

# Stormwater Management In Shelburne Vermont\*

May 31, 2018



Presentation by:

Tom DiPietro, Deputy Director of Public Works, City of South Burlington

Chris Robinson, Water Quality Superintendent, Town of Shelburne

\* All numbers are estimated

# Water Quality



**Town of Shelburne, Vermont**

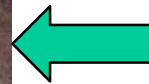
CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Issues with Stormwater runoff?

## *Stormwater Pollution*

- Stormwater can pick up pollutants such as oil and grease, chemicals, nutrients, metals and bacteria and flow into stormwater systems or directly to the lake, streams, rivers or wetlands.



## *Excessive Flow*

- Additional runoff from impervious surfaces increases stream flow, which can lead to erosion and destabilization of stream banks.



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Stormwater is Regulated



- Local Regulations
- State Regulations
- Federal Regulations (NPDES)



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Local Stormwater Requirements

- Shelburne's Subdivision Regulations

*Currently State and Federal Regulations are the driving force behind many stormwater improvements*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482

# State Requirements

- Shelburne currently maintains 14 stormwater systems associated with State stormwater permits (MS4 not included):
  - Mowing, tree removal, etc
  - Sediment removal when needed
  - Compliance paperwork, renewals, inspections, etc.



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Federal Requirements

## MS4 Permit Overview

The Municipal Separate Storm Sewer System (MS4) Permit Contains Six Minimum Measures:

1. Public Education and Outreach
2. Public Participation / Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention / Good Housekeeping

The MS4 permit also contains other requirements related to impaired watersheds. This includes stormwater impaired streams and phosphorus pollution in Lake Champlain.



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburne ROAD SHELburne, VT 05482

# Federal Requirements MS4 Permit Overview



The Munroe Brook  
Flow Restoration Plan

(FRP)

Includes Capital Projects



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482



# What is a Flow Restoration Plan?

- The MS4 permit requires a Flow Restoration Plan (FRP) in all stormwater impaired watersheds.
- Munroe Brook is listed as stormwater impaired by VT DEC, so an FRP is required.
- Must identify and implement best management practices to reduce flow in the stream



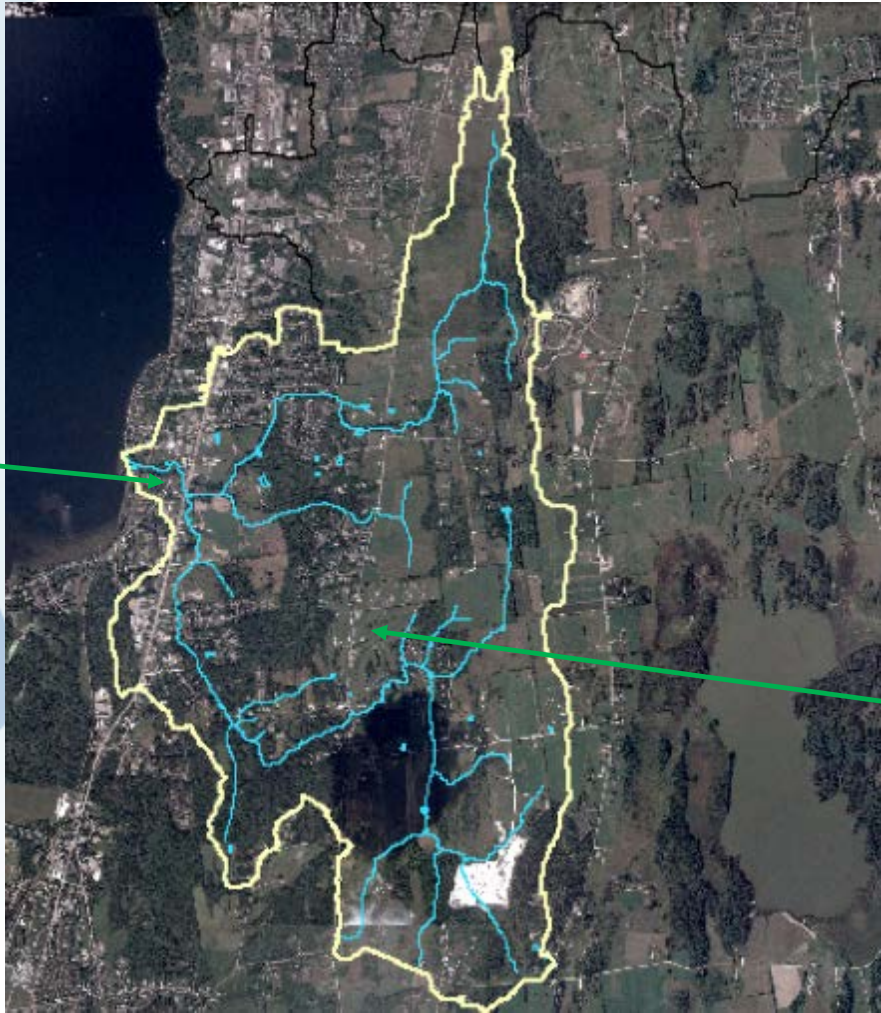
**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# The Munroe Brook Watershed

*Wastewater  
Treatment  
Plant off of  
Bay Road*



- 3,484 Acres
  - 29% Developed
  - 38% Agricultural or Open Land
  - 33% Forest

*Kwiniaska  
Golf  
Course*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482

# Flow Restoration Plan Capital Projects Identified

18 Shelburne projects in Munroe Brook FRP \*

Current estimate **\$4.7M** (reduced due to VTrans)

- \$3.0M Town responsible
- \$1.3M private owners responsible
- \$400K *potential shared responsibility*

**\*FRP projects must be completed between 2019 and 2031.**



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482

# Shelburne Stormwater Obligations

- Greater than \$358,000 per year. Significant costs include:
  - Compliance with State Issued Permits: ~\$23,000/yr
  - Compliance with MS4 permit: ~\$65,000/yr
  - Town share of FRP: \$3.0M over 12 years. ~\$250,000/yr
  - Maintenance of existing stormwater infrastructure: ~\$20,000/yr
  - Development and implementation of Phosphorus control Plan - \$ ???



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482



# Paying for Stormwater Requirements



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482

# Tax vs. User Fee



## ➤ Tax

### ➤ Pros

- Easy to collect
- Little added administrative cost
- Invisible to residents

### ➤ Cons

- More Expensive
- Not Equitable
- No incentive to reduce impervious area

## ➤ User Fee

### ➤ Pros

- Equitable:
  - Based on amount of runoff
  - Collects from tax exempt parcels
- Dedicated funds
- Credits and fees to enhance equity and tailor program
- Incentive to reduce impervious area
- Others uses of databases/mapping

### ➤ Cons

- Added administrative costs
- “Big Government” perception

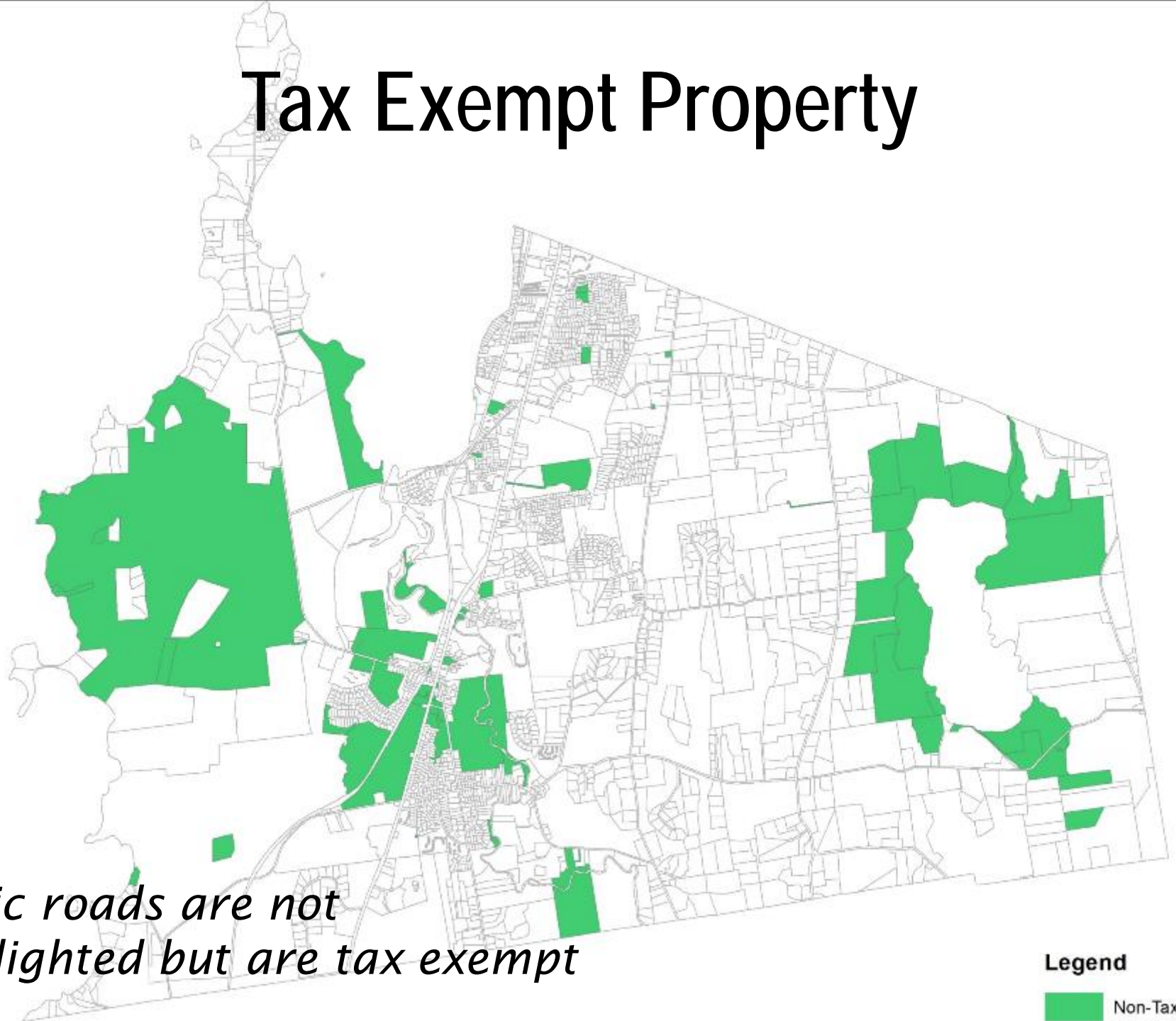


**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Tax Exempt Property

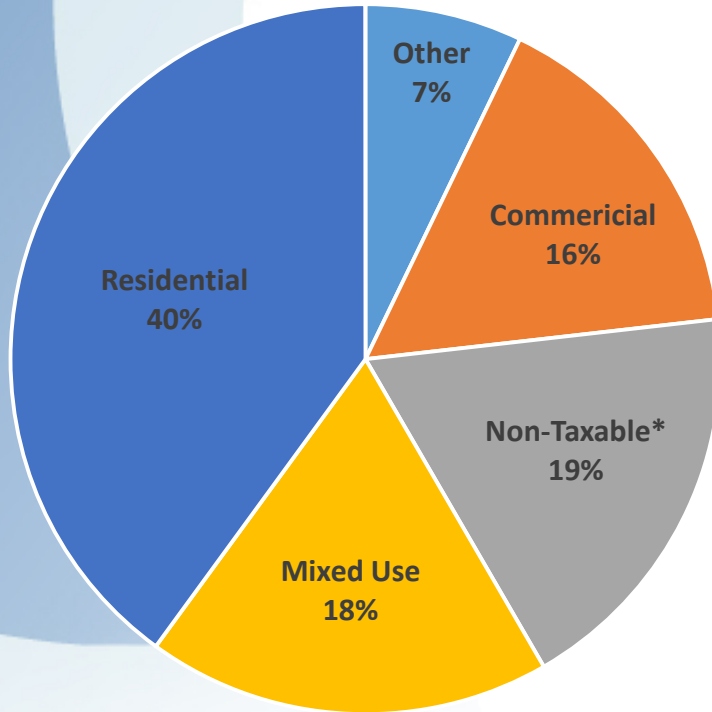


*Public roads are not highlighted but are tax exempt*

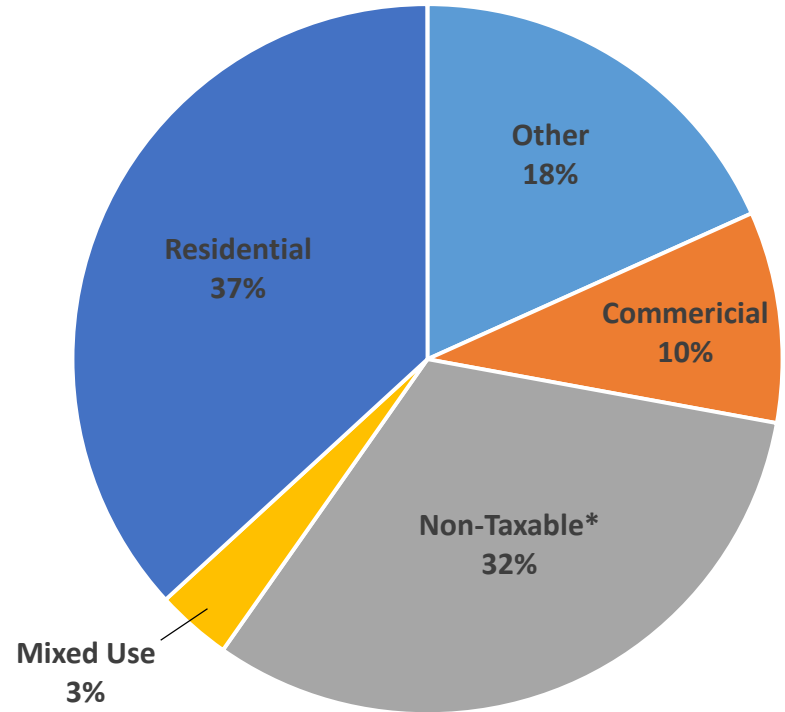
Legend

Non-Taxable Lands

Total Area by Existing Land Uses



Impervious Area by Existing Land Uses



\*Non-taxable includes partially taxed parcels and roads



**Town of Shelburne, Vermont**

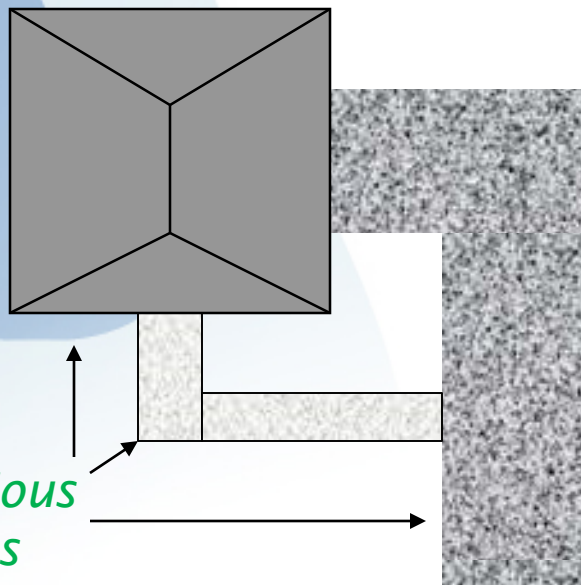
CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482



# Stormwater User Fee Basics

- Based on impervious surface.
- Similar to water and sewer fees.
- The more stormwater you generate, the larger your fee.



=

*STORMWATER FEE*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# How is Impervious Surface Data Created?



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# What is an ERU?

- Equivalent Residential Unit (ERU) is a base billing unit
- Based on square footage of impervious surface on typical Single Family Residential (SFR) property.
- In Shelburne:
  - Estimated median impervious SFR: ~4,200 s.f.\*

\* *Based on raw data analysis using 2016 impervious surface and parcel line data. Needs to be error checked.*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# ERUs in Shelburne\*

- Using an ERU value of 4,200 s.f. we estimate that there are 7,759 billable ERUs in Shelburne.
  - 2,095 ERUs residential property.
  - 3,588 ERUs non-residential property.
  - 2,076 ERUs Town owned roads.

*\* Based on raw data analysis using 2016 impervious surface and parcel line data. Needs to be error checked.*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELburnE ROAD SHELburnE, VT 05482

# Expenditures



- IF stormwater program budget requires ~\$400,000\* annually:
  - 7,759 ERUs in Shelburne would require an ERU rate of ~\$4.30 / month to balance the budget.
  - Single Family Residential properties would pay \$51.60/ yr.

*\*Includes administrative costs, contracted services, annual capital projects (input as \$150k/year), etc.*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Regional Rate Comparison\*

<b>Municipality</b>	<b>ERU Square Footage</b>	<b>FY17 ERU Rate</b>	<b>FY17 Cost per 1,000 s.f.</b>	<b>Proposed FY18 ERU Rate</b>	<b>FY18 Cost per 1,000 s.f.</b>
South Burlington	2,700	\$ 6.54	\$ 2.42	\$ 6.69	\$ 2.48
Williston	4,000	\$ 4.25	\$ 1.06	\$ 4.25	\$ 1.06
Burlington	1,000	\$ 2.47	\$ 2.47	\$ 2.47	\$ 2.47
Colchester	4,356	NA	NA	\$ 4.36	\$ 1.00
Shelburne	4,200	NA	NA	\$ 4.30	\$ 1.02

*\*Shelburne's numbers are estimated and not final*

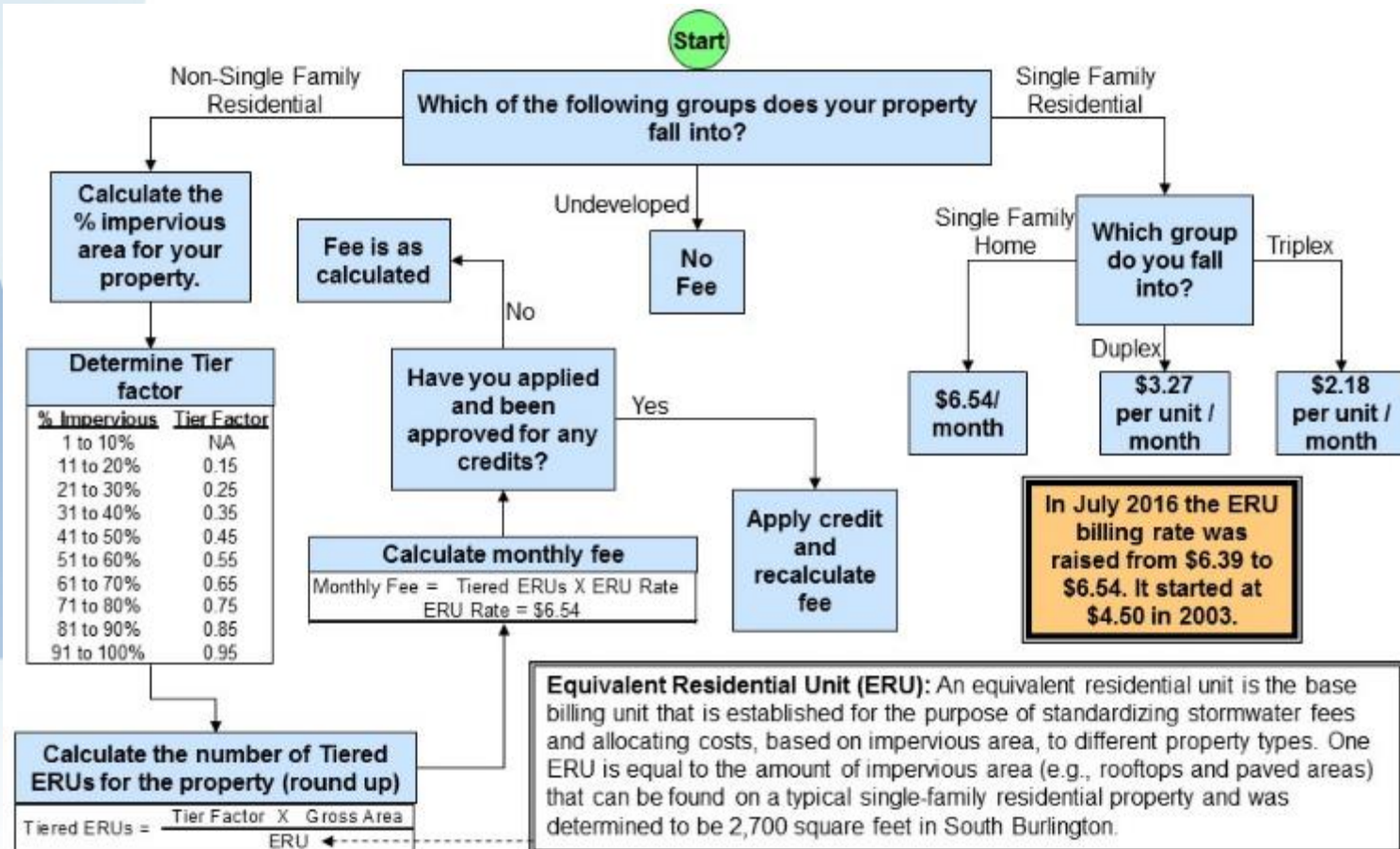


**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# South Burlington Fee Calculation Flow Chart



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Credits for Stormwater Treatment

- Credit manual for Non-Single Family Residential (NSFR) properties only\*
  - Up to 70% credit on monthly fee for stormwater treatment best practices
  - Credits must be applied for; not automatic

*\*Based on Colchester, Williston, and South Burlington's model*



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482



# Example NSFR Property



- Total Property Area: 892,210 s.f.
- Impervious Area: 240,395 s.f.
- % Impervious: 26.9%
- Tier Factor: 0.25
- ERU Square Footage: 4,200
- ERUs =  $(892,210 * 0.25) / 4,200$
- Stormwater Bill: 54 ERUs



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Example NSFR (Multi Unit) Property



- Total Property Area: 131,199 s.f.
- Impervious Area: 37,963 s.f.
- % Impervious: 28.9%
- Tier Factor: 0.25
- ERU Square Footage: 4,200
- ERUs =  $(131,199 * 0.25) / 4,200$
- Stormwater Bill: 8 ERUs
- Number of Units: 16 Units
- Billable ERUs per Unit: 0.5



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Next Steps

- Review data to finalize ERU square footage and ERUs per parcel
- Estimate ERU rate
- Continue Outreach
- Begin Public Hearing Process



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Questions?



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482

# Contact Information

- Tom DiPietro, Deputy Director of Public Works, South Burlington
  - (802) 658-7961
  - [tdipietro@sburl.com](mailto:tdipietro@sburl.com)
- Chris Robinson, Water Quality Superintendent, Shelburne
  - (802) 985-3700
  - [crobinson@shelburnevt.org](mailto:crobinson@shelburnevt.org)



**Town of Shelburne, Vermont**

CHARTERED 1763

P.O. BOX 88 5420 SHELBURNE ROAD SHELBURNE, VT 05482