSTEES
NH	3670	Commercial	Private	BEECH TREE COOPERATIVE INC
NH	3680	Commercial	Private	ROCHESTER AGRICULTURAL & MECH
NH	3690	Commercial	Private	0
NH	3700	Commercial	Private	BEYLOUNE ENTERPRISES, LLC
NH	3710	Commercial	Private	BEZIO SCHULTZ STPIERRE
NH	3740	Commercial	Private	CONTINENTAL PAWS LLC
NH	3750	Commercial	Private	VITALITY FITNESS LLC
NH	3760	Commercial	Private	0
NH	3770	Commercial	Private	LEDDY HOMES, LLC
NH	3800	Commercial	Private	EXETER COUNTRY CLUB
NH	3820	Commercial	Private	JOHNSTON, ROBERT L. TRUSTEE
NH	3840	Commercial	Private	SEA LEVEL LLC
NH	3842	Commercial	Private	HAPPY DREAMS LLC
NH	3850	Commercial	Private	RAYMOND SPORTSMAN'S CLUB, INC
NH	3860	Commercial	Private	MHC PINE ACRES, L.L.C.
NH	3870	Commercial	Private	LIN CHUN PING

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	3880	Commercial	Private	TRANQUILITY ESTATES COOPERATIVE, INC.
NH	3900	Commercial	Private	OAK STREET INVEST GRD NET
NH	3910	Commercial	Private	28CC, LLC
NH	3920	Commercial	Private	GARABEDIAN, PAUL-CHARLES-JACKI
NH	3930	Commercial	Private	PPM FREMONT HOLDINGS LLC
NH	5040	Commercial	Private	GSP SCHILLER LLC
NH	9010	Commercial	Private	BOSTON AND MAINE CORP
NH	9030	Commercial	Private	NEWMARKET COMMUNITY DEV CORP
NH	9080	Commercial	Private	PHA HOUSING DEVELOPMENT LTD
NH	9170	Commercial	Private	SNHS ELDERLY HOUSING III INC
NH	9500	Commercial	Private	BOSTON & MAINE RAILROAD
NH	9600	Commercial	Private	SUGARBUSH, INC
NH		Commercial	Private	0
NH	031-MULTI-USE PRIME COMM USE	Commercial	Private	TUCK REALTY CORPORATION
NH	031V	Commercial	Private	0
NH	032C	Commercial	Private	SPOFFORD STEPHEN C. REVOCABLE TRUST
NH	034C	Commercial	Private	BIAGOTTI KRISTINE E &
NH	036C	Commercial	Private	0
NH	140-CHILD CARE FACILITY	Commercial	Private	OTASH CHRISTOPHER G
NH	300C	Commercial	Private	HLJH LLC
NH	300-HOTELS	Commercial	Private	LAFRANCE BOWDEN HOSPITALITY LLC
NH	300M	Commercial	Private	CC RAILROAD STREET NEWMARKET LLC
NH	300R	Commercial	Private	Y-M SPRING LLC
NH	302-INNS/RESORTS	Commercial	Private	MCDEVITT KEVIN P
NH	303R	Commercial	Private	NEWHAUL PROPERTIES LLC
NH	305-PRIVATE HOSPITALS/VETERI NARY	Commercial	Private	COOPER KEVIN &
NH	305V	Commercial	Private	EXETER HOSPITAL INC
NH	306-MIXED RES/COMM	Commercial	Private	COHEN GENE R REV TRUST
NH	307-COMMERCIAL BLDG	Commercial	Private	SHERWOOD ROBERT E
NH	311I	Commercial	Private	GIBBS OIL CO LTD PARTNERSHIP
NH	315V	Commercial	Private	AVILES EUDIN & AIDA TTEES
NH	316C	Commercial	Private	0
NH	316-COMM WHSE	Commercial	Private	BENTHAM BRUCE K &
NH	316I	Commercial	Private	BIERY DENNIS W
NH	316U	Commercial	Private	ROCHESTER LOT TWO COLUMBUS &
NH	316V	Commercial	Private	SBS NEW HAMPSHIRE 2020 LLC
NH	317-MINI STORAGE	Commercial	Private	QUANTUM REAL ESTATE GROUP LLC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	321C	Commercial	Private	TRACTOR SUPPLY CO
NH	321-HARDWARE STORES	Commercial	Private	RAM CONSTRUCTION LLC
NH	322C	Commercial	Private	FACADES, INC.
NH	322-CONVENIENCE STORE	Commercial	Private	WDC INC
NH	322I	Commercial	Private	SAWYER PETER J 2014 TRUST
NH	322L	Commercial	Private	NEWMARKET RETAILS SHOPS LLC
NH	323-SHOPPING CENTERS/MALLS	Commercial	Private	GONYOU ROBERT M &
NH	325I	Commercial	Private	0
NH	325V	Commercial	Private	BGF-A LLC
NH	326- RESTAURANTS/CLU BS	Commercial	Private	0
NH	326V	Commercial	Private	VETTER NORMAN P REV TRUST &)
NH	329-RETAIL CONDO	Commercial	Private	PAPAIIOANNOU IOANNIS
NH	330C	Commercial	Private	8 FLAGG ROAD LLC
NH	330I	Commercial	Private	MARKIE MARCIA
NH	330V	Commercial	Private	FOSS LAURENCE D
NH	331-AUTO S S&S	Commercial	Private	BYRNES EDWARD J &
NH	332-AUTO REPAIR	Commercial	Private	PROFILE GAS HOLDINGS CO LLC
NH	332I	Commercial	Private	SQUIER FAMILY TRUST
NH	333-GAS STATION W/ CONV STORE	Commercial	Private	COBALT PROPERTIES NH CORP
NH	334-GAS STATION WITH SERVICE	Commercial	Private	KAY RICHARD W &
NH	334S	Commercial	Private	ARANOSIAN OIL CO
NH	335-CAR WASHES	Commercial	Private	CALIWASH LLC
NH	335I	Commercial	Private	94 PORTSMOUTH AVE LLC
NH	336-PARKING GARAGES	Commercial	Private	0
NH	337-PARKING LOTS	Commercial	Private	SAWYER`S MILL ASSOCIATES INC
NH	337V	Commercial	Private	PHILLIPS EXETER ACADEMY
NH	340C	Commercial	Private	EXETER REALTY TRUST
NH	340-GENERAL OFFICE BUILDINGS	Commercial	Private	JBMF REAL ESTATE LLC
NH	340O	Commercial	Private	SAMSON KRISTEN TRUSTEE
NH	341-BANK BUILDINGS	Commercial	Private	NEW HOMES INC
NH	342I	Commercial	Private	MYHRE & SMITH PROFESSIONAL
NH	342-PROFESSIONAL CONDO	Commercial	Private	0

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	343-OFFICE CONVERSION	Commercial	Private	CIOTTI DENNIS TRUSTEE
NH	349-MEDICAL OFFICE BUIDLING	Commercial	Private	ELDREDGE B & MILLER B TRUSTEES
NH	352-COMM DAYCARE CENTERS	Commercial	Private	TRI-CITY COVENANT CHURCH
NH	353-FRATERNAL ORGANIZATIONS	Commercial	Private	0
NH	355-FUNERAL HOMES	Commercial	Private	0
NH	364-THEATERS	Commercial	Private	20-22-26 MOULTON STREET REALTY TRUST
NH	369-OTHER CULTURAL	Commercial	Private	PROLMAN DAVID & STABILE JP II
NH	376- GYMS/ATHLETIC CLUBS	Commercial	Private	SHAFFER RICHARD T
NH	380-GOLF COURSES	Commercial	Private	COCHECO COUNTRY CLUB
NH	380R	Commercial	Private	200 EXETER ROAD LLC
NH	384- MARINAS/YACHT CLUB	Commercial	Private	0
NH	387I	Commercial	Private	CHENEY RIVER LLC
NH	388V	Commercial	Private	STARACE, WILLIAM R & LINDA B
NH	390C	Commercial	Private	RAY FARM LLC
NH	393-COMMERCIAL RESIDUAL LAND	Commercial	Private	MARTINS MANAGEMENT ASSOCIATES LLC
NH	399-MINOR COMMERCIAL IN RES	Commercial	Private	TAYLOR MICHAEL S & THOMAS &
NH	504V	Commercial	Private	AQUARION WATER COMPANY
NH	901C	Commercial	Private	PEASE DEVELOPMENT AUTHORITY
NH	901- COMMONWEALTH OF NH	Commercial	Private	THAT FERNS INC
NH	902-COUNTIES	Commercial	Private	BEACON HOSPICE INC
NH	903- MUNICIPALITIES	Commercial	Private	EZRA GREEN'S FARM LLC
NH	903R	Commercial	Private	FARMSTEADS OF NEW ENGLAND INC
NH	904C	Commercial	Private	GREAT BAY KIDS COMPANY INC
NH	COM/IND	Commercial	Private	BAKER, DEBRA A.
NH	EXEMPT-MUNIC	Commercial	Private	EDORAS LLC
NH	EXEMPT-STATE	Commercial	Private	BOSTON & MAINE RAILROAD
NH	#N/A	Commercial	Private	#N/A
NH	3400	Commercial	Public	US DEPARTMENT OF STATE

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	3920	Commercial	Public	STATE OF NEW HAMPSHIRE %
NH	307-COMMERCIAL BLDG	Commercial	Public	CITY OF DOVER
NH	340-GENERAL OFFICE BUILDINGS	Commercial	Public	CITY OF DOVER
NH	385V	Commercial	Public	STATE OF NEW HAMPSHIRE
NH	COM/IND	Commercial	Public	DOVER, CITY OF
NH	0	Forest	Private	BROX STEPHEN M REVOCABLE
NH	130	Forest	Private	MORRILL JR WAYNE G
NH	131	Forest	Private	HUREAU MICHAEL G.
NH	132	Forest	Private	MRH METERS LLC
NH	390	Forest	Private	21 BOYLSTON STREET LLC
NH	391	Forest	Private	VELCRO USA INC
NH	392	Forest	Private	WHITEHOUSE, HAROLD W III
NH	440	Forest	Private	5 INDUSTRIAL DRIVE LLC
NH	441	Forest	Private	BRANCO LLC
NH	442	Forest	Private	ANDREW E JANETOS 2012TST 1/2
NH	0601	Forest	Private	WRIGHT BUILDERS LLC
NH	601	Forest	Private	RIVER RUN DEVELOPMENT, LLC
NH	602	Forest	Private	SOUTHEAST LAND TRUST OF NH
NH	0602	Forest	Private	WOODLANDS HOMEOWNERS ASSOC INC
NH	603	Forest	Private	CHAMPIGNY, PAUL M
NH	0603	Forest	Private	HETT WALTER D TRUST
NH	605	Forest	Private	SUVRNABHUMI LLC
NH	607	Forest	Private	NORTHRUP FAMILY REV TRUST 98
NH	608	Forest	Private	PHILLIPS BARRY R.
NH	609	Forest	Private	SOUTHEAST LAND TRUST OF NH
NH	0610	Forest	Private	0
NH	0640	Forest	Private	WASTE MANAGEMENT OF NH INC
NH	0641	Forest	Private	GAUTHIER CHRISTOPHER G
NH	700	Forest	Private	WENTWORTH DOUGLASS HEALTH CORP
NH	701	Forest	Private	SMITHSON PETER C + KATHY A
NH	702	Forest	Private	RINEHART EDWARD + NANCY
NH	704	Forest	Private	BROWNE JAMES B
NH	2300	Forest	Private	SPRAGUE OPERATING RESOURCES LLC
NH	6000	Forest	Private	EDWIN C SIMONSEN REVOCABLE TRUST
NH	6002	Forest	Private	POKOSKI LIVING TRUST
NH	6030	Forest	Private	GAZIANO KRISTEN MARIE
NH	6100	Forest	Private	STEARNS NORMA M
NH	6101	Forest	Private	NOTTINGHAM ROAD 41-74 REALTY TRUST
NH	6102	Forest	Private	MARCHETTI SANDRA

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	6103	Forest	Private	SOUTHEAST LAND TRUST OF NEW HAMPSHIRE
NH	6104	Forest	Private	GEISSER, PAUL
NH	6105	Forest	Private	JOHNSON FRANCOISE E & SCOTT W TRUSTEES
NH	6106	Forest	Private	HAMPSHIRE VENTURES INC
NH	6107	Forest	Private	BLAKE CHANDLER C
NH	6108	Forest	Private	DODDS DANA A TRUSTEE
NH	6110	Forest	Private	0
NH	6111	Forest	Private	LEIGHTON R STEPHEN
NH	6112	Forest	Private	HART MONTVILLE MONTVILLE & MONTVILLE
NH	6113	Forest	Private	SOUTHEAST LAND TRUST OF NEW HAMPSHIRE
NH	6114	Forest	Private	NICOLAISEN, HANS MARTIN II
NH	6115	Forest	Private	MURZYN, CATHERINE E & PAUL V
NH	6116	Forest	Private	DAKOTA REALTY TRUST
NH	6117	Forest	Private	SILVER, CRAIG DOUGLAS
NH	6118	Forest	Private	WOODWARD TRUSTEE, THOMAS D
NH	6119	Forest	Private	MURZYN, CATHERINE E & PAUL V
NH	6120	Forest	Private	WASTE MANAGEMENT OF NH INC
NH	6125	Forest	Private	MEEKINS, NANCY E, & ROY G.
NH	6126	Forest	Private	COSTANZO, JOSEPH A + JUDITH S
NH	6127	Forest	Private	AUGER, PAUL E & MADELEINE L TRUSTEES
NH	6130	Forest	Private	TORR RALPH W REV TRUST OF 2000
NH	6140	Forest	Private	SCRUTON JOHN F & SANDRA G
NH	6200	Forest	Private	DROWNE,ROBERT FREDERICK
NH	6201	Forest	Private	GATEWAY AT EXETER LLC
NH	6202	Forest	Private	ZAMEK, STEVE
NH	6203	Forest	Private	FAST, ANDREW J.
NH	6207	Forest	Private	THE SMITH FAMILY REVOCABLE, TRUST OF 2022
NH	6208	Forest	Private	WINGATE, MARK A. & HEATHER E., ETAL
NH	6209	Forest	Private	VOYDATCH STEVEN & MAHALA
NH	6210	Forest	Private	MATHES FAMILY LIMITED
NH	6211	Forest	Private	HERTEL, TRUSTEE, VAN E
NH	6212	Forest	Private	CARDINAL, JAMES
NH	6213	Forest	Private	MALEY, ELISABETH J TRUSTEE
NH	6214	Forest	Private	MALEY ELISABETH J TRUSTEE
NH	6215	Forest	Private	DICKIE, KENNETH H + SANDRA
NH	6216	Forest	Private	BARRON III, ELMER + MARY
NH	6217	Forest	Private	MALEY, ELISABETH J TRUSTEE

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	6219	Forest	Private	MORRISON, RYAN & LINDSAY
NH	6223	Forest	Private	SOCIETY FOR PROTECTION NH FORESTS
NH	6225	Forest	Private	SOUTHEAST LAND TRUST OF NH
NH	6230	Forest	Private	FAST, ANDREW J.
NH	6290	Forest	Private	JONES DANIEL W REV TR
NH	6300	Forest	Private	KELLEY, MARK S & LINDA B.
NH	6301	Forest	Private	SAUNDERS JEFF LIVING TRUST
NH	6302	Forest	Private	ZABALA FAMILY TRUST
NH	6303	Forest	Private	GOODSTEIN, RYAN
NH	6304	Forest	Private	MATHES FAMILY LTD PRTNRSHIP
NH	6310	Forest	Private	BAGDON SAMUEL
NH	6320	Forest	Private	HOLLEY CHARLES GRAHAM
NH	6330	Forest	Private	WASTE MANAGEMENT OF NH INC
NH	6340	Forest	Private	JENNESS GEORGE B
NH	6400	Forest	Private	HERON BROOK REV TRUST
NH	6401	Forest	Private	BOUCHARD CARL E
NH	6402	Forest	Private	NATURE CONSERVANCY
NH	6410	Forest	Private	DEENE LEWIS
NH	6480	Forest	Private	SANBORN DAVID G FAM REV TR
NH	6490	Forest	Private	JONES DANIEL W REV TR
NH	6510	Forest	Private	0
NH	6530	Forest	Private	0
NH	6540	Forest	Private	JENNESS GEORGE B
NH	6710	Forest	Private	0
NH	6720	Forest	Private	SOCIETY FOR THE PROTECTION OF
NH	6730	Forest	Private	WASTE MANAGEMENT OF NH INC
NH	6910	Forest	Private	0
NH	6930	Forest	Private	0
NH	7000	Forest	Private	PALMER, ELENA A
NH	7001	Forest	Private	YOUNG & AUBERBACH REVOC TRUSTS
NH	7003	Forest	Private	REZENDES, CHRISTOPHER A
NH	7006	Forest	Private	TETLOW, SCOTT J
NH	7010	Forest	Private	RAGONESE, JOHN L.
NH	7100	Forest	Private	BROWN FAMILY TRUST, NATHANIEL
NH	7106	Forest	Private	SCRUTON, CHRISTOPHER
NH	7110	Forest	Private	SPRINGER, CARSTEN E H
NH	7200	Forest	Private	SNOW, RICHARD H
NH	7201	Forest	Private	SANDERSON SUZANNE & DAVID TRUSTEES
NH	7210	Forest	Private	RAGONESE, MARK A
NH	7220	Forest	Private	LACHANCE, GERARD & BARBARA TRSTEE
NH	7221	Forest	Private	BYRNE ELEANOR L

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	7300	Forest	Private	NICHOLAISEN II, HANS MARTIN &
NH	7304	Forest	Private	SAGAMORE HAMPTON GOLF CLUB INC
NH	7310	Forest	Private	THAYER TRUSTEE, JEREMY
NH	7400	Forest	Private	EDWIN C SIMONSEN REVOCABLE TRUST
NH	7410	Forest	Private	WATERS TTEE, THOMAS
NH	7500	Forest	Private	PATTERSON, BERNADETTE
NH	7510	Forest	Private	MATHES FAMILY LIMITED PARTNER
NH	8000	Forest	Private	DREW STANLEY C
NH	8100	Forest	Private	NICOLAISEN, HANS MARTIN II
NH	8124	Forest	Private	SAGAMORE HAMPTON GOLF CLUB INC
NH	8133	Forest	Private	TUTINAS PETER J & LISA A
NH	8135	Forest	Private	BATCHELDER RICHARD A JR & JUDITH H
NH	8138	Forest	Private	MOOR FARM LLC
NH	8149	Forest	Private	SAGAMORE HAMPTON GOLF CLUB INC
NH	8173	Forest	Private	THIRTEEN ACRES, LLC
NH	8175	Forest	Private	SAGAMORE HAMPTON GOLF CLUB INC
NH	8200	Forest	Private	KDRM LLC
NH	8235	Forest	Private	CHEVALIER KENDALL W & EUGENIE A
NH	8237	Forest	Private	CHEVALIER KENDALL W & EUGENIE
NH	8275	Forest	Private	ROCKWELL JANE KENT TRUSTEE
NH	8300	Forest	Private	SAGAMORE HAMPTON GOLF CLUB INC
NH		Forest	Private	0
NH	130-DEVELOPABLE RESIDENTIAL LAND	Forest	Private	LOT 24 EMERALD LLC
NH	131-MARGINALLY DEV RESIDENTIAL LAN	Forest	Private	CAMMETT EVELYNN J
NH	132- UNDEVELOPABLE RESIDENTIAL LAND	Forest	Private	0
NH	390-COMMERCIAL DEVELOPABLE LAN	Forest	Private	QUANTUM REAL ESTATE GROUP LLC
NH	391-COMM MARGINALLY DEV LAND	Forest	Private	AYER PAUL JR & DUSTON ROBERT &
NH	392-COMM UNDEVELOPABLE LAND	Forest	Private	NEW REDDEN GARDENS DEVELOPMENT CO
NH	394-APARTMENT LAND	Forest	Private	HOLGATE LIMITED PARTNERSHIP
NH	440-INDUSTRIAL DEVELOPABLE LAN	Forest	Private	0
NH	441-INDUSTRIAL MARGINAL DEV L	Forest	Private	NASH GERALD & TAMPOSI SAMUEL

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	442-INDUSTRIAL UNDEVELOPABLE L	Forest	Private	DOVER BUSINESS & IND DEV AUTHORITY
NH	504V	Forest	Private	PSNH DBA EVERSOURCE ENERGY
NH	600-VACANT LAND	Forest	Private	ARKWELL ALLAN
NH	610-VACANT LAND	Forest	Private	WOOD CHARLOTTE W ESTATE OF
NH	700-VACANT LAND	Forest	Private	FRAZER MARDEAN TRUSTEE
NH	710-VACANT LAND	Forest	Private	HOLLEY EDITH A TRUSTEE
NH	718-VACANT LAND	Forest	Private	SCHULTZE DONALD
NH	EXEMPT-MUNIC	Forest	Private	SOUTHEAST LAND TRUST OF NH
NH	MNGD HARDWD	Forest	Private	FAIRWINDS PROPERTIES, INC
NH	MNGD OTHER	Forest	Private	THE WILLIAM PARKER RIX REV. TR
NH	MNGD PINE	Forest	Private	ROBERT R. RIX JR. LIVING TRUS
NH	UNMNGD HARDWD	Forest	Private	HUTCHINS, SHIRLEY TRUSTEE
NH	UNMNGD OTHER	Forest	Private	SNYDER, RICHARD A
NH	UNMNGD PINE	Forest	Private	CALLAHAN, WILLIAM C
NH	UNPRODUCTIVE	Forest	Private	WHITNEY, DAVID C. REVOCABLE TR
NH	#N/A	Forest	Private	#N/A
NH	132	Forest	Public	CITY OF DOVER NH
NH	0812	Forest	Public	CITY OF PORTSMOUTH
NH	0813	Forest	Public	STATE OF NEW HAMPSHIRE
NH	3222	Forest	Public	, 19 NIMBLE HILL
NH	6000	Forest	Public	NEW HAMPSHIRE FISH & GAME
NH	6100	Forest	Public	TOWN OF GREENLAND
NH	6211	Forest	Public	TOWN OF, NEW DURHAM
NH	7000	Forest	Public	TOWN OF FREMONT
NH	8000	Forest	Public	TOWN OF DURHAM
NH	8303	Forest	Public	STATE OF NH FISH & GAME
NH		Forest	Public	0
NH	130-DEVELOPABLE RESIDENTIAL LAND	Forest	Public	CITY OF DOVER
NH	132- UNDEVELOPABLE RESIDENTIAL LAND	Forest	Public	CITY OF DOVER
NH	441-INDUSTRIAL MARGINAL DEV L	Forest	Public	CITY OF DOVER
NH	WETLANDS	Forest	Public	WATERS FAMILY TRUST, LOIS
NH	041	Industrial	Private	W.A.D. PROPERTY MGMT, LLC
NH	043	Industrial	Private	M A NEGM LLC
NH	046	Industrial	Private	SIG SAUER, INC.
NH	047	Industrial	Private	INDUSTRIAL DEV REALTY TRUST
NH	400	Industrial	Private	MRH METERS LLC
NH	401	Industrial	Private	HAYWARD REALTY INVESTMENTS

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	402	Industrial	Private	5 INDUSTRIAL DRIVE LLC
NH	403	Industrial	Private	SIG SAUER, INC.
NH	405	Industrial	Private	BRUSCHI ENTERPRISES, LLC
NH	410	Industrial	Private	PIKE INDUSTRIES, INC.
NH	0410	Industrial	Private	0
NH	0416	Industrial	Private	0
NH	422	Industrial	Private	NORTHERN UTILITIES
NH	424	Industrial	Private	CONSOLIDATED HYDRO INC
NH	428	Industrial	Private	NORTHERN UTILITIES
NH	0430	Industrial	Private	0
NH	430	Industrial	Private	NORTHERN NEW ENGLAND TELE OPER
NH	431	Industrial	Private	EIP COMMUNICATIONS I, LLC E
NH	0460	Industrial	Private	WASTE MANAGEMENT OF NH INC
NH	4000	Industrial	Private	RED HOOK BREWERY INC
NH	4010	Industrial	Private	LORDCO PIER ASSOCIATES
NH	4020	Industrial	Private	NEW HAMPSHIRE ELECTRIC COOP
NH	4021	Industrial	Private	SUNSET PROPERTIES LLC
NH	4022	Industrial	Private	HOLLYHOCK PROPERTIES, LLC
NH	4040	Industrial	Private	SIDNEY TRUST
NH	4080	Industrial	Private	OSSIPEE AGGREGATES CORPORATION
NH	4100	Industrial	Private	BELIEVE FREETOWN, LLC
NH	4110	Industrial	Private	GEORGIA-PACIFIC GYPSUM LLC
NH	4130	Industrial	Private	HAMPSTEAD AREA WATER COMPANY INC
NH	4140	Industrial	Private	AUDLEY CONSTRUCTION COMPANY
NH	4200	Industrial	Private	PENNICHUCK EAST UTILITY, INC
NH	4220	Industrial	Private	PUBLIC SERVICE CO OF NH
NH	4222	Industrial	Private	EVERSOURCE ENERGY
NH	4230	Industrial	Private	PUBLIC SERVICE CO OF N H
NH	4240	Industrial	Private	UNITIL ENERGY SYSTEMS INC
NH	4250	Industrial	Private	UNITIL NORTHERN UTILITIES INC
NH	4252	Industrial	Private	UNITIL NORTHERN UTILITIES/UNITIL ENERGY
NH	4270	Industrial	Private	NATIONAL PROPANE LP
NH	4290	Industrial	Private	FAIRPOINT
NH	4300	Industrial	Private	FAIRPOINT COMMUNICATIONS
NH	4310	Industrial	Private	NORTHERN NE TELEPHONE OPER
NH	4330	Industrial	Private	HOMEWOOD FARM REALTY TRUST
NH	4340	Industrial	Private	TELECOP[WIRELESS ASSET MNGMT]
NH	4360	Industrial	Private	GMR HOLDINGS OF NH LLC
NH	4400	Industrial	Private	EA2, LLC
NH	4410	Industrial	Private	GARRETT SHIRLEY N REVOC TRUST 2000

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	4420	Industrial	Private	0
NH		Industrial	Private	0
NH	031I	Industrial	Private	DOUGLAS VIRGINIA C & SCOTT N &
NH	041C	Industrial	Private	LAMPER DAVID & MARCY J
NH	043C	Industrial	Private	DESANTIS KEVIN
NH	046V	Industrial	Private	PIKE INDUSTRIES INC
NH	310-RTL OIL STORAGE	Industrial	Private	DOWNEAST ENERGY CORP
NH	313-LUMBER YARDS	Industrial	Private	COLONIAL DOVER PROPERTIES LLC
NH	314-TRUCKING TERMINALS	Industrial	Private	0
NH	315-DOCK YARDS	Industrial	Private	0
NH	400C	Industrial	Private	WASTE MANAGEMENT OF NH INC
NH	400-FACTORY	Industrial	Private	STOREMASTER FUNDING III LLC
NH	400V	Industrial	Private	0
NH	401-IND WAREHOUSES	Industrial	Private	HOPKINS JR WILLIAM F
NH	402-IND OFFICE	Industrial	Private	MARTINEAU MEGAN H TRUSTEE
NH	402V	Industrial	Private	CKT ASSOCIATES
NH	404-R&D FACILITITES	Industrial	Private	JUMAJA SEACOAST LLC
NH	404V	Industrial	Private	ONE FOUR SIX POST RD LLC
NH	410I	Industrial	Private	AGGREGATE INDUSTRIES
NH	410-SAND & GRAVEL	Industrial	Private	PRUVEN AGGREGATES INC
NH	410V	Industrial	Private	SEACOAST MATERIALS LLC
NH	415V	Industrial	Private	ROLLINS FARM RIVER TERMINAL LLC
NH	420V	Industrial	Private	0
NH	422-ELECTRIC GENERATION PLANTS	Industrial	Private	0
NH	422V	Industrial	Private	GSP SCHILLER LLC
NH	423-ELECTRIC TRANSMISSION ROW	Industrial	Private	0
NH	424-ELECTRIC SUBSTATION	Industrial	Private	0
NH	426V	Industrial	Private	PORTLAND NATURAL GAS
NH	427C	Industrial	Private	LP GAS EQUIPMENT INC
NH	427- NATURAL/MANF GAS STORAGE	Industrial	Private	0
NH	427V	Industrial	Private	SPRAGUE OPERATING RESOURCES LLC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	430-TELEPHONE EXCHANGE STATION	Industrial	Private	NEW ENG TEL & TEL CO
NH	431V	Industrial	Private	SPRINT PROP TAX DEPT
NH	432V	Industrial	Private	T-MOBILE NORTHEAST LLC
NH	433-RADIO/TV TOWER	Industrial	Private	GARRISON CITY BROADCASTING
NH	440I	Industrial	Private	CONTINENTAL DRIVE ASSOCIATES
NH	UTILITY-ELEC	Industrial	Private	PSNH DBA EVERSOURCE ENERGY
NH	UTILITY-WATER	Industrial	Private	HAMPSTEAD AREA WATER CO, INC
NH	4400	Industrial	Public	CITY OF PORTSMOUTH
NH	4420	Industrial	Public	ROCHESTER, CITY OF
NH	013	MultiFamily Residential	Private	BRENTWOOD PROPERTY HOLDINGS L
NH	014	MultiFamily Residential	Private	108 GATOR ROCK LLC
NH	015	MultiFamily Residential	Private	MARY & ROLAND PARENTEAU TRUST
NH	016	MultiFamily Residential	Private	DeYOUNG JOHN M.
NH	017	MultiFamily Residential	Private	FRIARS STEVEN
NH	102	MultiFamily Residential	Private	KATHLEEN APRIL-ROBINSON
NH	103	MultiFamily Residential	Private	MORIN IV WILLIAM
NH	104	MultiFamily Residential	Private	DRAPEAU VINCENT
NH	0104	MultiFamily Residential	Private	HOELZEL, DAVID
NH	0105	MultiFamily Residential	Private	DOWNING LIVING TRUST
NH	105	MultiFamily Residential	Private	BISSON CHRISTOPHER A
NH	107	MultiFamily Residential	Private	NORMAN H LAMBERT REV TRUST
NH	0107	MultiFamily Residential	Private	CC 86 MAIN LLC
NH	0109	MultiFamily Residential	Private	BOVA, DONALD & WENDY
NH	109	MultiFamily Residential	Private	CARMODY CHRISTOPHER J.
NH	110	MultiFamily Residential	Private	AVILES EDWIN SR + AIDA L
NH	111	MultiFamily Residential	Private	PROPERTY BROTHERS LLC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	112	MultiFamily Residential	Private	GREAT BAXTER MILLS LLC
NH	121	MultiFamily Residential	Private	BREITLING HOLDINGS, LLC
NH	0134	MultiFamily Residential	Private	DAY LILY RE LLC
NH	0136	MultiFamily Residential	Private	BRIT REALTY TRUST
NH	0137	MultiFamily Residential	Private	TURGEON ROLAND C + BARBARA L T
NH	0160	MultiFamily Residential	Private	0
NH	1015	MultiFamily Residential	Private	DURKIN ROBERT A
NH	1020	MultiFamily Residential	Private	CONRAD, DANIEL ROBERT
NH	1021	MultiFamily Residential	Private	FLYNN PETER J & RITA B
NH	1023	MultiFamily Residential	Private	GERMAIN, SHERYL A.
NH	1032	MultiFamily Residential	Private	HART GARY
NH	1040	MultiFamily Residential	Private	GREENE, FREDERICK A.
NH	1041	MultiFamily Residential	Private	BANKER FAMILY REVOCABLE TRUST
NH	1043	MultiFamily Residential	Private	YOUNG DRIVE LLC
NH	1050	MultiFamily Residential	Private	ANGE JAMES A TRUSTEE
NH	1051	MultiFamily Residential	Private	LENNNON TTEES, JOHN & JOAN
NH	1053	MultiFamily Residential	Private	BASILIERE, THOMAS R
NH	1063	MultiFamily Residential	Private	FORD, DANIEL F
NH	1070	MultiFamily Residential	Private	TIBERIO JAMES C & KATHLEEN A
NH	1080	MultiFamily Residential	Private	CUTTER JEFFREY ALAN
NH	1090	MultiFamily Residential	Private	HARVEY, CAROLYN REV TRUST
NH	1091	MultiFamily Residential	Private	MILDE, HELMUT I & LESLIE F
NH	1093	MultiFamily Residential	Private	DECAPO, THOMAS A

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	1100	MultiFamily Residential	Private	0
NH	1110	MultiFamily Residential	Private	FLENNIKEN ENTERPRISES LLC
NH	1111	MultiFamily Residential	Private	SPOFFORD, LISA REVOCABLE TRUST
NH	1112	MultiFamily Residential	Private	TARBELL MANAGEMENT LLC
NH	1120	MultiFamily Residential	Private	ANDROMEDA REAL ESTATE, LLC
NH	1130	MultiFamily Residential	Private	0
NH	1140	MultiFamily Residential	Private	DAVLOR LLC
NH	1150	MultiFamily Residential	Private	0
NH	1210	MultiFamily Residential	Private	MENCIS, EDWARD & MEEHAN, LINDA TRUSTEES
NH	1220	MultiFamily Residential	Private	MU ALPHA BUILDING ASSOC
NH	1230	MultiFamily Residential	Private	PHILLIPS EXETER ACADEMY
NH	1300	MultiFamily Residential	Private	JONES DONALD G
NH	1302	MultiFamily Residential	Private	GAO AILING
NH	1303	MultiFamily Residential	Private	PICKLES TRUST, ROBERT W
NH	1310	MultiFamily Residential	Private	DROWNE, ROBERT FREDERICK
NH	1312	MultiFamily Residential	Private	JOPLIN, PAMELA A & ARMOND D
NH	1313	MultiFamily Residential	Private	LAKE ANN TRUSTEE
NH	1322	MultiFamily Residential	Private	SELLERS JAMES M
NH	1323	MultiFamily Residential	Private	GREENOUGH GALYNN & MICHAEL
NH	1325	MultiFamily Residential	Private	HIDDEN VALLEY HOMEOWNERS ASSOCIATION
NH	1330	MultiFamily Residential	Private	SCRIBNER ROAD REALTY TRUST
NH	013-MULTI-USE PRIME RES USE W/ COM	MultiFamily Residential	Private	MCKENNA MARTIN J JR & MARLENE A TRUSTEES
NH	013R	MultiFamily Residential	Private	0

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	014C	MultiFamily Residential	Private	ROGERS RICHARD M & DOROTHY T
NH	014R	MultiFamily Residential	Private	0
NH	014T	MultiFamily Residential	Private	OLD MILTON RD LLC
NH	016T	MultiFamily Residential	Private	0
NH	016V	MultiFamily Residential	Private	0
NH	031R	MultiFamily Residential	Private	HOPE ON HAVEN HILL INC
NH	101A	MultiFamily Residential	Private	MARTEL REALTY TRUST
NH	102- CONDOMINIUM	MultiFamily Residential	Private	BAILLARGEON ROGER N &
NH	102R	MultiFamily Residential	Private	TRUDEL BRYAN T TRUST
NH	102T	MultiFamily Residential	Private	AA2 N H MANAGEMENT LLC
NH	102V	MultiFamily Residential	Private	AUTUMN HILLS DEVELOPMENT, LLC
NH	103V	MultiFamily Residential	Private	FERWERDA, MARTIN
NH	104-TWO FAMILY	MultiFamily Residential	Private	BURCKE JOHN B III &
NH	105-THREE FAMILY	MultiFamily Residential	Private	TUCKER ANNE E TRUSTEE
NH	106V	MultiFamily Residential	Private	GRIFFIN, JAMES P & WENDY B
NH	109R	MultiFamily Residential	Private	HARVEY CANDICE K
NH	111-APARTMENT CONVERSIONS 4+	MultiFamily Residential	Private	GAUNYA ROSWELL A
NH	111C	MultiFamily Residential	Private	CLEARVIEW PROPERTIES, LLC
NH	111R	MultiFamily Residential	Private	WATSON MICHAEL & WILLIAM
NH	112C	MultiFamily Residential	Private	81 HIGH STREET LLC
NH	112-GARDEN APTS	MultiFamily Residential	Private	FDIC
NH	112R	MultiFamily Residential	Private	JACKSON PROPERTIES LLC
NH	114-MULTI-USE 1ST FLR,TOWNHOUSE AP	MultiFamily Residential	Private	ELLIOTT MICHAEL B

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	115T	MultiFamily Residential	Private	DEMOPOULOS IRREVOC TRUST OF
NH	121C	MultiFamily Residential	Private	WHITE PAUL H REV TRUST OF 2016
NH	121- ROOMING/BOARDI NG HOUSES	MultiFamily Residential	Private	SILVER LEONARD A IV REVOCABLE TRUST
NH	125-RES ASSISTED LIVING	MultiFamily Residential	Private	10 SUMMER STREET REAL ESTATE LLC
NH	2F RES	MultiFamily Residential	Private	MURRAY, CANDACE
NH	2F RES WTR ACS	MultiFamily Residential	Private	MC EVOY, ANDREW
NH	2F RES WTRFRNT	MultiFamily Residential	Private	GISZCZYNSKI, DOUGLAS A
NH	303-RTL/OFF 1ST FLR/APTS UPPER	MultiFamily Residential	Private	SALTY SEA REALTY LLC
NH	304-NURSING HOMES & ASST LIVING	MultiFamily Residential	Private	REAL MCKOY PROPERTIES LLC
NH	396-COMMERCIAL CONDO	MultiFamily Residential	Private	PATENAUE MICHAEL P &
NH	405-IND CONDO	MultiFamily Residential	Private	D&H BAY REALTY LLC
NH	CONDOMINIUM TYPE	MultiFamily Residential	Private	GREYSTONE COMMONS
NH	EXEMPT-MUNIC	MultiFamily Residential	Private	OSGOOD ROAD CONDOMINIUM
NH	RES MULTI HOUSES	MultiFamily Residential	Private	KOKERNAK, KIM A
NH	016	MultiFamily Residential	Public	DUNHAM, W/R 2015 JOINT REV TRU
NH	0196	MultiFamily Residential	Public	ROCKINGHAM, COUNTY OF
NH	1300	MultiFamily Residential	Public	EPPING, TOWN OF
NH	102- CONDOMINIUM	MultiFamily Residential	Public	NEW HAMPSHIRE HOUSING FINANCE AUTHORITY
NH	104-TWO FAMILY	MultiFamily Residential	Public	NEW HAMPSHIRE HOUSING FINANCE AUTHORITY
NH	111-APARTMENT CONVERSIONS 4+	MultiFamily Residential	Public	SECRETARY OF THE DEPARTMENT OF HUD
NH	303-RTL/OFF 1ST FLR/APTS UPPER	MultiFamily Residential	Public	CITY OF DOVER
NH	0	Open Land	Private	0
NH	071	Open Land	Private	GREAT FALLS CONDO ASSOC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	393	Open Land	Private	EMMA BRENTWOOD REALTY, LLC
NH	423	Open Land	Private	EVERSOURCE
NH		Open Land	Private	0
NH	061R	Open Land	Private	DESROSIERS SEAN D
NH	386-CAMP GROUND/MH PARK LAND	Open Land	Private	MILLER WILLIAM J &
NH	502-DAMS	Open Land	Private	0
NH	FARM LAND	Open Land	Private	SIMONSEN, EDWIN
NH	#N/A	Open Land	Private	#N/A
NH	091	Private Institutional	Private	FIRST BAPTIST CHURCH
NH	904	Private Institutional	Private	TRI-CITY COVENANT CHURCH
NH	905	Private Institutional	Private	SOMERSWORTH EARLY LEARNING
NH	906	Private Institutional	Private	GRACE MINISTRIES INTL. INC.
NH	0906	Private Institutional	Private	DURHAM UNITARIAN UNIVERSALIST FELLOWSHIP
NH	907	Private Institutional	Private	LENOX PARK HOMEOWNERS AASTN
NH	909	Private Institutional	Private	SIX PACK HOMEOWNERS` ASSOCIATI
NH	910	Private Institutional	Private	TUCK CEMETERY
NH	0910	Private Institutional	Private	STRAWBERRY BANKE INC
NH	911	Private Institutional	Private	324 SOUTH ROAD, LLC
NH	9030	Private Institutional	Private	CHURCH, MURIEL C
NH	9035	Private Institutional	Private	WINDSOR MEADOWS HOMEOWNERS ASSOC
NH	9040	Private Institutional	Private	PHILLIPS EXETER ACADEMY
NH	9050	Private Institutional	Private	COMMUNITY CROSSROADS INC
NH	9060	Private Institutional	Private	CORP. OF THE PRESIDING BISHOP
NH	9070	Private Institutional	Private	NH NORTHCOAST CORP
NH	9090	Private Institutional	Private	RAYMOND BAPTIST CHURCH
NH	9100	Private Institutional	Private	DOBERMAN RESCUE UNLIMITED, INC
NH	9120	Private Institutional	Private	CEMETERY ASSOCIATION
NH	9200	Private Institutional	Private	HALBACH, ANDREW J.
NH	9300	Private Institutional	Private	SYLVAN HOMEOWNERS ASSOC
NH	9350	Private Institutional	Private	ASSOCIATION SIMONS LANE
NH	9400	Private Institutional	Private	OPEN SPACE
NH	9600	Private Institutional	Private	PINE GROVE ASSOCIATION
NH	9900	Private Institutional	Private	AUDUBON SOCIETY OF NEW HAMPSHIRE
NH	9998	Private Institutional	Private	UNKNOWN OWNER
NH		Private Institutional	Private	0
NH	903C	Private Institutional	Private	CANDIA YOUTH ATHLETIC ASSOCIAT
NH	903I	Private Institutional	Private	RAYMOND HISTORICAL SOCIETY

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	903-MUNICIPALITIES	Private Institutional	Private	ST JOHNS UNITED METHODIST CHURCH OF DOVE
NH	903V	Private Institutional	Private	SOCIETY FOR PROTECTION OF NH FORESTS
NH	904C	Private Institutional	Private	PHILLIPS EXETER ACADEMY
NH	904I	Private Institutional	Private	PHILLIPS EXETER ACADEMY
NH	904-PRIVATE COLLEGES/SCHOOLS	Private Institutional	Private	SEABORNE HOSPITAL INC
NH	904V	Private Institutional	Private	HERONFIELD ACADEMY
NH	905C	Private Institutional	Private	YOUNG MENS CHRISTIAN ASSOC
NH	905-PRIVATE HOSP/CHARITIES	Private Institutional	Private	CHEVALIER DYANNE P
NH	905V	Private Institutional	Private	EXETER HOSPITAL INC
NH	906C	Private Institutional	Private	FATHERS FAMILY CHURCH INC
NH	906-CHURCHES/SYNAGOGUES/TEMPLE	Private Institutional	Private	0
NH	906I	Private Institutional	Private	ST. MATTHEW'S CHURCH
NH	906R	Private Institutional	Private	ONE SKY COMMUNITY SERVICES INC
NH	906V	Private Institutional	Private	ST. MATTHEW'S UMC TRUSTEES
NH	909C	Private Institutional	Private	NEW FRONTIERS CHURCH INC
NH	909R	Private Institutional	Private	UNITED CHURCH OF CHRIST
NH	910C	Private Institutional	Private	SOUTHERN DISTRICT YMCA
NH	910-CHARITABLE	Private Institutional	Private	JALBERT LEASING INC
NH	910R	Private Institutional	Private	ONE SKY COMMUNITY SERVICES INC
NH	910V	Private Institutional	Private	NORTH HAMPTON YOUTH ASSOCIATION
NH	912C	Private Institutional	Private	ROCHESTER CEMETARY ASSOCIATION
NH	920C	Private Institutional	Private	FIRE LAKE CORPORATION
NH	920I	Private Institutional	Private	BLACKSTONE RESERVE DEVELOPMENT, LLC
NH	920-NON PROFIT	Private Institutional	Private	THE NATURE CONSERVANCY
NH	920O	Private Institutional	Private	ROCKINGHAM VISITING NURSE
NH	920P	Private Institutional	Private	SEACOAST FAMILY PROMISE
NH	920R	Private Institutional	Private	ONE SKY COMMUNITY SERVICES, INC.
NH	920V	Private Institutional	Private	MELLING GLEN CONDO ASSOC
NH	930-EXEMPT TRACER MAY HAVE A/R	Private Institutional	Private	0
NH	930R	Private Institutional	Private	ASSOCIATION FOREST ST 6-8
NH	930V	Private Institutional	Private	LOUISBURG CIRCLE HOMEOWNERS
NH	933-EXEMPT TRACER	Private Institutional	Private	PIERCE SYLVESTER J
NH	940C	Private Institutional	Private	ASSOCIATION MEAD HILL

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	940R	Private Institutional	Private	ASSOCIATION GRAPE ST 3-5
NH	940V	Private Institutional	Private	ASSOCIATION HOMESITE
NH	988V	Private Institutional	Private	ROCHESTER PINEWOOD REAL EST
NH	995V	Private Institutional	Private	BRICKYARD BUSINESS
NH	EXEMPT-MUNIC	Private Institutional	Private	PINKERTON ACADEMY
NH	EXEMPT-PILT	Private Institutional	Private	ENEL GREEN POWER NORTH AMERICA
NH	EXEMPT-STATE	Private Institutional	Private	AMERICAN LEGION POST NO 103
NH	093	Public Institutional	Public	FINISHING TRADES INST. OF NE
NH	096	Public Institutional	Public	ROCKINGHAM, COUNTY OF
NH	900	Public Institutional	Public	UNITED STATES OF AMERICA
NH	901	Public Institutional	Public	NH, STATE OF
NH	902	Public Institutional	Public	ROCKINGHAM, COUNTY OF
NH	903	Public Institutional	Public	CITY OF SOMERSWORTH
NH	0906	Public Institutional	Public	UNITED CAMPUS MINISTRY TO UNH
NH	907	Public Institutional	Public	CITY OF DOVER NH
NH	908	Public Institutional	Public	SOMERSWORTH HOUSING AUTHORITY
NH	910	Public Institutional	Public	TOWN OF BRENTWOOD
NH	0936	Public Institutional	Public	ROCKINGHAM, COUNTY OF
NH	5040	Public Institutional	Public	PUBLIC SERVICE CO OF NH
NH	9000	Public Institutional	Public	0
NH	9010	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	9013	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	9020	Public Institutional	Public	STATE OF NH FISH & GAME
NH	9021	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	9023	Public Institutional	Public	STATE OF NH FISH & GAME
NH	9030	Public Institutional	Public	RAYMOND, TOWN OF
NH	9031	Public Institutional	Public	SANDOWN, TOWN OF
NH	9032	Public Institutional	Public	EXETER TOWN OF
NH	9033	Public Institutional	Public	TIMBERLANE REGIONAL SCHOOL DISTRICT
NH	9034	Public Institutional	Public	NEWMARKET SCHOOL DISTRICT
NH	9035	Public Institutional	Public	SANDOWN, TOWN OF
NH	9040	Public Institutional	Public	HOPE FOR TOMORROW FOUNDATION
NH	9070	Public Institutional	Public	RUM HOLLOW - COMMON LAND
NH	9080	Public Institutional	Public	PORTSMOUTH HOUSING AUTHORITY
NH	9100	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	9130	Public Institutional	Public	SOMERSWORTH CITY OF
NH	9140	Public Institutional	Public	0
NH	9150	Public Institutional	Public	ROCHESTER HOUSING AUTHORITY
NH	9170	Public Institutional	Public	0
NH	9200	Public Institutional	Public	RAYMOND TOWN OF
NH	9300	Public Institutional	Public	CITY OF PORTSMOUTH

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	9400	Public Institutional	Public	COMMON LAND
NH	9500	Public Institutional	Public	FRENCH CEMETERY
NH	9600	Public Institutional	Public	SANDOWN, TOWN OF
NH	9601	Public Institutional	Public	EXETER TOWN OF
NH	9602	Public Institutional	Public	EXETER TOWN OF
NH	9603	Public Institutional	Public	EXETER TOWN OF
NH	9605	Public Institutional	Public	EXETER TOWN OF
NH	9606	Public Institutional	Public	NEW HAMPSHIRE STATE OF
NH	9700	Public Institutional	Public	TOWN OF FREMONT
NH	9881	Public Institutional	Public	TOWN OF DERRY
NH	9900	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	9920	Public Institutional	Public	0
NH	900C	Public Institutional	Public	UNITED STATES POSTAL SERVICE
NH	900I	Public Institutional	Public	US GOVERNMENT FEDERAL BUILDING
NH	900R	Public Institutional	Public	US SEC OF HOUSING & URBAN DEV
NH	900- U.S.GOVERNMENT	Public Institutional	Public	0
NH	900V	Public Institutional	Public	U S POSTAL SERVICE
NH	901A	Public Institutional	Public	NEW HAMPSHIRE FISH & GAME
NH	901C	Public Institutional	Public	PEASE DEVELOPMENT AUTHORITY
NH	901- COMMONWEALTH OF NH	Public Institutional	Public	0
NH	901I	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	901R	Public Institutional	Public	STATE OF NEW HAMPSHIRE
NH	901V	Public Institutional	Public	PEASE DEVELOPMENT AUTHORITY
NH	902-COUNTIES	Public Institutional	Public	0
NH	903A	Public Institutional	Public	EXETER REGION COOPERATIVE
NH	903B	Public Institutional	Public	EXETER REGION COOPERATIVE
NH	903C	Public Institutional	Public	CITY OF PORTSMOUTH
NH	903I	Public Institutional	Public	RAYMOND SCHOOL DISTRICT
NH	903J	Public Institutional	Public	TOWN OF GREENLAND
NH	903L	Public Institutional	Public	TOWN OF NEWMARKET
NH	903- MUNICIPALITIES	Public Institutional	Public	0
NH	903R	Public Institutional	Public	RAYMOND, TOWN OF
NH	903T	Public Institutional	Public	RAYMOND, TOWN OF
NH	903V	Public Institutional	Public	NEWINGTON, TOWN OF
NH	905I	Public Institutional	Public	0
NH	908-HOUSING AUTHORITY	Public Institutional	Public	LEPPANEN DEBBI
NH	908I	Public Institutional	Public	EXETER TOWN OF

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	920V	Public Institutional	Public	COMMON LAND
NH	921E	Public Institutional	Public	PEASE DEVELOPMENT AUTHORITY
NH	EXEMPT-FED	Public Institutional	Public	US GOVERNMENT
NH	EXEMPT-MUNIC	Public Institutional	Public	ROLLINSFORD, TOWN OF
NH	EXEMPT-PILT	Public Institutional	Public	DURHAM, TOWN OF
NH	EXEMPT-STATE	Public Institutional	Public	NEW HAMPSHIRE, STATE OF - DNCR
NH	101	Single Family Residential	Private	STONE SHAWN+EMILY
NH	0101	Single Family Residential	Private	RYDER JAMES
NH	0103	Single Family Residential	Private	PATTERSON, KENNETH
NH	106	Single Family Residential	Private	SBA TOWERS
NH	0130	Single Family Residential	Private	CARTIER, STEVEN M.
NH	903	Single Family Residential	Private	THOMAS ATKINSON REV TRUST
NH	1010	Single Family Residential	Private	GAUTHIER CHRISTOPHER & JOYCE
NH	1011	Single Family Residential	Private	HUCKINS RALPH & BARBARA TRUSTEES
NH	1012	Single Family Residential	Private	OWENS, CALEB E. & RACHEL J.
NH	1013	Single Family Residential	Private	BROWN, STEVEN A
NH	1014	Single Family Residential	Private	THERAULT, CRAIG
NH	1030	Single Family Residential	Private	LAVALLEY THOMAS JOSEPH
NH	1031	Single Family Residential	Private	MACK, MICHELLE M
NH	1060	Single Family Residential	Private	HOLSTEIN LIVING TRUST
NH	1320	Single Family Residential	Private	DIMOU PETROS REV TR
NH	9030	Single Family Residential	Private	PAPPAS BRYAN C LIVING TRUST
NH	010C	Single Family Residential	Private	RAYMOND VILLAGE, LLC
NH	100-BUILDING ONLY RES	Single Family Residential	Private	HERON BAY PARTNERS LLC
NH	101-SINGLE FAMILY RES	Single Family Residential	Private	THEODORE JASON N
NH	101V	Single Family Residential	Private	GEROME STUART A

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	103-MANUF. HOME	Single Family Residential	Private	ANDREWS JUDITH E &
NH	109-ACCESSORY BULDING(S)	Single Family Residential	Private	KAY RICHARD W TRUSTEE
NH	1F RES	Single Family Residential	Private	O'NEILL FAMILY REVOCABLE TRUST
NH	1F RES ACC DWL	Single Family Residential	Private	OBERHAUS ADAM M
NH	1F RES WTR ACS	Single Family Residential	Private	ARSENAULT, DENNIS P
NH	1F RES WTRFRNT	Single Family Residential	Private	VERMETTE, JR., RAYMOND A.
NH	3F RES	Single Family Residential	Private	WIELAND, CARRIE & MATTHEW
NH	3F RES WTRFRNT	Single Family Residential	Private	TALL, STEPHEN TRSTEE
NH	4F RES	Single Family Residential	Private	LAGANA REVOC TRT, MARION C.
NH	4F RES WTRFRNT	Single Family Residential	Private	SIMPSON, DONALD
NH	901-COMMONWEALTH OF NH	Single Family Residential	Private	KNIAZ STEPHEN P REALTY LLC
NH	903-MUNICIPALITIES	Single Family Residential	Private	DOWALIBY FAMILY REVOCABLE TRUST
NH	EXEMPT-MUNIC	Single Family Residential	Private	SILCOCKS FAMILY TRUST
NH	RES W IN-LAW	Single Family Residential	Private	FERDINANDO, NORMA J.
NH	1010	Single Family Residential	Public	CITY OF ROCHESTER
NH	1030	Single Family Residential	Public	RAYMOND, TOWN OF
NH	1320	Single Family Residential	Public	TOWN OF FREMONT
NH	101-SINGLE FAMILY RES	Single Family Residential	Public	CITY OF DOVER
NH	1F RES	Single Family Residential	Public	UNH ROCKINGHAM CITY
NH	1F RES WTRFRNT	Single Family Residential	Public	DOVER, CITY OF
NH	9400	Transportation	Private	BOSTON AND MAINE RAILROAD
NH	3920	Transportation	Public	CANDIA VILLAGE DEVELOPMENT, LLC
NH	4400	Transportation	Public	THE STORAGE BARN OF NEWINGTON, LLC
NH	9010	Transportation	Public	BOSTON AND MAINE RAILROAD
NH		Transportation	Public	0

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
NH	1F RES	Transportation	Public	HAMMERSHOY, ERIC C
NH	901V	Transportation	Public	STATE OF NEW HAMPSHIRE
NH	EXEMPT-MUNIC	Transportation	Public	NORTHWOOD, TOWN OF
NH	WETLANDS	Water	Private	NICOLAISEN, HANS MARTIN
NH		Water	Public	0
ME	0	Commercial	Private	GRENIER PROPERTIES, LLC
ME	101	Commercial	Private	RAITT, ANTHONY R.
ME	104	Commercial	Private	BELANGER, THOMAS
ME	105	Commercial	Private	ROBERGE RENTALS LLC
ME	200	Commercial	Private	SCHARF LLC ROSALIE G.
ME	201	Commercial	Private	CENTRAL MAINE POWER COMPANY
ME	0310	Commercial	Private	THE SEVEN T'S LLC
ME	326	Commercial	Private	LONG, RONALD & NOREEN
ME	402	Commercial	Private	JABA PROPERTIES LLC
ME	502	Commercial	Private	TARASON ENTERPRISES, INC.
ME	503	Commercial	Private	BEARTAIGH, LLC
ME	504	Commercial	Private	NORTON STREET NEIGHBORHOOD REVITALIZATION LTD. PA*
ME	601	Commercial	Private	BENNETT GARY M.
ME	611	Commercial	Private	CUNNINGHAM, THERESA
ME	620	Commercial	Private	VINE STREET M.H.P. LLC
ME	800	Commercial	Private	LLC, ROBERGE RENTAL
ME	801	Commercial	Private	MICK CONSTRUCTION CORP.
ME	995	Commercial	Private	45 SILVER STREET LLC
ME	1010	Commercial	Private	GAGNON, BARBARA J.
ME	1011	Commercial	Private	COTE, CHRISTOPHER & JENNIFER
ME	1020	Commercial	Private	ABBOTT MARILYN M
ME	1030	Commercial	Private	PIKE, MARGARET A.
ME	1040	Commercial	Private	MARTINEZ GERARDO
ME	1050	Commercial	Private	MAROUTHIS, APTS
ME	1060	Commercial	Private	WHITTEN WAYNE M SR
ME	1060	Commercial	Private	NORTHEAST CAPITAL GROUP LLC
ME	1110	Commercial	Private	28 ROCHESTER ST LLC
ME	1111	Commercial	Private	NORTHEAST PROPERTIES OF BERWICK, LLC
ME	1120	Commercial	Private	APPLEGATE LIMITED PARTNERSHIP
ME	1300	Commercial	Private	3 D'S PROPERTY MANAGEMENT, LLC
ME	1303	Commercial	Private	EUSTIS RIDGE, LLC
ME	1320	Commercial	Private	WEBOSTRA, INC
ME	3010	Commercial	Private	BAR-H CORPORATION
ME	3160	Commercial	Private	BROOK PROPERTY HOLDINGS, LLC
ME	3180	Commercial	Private	BLACKMORE ROAD LLC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	3220	Commercial	Private	CX4 MANAGEMENT LLC
ME	3220	Commercial	Private	HARVARD TURF FARMS INC
ME	3222	Commercial	Private	ONE SULLIVAN LLC
ME	3223	Commercial	Private	H.P. CYCLES INC
ME	3230	Commercial	Private	OSJ OF SANFORD
ME	3250	Commercial	Private	SANFORD PROPERTY HOLDINGS LLC
ME	3250	Commercial	Private	CFI PROPCO 2 LLC
ME	3260	Commercial	Private	GRANITE PROPERTIES
ME	3310	Commercial	Private	CENTRAL TIRE CO INC
ME	3310	Commercial	Private	MORRILL GARY
ME	3320	Commercial	Private	KNOX JOSHUA
ME	3320	Commercial	Private	PITBULL AUTOMOTIVE LLC
ME	3370	Commercial	Private	J & N SANFORD TRUST
ME	3380	Commercial	Private	WISE PROPERTIES LLC
ME	3400	Commercial	Private	ADAM BLAIE & ASSOCIATES LLC
ME	3400	Commercial	Private	4 SULLIVAN ST LLC
ME	3410	Commercial	Private	PRIORITY CAPITAL PARTNERS LLC
ME	3410	Commercial	Private	HALL, DANA E
ME	3420	Commercial	Private	TWIN BROOKS PARTNERS LLC
ME	3800	Commercial	Private	BAUNEG BEG COUNTRY CLUB INC
ME	3860	Commercial	Private	ACECAPADER ACRES, INC.
ME	3880	Commercial	Private	NORTHEAST CREDIT UNION
ME	3900	Commercial	Private	MRH METERS LLC
ME	3910	Commercial	Private	ROUTE 4 SELF STORAGE LLC
ME	4000	Commercial	Private	REDIMIX COMPANIES INC.
ME	4200	Commercial	Private	193 ROUTE 236 LLC
ME	4240	Commercial	Private	CENTRAL MAINE POWER
ME	4310	Commercial	Private	LITTLE HARBOR WINDOW COMPANY
ME	6010	Commercial	Private	NEW ENGLAND FORESTRY FND, INC.
ME	6020	Commercial	Private	WEBOSTRA, INC
ME	6100	Commercial	Private	WEBOSTRA, INC.
ME	7130	Commercial	Private	HARVARD TUFT FARMS INC
ME	7230	Commercial	Private	M AND S LAND DEVELOPMENT LLC
ME	8060	Commercial	Private	A AND J HOLDINGS, LLC
ME	9010	Commercial	Private	MAINE D. O. T.
ME	9040	Commercial	Private	CHILDLIGHT MONTESSORI SCHOOL, INC
ME	9090	Commercial	Private	KNIGHTS OF PYTHIAS
ME	9300	Commercial	Private	NEVINA ESTATES LLC
ME		Commercial	Private	0
ME	031A	Commercial	Private	THOMPSON KATE M
ME	031L	Commercial	Private	ROBERTSON GARRY

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	031R	Commercial	Private	CHASSE CARL A TRUSTEE OF THE
ME	301R	Commercial	Private	OAKWOOD INN LLC
ME	317V	Commercial	Private	SMITH FRANK W/KAREN E
ME	321I	Commercial	Private	GREAT WORKS RIVER LLC
ME	322I	Commercial	Private	SHAKER POND ICE CREAM LLC
ME	323I	Commercial	Private	CFS LIMITED PARTNERSHIP
ME	330I	Commercial	Private	TUCKER JOHN III/ELIZABETH
ME	331V	Commercial	Private	TPD CONSTRUCTION CO
ME	332I	Commercial	Private	BJH ENTERPRISES LLC
ME	334I	Commercial	Private	SPIRIT SPE PORTFOLIO 2012-2 LLC
ME	335I	Commercial	Private	SANFORD CAR WASH CENTERS INC
ME	341I	Commercial	Private	PEOPLE'S CHOICE CREDIT UNION
ME	380V	Commercial	Private	BAUNEG BEG COUNTRY CLUB INC
ME	905C	Commercial	Private	YORK HOSPITAL
ME	9036	Commercial	Public	SANFORD TOWN OF
ME	901I	Commercial	Public	MAINE PUBLIC BROADCASTING CORP
ME	0	Forest	Private	WALSH, TIMOTHY
ME	0	Forest	Private	BAER, CHARLES S.
ME	101	Forest	Private	WHITING, WALTER
ME	104	Forest	Private	INTOCCIA, JOSEPH
ME	310	Forest	Private	GUPTILL, GAYLE & MICHAEL
ME	601	Forest	Private	COOMBS JAN ELIZABETH
ME	611	Forest	Private	LYNCH, DONALD S.
ME	620	Forest	Private	MASSE SIMONE D.
ME	800	Forest	Private	MICK SAMUEL
ME	801	Forest	Private	MICK SAMUEL
ME	845	Forest	Private	LEAVITT, GERALD L. & DOROTHY F.
ME	1010	Forest	Private	VENNARD, CAROLINE G. & ROBERT W.
ME	1011	Forest	Private	PETELO, PAULINO & AMY
ME	1013	Forest	Private	CLIFFORD KIMBERLY A. & AARON
ME	1020	Forest	Private	PUOPOLO, DANTE P & DEBORAH M
ME	1030	Forest	Private	GUY RAYMOND
ME	1040	Forest	Private	TURGEON, MICHAEL T
ME	1050	Forest	Private	TRAFTON, JAYME
ME	1060	Forest	Private	GESIS, MERCINA J
ME	1090	Forest	Private	BROWN, WILLIAM A. III
ME	1110	Forest	Private	DELLA-PIANA, BEN & KRISTIE
ME	1120	Forest	Private	PARENT, MARTIN
ME	1300	Forest	Private	SEWELL NANCY & GARDELL DEBORAH
ME	1303	Forest	Private	O'MEARA, MATTHEW J.
ME	1310	Forest	Private	WEBSTER, NATHAN

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	1320	Forest	Private	ALI POND RD OWNERS
ME	1400	Forest	Private	GOULET, DONALD
ME	3160	Forest	Private	POIRIER, MARK
ME	3190	Forest	Private	PRIME STORAGE BERWICK
ME	3220	Forest	Private	APPLEBY CHRISTINE D.
ME	3222	Forest	Private	GUY, JAMES & SUSAN
ME	3320	Forest	Private	HATHORNE RONALD D
ME	3860	Forest	Private	HUTTOPIA SANFORD PROPERTIES LLC
ME	3860	Forest	Private	SHECHELLE'S RECREATIONAL PROPERTIES
ME	3880	Forest	Private	BOURASSA JAMES R/JOANNE
ME	3900	Forest	Private	BAR-H CORPORATION
ME	3900	Forest	Private	RICKER, JAMES C.
ME	3910	Forest	Private	FILIPPONE JUDE B
ME	3920	Forest	Private	GENEST THOMAS R
ME	4022	Forest	Private	COLLINS, GARY L. SR. & PATRICIA A.
ME	4100	Forest	Private	BROWN, STEVEN E.
ME	4230	Forest	Private	PUBLIC SERVICE CO OF NH
ME	4310	Forest	Private	EATON, JAMES R.
ME	4400	Forest	Private	GENERAL ELECTRIC CO.
ME	6010	Forest	Private	BROWN, STEVEN E.
ME	6020	Forest	Private	O'TASH CINDY L
ME	6100	Forest	Private	GIBBONS, BRIAN, SANDRA L. & JOHN K.
ME	6400	Forest	Private	GREAT WORKS REGIONAL LAND TRUST
ME	7100	Forest	Private	SHAPLEIGH, MONIQUE
ME	7130	Forest	Private	PAYEUR MARCEL/SUZANNE
ME	7180	Forest	Private	TIBBETTS, REBA & LELAND TRUSTEES
ME	7200	Forest	Private	TIBBETTS, REBA & LELAND TRUSTEES
ME	7210	Forest	Private	WEBB JAMES E
ME	7220	Forest	Private	MCLEOD SHAWN D/ CATHERINE A
ME	7230	Forest	Private	PAYEUR THOMAS D/KAREN M
ME	7230	Forest	Private	SMITH, KELLY L. & DENISE D.
ME	9033	Forest	Private	MSAD 60
ME	9100	Forest	Private	YORK HOSPITAL
ME		Forest	Private	0
ME	390V	Forest	Private	WILLIAMS DIANE & BLAINE & GENEST LINDA
ME	801	Forest	Public	HAYES RICHARD F.
ME	6010	Forest	Public	JOHNSON, MARJORIE A.
ME	7130	Forest	Public	HARVARD TURF FARMS
ME		Forest	Public	0
ME	302	Industrial	Private	SAD 35 CENTRAL SCHOOL

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	310	Industrial	Private	MEDICAL CARE DEVELOPMENT INC
ME	320	Industrial	Private	OLD BERWICK HISTORICAL SOCIETY
ME	330	Industrial	Private	VINE STREET CEMETERY
ME	340	Industrial	Private	FREE BAPTIST CHURCH
ME	360	Industrial	Private	SOUTH BERWICK MASONIC TEMPLE
ME	3000	Industrial	Private	CUMBERLAND FARMS, INC
ME	3100	Industrial	Private	KENNEY PAUL M/DEBBIE L
ME	3160	Industrial	Private	20 RENWAY LLC
ME	4000	Industrial	Private	LEVEL SEVEN LLC
ME	4010	Industrial	Private	GENEST THOMAS R
ME	4230	Industrial	Private	CENTRAL MAINE POWER COMPANY
ME	4310	Industrial	Private	AMERICAN TOWERS INC
ME		Industrial	Private	0
ME	300I	Industrial	Private	AROMA JOE'S COFFEE
ME	300V	Industrial	Private	GREAT WORKS REALTY LLC
ME	410V	Industrial	Private	DANA VENTURES LLC
ME	424V	Industrial	Private	CENTRAL MAINE POWER COMPANY
ME	433V	Industrial	Private	GENEST CONCRETE WORKS INC
ME	905I	Industrial	Private	SANFORD SEWERAGE DISTRICT
ME	300	Industrial	Public	SOUTH BERWICK TOWN OF
ME	303	Industrial	Public	SOUTH BERWICK WATER DISTRICT
ME	304	Industrial	Public	STATE OF MAINE
ME	305	Industrial	Public	UNITED STATES POSTAL SERVICE
ME	9055	Industrial	Public	SANFORD WATER DISTRICT
ME	905J	Industrial	Public	SANFORD WATER DISTRICT
ME	0	MultiFamily Residential	Private	WOODLAND HILLS CONDOMINIUM
ME	601	MultiFamily Residential	Private	CONDON MARY E.
ME	1010	MultiFamily Residential	Private	CONDON BERNICE
ME	1020	MultiFamily Residential	Private	CHENEY CHRISTOPHER
ME	1040	MultiFamily Residential	Private	MAYNARD WILLIAM J & DOLORES L & TIMOTHY
ME	1050	MultiFamily Residential	Private	COLTON MATTHEW J
ME	1090	MultiFamily Residential	Private	ROUSE XAVIER
ME	1110	MultiFamily Residential	Private	BURNS MICHAEL N & SHIRA S (JTS)
ME	1111	MultiFamily Residential	Private	HEPTIG BONNIE M

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	102O	MultiFamily Residential	Private	DIONNE LINDA A
ME	105R	MultiFamily Residential	Private	SEVIGNY MARGARET M HEIRS OF
ME	109R	MultiFamily Residential	Private	HARE JAMES A JR/MARILYN N
ME	111C	MultiFamily Residential	Private	TOWNHOUSE PROPERTIES INC
ME	112C	MultiFamily Residential	Private	FAR VIEW HOUSING ASSOCIATES
ME	1040	MultiFamily Residential	Public	DUNHAM PETER D
ME	0	Open Land	Private	COTE, BRYAN
ME	0	Open Land	Private	GUILFORD TRANS. INDUSTRIES
ME	101	Open Land	Private	HOLT, PETER & JENNIFER
ME	103	Open Land	Private	WHEAT NICHOLAS
ME	104	Open Land	Private	INTOCCIA, JOSEPH
ME	112	Open Land	Private	HALL, DANA E
ME	601	Open Land	Private	TURNER ERIC D.
ME	602	Open Land	Private	ORSINI SAMUEL S.
ME	611	Open Land	Private	GRIESEMER MANFRED R.
ME	620	Open Land	Private	DESAUTELS, LEE J.
ME	800	Open Land	Private	WILL, DEBBIE L.
ME	801	Open Land	Private	GOVE, MANLEY C.
ME	995	Open Land	Private	RSA DEVELOPMENT
ME	1010	Open Land	Private	BROOKS, STEPHEN B. & PHYLLIS M.
ME	1011	Open Land	Private	HOWARD PATRICK
ME	1013	Open Land	Private	SELUK DAVID M
ME	1020	Open Land	Private	STINEHOUR, BRIAN & MELANIE
ME	1030	Open Land	Private	CARLSON, DONALD R. & ANNE MARIE
ME	1040	Open Land	Private	RICKER, GARY R.
ME	1050	Open Land	Private	COTTON, DANA R. JR.
ME	1060	Open Land	Private	BAILIE EARL F JR
ME	1090	Open Land	Private	GAGNE, ROBERT E.
ME	1091	Open Land	Private	BURR SHELLY M.
ME	1110	Open Land	Private	HODGES, JEFFREY A.
ME	1120	Open Land	Private	LETARTE, GERARD E.
ME	1300	Open Land	Private	MILLER, NANCY ANN
ME	1320	Open Land	Private	KENNEY PHILLIP D
ME	3160	Open Land	Private	SIUDUT JOSEPH
ME	3220	Open Land	Private	ZERBINOPOULOS, NICKLAS G SR ET AL
ME	3222	Open Land	Private	THE HOPE CENTER
ME	3300	Open Land	Private	ST. PIERRE, RENE L.

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	3320	Open Land	Private	FOSS, RICHARD & NANCY
ME	3340	Open Land	Private	FARWELL, FRED
ME	3400	Open Land	Private	PAIGE, ROBERT W. & GAIL S.
ME	3500	Open Land	Private	HAK ENTERPRISES
ME	3900	Open Land	Private	BROWN, STEVEN E.
ME	4000	Open Land	Private	EMERY, KEVIN
ME	4400	Open Land	Private	AGGREGATE INDUSTRIES-NE REGION
ME	7100	Open Land	Private	VACHON, DIANE
ME	7180	Open Land	Private	PENDERGAST, MARK R.
ME	9033	Open Land	Private	MSAD 60
ME		Open Land	Private	0
ME	0	Private Institutional	Private	ADVENT CHRISTIAN SOCIETY PRKNG
ME	0	Private Institutional	Private	LIBERTY STREET HOMEOWNERS ASSOCIATION
ME	502	Private Institutional	Private	62 ACADEMY STREET LLC
ME	601	Private Institutional	Private	BERWICK ACADEMY
ME	800	Private Institutional	Private	BERWICK ACADEMY
ME	1010	Private Institutional	Private	WYMAN ASSOC
ME	1030	Private Institutional	Private	FEDERAL NATIONAL MORTGAGE ASSOC.
ME	1040	Private Institutional	Private	BIBBER REALTY ASSOC, LLC
ME	1120	Private Institutional	Private	BERWICK COURT ASSOCIATES
ME	1300	Private Institutional	Private	DIVERSIFIED PROJECTS, LLC
ME	1320	Private Institutional	Private	EVERGREEN KNOLL HOMEOWNERS ASSOC
ME	3550	Private Institutional	Private	BIBBER REALTY ASSOC, LLC
ME	6400	Private Institutional	Private	CARRIAGE RUN HOME OWNERS ASSOC.
ME	9030	Private Institutional	Private	EVERGREEN CEMETERY ASSOC.
ME	9060	Private Institutional	Private	CONGREGATIONAL CHURCH NO PARIS H
ME	9060	Private Institutional	Private	METHODIST CHURCH
ME	9090	Private Institutional	Private	FIRST BAPTIST CHURCH OF SANFOR D
ME	9100	Private Institutional	Private	KIWANIS CLUB OF SANFORD
ME	9100	Private Institutional	Private	BERWICK SPORTSMANS ASSOC.
ME	9200	Private Institutional	Private	WABAN PROJECTS INC
ME	9200	Private Institutional	Private	BERWICK LIBRARY ASSOCIATION
ME	906C	Private Institutional	Private	FIRST ASSEMBLY OF GOD
ME	906I	Private Institutional	Private	ROMAN CATHOLIC BISHOP
ME	906R	Private Institutional	Private	CONGREGATIONAL CHURCH NO PARIS
ME	909R	Private Institutional	Private	ST GEORGE'S EPISCOPAL
ME	910C	Private Institutional	Private	SWEETSER
ME	910R	Private Institutional	Private	YORK COUNTY SHELTER PROGRAMS INC
ME	920C	Private Institutional	Private	WABAN PROJECTS INC
ME	920I	Private Institutional	Private	WABAN PROJECTS INC

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	920R	Private Institutional	Private	WABAN PROJECTS INC
ME	0	Public Institutional	Public	TOWN OF LEBANON
ME	601	Public Institutional	Public	DUNHAM, MARTHA A.
ME	800	Public Institutional	Public	ROLLINSFORD TOWN OF
ME	900	Public Institutional	Public	THE UNITED STATES OF AMERICA
ME	903	Public Institutional	Public	BERWICK, TOWN OF
ME	1120	Public Institutional	Public	BERWICK TOWN OF
ME	3900	Public Institutional	Public	ROLLINSFORD, TOWN OF
ME	9030	Public Institutional	Public	SANFORD TOWN OF
ME	9030	Public Institutional	Public	BERWICK, TOWN OF
ME	9032	Public Institutional	Public	BERWICK, TOWN OF
ME	9033	Public Institutional	Public	SANFORD TOWN OF
ME		Public Institutional	Public	0
ME	901T	Public Institutional	Public	MAINE STATE OF
ME	903C	Public Institutional	Public	SANFORD TOWN OF
ME	903I	Public Institutional	Public	SANFORD TOWN OF
ME	903Y	Public Institutional	Public	SANFORD HOUSING AUTHORITY
ME	0	Single Family Residential	Private	LANGLEY, LORETTA TRUSTEE
ME	0	Single Family Residential	Private	AIKMAN, MARIAN M. TRUSTEE
ME	100	Single Family Residential	Private	PIKE INDUSTRIES, INC.
ME	0103	Single Family Residential	Private	BALTZER MARK D & CHONA R S
ME	0130	Single Family Residential	Private	ANSPAUGH PHYLLIS
ME	134	Single Family Residential	Private	GOODRICH, FREDERICK & ROBERTA TRUSTEES
ME	322	Single Family Residential	Private	SCHOOL STREET REALTY LLC
ME	502	Single Family Residential	Private	OUELLETTE, WILLIAM H. TRUSTEE
ME	503	Single Family Residential	Private	DURKIN, PATRICIA M. TRUSTEE
ME	601	Single Family Residential	Private	TRAFTON TRUSTEES GORDON B. & JEAN P.
ME	611	Single Family Residential	Private	BAILEY, MELVIN & MARJORIE TRUSTEES
ME	620	Single Family Residential	Private	CAREY, MAUREEN L. , TRUSTEE
ME	800	Single Family Residential	Private	KALLBERG TRUSTEE KEITH T.
ME	801	Single Family Residential	Private	TRAFTON TRUSTEES GORDON B. & JEAN P.

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	995	Single Family Residential	Private	DAVANNA, BARBARA TRUSTEE
ME	1010	Single Family Residential	Private	FARLEY PETER J & JUSTINE B TRUSTEES OF
ME	1010	Single Family Residential	Private	STONE, OSCAR C., TRUSTEE +
ME	1011	Single Family Residential	Private	BOND FAMILY REVOCABLE TRUST OF 2015
ME	1013	Single Family Residential	Private	CASA NEIL S
ME	1020	Single Family Residential	Private	BLANCHARD REVOCABLE TRUST
ME	1030	Single Family Residential	Private	BERTRAND WILLIAM F/MARIETTA
ME	1030	Single Family Residential	Private	ALEXANDRA FAMILY REAL ESTATE TRUST
ME	1040	Single Family Residential	Private	DUSSAULT, LOYD SR TRUSTEE
ME	1050	Single Family Residential	Private	JONES JAMES R TRUSTEE
ME	1060	Single Family Residential	Private	GIBBONS, BRIAN V. TRUSTEE
ME	1110	Single Family Residential	Private	GOWEN, EDWARD REV LIVING TRUST
ME	1300	Single Family Residential	Private	WHITTEN WAYNE M SR/ANNE S F
ME	1300	Single Family Residential	Private	PHYLLIS H. SANDERS 2005 TRUST
ME	1310	Single Family Residential	Private	GENEST CONCRETE WORKS INC
ME	1320	Single Family Residential	Private	ROCK BOTTOM SAND & GRAVEL LLC
ME	1320	Single Family Residential	Private	HATCH ALAN & SHERRILYN TRUSTEES
ME	3222	Single Family Residential	Private	CHANDLER JAMES & DEBRA TRUSTEES
ME	3520	Single Family Residential	Private	LEAP 103 REALTY LLC
ME	3900	Single Family Residential	Private	TRIPLE L NOMINEE TRUST
ME	4000	Single Family Residential	Private	KNOX LANE REALTY, LLC
ME	4210	Single Family Residential	Private	WORSTER BROOK REALTY LLC
ME	6010	Single Family Residential	Private	GREAT WORKS REGIONAL LANDTRUST

State	Land Use Code	Use Group	Public/ Private	Example Owner (first value returned if multiple)
ME	6100	Single Family Residential	Private	ABBOTT LOIS TRUSTEE
ME	7130	Single Family Residential	Private	WRIGHT, THOMAS TRUSTEE
ME	7180	Single Family Residential	Private	DORAN, MICHAEL & JOHN DORAN TRUSTEES
ME	013C	Single Family Residential	Private	WEBB JEFFREY L
ME	013T	Single Family Residential	Private	TRACY MARILYN L
ME	101A	Single Family Residential	Private	RAFFERTY ANN & RICHARD (JTS)
ME	101C	Single Family Residential	Private	COASTAL AFFORDABLE HOUSING INC
ME	101D	Single Family Residential	Private	NEAL ELEANOR & NEAL III RAYMOND TRUSTEES
ME	101T	Single Family Residential	Private	HAM GARY R & NANCY J (JTS)
ME	103R	Single Family Residential	Private	WHITTEN ANNE S
ME	103V	Single Family Residential	Private	BONSALL SANDRA J HEIRS OF
ME	501	Transportation	Private	BEATTIE THOMAS A.
ME	502	Transportation	Private	WALTERS DAVID B.
ME	503	Transportation	Private	FORBES, LINDA R.
ME	504	Transportation	Private	ROBILLARD, DENNIS P.
ME	0	Transportation	Public	0
ME		Transportation	Public	0
ME	0	Water	Private	AUSTIN, JAMES P
ME	0	Water	Public	0
ME		Water	Public	0

APPENDIX C – NH CII PLOTS

See the accompanying Excel workbook for the data used to create these plots.

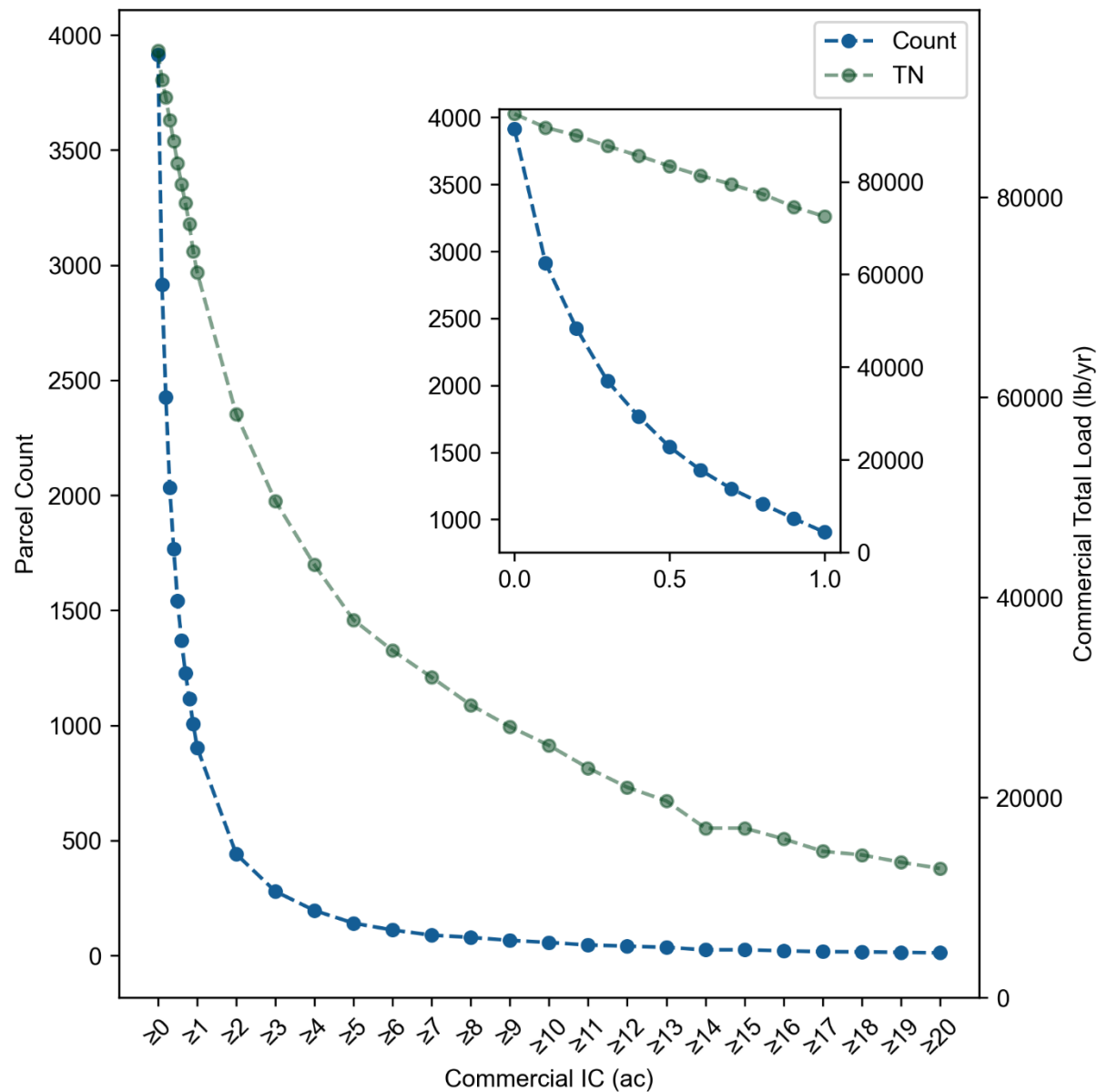


Figure C-1. Private commercial parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.

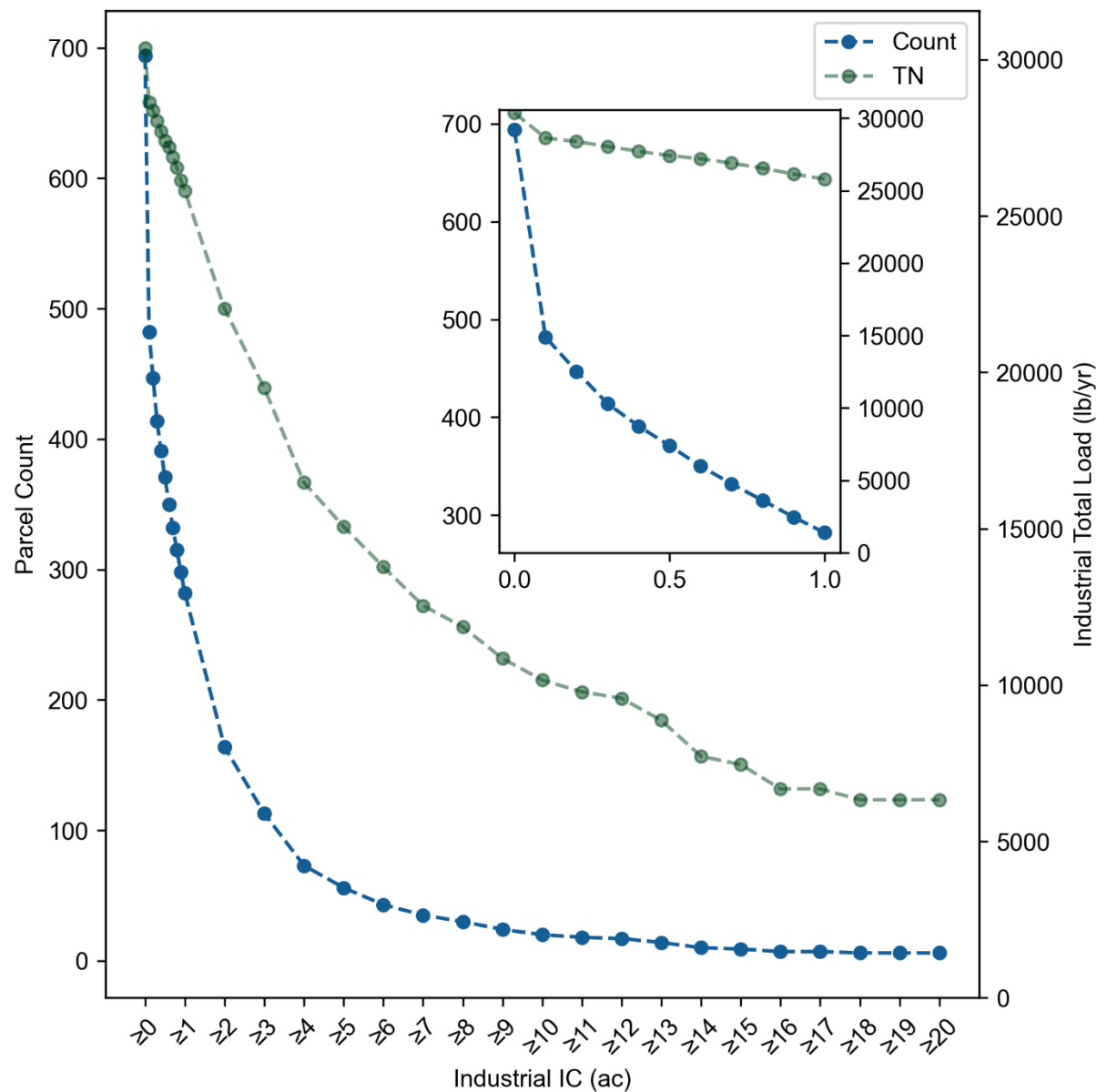


Figure C-2. Private industrial parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.

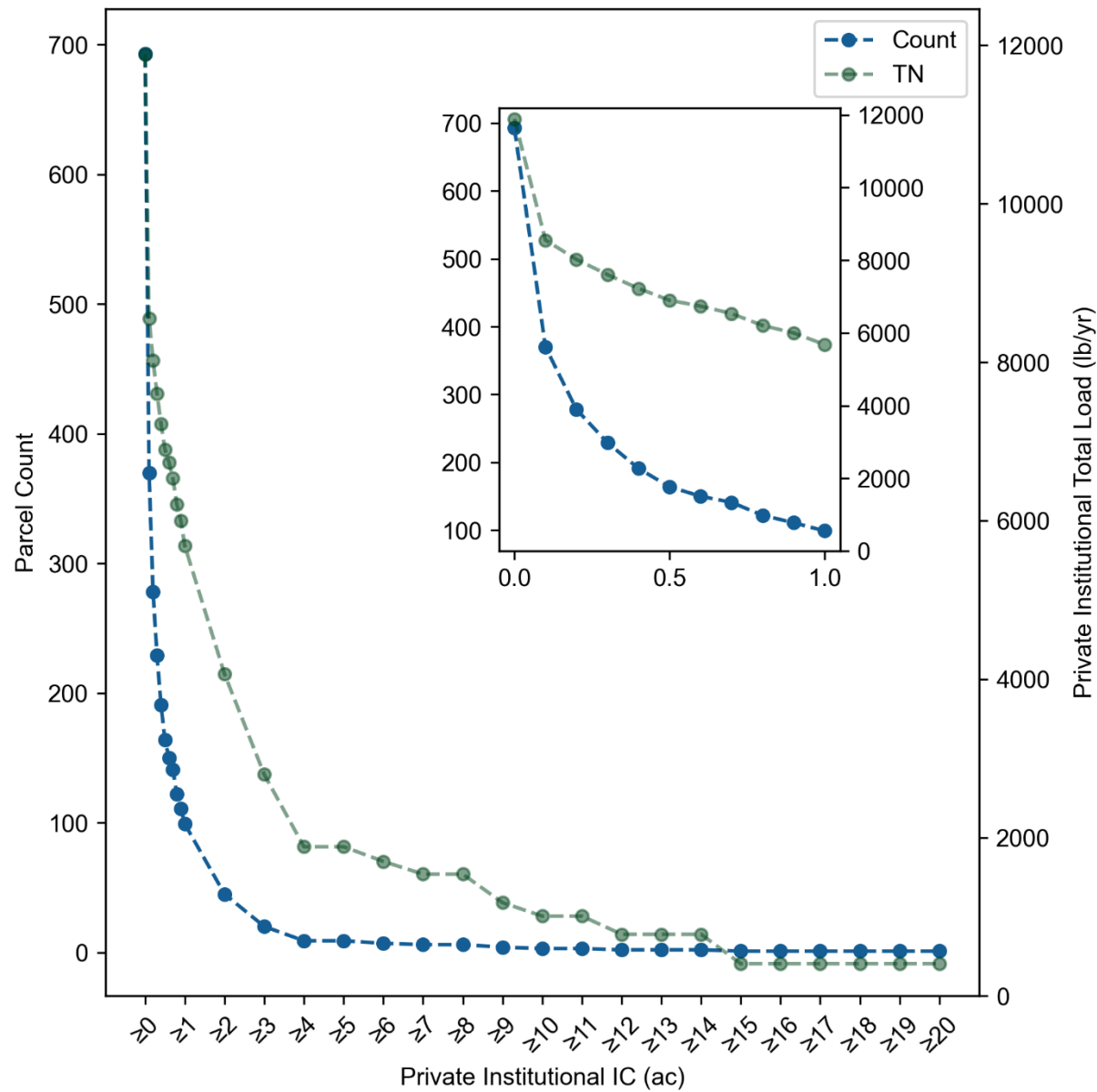


Figure C-3. Private institutional parcel count and total TN load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.

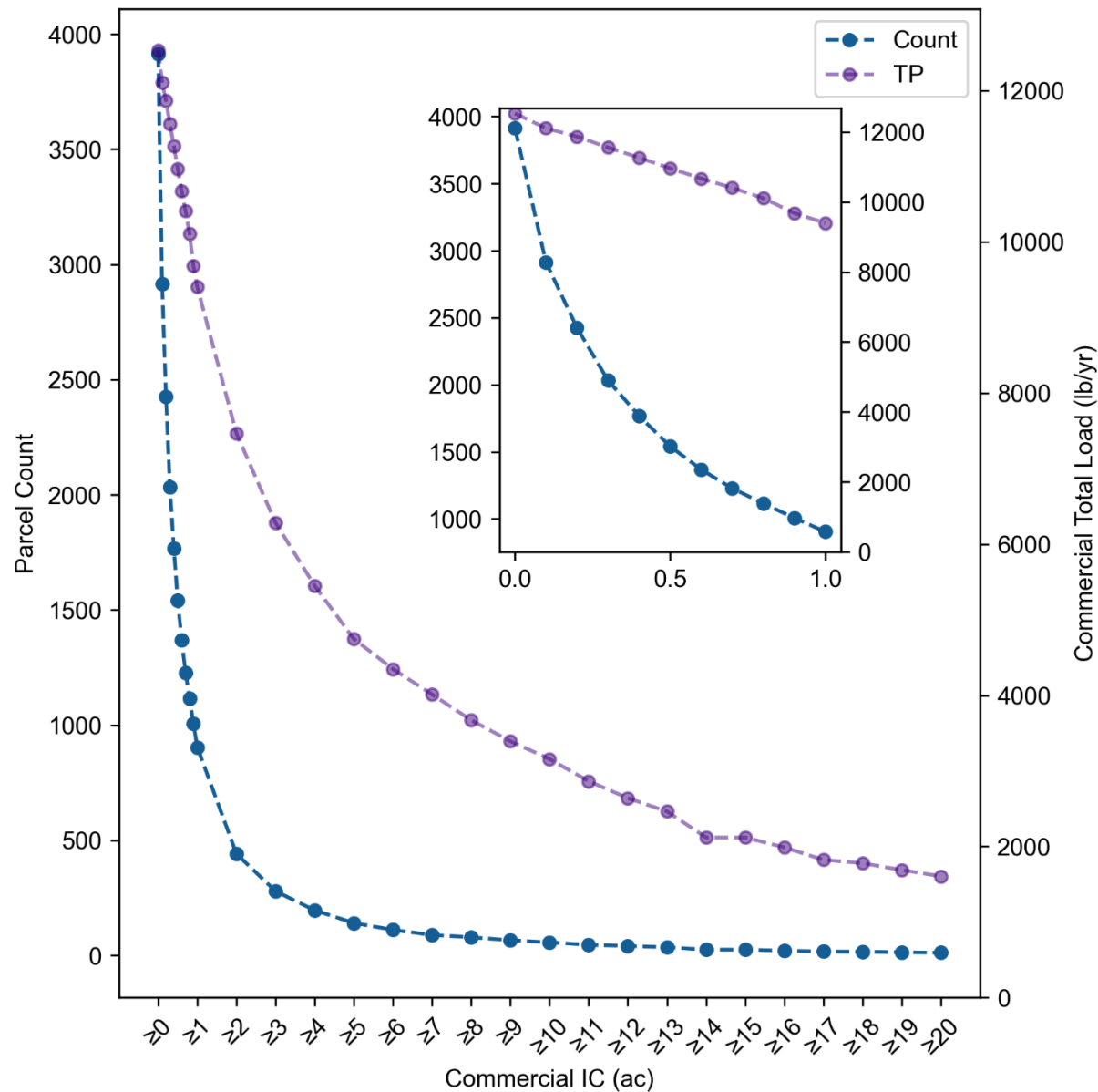


Figure C-4. Private commercial parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.

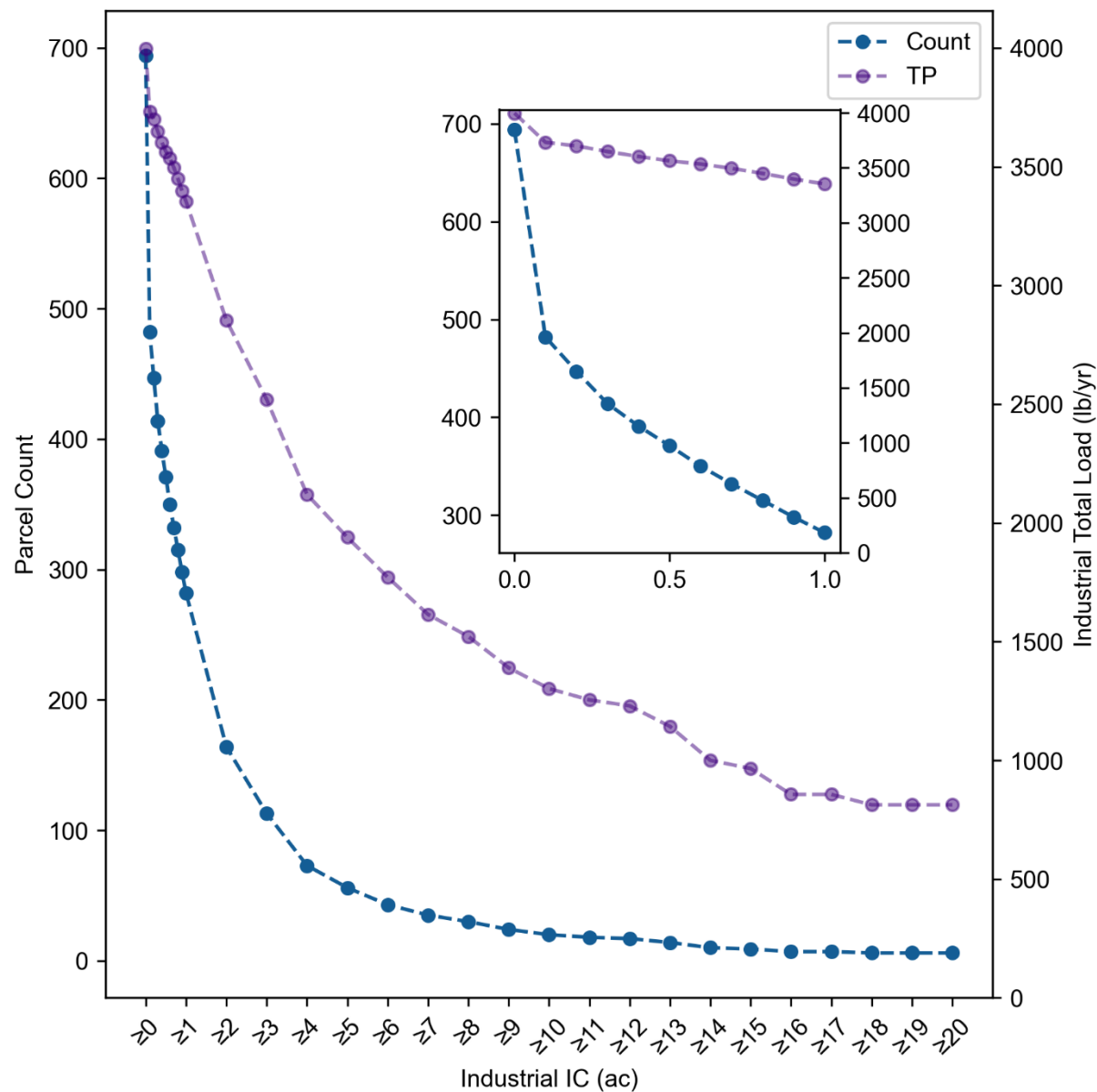


Figure C-5. Private industrial parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.

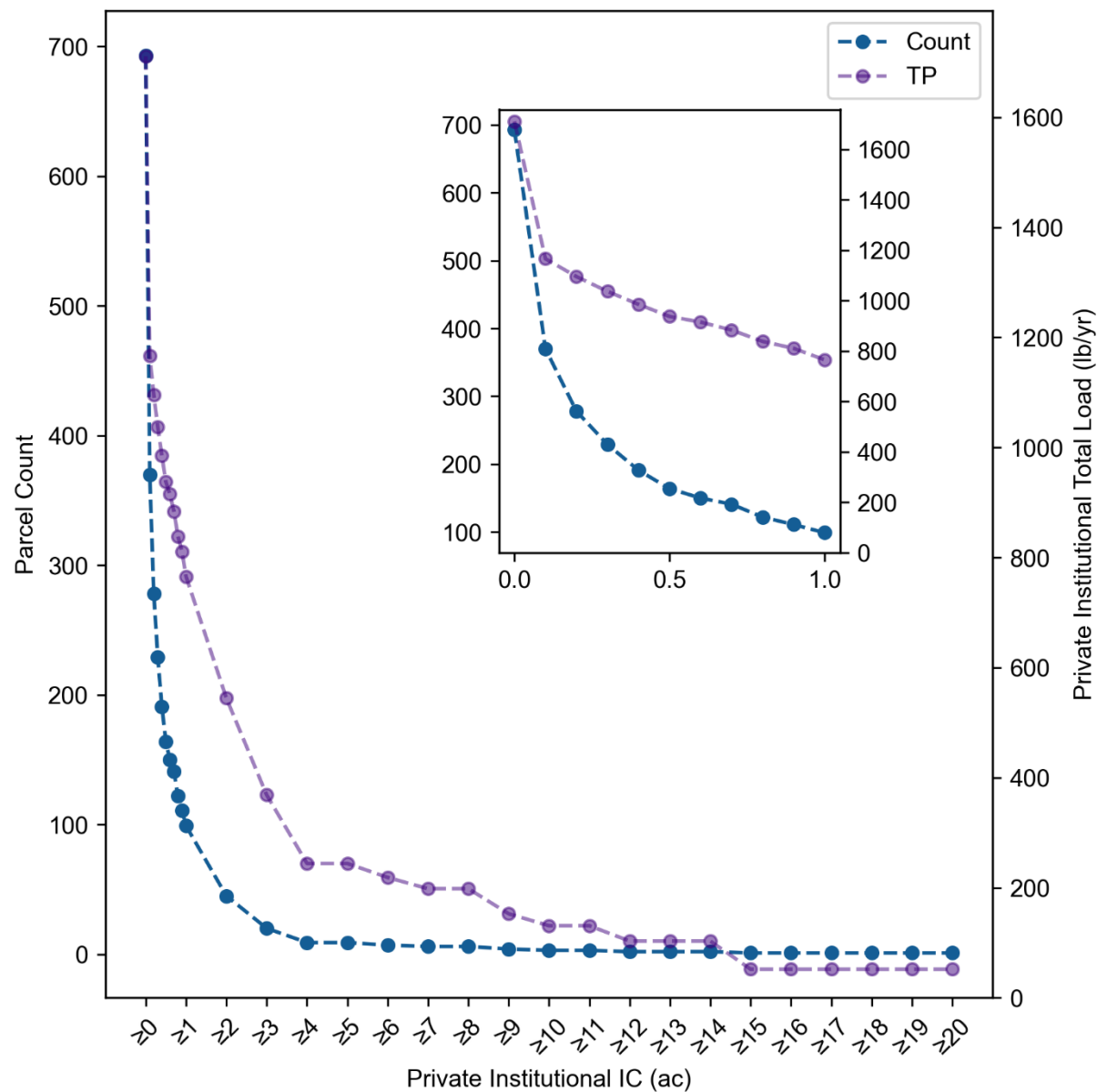


Figure C-6. Private institutional parcel count and total TP load by parcel IC area in New Hampshire. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.

APPENDIX D – ME CII PLOTS

See the accompanying Excel workbook for the data used to create these plots.

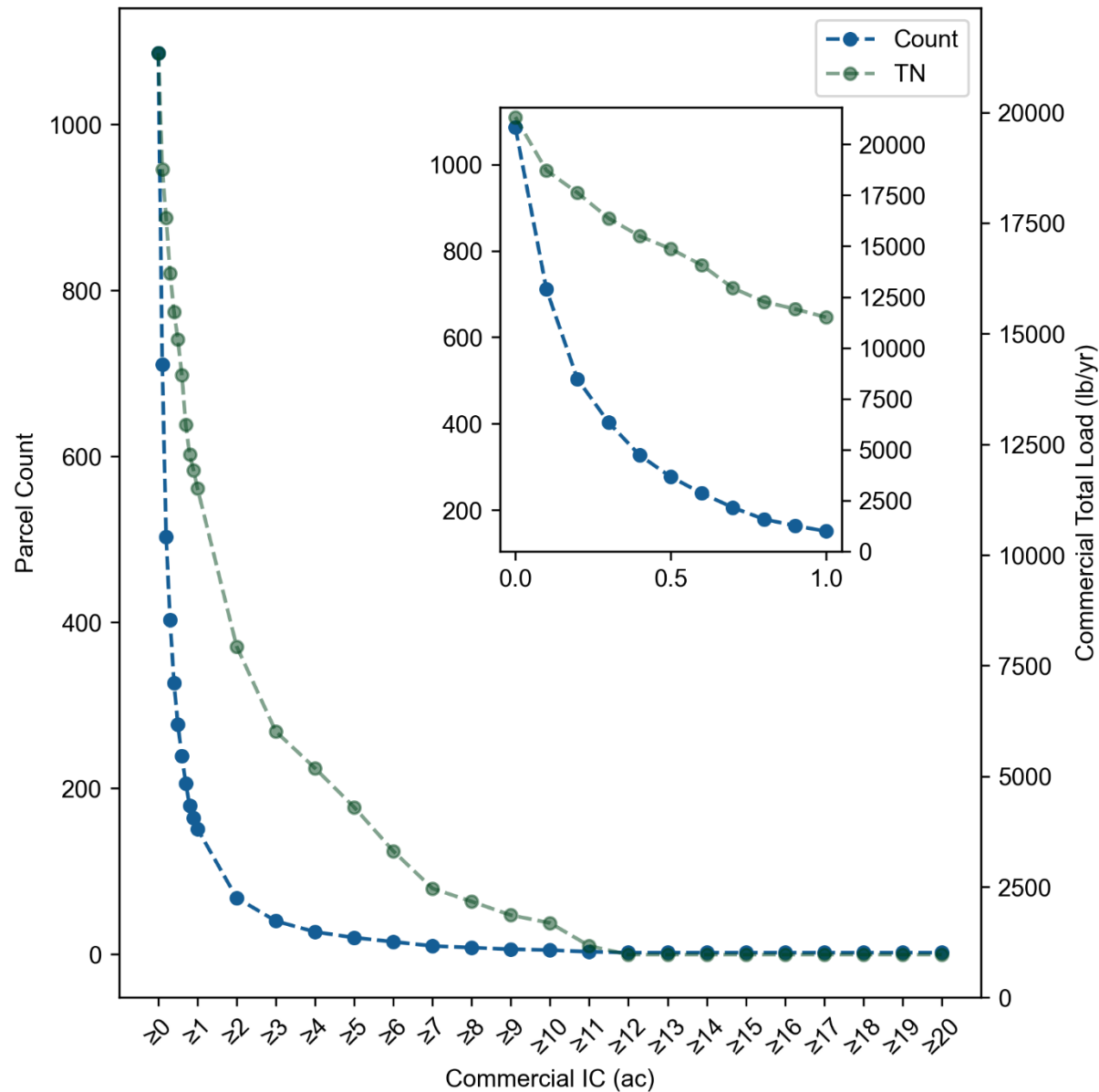


Figure D-1. Private commercial parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.

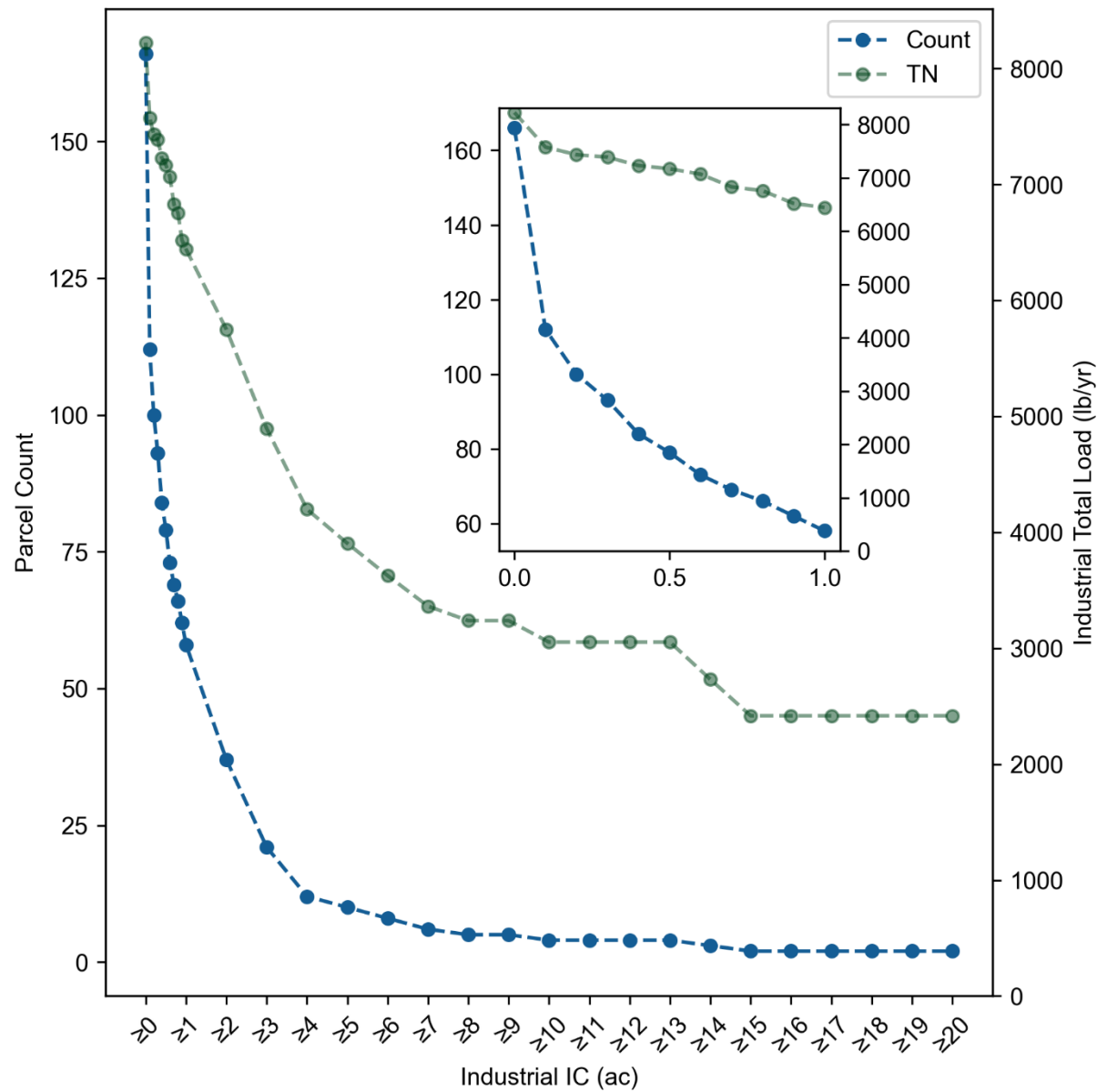


Figure D-2. Private industrial parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.

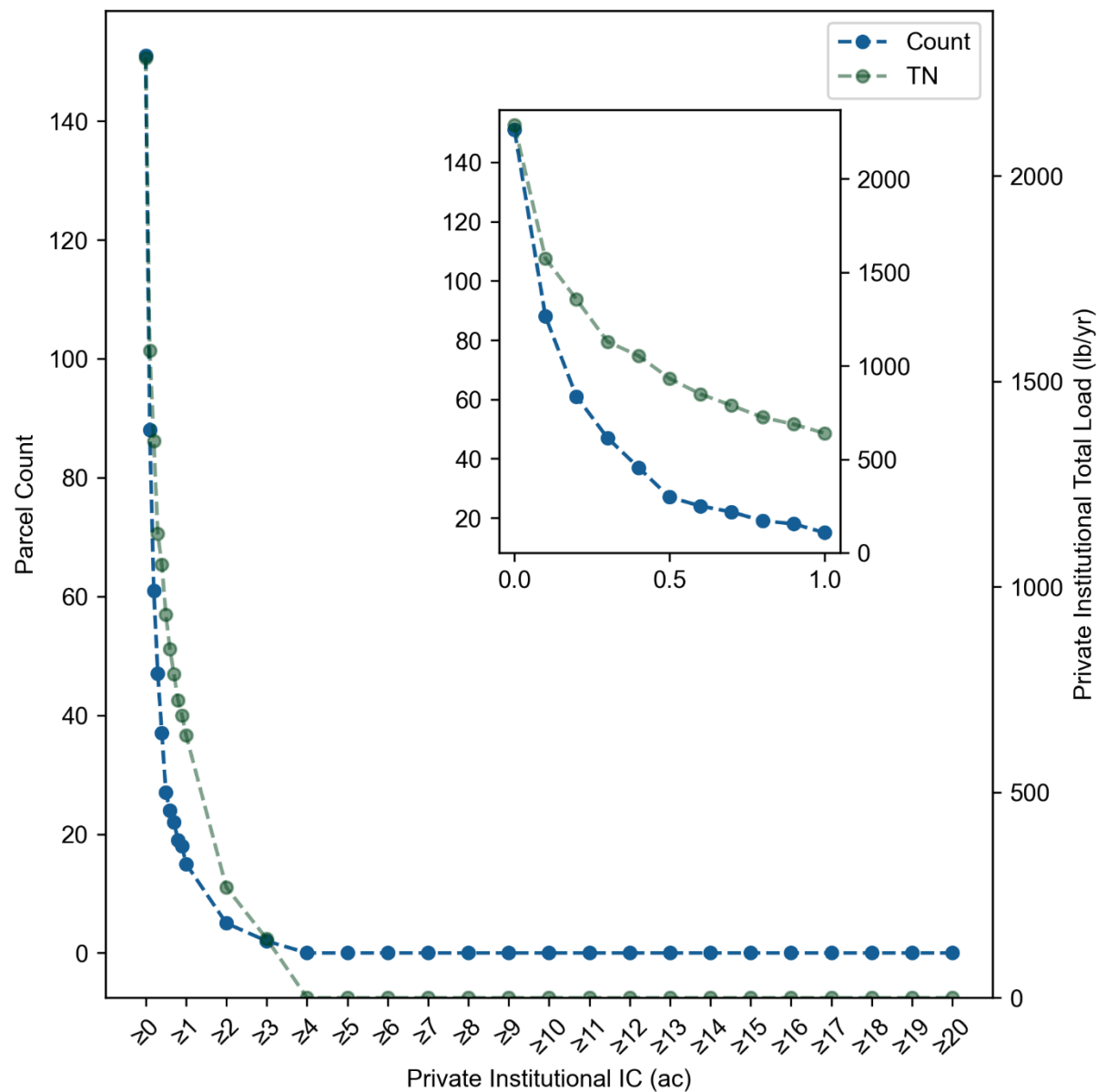


Figure D-3. Private institutional parcel count and total TN load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private institutional parcels.

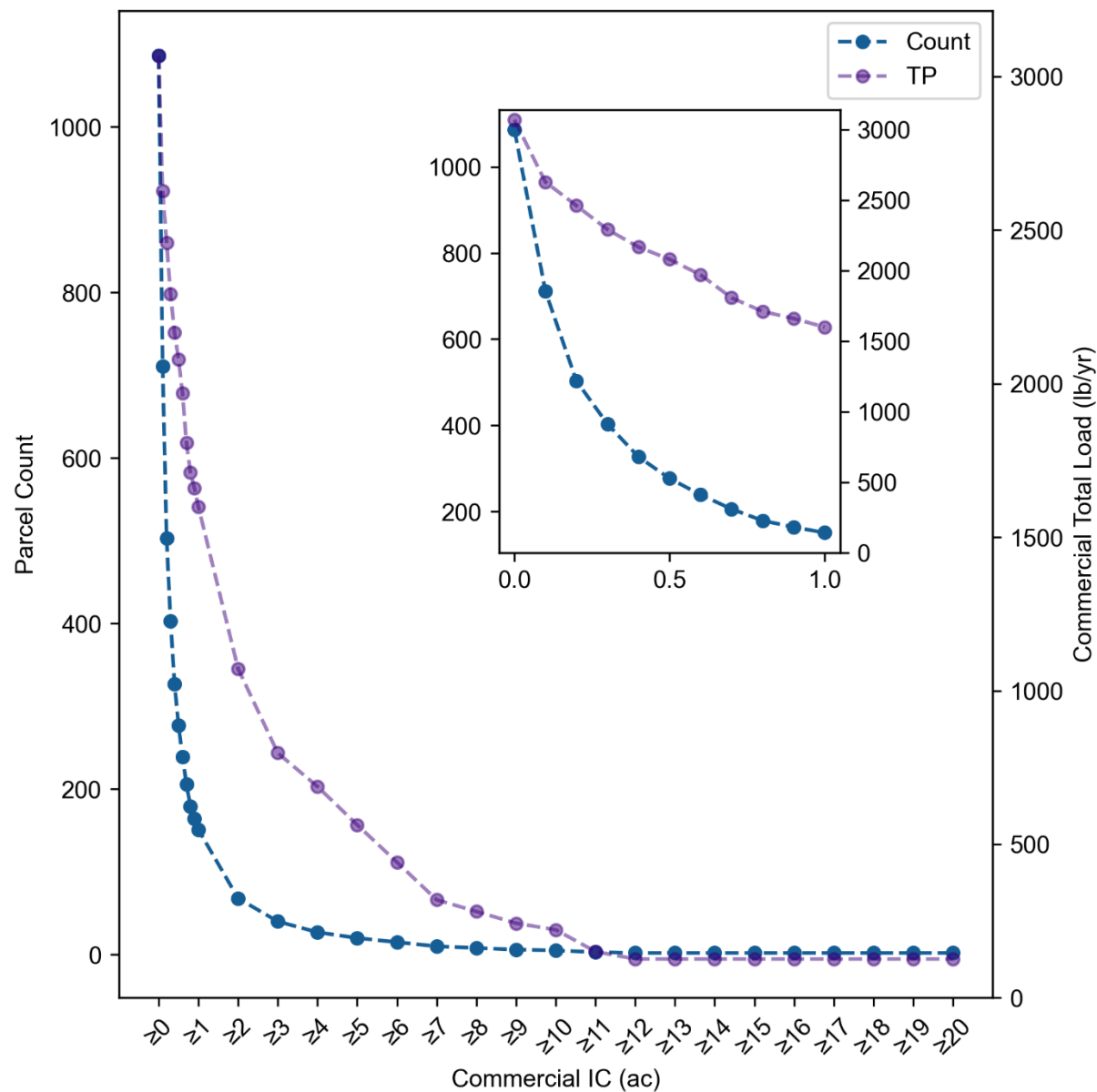


Figure D-4. Private commercial parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private commercial parcels.

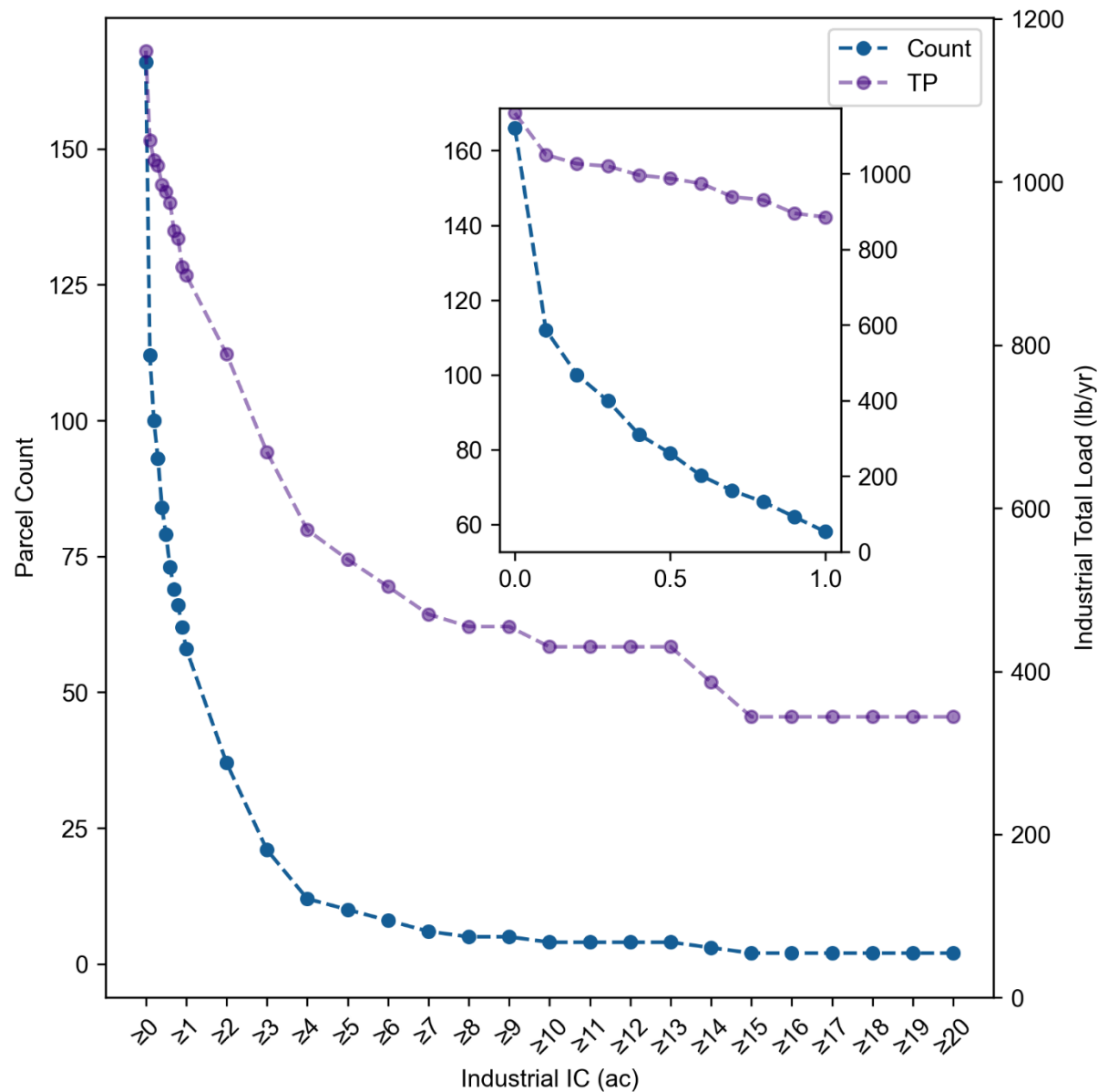


Figure D-5. Private industrial parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0 ac IC includes all private industrial parcels.

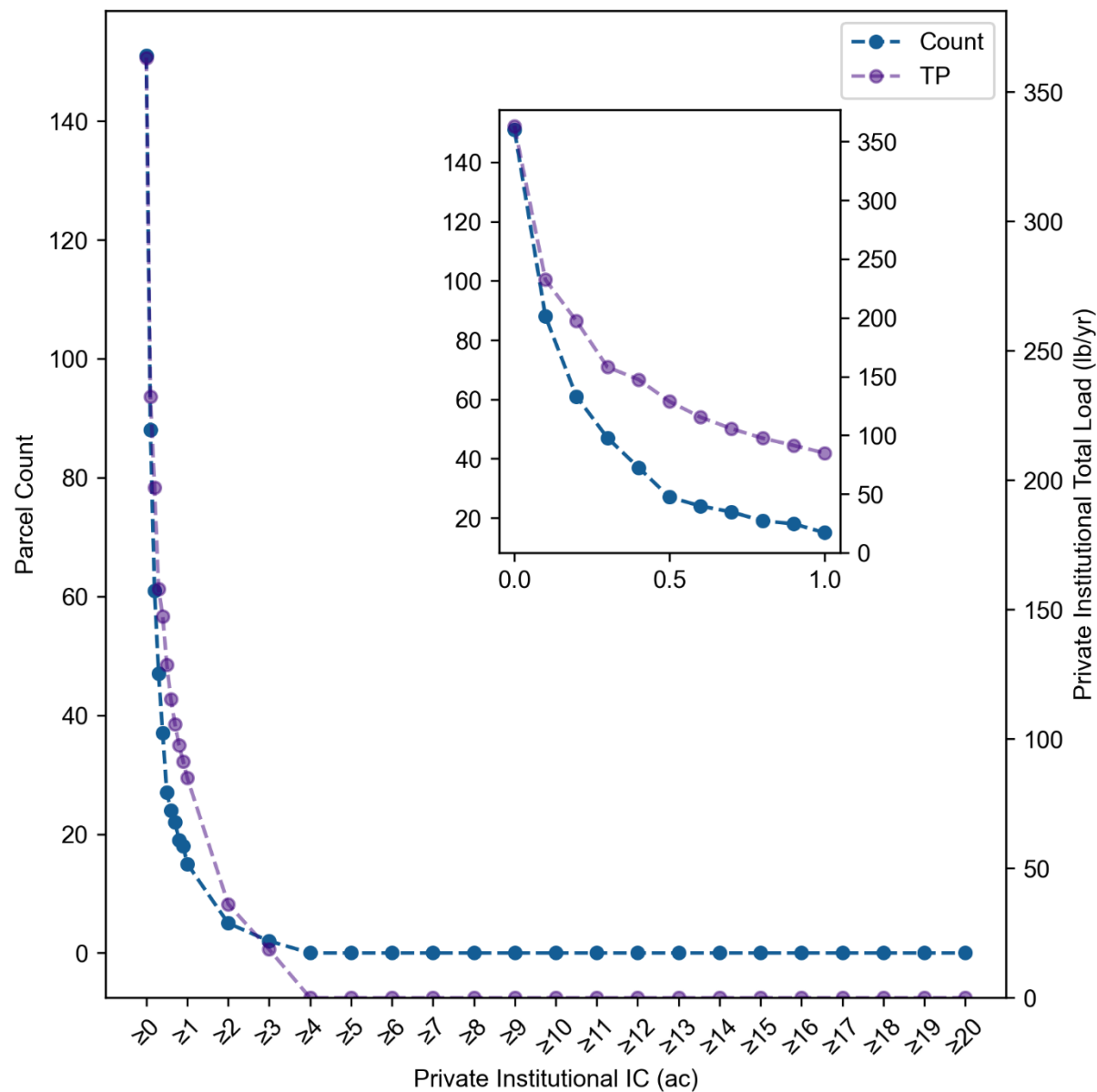


Figure D-6. Private institutional parcel count and total TP load by parcel IC area in Maine. Note that a threshold of ≥ 0.0 ac IC includes all private institutional parcels.

APPENDIX E – SUMMARY OF ADDITIONAL ENVIRONMENTAL JUSTICE DATA

Several communities containing areas with environmental justice (EJ) concerns are located within the Great Bay River Watershed. The main body of this report discusses the locations of these areas and evaluates the potential effects of increased stormwater control requirements based on EPA Region 1's potential permitting decisions in response to the RDA petition. The report identifies areas with EJ concerns through the use of Climate and Economic Justice Screening Tool (CJEST), Inflation Reduction Act Disadvantaged Community Map (IRADCM), and EJScreen tools, and summarizes additional information about potential EJ impacts associated with stormwater impacts in the Great Bay Watershed. Information about potential EJ impacts was not as readily available for this watershed from traditional EJ information sources as was the case with urban watersheds in the Boston area that Paradigm recently evaluated. This appendix discusses additional information sources reviewed to identify EJ-related issues in the Watershed.

Secondary Sources of Information about EJ Issues

Several types of local information sources were reviewed including climate action plans, hazard mitigation plans, climate vulnerability reports, and reports by local non-governmental organizations to identify environmental justice issues of concern in specific communities within the Great Bay Watershed. Repeated references to urban flooding risk and heat island impacts of concern to vulnerable and disadvantaged population groups were found. About half the reports reviewed also mentioned concerns about stormwater-born pollutant discharge impacts and drought risks to groundwater sources of public water supply. It should be noted that most of these sources did not directly associate EJ concerns in the area with the broader concerns that principally motivated the petition - namely the desire to stop further pollutant-caused degradation of the Great Bay itself and its valuable seagrass beds, tidal wetlands, and oyster reefs. There were some references local to interest in the area in recreational uses of the Bay and reducing stormwater-born pollutants, but we found little specific focus on addressing the needs of communities with EJ concerns (e.g., subsistence fishing) in discussions of the need to prevent further degradation of the Great Bay and its tributaries. The following are brief summaries of the more useful reports that were reviewed.

Local Information Sources

Dover, NH

Dover's 2018 Climate Adaptation Plan discusses EJ issues of concern including:

- drought and associated groundwater recharge impacts to drinking water wells,
- flooding in areas with high IC,
- stormwater pollution impacts and general concerns about impacts to aquatic habitats and recreational resources (City of Dover, 2018).

This report also identifies specific groups that are vulnerable to these impacts, including elderly, low income, and disabled populations.

The Strafford Regional Planning Commission's 2022 study of "historically underserved communities" evaluates by census tract the relative social vulnerability of local communities to climate change impacts (Strafford Regional Planning Commission, 2022). The assessment considered 10 criteria:

- minority population
- disabled population
- median income
- low income
- renter occupied
- age under 5
- age over 65
- lack of vehicle access

- linguistic isolation
- no high school diploma

Based on this assessment, census tracts 081300 and 081500 in Dover were deemed highly vulnerable. This information was overlaid with climate impact risk data addressing flooding, urban heat island effects, water infrastructure, and recreation resources.

Durham, NH

Durham's Hazard Mitigation Plan identified the following as medium risk EJ concerns:

- inland flooding,
- drought, and
- urban heat effects (Town of Durham, 2023)

Exeter, NH

The Exeter Climate Adaptation Policy identifies the following EJ-related concerns:

- flooding compounded by stormwater runoff,
- undersized infrastructure,
- ecosystem impacts,
- recreation impacts,
- groundwater recharge/drought (Rockingham Planning Commission and Waterstone Engineering, 2018).

Kittery, ME

Kittery's Climate Action Plan identifies several EJ related risks including:

- precipitation-based flood risk,
- lack of tree cover/heat island effects,
- pollution impacts on water bodies and habitat, and
- drought affecting public water supplies and wells. (Town of Kittery, 2024).

The Plan also identifies vulnerable populations of concern for these risks including:

- low income (8% below poverty level and 37% <\$50,000/yr.),
- disabled, and
- older populations (28% > 65 years)

Portsmouth, NH

Portsmouth's Climate Plan identifies lack of tree cover/heat island effects and riverine flood risk as EJ issues of concern (City of Portsmouth, ND).

Statewide/Watershed Scale Resources

The Maine and New Hampshire Climate Adaptation Plans were also reviewed; while they provide some information concerning disadvantaged community identification, they focus very little on water-related climate change impacts and adaptations and are therefore less useful for identifying locally relevant EJ issues of concern for stormwater management regulation.

State of Maine

The Maine Climate Action plan discusses identification of low income and disadvantaged communities (LIDCs) in Maine based on information in CJEST and evaluation of other priority populations identified by the Equity Subcommittee of the Maine Climate Council (Governor's Office of Policy Innovation and the Future, 2024). These priority populations are associated with socioeconomic and demographic indicators similar to those evaluated in CJEST and EJScreen but include some other indicators. However, neither the plan nor its supporting sources actually list or map the LIDCs identified through this analysis. Based on a

review of supporting data on community vulnerabilities developed by ERG for the State, it appears the Kittery and Sanford areas may be identified as LIDCs in Maine. See ERG Vulnerability Mapping at https://climatecouncil.maine.gov/future/sites/maine.gov.future/files/inline-files/ERG_MCC_Vol1_VulnMapping_11-13-2020.pdf

State of New Hampshire

New Hampshire's Climate Action Plan identifies low income and disadvantaged communities by combining data from EJScreen and CJEST (NHDES, 2024). Results are reported only by county, however, and through low resolution maps. However, the communities identified track with the list of communities with EJ concerns provided in the main body of this report based on our separate analysis of EJScreen, CJEST, and other data sources. The plan contains almost no discussion of water and stormwater-related vulnerabilities and solutions, and is therefore of limited value in identifying EJ-related issues of concern for this analysis.

Great Bay Watershed

The Great Bay Watershed Five Year Vision Plan briefly discusses the link between Bay restoration and improvement of recreational resources used by watershed dwellers but does not address EJ-related concerns directly (Conservation Law Foundation, et al., 2016). The website for the Great Bay-Piscataqua Waterkeeper briefly mentions the link between local pollution sources and impacts to estuarine habitats and threats to "traditional activities like fishing and oystering." (<https://www.clf.org/making-an-impact/great-bay-piscataqua-waterkeeper/>) However, there are no specific analyses or plans that directly address the links between stormwater pollution and impacts to communities with EJ concerns.

Links

City of Dover, 2018. Dover Master Plan- 2018 Climate Adaptation Chapter (updated 2023). Accessed at: https://www.dover.nh.gov/Assets/government/city-operations/2document/planning/master-plan/Climate/Climate_Adaptation_Chapter_Certified.pdf

City of Portsmouth, no date. Portsmouth's Climate Future. N.D. Accessed at: <https://files.cityofportsmouth.com/sustainability/Climate/Portsmouth%20CAP%20-%20Community%20Handout%202024-02-02.pdf>

Conservation Law Foundation, et al., 2016. Great Bay 2020- A Five-Year Vision for Collective Investment, Action, and a Healthy Watershed. Accessed at https://www.nhcf.org/wp-content/uploads/2016/06/Greatbay2020_updated040616.pdf

Governor's Office of Policy Innovation and the Future, 2024. State of Maine Priority Climate Action Plan. March 1, 2024. Accessed at: https://www.maine.gov/future/sites/maine.gov.future/files/2024-01/PCAP-Template-MAINE%20-%20201_9_24.pdf

NHDES, 2024. State of New Hampshire Priority Climate Action Plan, NH Department of Environmental Services, March, 2024. Accessed at <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/state-of-new-hampshire-priority-climate-action-plan.pdf>

Rockingham Planning Commission and Waterstone Engineering, 2018. Town of Exeter, NH Climate Adaptation Policy, Draft, March 30, 2018. Accessed at: https://www.exeternh.gov/sites/default/files/fileattachments/conservation_commission/page/56921/appendixc_exeter_climate_adapt_policy_march_2018_v3.pdf

Strafford Regional Planning Commission, 2022. Building Coastal Resilience by Building Equity in Dover. June 2022. Accessed at: https://strafford.org/uploads/documents/plans/rpc/buildingequity_2022_dover_report.pdf

Town of Durham, 2023. Multi-Hazard Mitigation Plan Update 2024. Accessed at: https://www.ci.durham.nh.us/sites/default/files/fileattachments/town_administration/page/54197/hazard_mitigation_plan.pdf

Town of Kittery, 2024. Kittery: Climate Action Plan. May 2024. Accessed at: https://www.kitteryme.gov/sites/g/files/vyhlif10031/f/uploads/final_kittery_cap_with_appendices_5.6.24_2.pdf