

South Burlington, Vermont Stormwater Utility

February 11, 2015

Presentation by:
Tom DiPietro, Deputy Director
South Burlington Department of Public Works

South Burlington, Vermont

- Population: ~18,000
- Area: 16.6 mi²
- Public Roadway: ~95 Miles
- Major Features:
 - Airport
 - Interstate
 - University Mall
 - University of Vermont
- Stormwater Infrastructure:
 - 5,775 Catch Basins (3,000 public)
 - 102 Miles of Pipe (57 miles public)
 - ~250 Culverts



What is a Stormwater Utility?

- Performs a set of defined municipal services and activities, related directly to stormwater management.
- Collects a fee for these defined services, established by municipal Ordinance, with the fee based on the relationship of the users to the defined services and activities.



South Burlington Stormwater Utility Development Timeline

- Stormwater utility feasibility study – December 2003
- Public outreach and utility development – 2003 to 2005
- City sewer ordinance updated to include stormwater and establish a stormwater fee - March 2005
- First stormwater fees assessed - April 2005 (billed in July)
- Stormwater superintendent hired - May 2005
- City council resolution establishing requirements for City take over of residential stormwater treatment systems – August 2006

A Sampling of What the Stormwater Utility Does?

- Stormwater infrastructure repair and replacement.
- Maintenance
 - Stormdrain cleaning
 - Street sweeping
 - Stormwater treatment practices
- Find and eliminate illicit discharges
- Public education and outreach
- Capital improvements
- Watershed planning
- Technical assistance
- Plan review (local zoning process)
- And more...

Stormwater Infrastructure Repair



Stormdrain structure has deteriorated and resulted in the formation of a sinkhole.



Drainage pipe invert has rotted away.

Patchen Road Outfall Repair



Stormdrain and Pipe Cleaning



Stormdrains and pipes are cleaned using a vacuum truck.



Drainage pipe full of sediment before cleaning.

Street Sweeping



All curbed streets in South Burlington are swept at least twice a year. Main roads are swept more often.



Accumulated sediment along curb line.

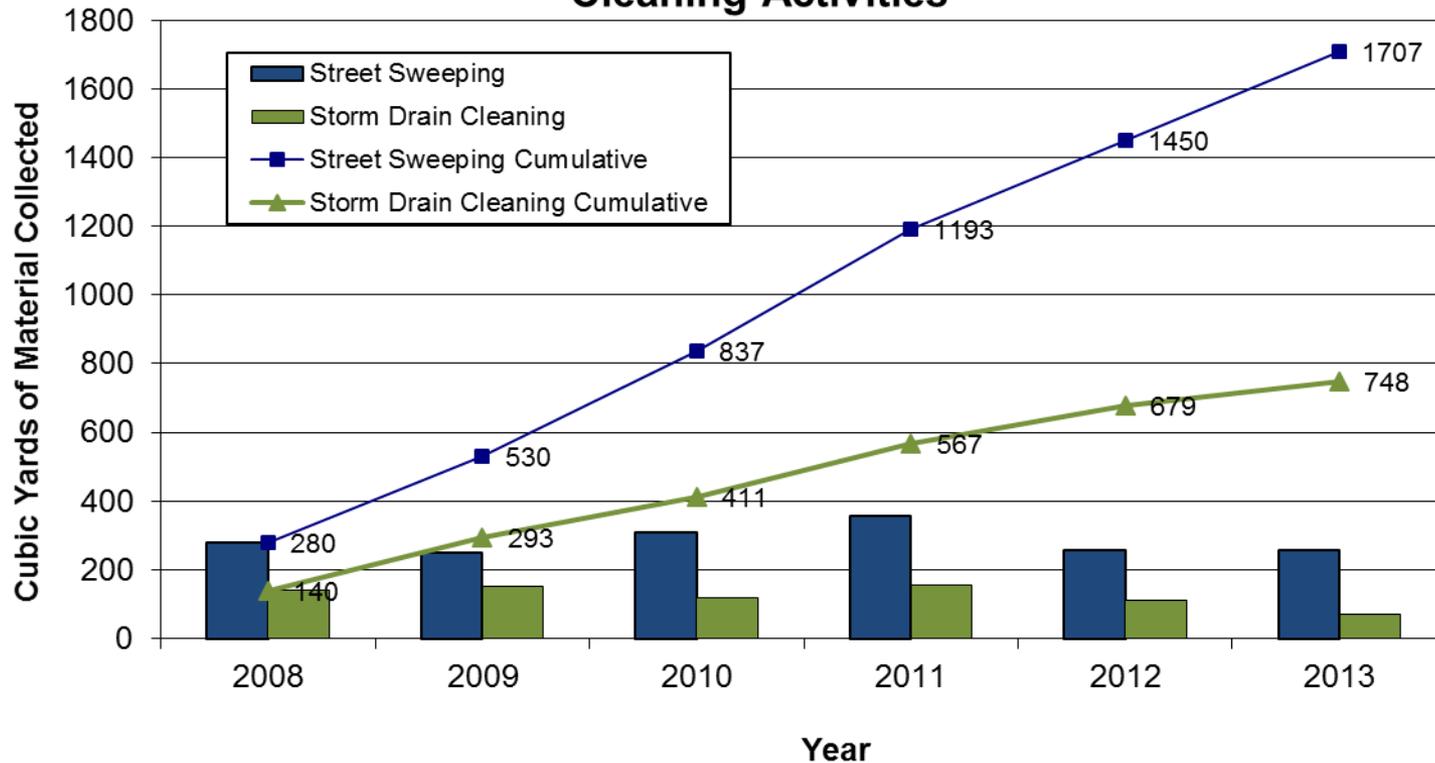
Sweeper and Stormdrain Waste Area



Sediment and debris removed from stormdrains and roads in 2007.

Tracking Effectiveness

Table 1. Cubic Yards of Material Removed From South Burlington Public Right of Way Through Street Sweeping and Storm Drain Cleaning Activities



Poorly Maintained Stormwater Treatment Systems

- If not properly maintained, stormwater ponds can deteriorate and will no longer effectively treat stormwater runoff.



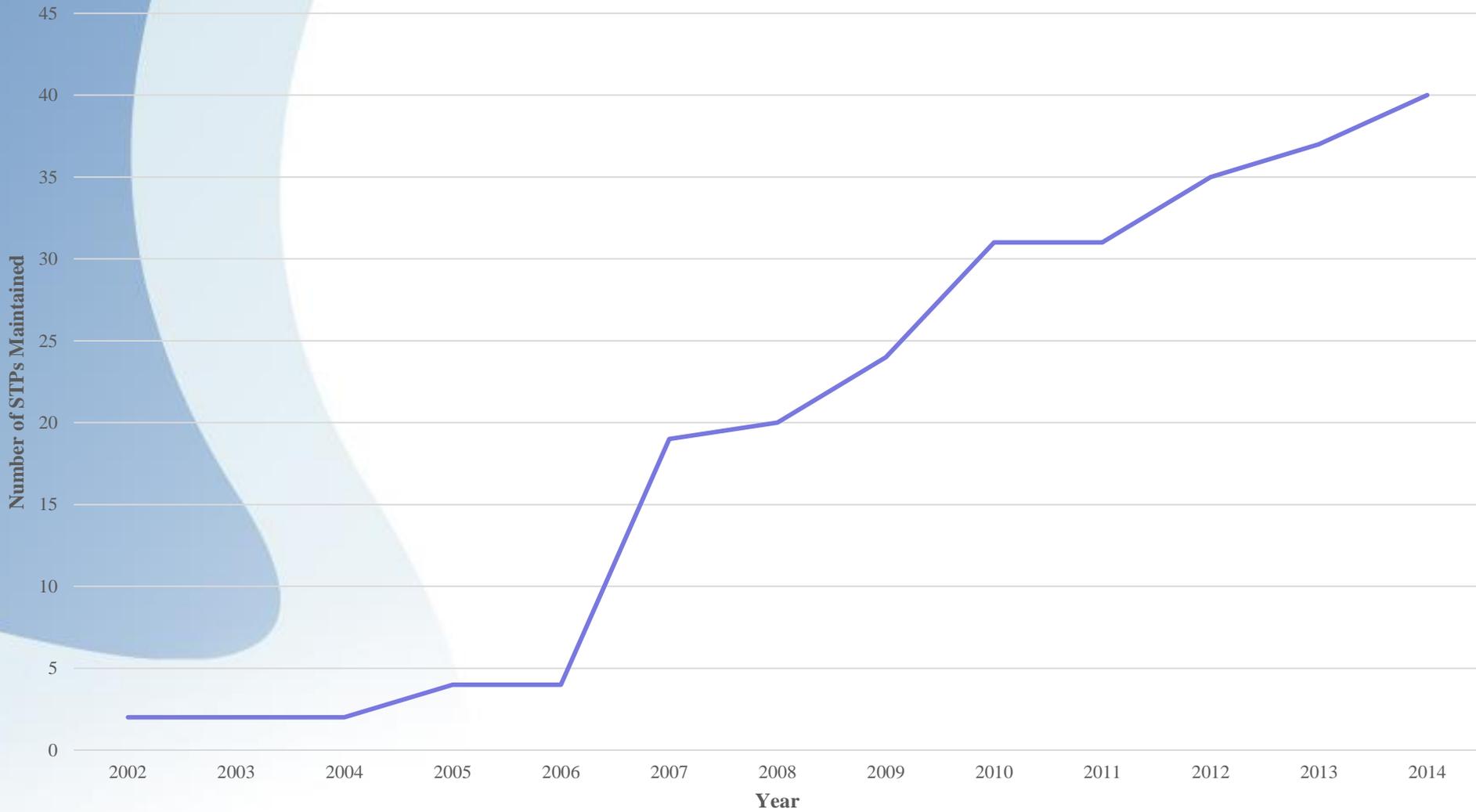
Stormwater pond was not maintained and is now a source of sediment.

Stormwater Treatment Practice Inspection and Maintenance



The stormwater utility works with residents to upgrade stormwater treatment practices and takeover responsibility for maintenance. Above images show a stormwater pond forebay drained of water and full of sediment (left) and stormwater utility staff removing this sediment (right).

Number of Stormwater Treatment Practices (STPs) Maintained by the South Burlington Stormwater Utility by Year



South Burlington
Stormwater Utility

Illicit Discharge Detection & Elimination



Stormwater Outreach / Education



*Regional Stormwater
Education Program
(RSEP)*



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Capital Improvement Projects



Farrell Street - \$1M STAG Project



Stormwater Detention Pond



Swirl Separator



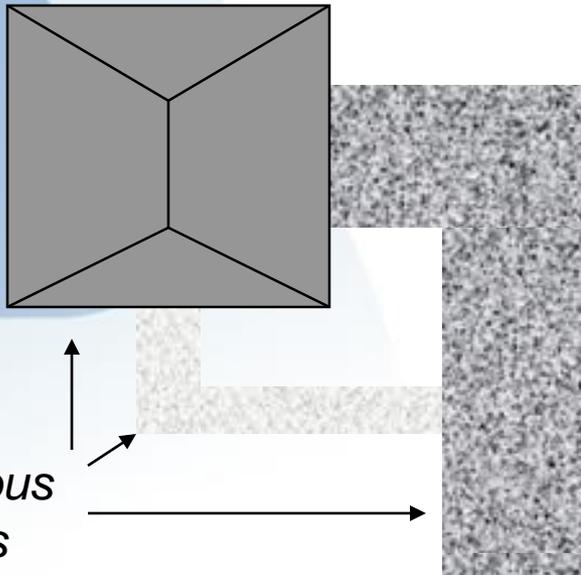
New Culvert



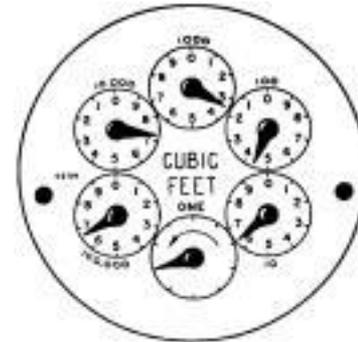
Bioretention Facility

How is the Utility Funded?

- The Utility is funded on a user fee basis, similar to an electric, sewer, or water utility.
- The more stormwater you generate, the larger your fee.

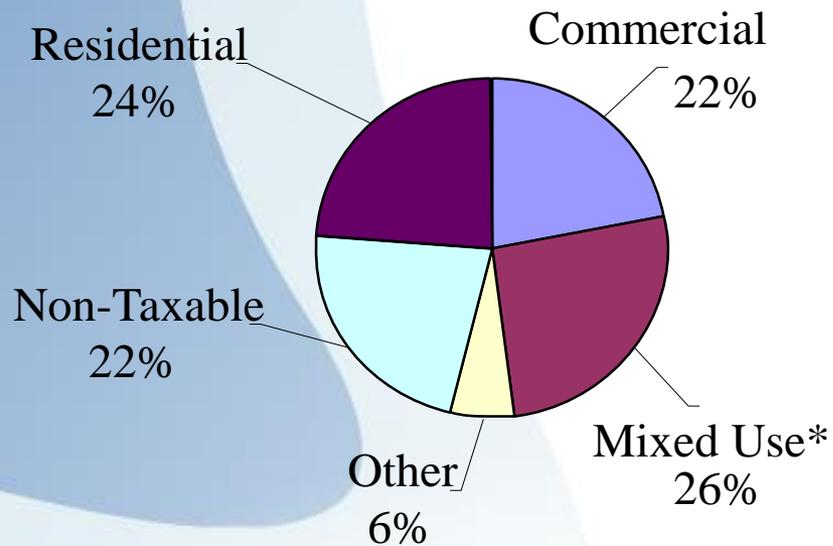


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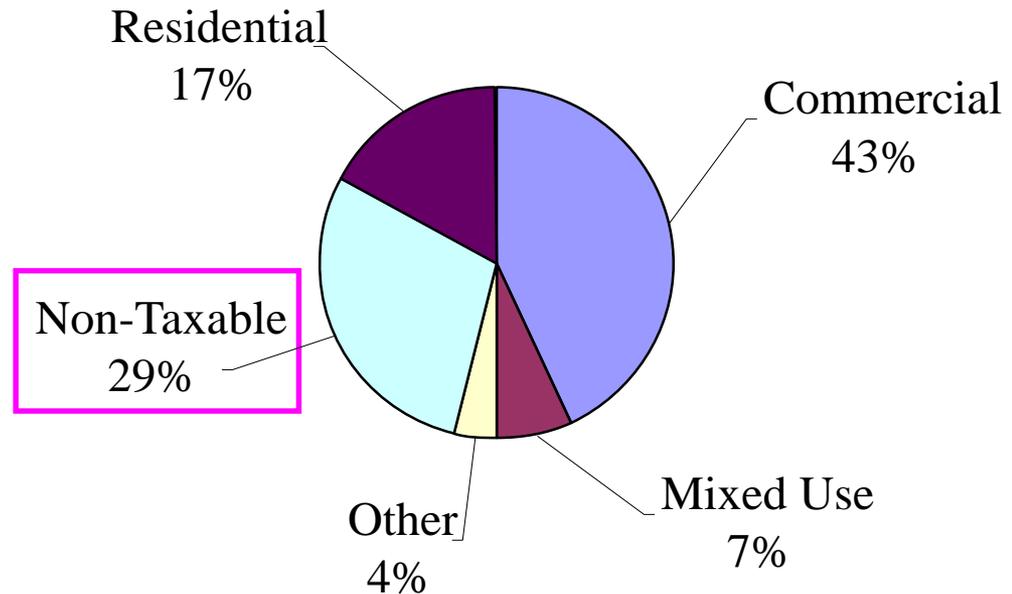


Water, Electric, and
Sewer Use

Total Area by Existing Land Uses



Impervious Area by Existing Land Uses



*Mixed Use includes farm, open space, misc.

Impervious Area

Base data: Satellite imagery, water, wetlands, agricultural areas.

Identification process: Software-based initial identification -- different wavelengths of light and near-infrared energy reflected by different surfaces, i.e. vegetation and non-vegetation.

Accuracy assessment: identifies areas of potential error.

Manual verification of likely areas of inaccuracy.

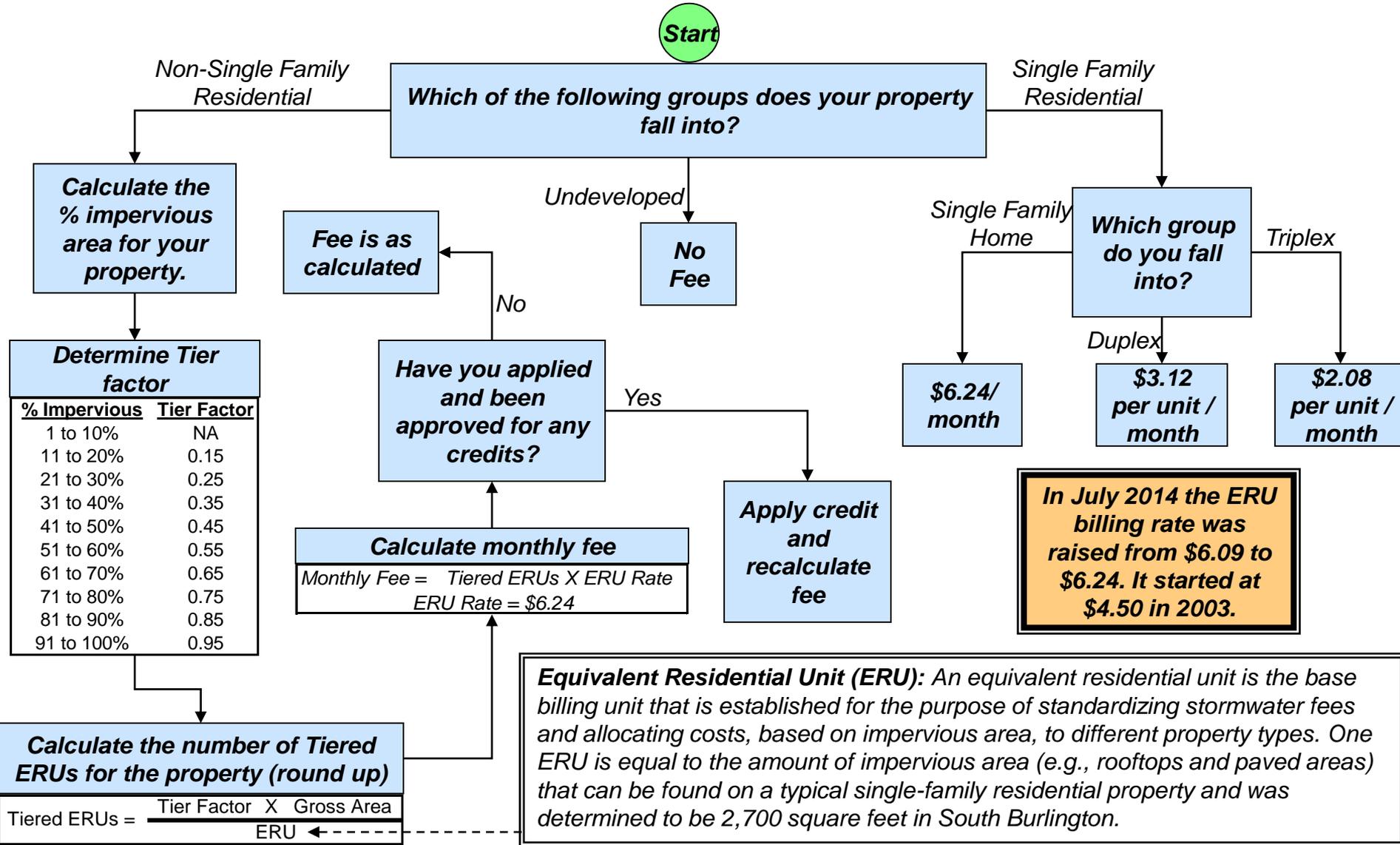


Aerial photography with Impervious Surface overlay

Determination of ERU

- Equivalent Residential Unit = ERU
- In South Burlington, the average residential parcel has 2,700 square feet of impervious area (rooftop, driveway, walkway, etc...)
- The ERU is the base billing unit for Stormwater Utility.

Process Flowchart For Calculation of Stormwater Utility Fee



Stormwater Credits

- By installing storm water treatment practices per the State of Vermont Stormwater Management Manual (2002 Standards) a non-residential property can reduce its fees by up to 50%

Treatment Standard or Criteria	Credit Amount
Water Quality (WQ _v)	15%
Groundwater Recharge (Re _v)	15%
Channel Protection (CP _v)	15%
Overbank Flood (Q _{p10}) or Extreme Storm (Q _{p100})	10%
Non-structural practices	10%

Stormwater Utility Funding

South Burlington Stormwater Related Revenue and Expenditures

Fiscal Year (FY)	Stormwater Revenue from Fees	Total Stormwater Revenue	Stormwater Expenditures	ERU Billing Rate
FY06	\$ 1,149,345.00	NA	\$ 881,612.00	\$ 4.50
FY07	\$ 1,217,770.00	NA	\$ 860,383.00	\$ 4.50
FY08	\$ 1,293,717.00	NA	\$ 1,201,029.00	\$ 4.50
FY09	\$ 1,293,624.00	NA	\$ 1,014,630.00	\$ 4.50
FY10	\$ 1,306,833.00	\$ 1,310,908.00	\$ 1,303,994.00	\$ 4.50
FY11	\$ 1,560,453.00	\$ 1,563,953.00	\$ 851,241.00	\$ 4.50
FY12	\$ 1,725,560.00	\$ 1,887,497.00	\$ 1,205,559.00	\$ 4.50
FY13	\$ 1,750,742.96	\$ 2,765,706.08	\$ 2,148,152.03	\$ 5.94
FY14	\$ 1,610,371.80	\$ 1,988,007.35	\$ 1,389,403.28	\$ 6.09
FY15	\$ 1,944,567.71	\$ 2,051,382.71	\$ 2,487,538.59	\$ 6.24
FY16 (proposed)	\$ 2,060,549.56	\$ 2,176,849.56	\$ 2,176,849.56	\$ 6.39
TOTAL	\$ 16,913,534.03	\$ 13,744,303.70	\$ 15,520,391.46	

Estimates are italicized.

Links to South Burlington Stormwater Information

- Stormwater Utility Web Site:
www.sburlstormwater.com
- City Web Site: www.sburl.com
- Regional Stormwater Education Program:
www.smartwaterways.org
- Chittenden County Stream Team:
<http://ccstreamteam.org/>

Questions



Contact information:

Tom DiPietro: tdipietro@sburl.com

(802) 658-7961 x108