SCAN ME

STORMWATER & FLOOD RESILIENCE UTILITY

Stormwater
Community Services | Dover, NH

Ordinance Committee Update
June 5, 2023

Gretchen Young, PE
City of Dover, NH
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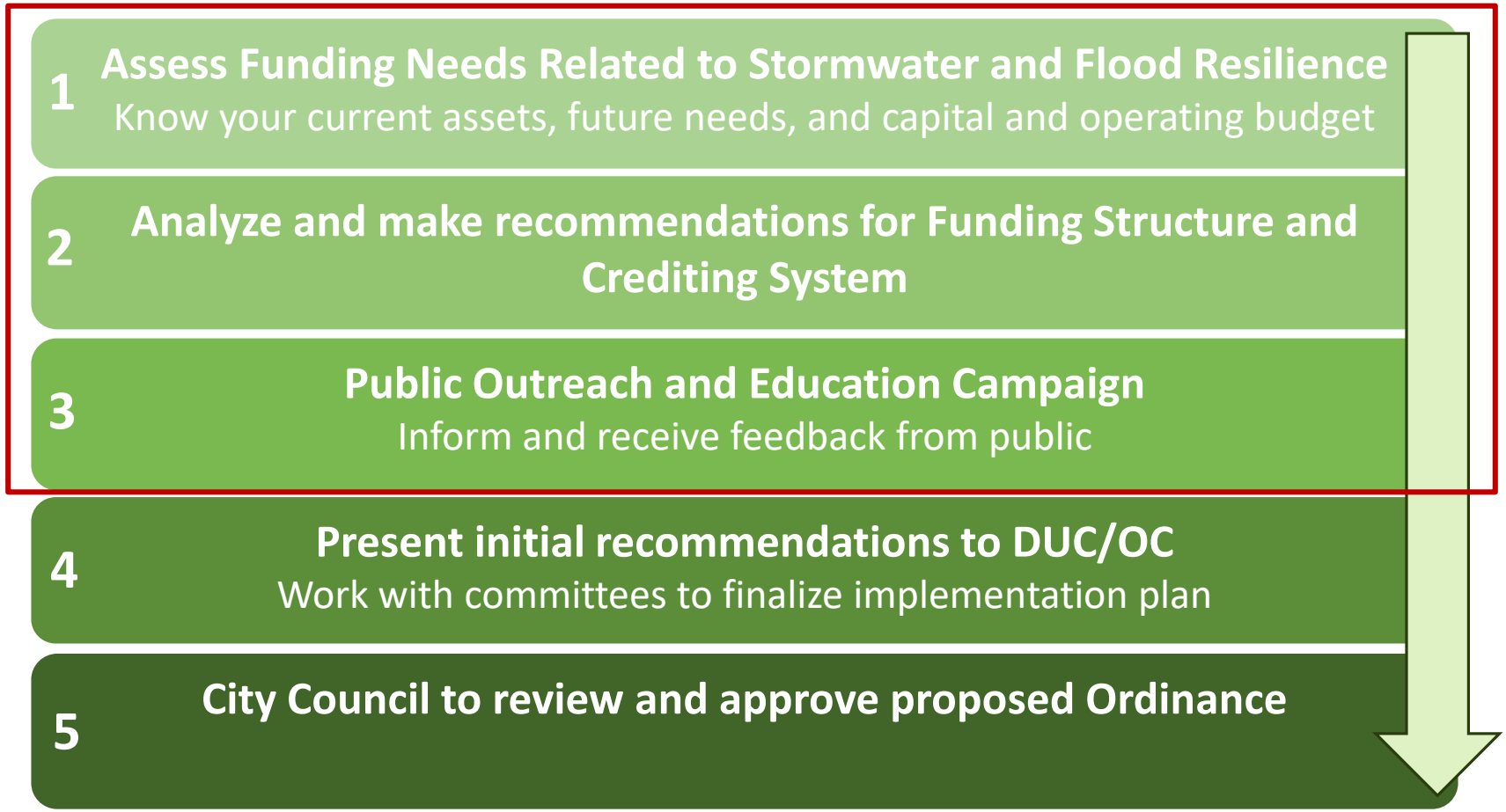
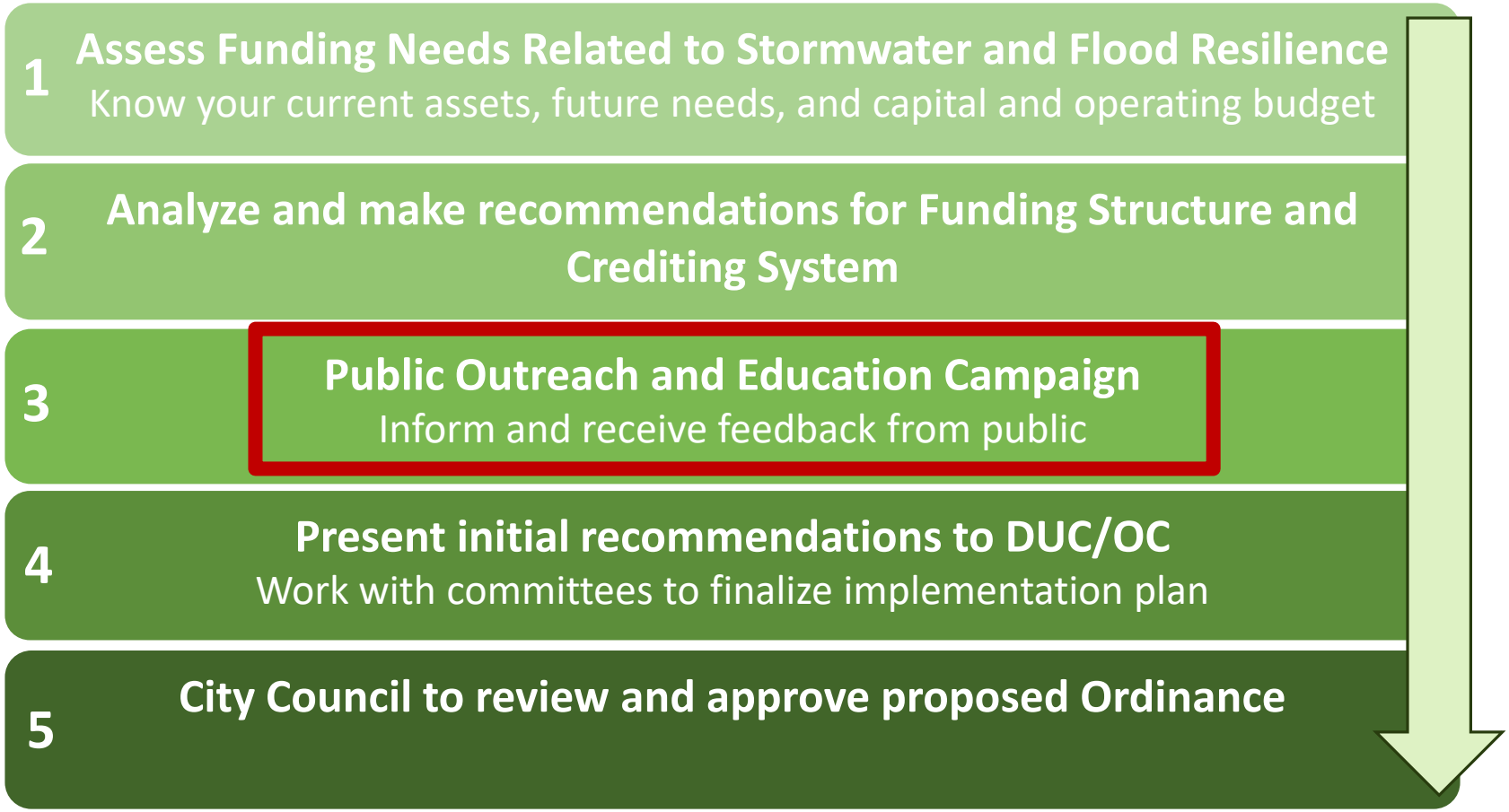
Stormwater Utility Development Process



Stormwater Utility Development Process



Fact Sheet

Dover Stormwater and Flood Resilience Utility

Fact Sheet

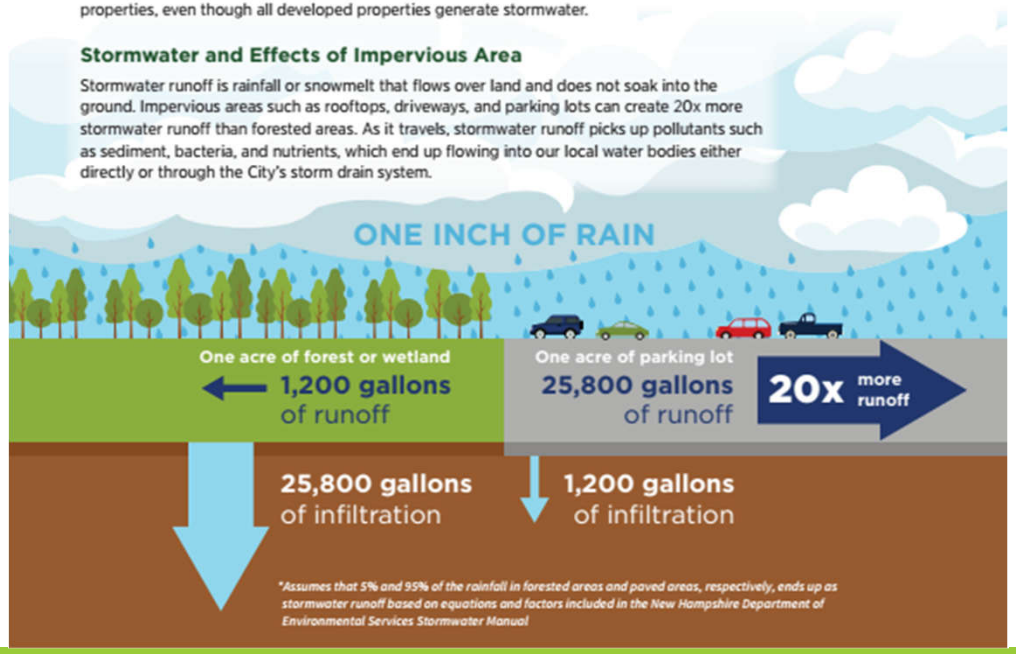
Growing Demands

As the City has grown and developed over time, the demands to keep up its stormwater infrastructure have also grown much like those of the water and sewer systems. The City now has over 100 miles of storm drainpipes and swales, and over 3,000 catch basins, as well as hundreds of culverts and outfalls. Much of this infrastructure is more than 100 years old and is overwhelmed during extreme rain events, resulting in increased flooding and property damage. At the same time, the City is facing more stringent regulatory requirements to manage stormwater and restore water quality in our adjacent water resources. These growing demands are causing the City's annual stormwater operating and capital improvement budgets to rise at an accelerated pace. Critical drainage and flood mitigation projects totaling more than $5 million have been deferred due to competing funding priorities. Using property taxes to fund the stormwater budget is not sustainable or equitable, as the property tax portion used to fund the stormwater budget is not tied to a property's usage of the system. Not all properties contribute to the City general fund, such as tax-exempt properties, even though all developed properties generate stormwater.

As Dover celebrates its 400th anniversary, the City seeks to secure a more flood resilient and sustainable future with a stormwater and flood resilience utility.

Stormwater and Effects of Impervious Area

Stormwater runoff is rainfall or snowmelt that flows over land and does not soak into the ground. Impervious areas such as rooftops, driveways, and parking lots can create 20x more stormwater runoff than forested areas. As it travels, stormwater runoff picks up pollutants such as sediment, bacteria, and nutrients, which end up flowing into our local water bodies either directly or through the City's storm drain system.



Informational Boards

Dover Stormwater and Flood Resilience Utility

What is a Stormwater and Flood Resilience Utility and How Would it Benefit the City and Homeowners?

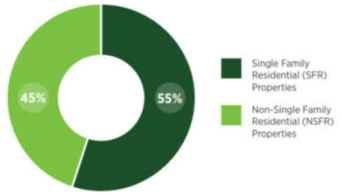
Currently, **2,000+ Communities in the United States** have adopted a stormwater utility, including **30+ communities in New England.**

As the City continues to grow, the activities and resources needed to maintain and upgrade the City's storm drain system to reduce future flooding, preserve our drinking water supply and improve the water quality in our local waters as well as the downstream Great Bay Estuary also continue to grow.

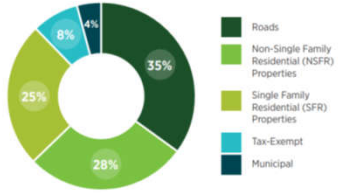
Benefits of a Stormwater and Flood Resiliency Utility Fee

- ✓ **Fairness:** Currently, residential properties pay approximately 55% of the City's stormwater budget, but only account for 25% of the City's impervious area. Under a utility, the property share of the overall budget would be broadened to large properties and would be based on the impervious area.
- ✓ **Transparency:** As an enterprise fund, revenue and expenditures will require detailed accounting and reporting subject to City Council review and authorization as well as annual independent audits.
- ✓ **Enhanced Resiliency:** A more stable funding source would allow more effective capital improvement planning and, thus reduce future flood risks and improve water quality more efficiently.
- ✓ **Incentives:** Would encourage property owners to implement effective strategies onsite, such as rain gardens, which would reduce pollution, flood risk, and costs to property owners.

Current Property Tax Contributions to Fund Stormwater Budget



Potential Revenue Contributions Under Future Utility Fee System



How Would a Stormwater and Flood Resilience Utility Work?

A stormwater and flood resilience utility would operate much like an electric, sewer, or water utility, where **a fee would be based on a property's relative usage or amount of impervious area.** Properties with larger amounts of impervious area would pay a larger share of the overall budget. The fee would go into an enterprise fund used solely to pay for the operations and maintenance of the City's storm drain system, stormwater treatment, and flood resilience infrastructure upgrades. The utility would also apply to tax-exempt properties that currently do not pay for stormwater costs through the general fund such as municipal, county, and state-owned facilities as well as various non-profit organizations.

The Average Amount of Impervious Area for a Single-Family Home (SFH) Property = 1 Equivalent Residential Unit (ERU) or 1 Billing Unit (BU)

Utility Fee is based on # of ERUs or BUs on the Property—Any Qualifying Credits

1 ERU or BU x $X.XX/Month

Questions? Contact the City of Dover, New Hampshire's Department of Community Services at 603-516-6450 or email g.young@dover.nh.gov.

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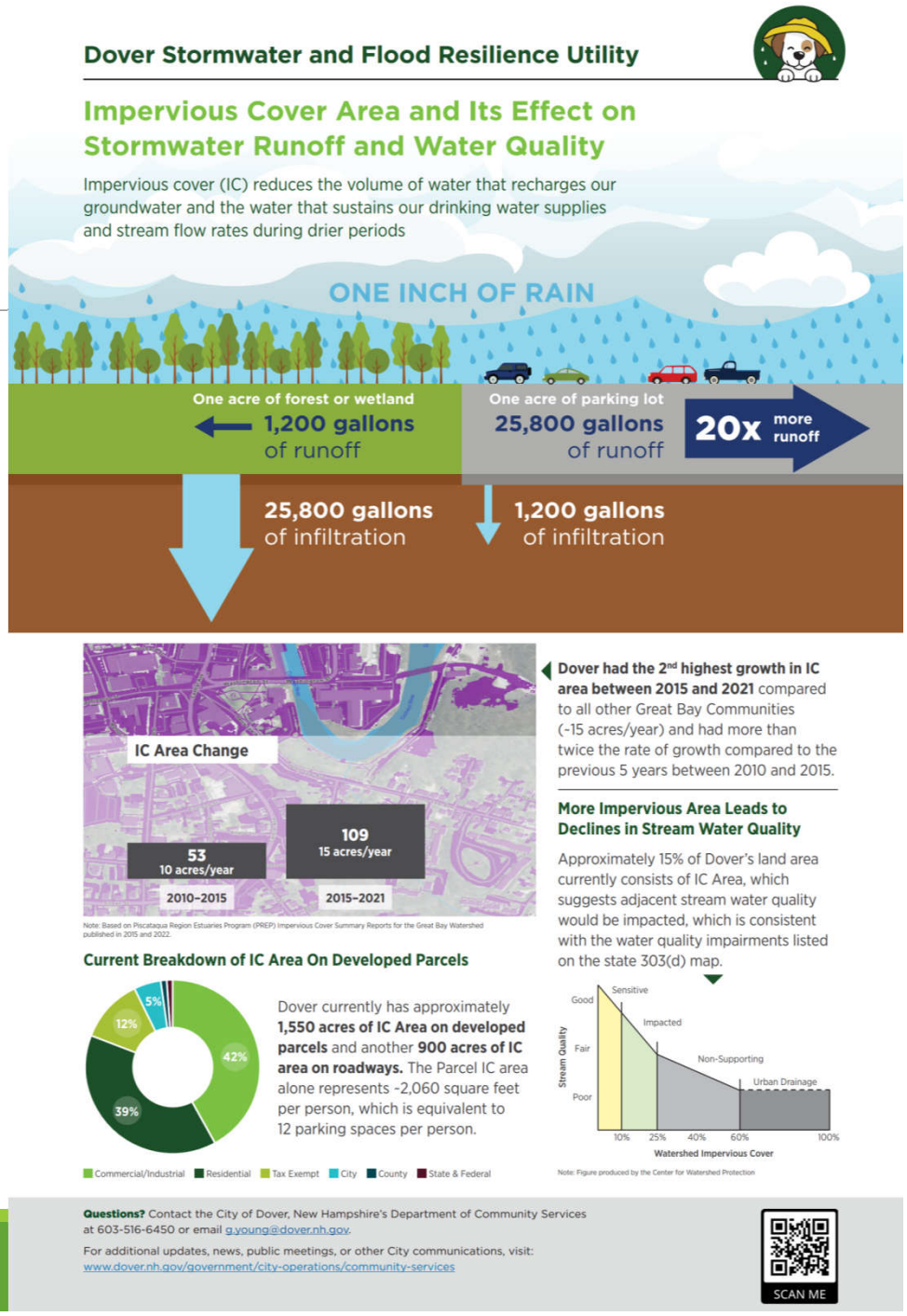
Informational Boards



Informational Boards

Dover Stormwater and Flood Resilience Utility

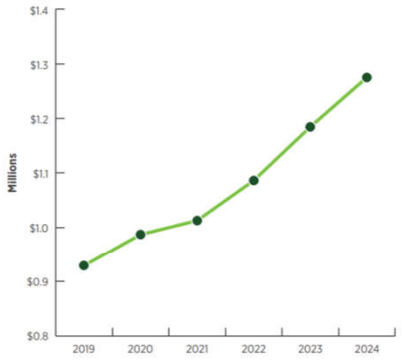
Dover's Stormwater Operating and Capital Improvement Costs

Key Budget Drivers

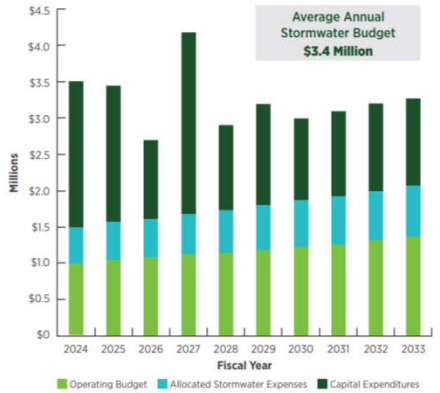
- ✓ Aging Infrastructure
- ✓ More Stringent Federal Regulations
- ✓ Increasing Flood Risks
- ✓ Declining Water Quality

The combined effect of these various drivers has resulted in steady increases in the City's stormwater Operating Budget as well as its annual allocation to the Capital Improvement Plan.

Dover's Annual Stormwater Operating Budget



Dover's Overall Annual Stormwater Budget including Operating and Projected Capital Improvement Costs



How would a Stormwater Utility Effect the Average Homeowner?

The average homeowner with an average assessed home value of $418,700 is currently paying approximately **$213 per year in property taxes to fund the combined the annual stormwater operating and capital improvement budget** of approximately $3.5 million. **The proposed stormwater and flood resilience utility fee** would spread the cost over a broader spectrum of properties, which **would reduce the average homeowner's share to fund the same stormwater budget to $110 to $120 per year**, depending on the final fee structure.

Operating Budget	+	Capital Projects	=	Stormwater Budget (General Fund)
CURRENT FUNDING				
SW Operating Budget	+	Annual Allocation to SW CIP Project		
~$1.0M	+	~$2.5M	=	$3.5M Annual SW Budget
$0.15	+	$0.37	=	$0.52 of the City Tax Rate of $7.26

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Dover Stormwater and Flood Resilience Utility

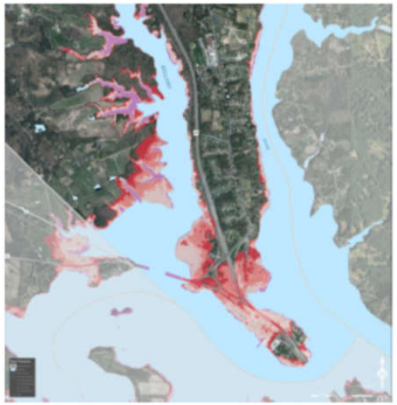
Flood Vulnerabilities

Properties with more than $200 Million in assessed value are located in high flood hazard areas and vulnerable to future flood damage based on current predicted flood elevations. More information on the City's flood vulnerability is available in the 2018 Climate Adaptation Master Plan Chapter.

(Source: City's 2018 Multi-Hazard Mitigation Plan)

The City has a **growing list of deferred stormwater and flood resilience projects** in excess of $5 million due to insufficient funding. Increasing stormwater management and flood resilience costs cannot be met through supplemental funding sources such as grants and development fees. Paying for these costs through repeated bonding would substantially add to debt service fees and could weaken City bond ratings.

As part of the C-RiSe project, the City found that only **25%** of the assessed culverts were able to **pass the 10- and 25-year flood flow**; only **15%** were able to pass the **50-year storm**; and less than **10%** were able to pass the **100-year flood flow**.



- Extent of Inundation at current Mean High High Water Level
- Extent of Inundation with 1.7 ft SLR + storm surge
- Extent of Inundation with 4.0 ft SLR + storm surge
- Extent of Inundation with 6.3 ft SLR + storm surge

Note: Map of Predicted Flood Inundation Areas under various Sea-Level Rise Scenarios of 1.7ft, 4.0ft, and 6.3ft + storm surge

Source: Wake CP, Kirshen P, Huber M, Knuuti K, and Stampone M (2014) Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends, prepared by the Science and Technical Advisory Panel for the New Hampshire Coastal Risks and Hazards Commission.

Areas along Dover Point and the Bellamy River shoreline including low-lying areas around the Route 4 and the Scammell Bridge interchange could be affected by predicted sea-level rise (SLR) elevations. The SLR under modest additional storm surge scenarios could significantly affect critical regional transportation links and cause potential road closures that could disrupt mutual aid services with Newington, Portsmouth, and Durham, and potentially increase emergency response times. This potential flooding would also create major challenges for individuals who commute to work in these other Seacoast Communities.

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Increasing Federal Regulations to Address the Effects of Stormwater Runoff on Water Quality

Like other NH Communities, the City is faced with having to conduct more stormwater management activities to comply with two stormwater related permits issued by the U.S Environmental Protection Agency (EPA).

Increasing Regulations

Municipal Separate Storm Sewer System (MS4) Permit

Initially released in 2003 and renewed in 2017 requires the following activities.

- A City Stormwater Management Plan and Operations and Maintenance Plan
- More frequent catch basin cleaning and street sweeping
- Inspections and sampling of all 450 outfalls
- Additional stormwater treatment measures and long-term inspection and maintenance of these measures
- Tracking inspection and maintenance of stormwater BMPs on private property,
- Annual Reporting of the stormwater measures completed

2020 Great Bay Total Nitrogen General Permit

- Contribute shared funding with other municipalities to support additional Great Bay water quality monitoring
- Additional implementation of structural and non-structural, control measures to reduce the City's nitrogen loading
- Track and report nitrogen load increases and reductions on City and private property
- Annual compliance costs for this Permit are estimated to be ~$400,000.
- Alternatively, very costly upgrades would be required at the Wastewater Treatment Facility

Residual Designation Authority (potential in future)

- Private properties with over 0.75 acres of impervious area will be required to implement stormwater water quality improvements
- Brings an additional layer of federal permitting for private landowners, including existing developed properties
- Would apply to all NH communities in the Great Bay watershed

Willand Pond

Water Quality Challenges

Vulnerable to cyanobacteria blooms caused by increased phosphorus levels resulting from:

- Excess precipitation and flooding
- Stormwater runoff from commercial parking lots

Stormwater Impacts Water Quality & Quality of Life

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Website Information

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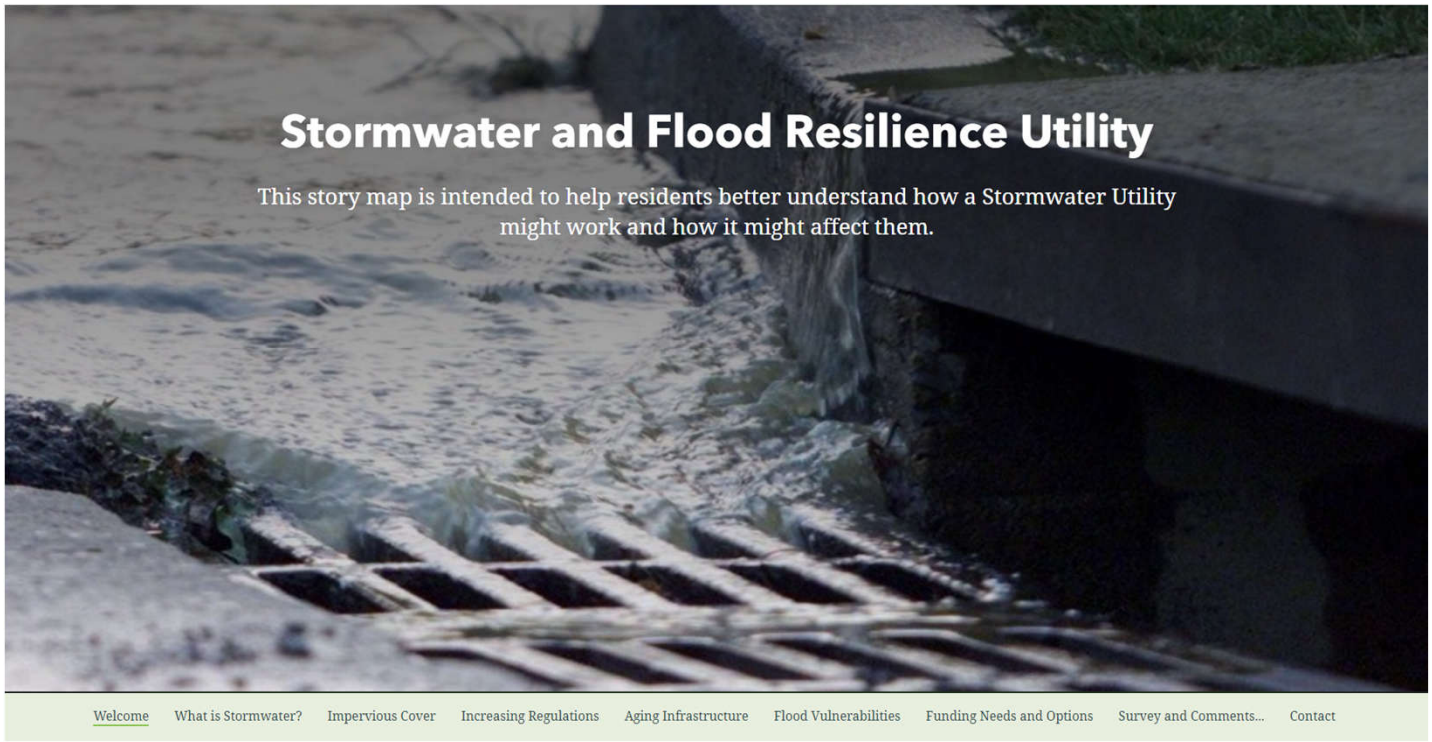

https://storymaps.arcgis.com/stories/998c2ffdd701471898a669d728eea4df

1st Outreach Meeting (May 23) Presentation & Breakout Stations

1. **Introduction Background Presentation**
   - What is included in "Stormwater and Flood Resiliency"?
   - Principal Drivers on Rising Stormwater Costs
   - Look at Dover Funding and Ad-Hoc Committee Work
   - What is a Stormwater Utility?
2. **Breakout Stations:**
   - Overview of a Utility and linkage to Impervious Area
   - City Stormwater and Flood Resilience Budget
   - Water Quality, Flood Risk and Federal Permits
   - Questions about Existing Infrastructure

Initial Feedback

- **How will it work for HOA's?**
- **What if property doesn't drain to a city drainage system?**
- **What about credits/treatment options?**
- **Can a city use aerial data to assess impervious area?**
- **General misunderstanding of existing data.**

Stormwater Utility Development Process

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   Know your current assets, future needs, and capital and operating budget
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   Inform and receive feedback from public
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   Work with committees to finalize implementation plan
5. **City Council to review and approve proposed Ordinance**

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Development of Funding Needs

Assumptions

CIP escalated at 3% annually beginning in FY 2025

Capital plan represents annual capital funding required

Baseline - Assume no growth in impervious area

FY 2024 set as Test Year for development of stormwater fee

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Stormwater Operating Expenses

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Stormwater Operating Budget						
Personnel Services	$ 529,845	$ 548,390	$ 567,583	$ 587,449	$ 608,009	$ 629,290
Supplies	$ 342,424	$ 354,409	$ 366,813	$ 379,652	$ 392,939	$ 406,692
Capital Outlay	$ 2,500	$ 2,588	$ 2,678	$ 2,772	$ 2,869	$ 2,969
Purchased Services	$ 148,186	$ 153,373	$ 158,741	$ 164,296	$ 170,047	$ 175,998
Other Expenses	$ 1,650	$ 1,708	$ 1,768	$ 1,829	$ 1,893	$ 1,960
Subtotal: Operating Budget	**$ 1,024,605**	**$ 1,060,466**	**$ 1,097,582**	**$ 1,135,998**	**$ 1,175,758**	**$ 1,216,909**
Engineering						
Personnel Services	$ 92,222	$ 95,449	$ 98,790	$ 102,248	$ 105,826	$ 109,530
Purchased Services	$ 15,276	$ 15,810	$ 16,363	$ 16,936	$ 17,529	$ 18,143
Capital Supplies	$ 3,552	$ 3,677	$ 3,805	$ 3,938	$ 4,076	$ 4,219
Capital Outlay (transfers out)	$ 82,261	$ 85,140	$ 88,120	$ 91,204	$ 94,396	$ 97,700
Stormwater Utility Staffing						
Personnel Services	$ 100,000	$ 103,500	$ 107,123	$ 110,872	$ 114,752	$ 118,769
Sewer Fund						
Municipal Alliance Adaptive Management Contribution	$ 120,000	$ 124,200	$ 128,547	$ 133,046	$ 137,703	$ 142,522
Streets						
Street Sweeping	$ 100,000	$ 103,500	$ 107,123	$ 110,872	$ 114,752	$ 118,769
Subtotal: Allocated Stormwater Expenses	**$ 513,310**	**$ 531,276**	**$ 549,871**	**$ 569,116**	**$ 589,035**	**$ 609,652**

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Stormwater Capital Improvements

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Capital Expenditures						
Community Services - Public Works						
Drainage System Improvements	$ 250,000	$ 350,000	$ 400,000	$ 450,000	$ 500,000	$ 550,000
Cochecho River Replace Storm Drain Outfall	$ 1,000,000	$ 1,000,000	$ -	$ -	$ -	$ -
Street Reconstruction - Court/Union	$ 250,000	$ 67,000	$ -	$ -	$ -	$ -
Street Reconstruction - Fifth/Grove	$ 250,000	$ 250,000	$ -	$ -	$ -	$ -
Street Reconstruction - Lower Central Ave	$ -	$ -	$ 462,500	$ 225,000	$ 61,388	$ 375,000
Culvert Reconstruction - Portland Ave	$ -	$ -	$ -	$ 1,600,000	$ 400,000	$ -
Street Reconstruction - Oak/Ham/Ela	$ -	$ -	$ -	$ -	$ -	$ 250,000
Outer Year Street Reconstruction	$ -	$ -	$ -	$ -	$ -	$ -
Flood Resiliency	$ -	$ -	$ -	$ -	$ -	$ -
Community Services - Sewer Fund						
WWTP General Permit Compliance	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Subtotal: Capital Expenditures	**$ 1,950,000**	**$ 1,867,000**	**$ 1,062,500**	**$ 2,475,000**	**$ 1,161,388**	**$ 1,375,000**

**Projects shown in current dollars and will be escalated for financial modeling*

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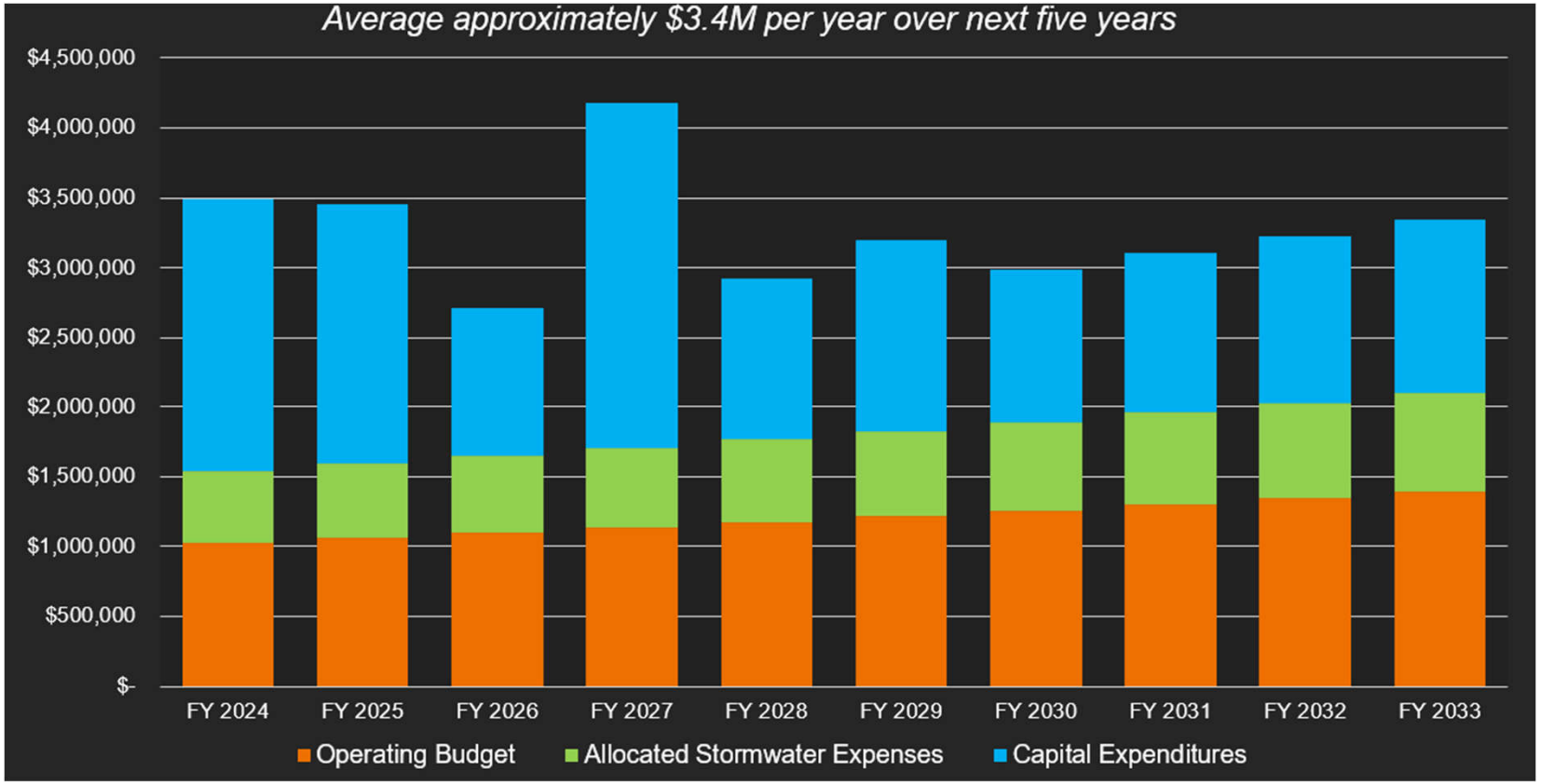
Annual Stormwater Expenditures



Stormwater Utility Development Process

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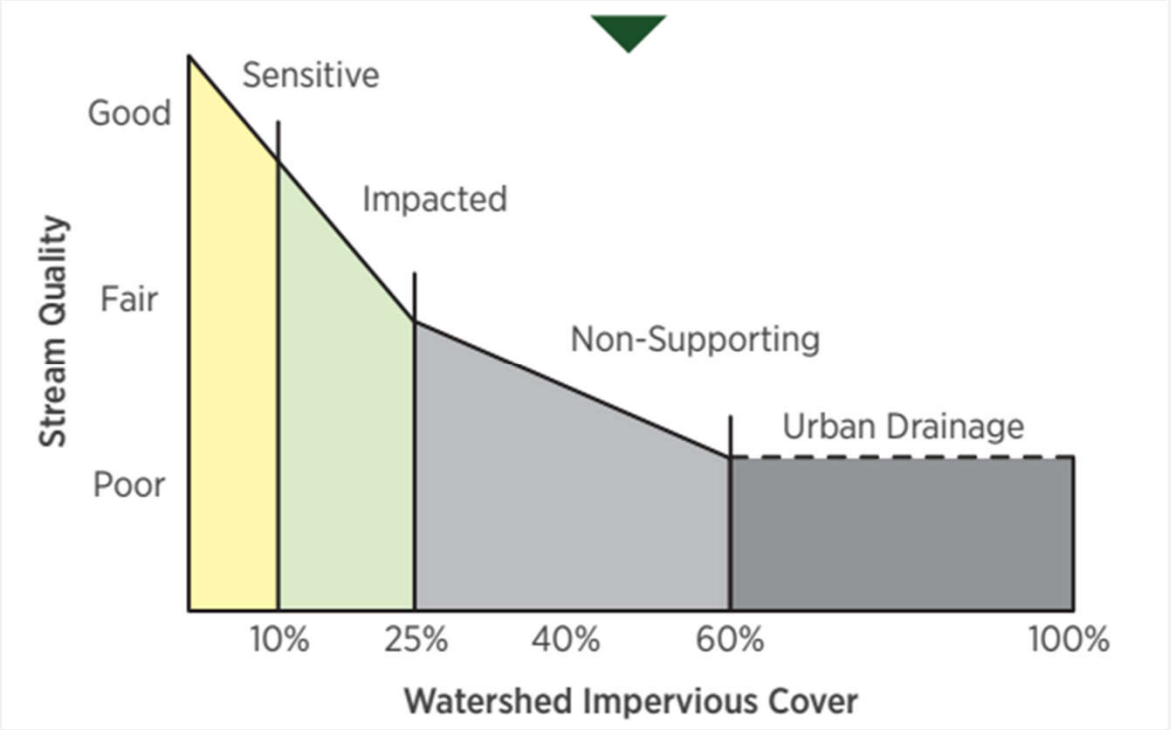
New Hampshire Enabling Language

RSA Section 149-I:6

"The stormwater utility shall address flood and erosion control, water quality management, ecological preservation, and annual pollutant load contained in stormwater discharge"

"Each stormwater utility commission shall establish a system for fee units based on at least one of the following property-specific attributes:
I. Total impervious area.
II. Calculated lot runoff.
III. Total lot area.
IV. Land use classification developed for assessment of fees"

Why is Impervious Area Important?



Impervious Cover Data

The 2022 NearMap Impervious cover data has high resolution in most instances, improving City-wide data

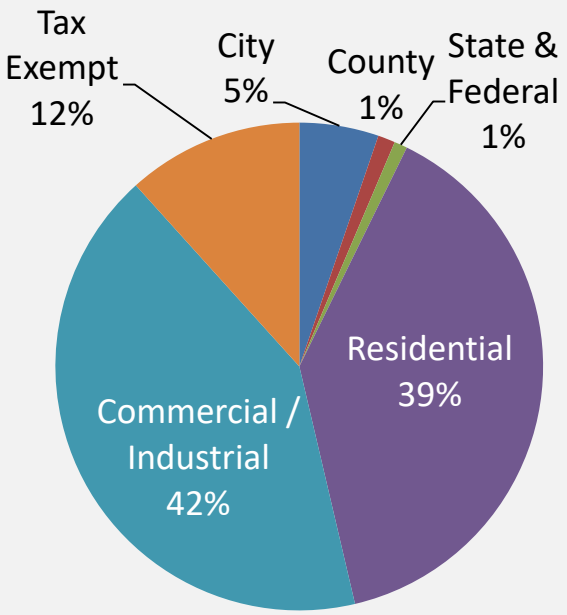
Two data sources:

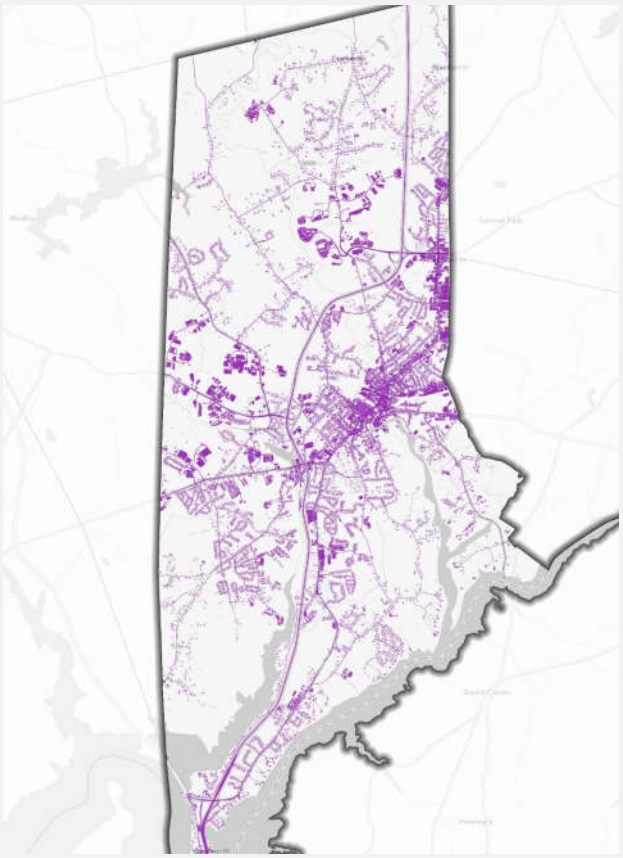
Light green = GRANIT 2021

Dark green = Nearmap 2022 data

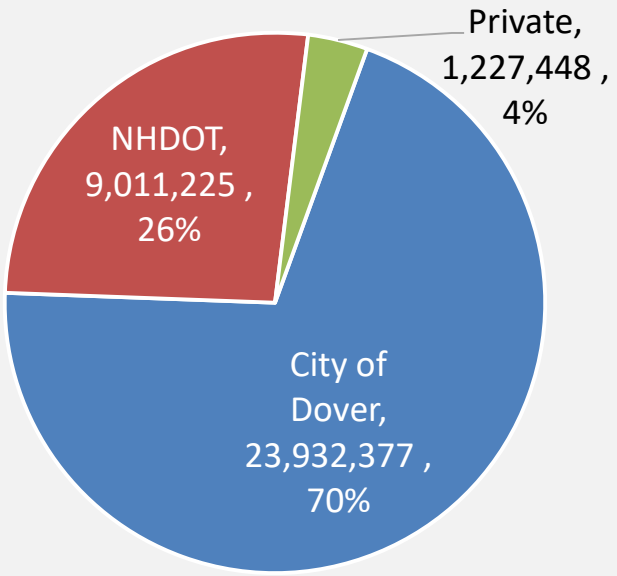
Impervious Cover Data

Total impervious area without right-of-way: **67,415,262**





Right-of-Way: **34,171,051**



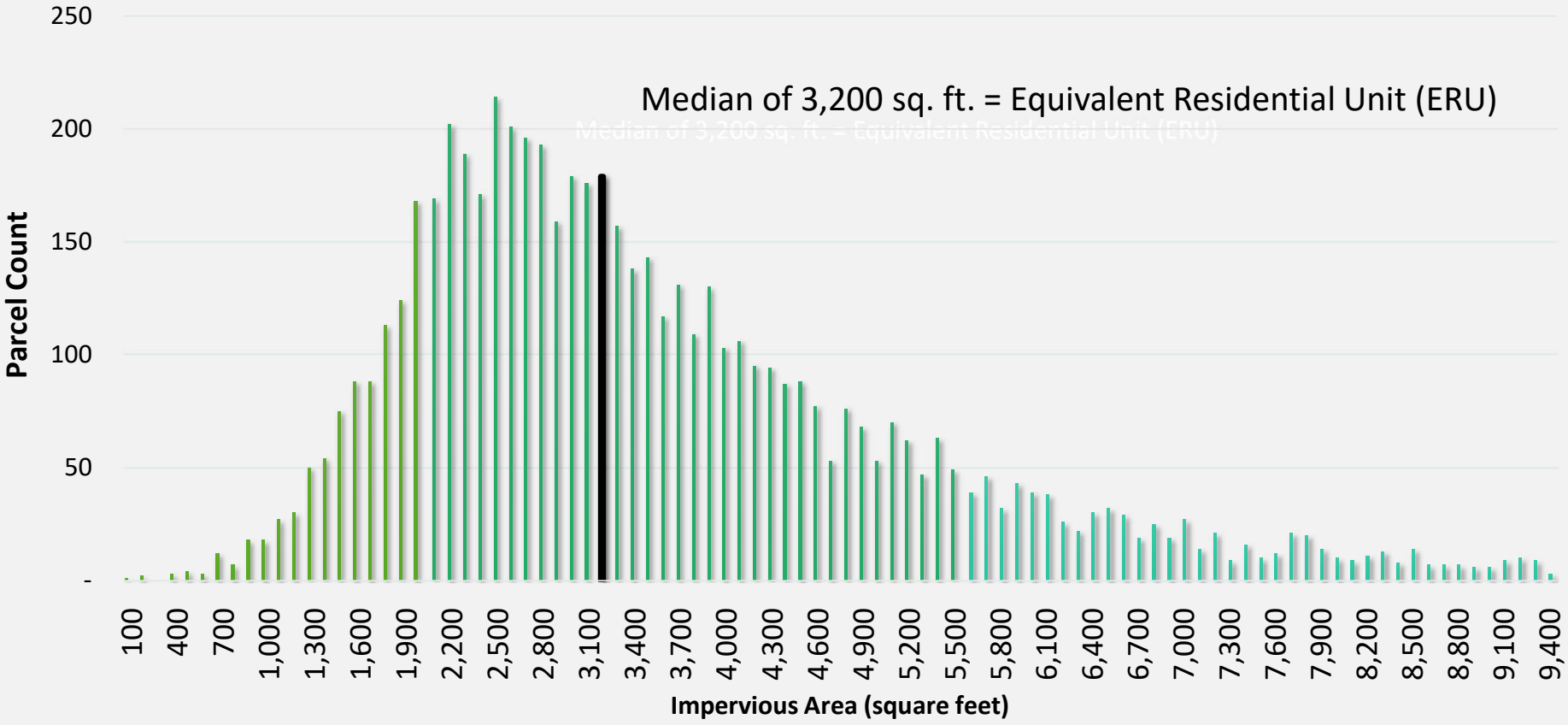
Impervious Cover Data total

Land Use Type	IC Area (sq. Ft)	%
Commercial/Industrial/Utility	28,306,333	42%
SFH Residential	26,328,739	39%
Non-Govt. Tax Exempt	7,873,490	12%
City-Owned	3,552,041	5%
County	772,623	1%
State & Federal	582,037	1%
Parcel Total (no ROW)	**67,415,262**	100%
Right of Way	34,171,051	
Total (with ROW)	**101,586,313**	

Impervious Cover Non-Taxed

Ownership	IC Area (sq ft,)	% Total
Municipal	3,552,041	28%
State	525,036	4%
County	772,623	6%
Private Schools	613,670	5%
Wentworth Douglas Hospital	635,927	5%
Faith Based Organizations	755,005	6%
Housing Authority	615,784	5%
Charitable & Fraternal	177,471	1%
Common Lands (HOA.s & Condos)	5,016,640	39%
Total	**12,780,191**	**100%**

Single-Family Residential Equivalent Residential Unit



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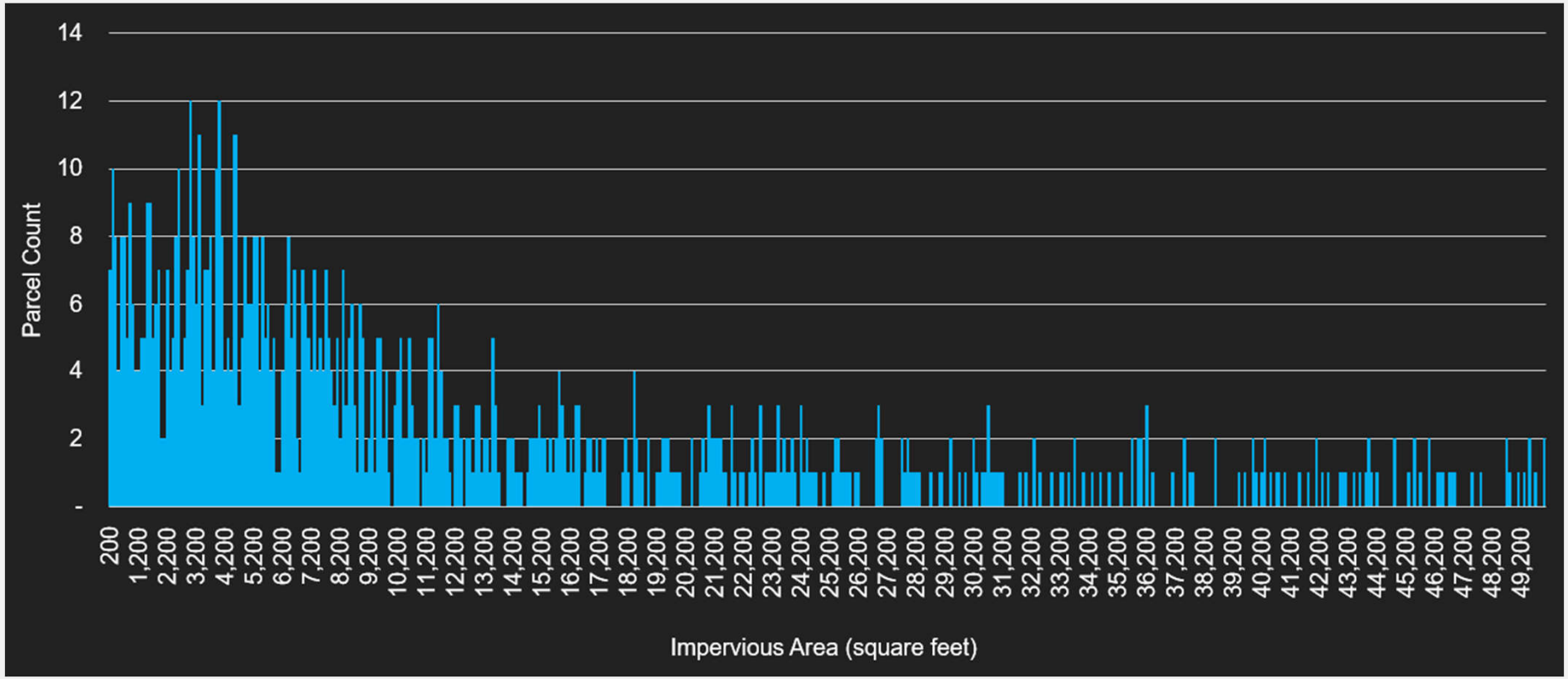
BASIC BREAKDOWN:

- 0< imp< 1,600 sf = ½ ERU = ±$56/yr
- 1,600sf< imp < 4,800 sf = 1 ERU = ±$112/yr
- 4,800sf< imp < 8,000 sf = 2 ERU = ±$224/yr
- 8,000sf< imp < 11,200 sf= 3 ERU = ±$336/yr
- 11,200sf< imp < 14,400 sf =4 ERU = ±$448/yr

Non-Residential Impervious Distribution



Zonning Map


Legend
Roads
Spaulding Turnpike
State Highway
Local Road
Railroad
Buildings
Municipal Boundaries
Parcels
Water Bodies
Streams
Zoning Districts
R-40 Rural Residential
R-20 Low-Density Residential
R-12 Medium-Density Residential
HR Heritage Residential
RM-SU Suburban Density Residential
RM-U Urban Density Residential
C Commercial
IT Innovative Technology
CM Commercial Manufacturing
CBD Central Business District
G Gateway
CWD Cocheco Waterfront District
H Hospital
O Office
LBW Little Bay Waterfront

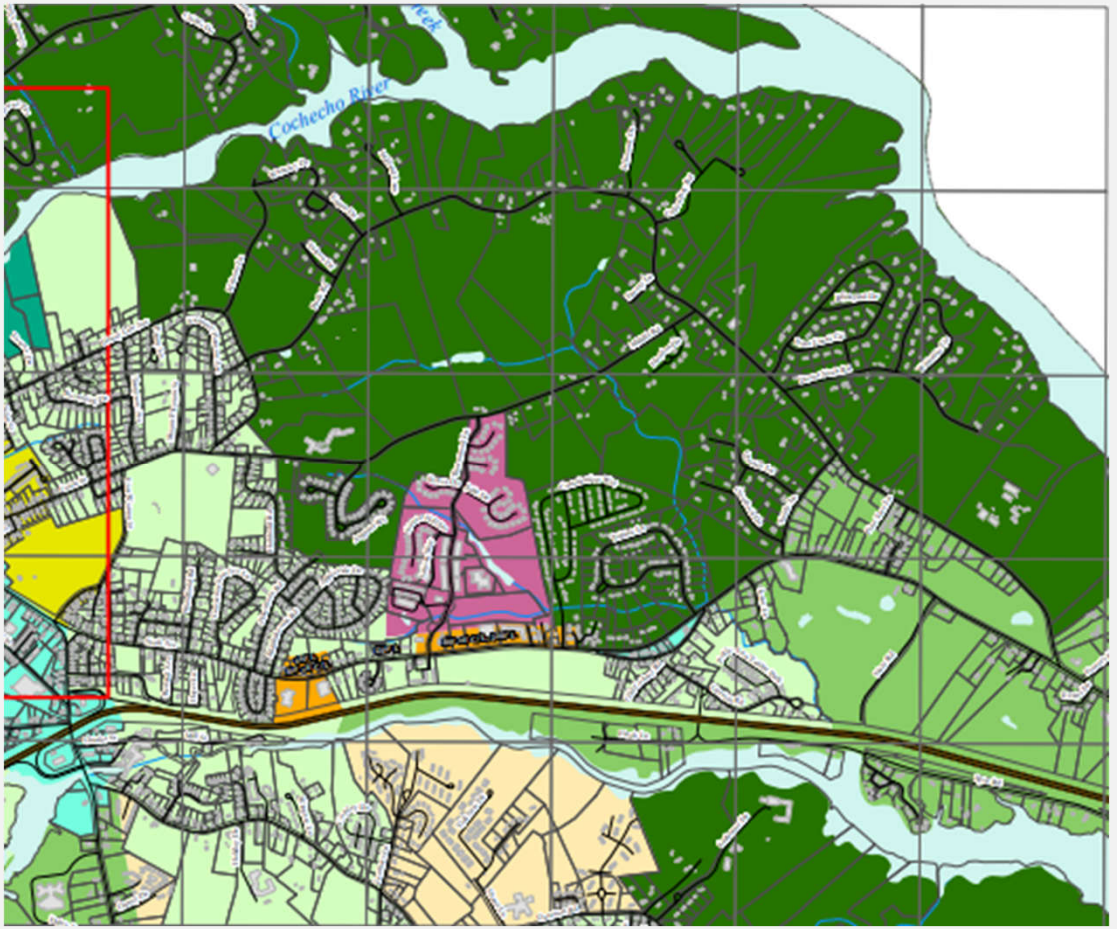

Cochecho River

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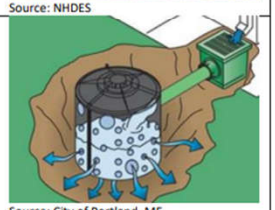
Table 14: Examples of Structural Controls Potentially Eligible for Performance-Based Credit

Cisterns are storage devices used to collect rainwater from roof downspouts for later reuse. They provide the benefit of reduced stormwater runoff and conservation of water. Stormwater collected in cisterns can typically be reused for such purposes as irrigation of lawns and gardens, wash water and other non-potable uses.	 Source: City of Portland, ME
Detention Ponds are impoundments designed to collect, detain and release stormwater runoff at a controlled rate. They provide treatment through the use of a permanent pool, which helps settle solids and associated pollutants.	 Source: NHDES
Drywells are comprised of seepage tanks set in the ground and surrounded with stone and are designed to intercept and temporarily store stormwater runoff until it infiltrates into the soil. Dry wells are particularly well suited to receive rooftop runoff entering the tank via an inlet grate or direct downspout connection.	 Source: City of Portland, ME
Infiltration chambers are structures designed to temporarily store runoff, allowing water to infiltrate into the ground. Treatment of runoff is provided by pollutants binding to soil particles beneath the chambers as water percolates into the subsurface.	 Source: NHDES

Next Steps

Public Outreach and Education

- Continue with public outreach
- Meet with Dover Utilities Committee and Ordinance Committee on July 10th

Develop Credit System

- Eligibility, qualifying activities, level of credits, administration
- Develop Credit Manual

Administrative & Logistical Elements

- Appeals / adjustments process
- Identify staffing needs for billing & customer service

Develop Ordinance

Present to City Council in December

SCAN ME

Stormwater
Community Services | Dover, NH

THANK YOU!

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