STORM DRAIN REHABILITATION AND IMPACT FEE
Town Engineer's Report

State of the Storm Drain System

The conveyance of storm drainage from rainfall events is an important element in every community. In San Anselmo, localized flooding frequently causes damage to both private and public property, limits emergency access, and results in the loss of revenue to businesses. Flooding also inundates the sewer systems, which contaminates the water and could lead to the spread of diseases. In many locations within the Town, the storm drain system is inadequately sized to convey a reasonable storm drain event without flooding, which is typically considered to be a 10-year storm event (10% chance of occurrence in any given year). The main cause of increased flooding is directly linked to the increase of impervious surfaces within the Town. As properties have continued to develop with increased home sizes, patios, paved driveways, and parking lots the runoff has increased.

The Town's storm drain system is composed of ditches, curb & gutters, drainage inlets and culverts, which ultimately convey the water to San Anselmo Creek. The elements of concern for this report are related to the underground facilities which include the drainage inlets and culverts. The Town maintains 1259 culverts composed of various pipe materials that include corrugated steel, corrugated aluminum, concrete, vitrified clay, and plastic. The condition of these culverts is unknown. However, based on the observed failures, we believe that the risk of failure can be attributed to the pipe materials used and the era in which they were typically installed. The following table categorizes the number of culverts within the Town and their relative risk of failure:

Pipe Material	No. of Culverts	Percentage of Total	Risk of Failure
Steel & Aluminum	507	40%	High
Concrete & Clay	538	43%	Moderate
Plastic	214	17%	Low

Because metal culverts are more subject to corrosion than other materials they tend to have a finite design life, which based on current State design standards is 50 years. It is doubtful that the metal pipes installed to date were properly designed and even if they were, it is believed that most of the pipes are approaching or may have exceeded the expected 50 year design life.

The Town's storm drain system has recently been exhibiting an increase in storm drain culvert failures, particularly among metal culverts. Because the failures are underground, the failures frequently manifest themselves as "sink holes" or longitudinal depressions in the pavement along the pipe alignment. Each Fiscal Year the Public Works Department contracts out emergency repairs of storm drain culverts. The cost to perform these repairs cost typically come from unprogrammed drainage which has limited funding of about $100,000 annually. The necessary repairs to this aging system are anticipated to escalate exponentially as the entire system begins to reach the end of its design life.

Previous Studies

In 1975, the Town accepted a drainage study prepared by Hoffman & Albritton Engineers and Planners. The purpose of the study was to analyze the capacity of each culvert in the Town versus an appropriate design discharge for a 10-year storm event. The study identified several culverts within the Town that were deficient and/or deteriorated and made recommendations for replacement. Town staff is not aware of any lists of the improvements actually implemented.

Plan of Action

The last comprehensive inspection and study of the Town's storm drain network occurred 37 years ago. A new study should be prepared to evaluate the current condition of the storm drain network. The "pay as you go" emergency approach that has been the status quo in the public works department over the last several years has a much higher cost than preparing a larger scale construction project with competitive bids from contractors. In order to evaluate the current condition of the system and identify capacity deficiencies in the system the Town should implement an inspection and engineering study to further develop an annual program and for reconstruction and rehabilitation of the Town's Storm Drain System.

Technology for inspection of culverts has improved dramatically since the 1975 study was conducted with the advent of closed circuit television (CCTV) mounted on a robotic cart. The cost to conduct a complete CCTV inspection of the Town's storm drain network is estimated at $250,000. In addition to collection of the CCTV data, the data will need to be evaluated, analyzed, and subsequently developed into the Town's Capital Improvement Program. The recommendations of the Hoffman & Albritton Study will also be reviewed and incorporated into the CIP. With administrative costs the initial cost to begin implementation of the program is estimated to be around $300,000. The Town Engineer will reevaluate the required budget, once the inspection and analysis results have been completed.

Recovering Costs for Storm Drain Rehabilitation and Impacts

The Town of San Anselmo is responsible for the maintenance and repair of the storm drain system within the public rights of way, which includes over 1200 segments of underground culverts. Storm drains require annual maintenance to ensure they are not obstructed and operate near peak capacity. Storm drain culvert materials have a finite life expectancy and the cost to rehabilitate these culverts needs to be addressed in the next few years. Specific funding sources for the maintenance and rehabilitation of the storm drain are non-existent and are currently subject to allocations out the General Fund.

Government agencies have historically imposed fees through the Building Permit process to offset the cost of the installation, maintenance and repair of infrastructure. In 2002, the Town approved a similar resolution for the collection of a Roadway Impact Fee (Resolution No. 3619). The Town Engineer is recommending that the Council adopt a resolution to implement a Storm Drain Rehabilitation and Impact Fee to cover the cost of reconstructing and improving the Town's storm drainage system.

Cost Analysis

Based on the initial costs to perform the CCTV investigation, analyze the data, and develop a Capital Improvement Program for the Town's storm drain system, an initial budget of $300,000 is needed. Once this preliminary work has been completed, the Town Engineer will reevaluate the funding needs to reconstruct the storm drain system through an annualized program.

In order to obtain the funds to both evaluate the Towns storm drain system and begin repairing it a drainage impact fee is recommended which would most likely need to be 0.5-1.5% of the building permit valuation. The review and recommendation for this fee will be brought to the Flood Committee and then to Town Council for approval.