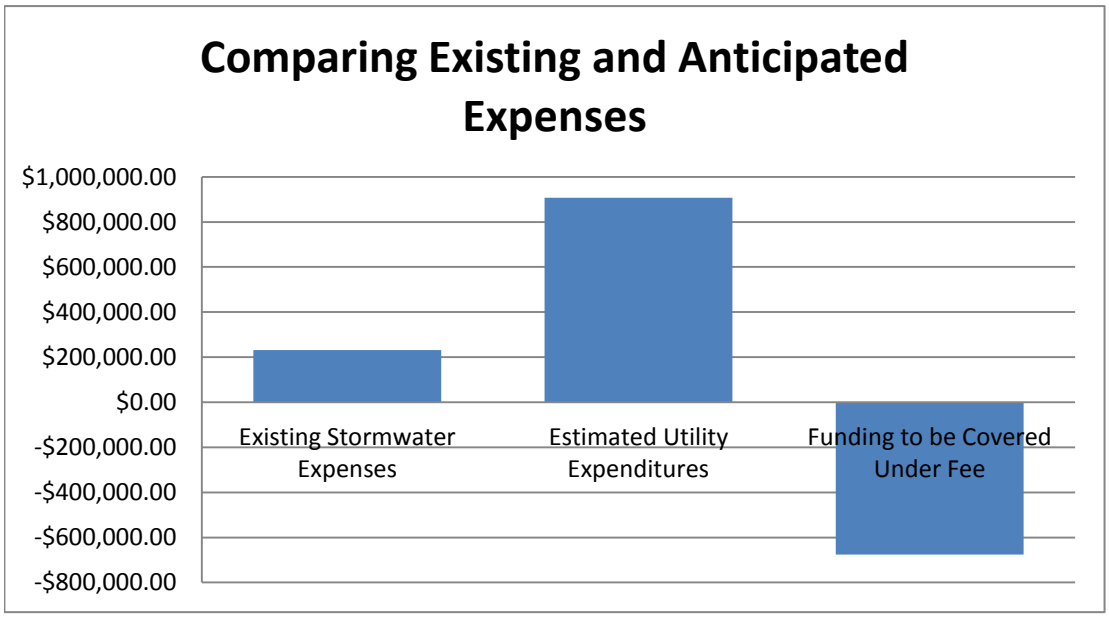
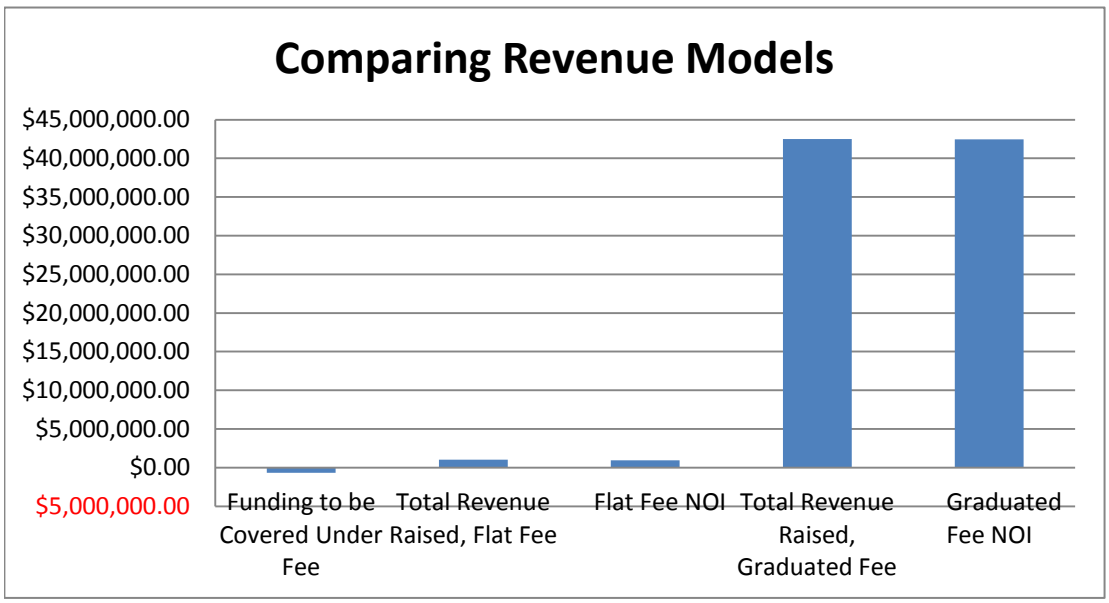
Workbook Summary

This page presents users with a concise summary of each of the main budgetary items under analysis. The page is for verification only, no data will be input on this page.

Existing Stormwater Expenses	$231,660.00
Estimated Utility Expenditures	$907,016.00
Funding to be Covered Under Fee	$675,356.00
Total Revenue Raised, Flat Fee	$1,014,803.66
Flat Fee NOI	$964,148.66
Total Revenue Raised, Graduated Fee	$42,520,461.01
Graduated Fee NOI	$42,469,806.01
Total Estimated Utility Credits	$50,655.00





Expenditure Plan

Stormwater Expenditures	Description	Estimated Costs ($)
General Maintentance & Operations, (DPW)	Routine cleaning, general maintenance and day to day service operations	$60,000.00
Stormwater Cleaning & Treatment, (Contractual)	Costs of privately contracted facility to treat stormwater runoff.	$61,987.00
NPDES Compliance	Includes annual reporting and private consulting services.	$42,345.00
Service Requests	Reporting and Responding to notices, complaints and reported damage	$52,760.00
Master Planning for Stormwater	Develop a CIP based on Phosphorous Control Plan and Infrastructure Needs.	$92,600.00
MS4 Stormwater Permit Administration	Review of permits annually by consultants paid for by the developer(s)	$1,275.00
Illicit Discharge Detection and Elimination	Assume 10% of outfalls have illicit discharge. Estimate cost to identify source at appx. $1200 per hit. Removal costs should be the owner's responsibility.	$9,750.00
Erosion/Sediment Control Inspections	Estimate a 50% increase in workload due to additional maintenance and construction	$1,350.00
Catchbasin Inventory Plan	Field crews to inspect, record and clean catchbasins on a regular schedule. Two to Four times per year is recommended.	$6,100.00
Septic, Inflow and Infilitration Program	Cost of coordination between board of health and stormwater program.	$1,020.00
Pesticide, Herbicide and Fertilizer Program	Implement fertilizer optimization program. Assume coordination with multiple depts.	$2,550.00
Spill Cleanup Program	Develop a priority response program based on high accident areas, significant pollutant potential and proximity to receiving waters.	$7,545.00
Groundwater and Drinking Water Program	Technical review memo of drinking water quantity and quality in priority areas. Conculsions of reports to be considered in the improvement of the system.	$7,250.00
Drainage Monitoring	Schematic mapping of water drainage system with field verification of performance	$11,000.00
Sewer Monitoring	Sewer Infrastructure mapping. Assume coordination with mulitple departments.	$11,987.00
Code Development and Zoning Support Services	Review and update ESC, SW, IDDE as needed, report on local regulations affecting impervious areas and report on feasibility of green practices and other green techniques	$3,400.00
Hazard Mitigation and Flood Insurance Updates	Allowance for high hazard analysis by private consultant for specific areas of concern identified during the permitting process.	$12,000.00
Waterfowl & Pet Waste Management Programs	Install waterfowl education signs at congregation areas and implement waterfowl deterrants. Install pet waste stations in strategic locations.	$8,500.00
Street Cleaning	Increase effort, fuel, supplies,& disposal to Sweep streets.	$26,000.00
Stream Restoration/Stabilization	Complete at least one stream restoration project every set number of years.	$65,000.00
Ditch and Channel Maintenance	Assume cost of removal is borne by owner or sewer dept.,cost of illicit discharge removal infrastructure improvements.	$175,000.00
Stormwater Total		**$647,419.00**

Administrative Expenses		

Utility Fee Implementation Costs	Capital expenses associated with establishing HR to manage the new program.	$42,000
Billing Costs	Costs associated with preparing and distributing invoices.	$17,543
Administrative Fees	General office operations and overhead.	$74,000
Utility Fee Credits	Costs for adminstering and deducting expenses for properties that meet set compliance standards to reduce runoff.	$31,000
Collection Fees, Delinquencies	Costs for processing receivables with contingencies for late or non-payments.	$17,854
Legal Support Services	Legal Review of Regulatory changes every set number of years	$39,000
Inter-Municipal Coordination	Adjacent municipalities to meet every set number of years to review and coordinate programs	$23,000
Emergency Coordination	Meet twice a year to review and coordinate programs.	$11,620
NPDES Public Education Programs	Distribute at least two messages to residents, commercial, industrial, and construction constituencies and measure and report message effectiveness.	$7,500
NPDES Public Engagement Programs	Host public forums, regularly update websites and host regular workshops	$6,500
Certified Phosphorous Program	Recordkeeping, data tracking and correspondence with regulated entities for updating program progress under "Water Quality."	$26,780
Grants Prgram	Staff efforts to apply for and administer grants received for stormwater programs; assume one permit every two years.	$1,800
Administrative Total		**$259,597**

Subtotal	**$907,016**

Existing Expenditure	**$231,660**

Funding to be Covered Under Fee	**($675,356)**

NOTE: Currently most of the Stormwater Expenditures listed above are funded by sales and property taxes in most towns. If these activities are funded in the future by a stormwater utility fee, then sales and property taxes currently funding these activities would

Revenue Plan Analysis

Funding to be Covered Under Fee	$675,356.00

Flat Fee Structure

Property Classification	Number of Parcels in Town	Annual Total p/Property	Monthly Fee p/Property
Residential	2,185.00	$258.76	$21.56
Non-Residential	425	$1,057.46	$88.12

Total Billable Properties	2,610.00
Equal Allocation Across Property Types, p/yr.	$258.76
Equal Allocation Across Property Types, p/Mo.	$21.56

Total Revenue Raised	**$1,014,803.66**

Net Operating Income under Flat Fee Structure ($)	**$964,148.66**

Δ Raised Revenue and Funding Gap	$339,447.66

Δ Raised Revenue and NOI	$50,655.00

Graduated Fee Structure

Property Classification	Number of Parcels in Town	ERU Equivalent	Annual Drainage Fee p/parcel	Annual Total
Residential				
Detached Single Family	1234	1.00	$435.74	$537,703.82
Detached Multi-Family, (e.g. Duplex, Triplex etc.)	876	0.14	$3,093.26	$32,516,385.38
Multi-Family	75	0.76	$575.73	$518,153.87
Non-Residential				
Commercial	345	0.21	$2,030.40	$8,405,837.49
Industrial	80	0.77	$564.98	$542,380.44
Total Revenue Raised				**$42,520,461.01**

Net Operating Income under a Graduated Fee Structure ($)	**$42,469,806.01**

Δ Raised Revenue and NOI	$50,655.00

Δ Raised Revenue and Funding Gap	$41,845,105.01

Δ NOI Between Fee Structures	$41,505,657.34

Credit and Incentive Plan

1.0 Credit Item Tabulation

Credit/Incentive Item	Examples	Total Residential Quantiy	Total Non-Residential Quantity
Rain Barrel		100	110
Rain Garden		65	65
Rate Reduction	Detention Basins	85	32
Volume Reduction	Green Roofs, Cisterns, Permeable Materials	32	90
Water Quality	Bioswales, Rain Gardens etc.	200	180
NPDES		400	250
Private Detention Maintenance		75	45
Direct Discharge		-	340
Education		-	1500

2.0 Credit and Incentive Plan

Credit/Incentive Item	Residential Properties	Quantity	Total Reimbursable Expenses	Total	Non-Residential Properties	Quantity	Total Reimbursable Expenses	Total
Rain Barrel	$15.00	100	-	$1,500.00	$10.00	110	-	$1,100.00
Rain Garden	$50.00	65	-	$3,250.00	$35.00	65	-	$2,275.00
Rate Reduction	$10.00	85	-	$850.00	20.00%	32	$12,000.00	$2,400.00
Volume Reduction	$20.00	32	-	$640.00	25.00%	90	$15,000.00	$3,750.00
Water Quality	$10.00	200	-	$2,000.00	$8.00	180	-	$1,440.00
NPDES	-		-		25.00%	250	$8,200.00	$2,050.00
Private Detention Maintenance	20%	75	$18,000.00	$3,600.00	25.00%	45	$26,000.00	$6,500.00
Direct Discharge	-	-	-	-	10.00%	340	$13,000.00	$1,300.00
Education	-	-	-	-	$12.00	1500	-	$18,000.00

Total Residential Credit/Incentive Expenses ($)	$11,840.00
Total Non-Residential Credit/Incentive Expenses ($)	$38,815.00
Total Credit/Incentive Liability ($)	$50,655.00

NOTE: The goals for this plan are primarliy two-fold. Any Additional Credit or Incentive Programs or items should be appended to this list and indexed accordingly.
- To encourage property owners to incorporate sustainable stormwater management practices into their properties' landscape and building construction.
- To make it easy for property owners of all types to understand stormwater utilites and participate in efforts to curb runoff.

Existing Stormwater Expenses

Service	Description	Existing Budget ($)
Debt Servicing	This is the annual amount paid on any bonds that were sold to finance stormwater improvement projects.	$62,000.00
Capital Improvements	This is the amount of money required to initiate any new physical improvements to town sewer systems for either improvement or expansion.	$88,000.00
Maintenance & Operations	This cost includes the cost of labor, material and equipment for City crews to perform OM&R for the storm sewer system. Storm sewer related tasks completed by City crews generally include cleaning inlets, responding to street and viaduct flooding, and repairing storm sewer inlets and manhole frames.	$38,000.00
Storm Sewer Cleaning	This work is competitively bid each year and is completed by privately contracted firms. Typically these services include cleaning and televising the pipes in the City's Storm Sewer system.	$13,000.00
Erosion Control, Grading & Permitting	This is a self-supporting activity where the fees charged for the permits equal the City's cost to review and issue the permits. Erosion control, grading, and drainage permits are issued whenever new construction exceeds municipal standards for surface disruption by construction.	$1,760.00
NPDES Compliance	Cities are required to have a NPDES permit for there storm sewer system. To obtain the 5-year NPDES permit, the City has to list activities it planned to complete each year in the six main areas that are referred to by IEPA as minimum control measures.	$3,000.00
Service Requests	This stormwater expenditure funds City staff time to help property owners find solutions to drainage problems on their property.	$18,000.00
Hazardous Treatment	The goal of this program is to connect overflow sump pump discharge to the City's storm sewer system. The City typically pays for all right-of-way costs associated with this connection while the property owner pays for all costs on their property. This cost allocation should only reflect the City's expenses for the connection.	$4,500.00
Sustainability Provisions	These costs should include any moneies raised or put aside for improvements in sewer systems that increase efficicency or that reduce runoff from properties. Additionally any incentives in the forms of credits or deductions for property owners who actively work to reduce runoff should be factored into this figure.	$3,400.00
Total		**$231,660.00**

ERU Calculations

Funding to be Covered Under Fee	$675,356.00

Table 1: Determing the Residential Metric

Land Use Classification	Number of Parcels	Total Impervious Surface (sf)	Average Impervious Surface Area (sf)	ERU Equivalent	ERU Value p/parcel/p/yr
Residential					
Detached Single Family	1234	500000.00	405.19	**1**	$435.74

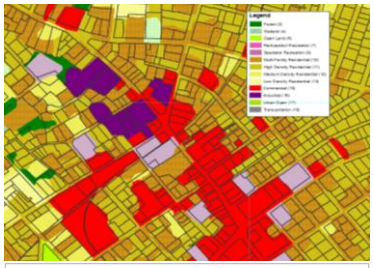
Table 2: Determining Non-Single Family Property Metrics

Land Use Classification	Number of Parcels	Impervious Surface Area (sf)	Average Impervious Surface Area per/Parcel	ERU Equivalent
Residential				
Detached Multi-Family, (e.g. Duplex, Triplex etc.)	876	50000.00	57.08	0.14
Multi-Family	75	23000.00	306.67	0.76
Non-Residential				
Commercial	345	30000.00	86.96	0.21
Industrial	80	25000.00	312.50	0.77

Subtotals	
Total Impervious Area	128000.00
Total Stormwater Units	1549.90
Total Average Impervious Surface Area Across Property Types (sf)	315.90

Impervious Surface Areas

Example of parcel data that does not



Land Use Map based on 2005 MA DEP GIS data

Orthophoto (aerial photo) of a neighborhood

MassGIS impervious surface cover for the same neighborhood.

This analysis is likely to involve two processes, each with a set of associated actions, and is best accomplished using GIS. The analysis is described using a detached single family residential property in a municipality to determine the ERU. However, the single family home could be replaced by another predominant residential land use type in a municipality (e.g., two- or three-family housing units).

The first of the two processes assumes that parcel data does not include public rights of way (e.g., roadways – Figure X) so that parcels only include structures and private improvements to the land. With this assumption in mind, the first process is aimed at linking the parcels with other necessary pieces of data detailed below.

Associate parcel data with property classifications that will be for the fee categories (e.g., single family, multi-family parcel, industrial parcel)

Associate parcel data with assessor's data (e.g., ownership, land area, address, etc.)

Link contiguous parcels that have the same property classification, share a structure or structures and have joint ownership (e.g., shopping center that is under common ownership but that is comprised of multiple contiguous parcels).

By linking this information, the parcels contain the data that will be needed to determine impervious surface based on property classifications, property ownership and the fee categories.

The second process is aimed at analyzing the parcels for impervious cover and then extrapolating that information in order to develop the ERU. This includes:

Performing a Zonal Analysis in which the percent of impervious coverage (e.g., land covered by buildings, parking, and driveways) is calculated for each parcel in the municipality.

Use the resulting percent impervious for each parcel to calculate the land area (e.g., square footage, acreage, etc.) that is impervious.

After calculating the area of impervious coverage for each parcel, develop a subset of parcels that includes the single family residential parcels based on the land use classifications.

Determine the average impervious surface area for the subset of single family residential parcels. The result is the impervious coverage for the ERU.