



## **Staff Report**

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### DISCUSSION AND DIRECTION ON THE 2007 SEWER REHABILITATION MASTER PLAN AND STORM DRAIN MASTER PLAN

Honorable Mayor and Council Members:

#### **Summary**

The City Council is requested to review the 2007 Sewer Rehabilitation Plan. The purpose of this report is to review existing wastewater infrastructure and rehabilitation program, evaluate extent of the inflow and infiltration problem; present the near-term and long-term rehabilitation needs of the City's sewer collection system including gravity lines, force mains and pump stations, and estimate the capital budget requirements for meeting those needs as part of the City's 5-year and 25-year Capital Improvement Programs.

The City Council is also requested to review the 2007 Storm Drain Master Plan. This report outlines the areas of the storm drain collection systems that attribute to infiltration and inflow, areas where new infrastructures are needed, system capacity related issues and creek improvements. The Storm Drain Master Plan does not address any issues relating to Water Dog Lake.

As a result of a recent California Supreme Court decision, sewer rate increases are now subject to the 45 day noticing provisions of Proposition 218 which includes a protest hearing. On May 22nd, the Council had set July 24th for the protest hearing and public notices were distributed. Council is requested to set the proposed FY 2008 sewer rates which will be considered by property owners for approval at the Public Protest Hearing to be in compliance with Proposition 218. Lastly, the City Council has also requested review, consultants report on sewer rates.

#### **Background**

##### **Wastewater Collection System:**

The existing wastewater collection system of the City of Belmont consists of approximately 82 miles of gravity sanitary sewer lines, ranging in size from 6 inches to 27 inches in diameter, over 3 miles of force mains, and 11 pump stations. The City collection area is approximately 4.6 square miles and the system serves a population of about 26,000 residents.

The City has done the following studies of the wastewater collection system over the past years:

- Sewer Master Plans in 1963 and 1979
- Infiltration and Inflow Studies in 1983 and 1991
- Sanitary Sewer Pump Station Evaluation in 1996
- Sewer Rate Study in 1999-2000.

Over the past sixteen years, the Department of Public Works conducted a rehabilitation program to systematically assess, repair, and upgrade the City's sanitary sewer system including pump stations. The sewer system is divided into fifteen drainage basins and each year one or more basins have been selected for a two to four-year rehabilitation process consisting of inspection, design, repair (pipelining or pipe bursting) or replacement construction. This rehabilitation program was funded through the sewer bond sale and was distributed as following:

#### Pre-Bond Sewer Projects

1991 - 1995

- Pipe Bursting and Pipe Replacement Project Basins 2 and 14
- Pipe Bursting and Pipe Replacement Project Basins 3 and 7
- Pipelining and Spot Repair Project – Basins 7 and 8

1997 – Total \$641,552

- San Juan Pump Station Reconstruction
- Relocation of the Ralston Avenue/US 101 force main

1998 – Total \$729,445

- Hiller Pump Station Reconstruction
- Pipelining Basins 10, 13 and 15
- Arbor Sewer Rehabilitation

1999 – Total \$591,501

- Pipe Bursting Project Basins 10, 13 & 15
- El Camino Real Sewer Rehabilitation

2000 – Total \$79,938

- Ralston Avenue Sanitary Sewer Improvement Project

#### Completed Sewer Bond Projects

2001 – Total \$868,531

- Spot Repair Project Basins 10, 13 and 15 Spot Repair Project
- North Road Pump Station and Force Main Rehabilitation
- Arbor Avenue Sewer Repair Project

2002 – Total \$460,610

- Pipelining and Spot Repair Project Basins 9, 11, 12, & 15

2003 – Total \$695,230

- Pipebursting Basins 9, 11, 12 and 15
- Gordon and Hill Sewer and Storm Rehabilitation Project

2004 – Total \$1,393,530

- Pipe Bursting Project Basins 4, 5 and 6
- Pipelining and Spot Repair Project Basins 4 and 5

2005 – Total \$420,885

- Lyall Way Sanitary Sewer Construction Project

2006 – Total \$915,478

- Pipelining and Spot Repair Project, Sunnyslope, Sterling Downs and Homeview Neighborhoods
- 27-inch Dairy Lane Pipelining Project
- San Juan Pump Station Stabilization Project

Projects to be done in FY 07-08 – Estimated total \$1,713,000

- Haskins Pump Station Rehabilitation (to be constructed)
- Sanitary Sewer Rehabilitation Project Pipelining and Spot Repair with Pipe Bursting Basin 8 – easterly of Alameda de las Pulgas to Notre Dame Avenue and northerly of Ralston Avenue to the City Limits, Basin 7 - Chula Vista Neighborhood along Maywood Drive (to be constructed)
- Hastings Pump Station Rehabilitation (to be designed and constructed)

It should be noted that approximately \$1,300,000 has been spent on sewer cleaning, inspection and smoke testing projects as well as the sewer corrosion studies, and consultant design services for the sewer capital improvement projects.

The inspection and rehabilitation program has rehabilitated, on average, approximately 8,000 feet of gravity sewer pipe per year, or about 2% of the system annually. The Public Works Department has rehabilitated approximately 30% of our total sewer collection system. The rehabilitation program has greatly reduced the I/I caused by the structural defects in the sewer main lines and manholes. This program has identified and rehabilitated the sewer lines that were in the worst condition in all 15 sewer basins.

The next phase of rehabilitation beginning in 2007-2008 fiscal year is to address basins that have the oldest pipes with the highest frequency of sewer related calls. Sewer basins 7 and 8 have the oldest pipes with the most sewer related calls. The map below identifies the age of pipes and sewer related calls.

### **Storm Drain Collection System:**

The purpose of the City-wide storm drainage study is to document the existing City stormwater drainage system, analyze the areas that attribute to the I/I problems for sewer lines, identify drainage deficiencies, and prioritize system repairs and upgrades to correct the deficiencies. Currently, upgrades made by the City are based on pipe failures. Other upgrades of major drainage systems have been constructed by site developers as a condition of development.

The City has a total area of 4.6 square miles. There are four main drainage areas that convey storm water through the City:

1. The primary storm drainage conveyance through the City is Belmont Creek which conveys 60% of the City's storm runoff.
2. Laurel Creek has a 0.78 square mile drainage area in the northwestern portion of the City and discharges to the City of San Mateo.
3. O'Neill Slough is located east of Highway 101 and is hydraulically connected to San Francisco Bay.
4. Island Park is east of the Highway 101 which drains to a lagoon that connects to Belmont Creek.

There are four small drainage areas, about 26 acres, along the northern portion of the City that discharge to the City of San Mateo. On the other hand, a total of 183 acres from City of San Carlos are drained to the Belmont's systems.

There are a total of about 23 miles of storm drain lines within the City. Historically, there have been three pipe materials commonly used within the City: (1) Reinforced Concrete Pipe, (2) Corrugated Metal Pipe, and (3) Plastic Pipe. About 11% of the storm system consists of corrugated metal pipes that are more than 55 years old and has a short expected life expectancy of 30 years.

The remaining piping systems with reinforced concrete and plastic pipes are generally considered to have an expected life of 100 years. The majority of the system was constructed to meet the population increase that occurred between 1950 and 1970. Therefore, these pipes still have an expected remaining life of 45 to 65 years and immediate replacement is not warranted.

### Completed Storm Drain Related Projects (1997-2006)

- Construction of two Catch Basins at Monserat Avenue and Barclay Way required as part of Bacon vs. City of Belmont Litigation (\$7,300)
- Construction of Storm Drain, 2116 Pullman Avenue (\$12,653)
- O'Neill Slough Channel Bank Protection Project and Dale View Avenue Storm Drain Improvements (\$320,010)
- 2900 Ralston Avenue Storm Drain Culvert Improvement Project (\$95,000)

Completed Storm Drain Related Projects (1997-2006) continued

- Water Dog Lake Spillway Repair Project; 1133/1145 Alameda de Las Pulgas Storm Drain; 2133 Lyon Avenue Storm Drainage Improvement Project (\$258,020)
- Alameda de las Pulgas/Miller/Monte Cresta Storm Drainage Improvement Project  
Mountain View Avenue/Old County Road Storm Drainage Improvement Project  
Barclay/Sequoia/Monte Cresta Storm Drain Project (\$628,214)
- Bus Routes Rehabilitation - Various Streets Phase I; Bus Routes Rehabilitation - Various Streets Phase II; Resurfacing Streets – Various Locations; Ralston Avenue and Alameda de las Pulgas Improvement Project (\$333,893)
- Coronet Boulevard/Lyon Avenue Storm Drain Repair Project and Alameda de las Pulgas Creek Stabilization Project (\$526,287)
- East Laurel Creek Slide Repair Project and Lyall Way Storm Trench Drain Project (\$437,000)

The Storm Drain Master Plan has identified the system repairs and upgrades to correct the existing deficiencies. The near-term projects include repair and replacement of failing corrugated metal pipes, which are included in the FY07-08 Capital Improvement Budget proposed to the Council.

The City has records for the age of the sanitary sewer system. Since utilities are typically installed at the time of subdivision development, the sewer map that identifies the age of the sewer pipes can also be used for the storm drain system.

**Discussion**

**Wastewater Collection System:**

**Inflow and Infiltration**

One of the major focuses of the Sewer Rehabilitation Plan is to address inflow/infiltration (I/I) in our sewer collection system. I/I is extraneous water that enters the sewer system through illegal connections and/or defects in sewer pipes, manholes and service laterals. Groundwater infiltration enters the sewer system underground through cracks and defects in pipes and manholes. Rainfall-dependent I/I occurs during rainfall events and results from either direct inflow of rainwater (i.e. illegal connections of roof leaders, yard or driveway drains or other types of direct drainage connections or street runoff entering through manhole covers or from infiltration through temporarily wet soils and into defects in laterals, mains, and manholes.

The consultant conducted a flow monitoring survey by placing 22 flow meters in various parts of the City during winter time to capture flow data in all sewer basins. The data was processed and summarized to determine amount of I/I in our sewer main lines. The data compiled during flow monitoring had shown the high rainfall-dependent I/I in the City's sewer system. The data

indicates that the amount of I/I intruding directly into our sewer main lines has significantly been reduced as a result of our sewer rehabilitation program.

#### Sewer Lateral Inflow and Infiltration

The rainfall-dependent I/I entering our sewer collection system main lines from the defective lateral sewer services remain high. This could be attributed to the fact that laterals have not been rehabilitated along with the mains. The connections of the laterals to the sewer mains are believed to be a significant source of I/I in many older sewer systems.

To address the rainfall-dependent I/I problem, it is recommended that the City Council consider one or more of the following approaches:

- **Establish a private lateral compliance program.**  
This will require testing/inspection and rehabilitation, if necessary, of the lateral at sale or transfer of the property, and/or at other trigger points such as major remodels, changes in property use, whenever a sewer blockage occurs, or at designated intervals of time based on the age of the lateral. Such programs have been adopted by a number of Bay Area communities. The City is currently requiring the property owners to submit a video of their sewer lateral during major remodels. However, the City currently does not have any legal authority to put enforcement on the property owner to replace the defective sewer lateral. Some communities offer financial assistance (in the form of grants or loans) for either mandatory or voluntary lateral rehabilitation. This approach shall be approved by the City Attorney and Finance Department.
- **Implement external lateral reconnections or reconstruction as part of all sewer main rehabilitations.**  
This recommendation will address only the connection portion between sewer laterals and main but will not apply to any rehabilitation of the deteriorated lateral line that is a significant source of I/I. It will increase the cost of Capital Projects by approximately 15% and reduce the quantity of rehabilitation of our sewer collection system. This approach will repair the defective lateral pipe connection but will not address the I/I conveyed in the sewer lateral pipe into our sewer collection system.
- **Rehabilitate or replace the lower portion of the service laterals (between the sewer cleanout and sewer main) whenever a sewer main is rehabilitated or replaced.**  
A number of Bay Area cities and agencies are taking this approach for their sewer rehabilitation programs. This strategy will address repairs to the sewer lateral line between the sewer cleanout and the sewer main but will not affect a portion of the sewer lateral from the sewer cleanout to the house that is a source of I/I. This will significantly increase the cost of rehabilitation by approximately 20% while resulting in only 30% I/I

reduction from the lateral line into our sewer collection system. However, the 70% of the I/I will still be entering our sewer collection system from the sewer lateral lines.

- **Require property owners to test/inspect their sewer laterals whenever a public sewer main project is scheduled on their street.**

The property owner may be required to repair or replace the lateral if it fails the test. The City could also ease the burden on these property owners, financial and otherwise, by arranging to contract the lateral work through the sewer main construction contractor.

However, this approach will require additional revisions to the City’s legal authority over the private lateral services as well as additional funds to address the repairs, which can be achieved by establishment of the Sewer Lateral Assessment District.

**Sewer Rehabilitation Plan**

The Sewer Master Plan covers both near-term needs (5-year period) as well as the long term needs (25-year rehabilitation) Capital Improvement Program (CIP). Based on the CIP, the average rehabilitation rate of gravity sewers would be approximately 8,300 feet per year, which is consistent with the City’s historical rehabilitation rate.

The total estimated cost of the 5-year CIP averages approximately \$1.5 million annually without lower lateral replacement or \$1.7 million annually with lower lateral replacement.

**Estimated Costs for 5-year Rehabilitation CIP**

<b>Cost Item</b>	<b>FY 07/08</b>	<b>FY 08/09</b>	<b>FY 09/10</b>	<b>FY 10/11</b>	<b>FY 11/12</b>	<b>Total</b>
Gravity Sewer Rehabilitation	\$ 800,000	\$ 1,500,000	\$ 1,300,000	\$ 1,400,000	\$ 1,400,000	\$ 6,400,000
Hastings Pump Station Rehabilitation	\$ 500,000					\$ 500,000
Hiller & North Rd PS Emergency Generators	\$ 150,000					\$ 150,000
Island Park and Motel Pump Station Evaluation and Improvements		\$ 50,000	\$ 200,000			\$ 250,000
Force Main Evaluations		\$ 50,000	\$ 50,000	\$ 25,000	\$ 20,000	\$ 145,000
Force Main Annual						

Spot Repair Allowance		\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 40,000
Capacity Study	\$ 150,000					\$ 150,000
<b>Total</b>	<b>\$1,600,000</b>	<b>\$ 1,600,000</b>	<b>\$ 1,600,000</b>	<b>\$ 1,435,000</b>	<b>\$ 1,430,000</b>	<b>\$ 7,665,000</b>
Additional Cost for Lower Lateral Replacement in Conjunction w/Gravity Sewer Rehabilitation	\$ 160,000	\$ 300,000	\$ 260,000	\$ 280,000	\$ 280,000	\$ 1,300,000
<b>Updated Totals including Lower Lateral Replacement</b>	<b>\$1,760,000</b>	<b>\$ 1,900,000</b>	<b>\$ 1,860,000</b>	<b>\$ 1,715,000</b>	<b>\$ 1,710,000</b>	<b>\$ 8,945,000</b>
<b>Per Proposed Budget</b>	<b>\$2,200,000</b>	<b>\$1,480,000</b>	<b>\$1,360,000</b>	<b>1,200,000</b>	<b>1,200,000</b>	<b>\$7,440,000</b>

The total estimated cost of the 25-year CIP averages approximately \$1.6 million annually without lower lateral replacement, or \$1.8 million annually with lower lateral replacement.

**Estimated Costs for 25-year Sewer Rehabilitation CIP**

Rehabilitation Item	Total
Gravity Sewer Rehabilitation	\$32,100,000
Capacity Study	\$ 150,000
Pump Stations	
Hastings Rehabilitation	\$ 500,000
Hiller & North Emergency Generator Installation	\$ 150,000
Island Park & Motel Evaluation and Upgrades	\$ 650,000
Hiller & North Road Control Panel Canopy Installation	\$ 150,000
El Camino & Ralston Ranch Upgrades	\$ 500,000
Allowance for Future Pump Station Rehabilitation Needs	\$ 2,000,000
Force Mains	
Allowance for Force Main Evaluation	\$ 600,000
Allowance for Force Main Spot Repair	\$ 240,000
Allowance for Force Main Replacement	\$ 2,500,000
<b>Total Estimated Cost</b>	<b>\$39,500,000</b>
Additional Cost for Lower Lateral Replacement in Conjunction with Gravity Sewer Rehabilitation	\$ 5,100,000
<b>Total Estimated Cost, including Lower Lateral Replacement</b>	<b>\$44,600,000</b>

## **Storm Drain Collection System:**

### Infiltration and Inflow

Rusted corrugated metal storm drains develop holes that allow flow to infiltrate to the ground. This water either percolates to groundwater or infiltrate into the sewer lines through cracks and defects in the pipes, manholes and service laterals. A portion of the runoffs will flow along the pipes and wash away adjacent soil. If not repaired, the soil supporting the roadway will fail, leading to failure of the pavement section and destabilize the sewer and storm pipes.

In areas without storm drain systems, runoff is conveyed through the gutters and within the street pavement section. This runoff leaches oil from the asphalt, causing unraveling of the asphalt and cracks. Where cracking occurs, runoff has a pathway to enter the roadway base, which increases the potential for sewer infiltration.

### Pipe Rehabilitation Projects

Deteriorating storm drain lines within the City should be replaced to correct the problems that can impact the sewer systems and the roadways. Based on the analysis of the City's existing drainage systems, approximately 11% of the pipelines within the City are under-sized corrugated metal pipes. Most of these undersized lines are failing structurally, which shall be replaced as high priority. It is also recommended that the City should consider gradual replacement of its aging reinforcement concrete and plastic storm drain lines over a long term period.

The total cost to fix and replace deteriorating pipes is approximately \$24,065,000. It is not feasible to replace all the deficient lines and install additional lines in a timely manner. Therefore, a system of prioritization is recommended to gradually upgrade the drainages system.

**Near-Term** – Replacement of undersized, failing corrugated metal pipes. Replacement or slip-lining of failing corrugated metal pipes that have adequate flow capacity and reducing the uncontrolled flow of runoff outside the City right-of-way.

**Mid-Term** – Replacement of pipelines that are undersized for a 10 year storm event where there is no flow path in streets (missing curb and gutter) for excess flows.

**Long-Term**– Replacement of undersized pipelines where there is adequate flow capacity within the street to convey the excess runoff, or correct nuisance ponding in the street.

### Pipe Extension Projects

There are significant portions of the City that are not served by a City drainage system. The cost to extend storm drainage to these areas is about \$15,100,000. Extension of drainage to these areas would reduce roadway maintenance and reduce infiltration to the sewer system.

Creek Improvement Projects

The Storm Drain Master Plan also includes a study for the creeks. Belmont Creek has three under-sized sections near Carlmont Shopping Center and O’Neill Avenue/Civic Lane, where flow capacity can be expanded by upsizing or construction of a parallel storm drain line. The cost is \$2,200,000. Creek improvement will require permits from Department of Fish and Game, US Army Corp. and State Storm Water Regional Board. Because creeks are usually running at a lower elevation than sewer pipelines, no benefits can be attributed to fixing I/I problems.

Problem Areas

Problem areas are also shown and possible solutions are presented. In general, three types of problems have been found:

- The first is the nuisance ponding that is due to the lack of established surface drainage paths. The installation of concrete gutters with continuous slopes would solve most of these problems if street or storm funding is available. (Cost \$2.8 million)
- The second is the minor flooding problems that occur during or immediately after major storm events. These problems are generally caused by insufficient capacity in the underground collection system or overflows from upstream systems that do not have sufficient capacity. Priority High will correct some of these problems if funding is available.
- The third is the flooding problems due to overflows of the discharge waterways that are intended to carry water to the Bay. These conditions occur when Belmont Creek overflows its banks, which require annual maintenance such as by dredging at El Camino Real and Harbor Boulevard.

Storm Capital Improvement Plan

The Storm Drain Master Plan identifies the priority needs for the storm drain improvement projects. The total estimated cost is \$44.2 million, which is equivalent to \$1.47 million annually if spread over a 30 years program.

**Estimated Costs for 25-year Rehabilitation CIP**

<b>System</b>	<b>Near-Term</b>	<b>Mid-Term</b>	<b>Long-term</b>	<b>Total Project Category Cost</b>
Pipe Rehabilitation	\$5,794,000	\$5,560,000	\$12,734,000	\$24,088,000
Pipe Extension	\$3,397,000	\$47,000	\$11,705,000	\$15,149,000
Creek		\$2,166,000	--	\$2,166,000
Curb & Gutter	--	\$2,818,000	--	\$2,818,000
<b>Priority Total</b>	9,191,000	\$10,591,000	24,439,000	\$44,211,000

The estimated cost for the five-year capital improvement projects as proposed to the Council for FY07-08 is:

**Estimated Costs for 5-year Storm Rehabilitation CIP**

<b>Cost Item</b>	<b>FY 07/08</b>	<b>FY 08/09</b>	<b>FY 09/10</b>	<b>FY 10/11</b>	<b>FY 11/12</b>	<b>Total</b>
Storm Drain Annual Program	\$75,500	\$75,500	\$75,500	\$75,500	\$75,500	\$377,500
Storm Pipe Lining and Replacement	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	\$3,750,000
Storm Drain Capital Improvements	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	1,500,000
<b>Updated Total</b>	<b>\$1,125,500</b>	<b>\$1,125,500</b>	<b>\$1,125,000</b>	<b>\$1,250,000</b>	<b>\$1,250,000</b>	<b>\$5,627,500</b>
<b>Per Proposed Budget</b>	<b>\$1,135,000</b>	<b>\$1,135,000</b>	<b>\$1,135,000</b>	<b>\$1,135,000</b>	<b>\$2,075,000</b>	<b>\$6,615,000</b>

As discussed earlier, all the proposed projects, except the improvements in the creek, can be qualified for fixing the I/I problem. The Storm Drain Master Plan also investigated the option to repair the pipelines in-house. This will require special equipment and specially trained crews to install the pipe-lining. This option was not recommended by the consultant because of the current staff level. The estimated cost of the new equipment is \$800,000. The additional four person crew and supervision is about \$850,000/yr.

**General Plan/Vision Statement**

No Impact. The Sewer Rehabilitation Plan identifies a solution to improve the existing sewer infrastructures. The Storm Drain Master Plan identifies a solution to improve the existing storm water infrastructures.

**Funding Overview**

The purpose of the meeting is to discuss and confirm sewer rates. To assist Council in its decision we have included a summary of the consultant’s rate study which will be presented by John Farnkopf, P.E., the process required for Proposition 218 to increase sewer rates and the monies spent on capital projects with the 2001 and 2006 Sewer Bonds. After setting the proposed rates at tonight’s meeting, the Public Protest Hearing will be conducted at the July 24th meeting by NBS and available to answer any questions regarding the queries made by the public regarding the Public Protest Hearing Notice.

Consultant’s Study of Rates

Each year, John Farnkopf, P.E. performs a review of the sewer operations, maintenance and capital budgets and storm drainage activities to identify any expenses that are related to reducing Infiltration & Intrusion (I&I). Any such expenses would be included from the sewer rates because they provide benefit to sewer customers. Farnkopf has determined that such expenses are includable in the sewer rates. This should come as no surprise because storm and sanitary sewers are so closely related.

**Figure 1** shows how the stormwater program are attributable to sanitary and stormwater functions. At present, all of the stormwater program’s capital projects are related to reducing I&I to the sanitary sewers by improving drainage. Over time, this amount will decrease as the capital improvement program is completed and the debt is retired. Project Management is also entirely related to reducing I&I. Operations and NPDES activities were allocated between the sanitary and storm sewers in proportion to how much of the storm drain capital improvements are as a percent of the total storm drain system: of the total \$42.8 million in storm drain infrastructure, \$23.4 million is related to the storm drainage capital improvement program currently under way, which is 55%. The result is 73% of the stormwater program’s cost is allocable to the sanitary sewers.

**Figure 1. Allocation of Stormwater Program Costs to I&I**

<u>Cost Centers</u>	<u>Total Budget</u>	<u>Sanitary/Storm Sewer Allocation</u>			
		<u>Inflow &amp; Infiltration</u>		<u>Non-Inflow &amp; Infiltration</u>	
Capital Projects	\$558,930	100%	\$558,930	0%	\$0
Proj Mgmt (Div 4315)	\$16,649	100%	\$16,649	0%	\$0
Operations/NPDES	<u>\$895,988</u>	55%	<u>\$492,793</u>	45%	<u>\$403,194</u>
Subtotal	<u>\$1,471,566</u>	73%	<u>\$1,068,372</u>	27%	<u>\$403,194</u>
NPDES Charges Revenue	<u>-\$417,000</u>	0%	<u>\$0</u>	100%	<u>-\$417,000</u>
	<u>\$1,054,566</u>		<u>\$1,068,372</u>		<u>-\$13,806</u>

The Operations/NPDES allocation is based on the amount of the storm drain projects (\$23.4 million) that will reduce I&I as a percent of the total storm drain infrastructure (\$42.8 million), which equals 55%.

Since FY 2000-01, sewer rates have increased 5%, 6%, 8%, 12%, 16%, 16%, and 13%. These rate increases were determined using a financial model that projects expenses, revenues, and reserve fund balances to determine rate adjustments over the five-year projection period. These

rate adjustments are moderated using reserves.

Projected Rates and Bills

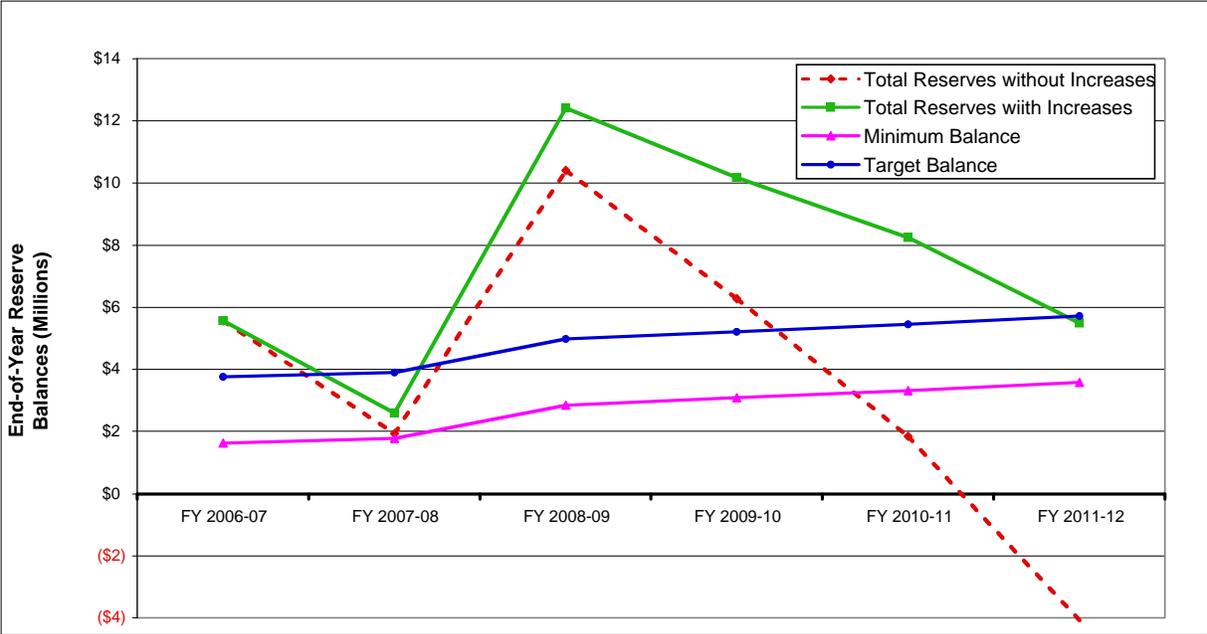
Rates for FY 2007-08 are set within the context of the financial projections through FY 2011-12. **Figure 2** indicates the annual projected revenue requirements (net of sources of non-rate revenue), revenue from rates (including rate increases), surpluses and deficits, fund balances, and rate increases. A rate increase of 12% is projected for FY 2007-08 followed by gradually decreasing rate increases.

**Figure 2. Projected Rate Increases**

	Budget	Projected				
	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12
<b>Revenue Requirements</b>	\$5,176,344	\$5,711,118	\$5,807,959	\$7,163,310	\$7,751,737	\$8,467,705
<b>Revenue From Rates</b>	\$5,365,939	\$6,039,901	\$6,677,110	\$7,247,336	\$7,866,258	\$8,538,037
<b>Surplus/(Deficit)</b>	\$189,595	\$328,783	\$869,151	\$84,026	\$114,521	\$70,331
<b>Total Fund Balance</b>	\$5,566,262	\$2,595,194	\$12,412,901	\$10,186,146	\$8,245,470	\$5,485,473
<b>Rate Increase</b>		12%	10%	8%	8%	8%

**Figure 3** shows Fund balance with and without the projected rate increases. The Fund balance jumps to \$12.4 million in FY 2008-09 because of the addition of \$11.4 million in net bond proceeds, without which the Fund balance would drop below the target level. If the City were to convert to pay-as-you-go financing, substantially larger rate increases would be required or the capital improvement program would have to be scaled back.

**Figure 3. Fund Balance With and Without Rate Increases**



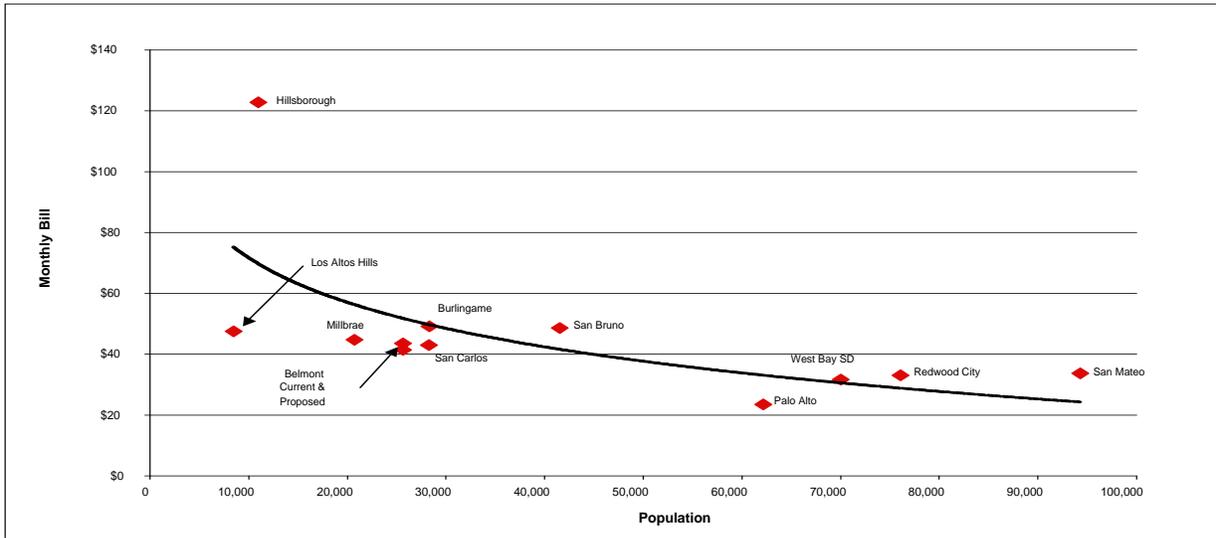
The current and projected rates, average monthly cost, average annual bills, and minimum charges by customer class are shown in **Figure 4**. The annual bill is calculated for each customer based on the customer’s metered water use for the prior December-March period, when irrigation is at its lowest.

**Figure 4. Rates, Average Annual Bills, and Minimum Charges**

Customer Classes	FY 2006-07				FY 2007-08			
	Current Rates and Bills				Current With Increase			
	Adopte Rate HCF (a)	Averag Monthly Cost	Average Annual Bill	Minimum Annua Charg	Rate HCF	Averag Monthly Cost	Average Annual Bill	Minimum Annua Charge (b)
<b>Low Strength</b>								
<b>Residentia</b>								
Single-Family Dwelling	\$5.0	\$43.50	\$522.00	\$261.00	\$5.6	\$41.44	\$497.28	\$248.64
Duplex	\$5.0	\$58.00	\$696.00	\$261.00	\$5.6	\$64.96	\$779.52	\$248.64
Multiple Family	\$5.0	\$474.50	\$5,694.00	\$261.00	\$5.6	\$531.44	\$6,377.28	\$248.64
Apartment	\$5.0	\$34.50	\$414.00	\$261.00	\$5.6	\$38.64	\$463.68	\$248.64
<b>Retail/Commercial</b>								
Motels/Hotel	\$5.0	\$1,334.00	\$16,008.00	\$261.00	\$5.6	\$1,494.08	\$17,928.96	\$248.64
Commercia	\$5.0	\$286.50	\$3,438.00	\$261.00	\$5.6	\$320.88	\$3,850.56	\$248.64
Office Buildings	\$5.0	\$369.50	\$4,434.00	\$261.00	\$5.6	\$413.84	\$4,966.08	\$248.64
Food Markets	\$5.0	\$562.00	\$6,744.00	\$261.00	\$5.6	\$629.44	\$7,553.28	\$248.64
Industria	\$5.0	\$124.50	\$1,494.00	\$261.00	\$5.6	\$139.44	\$1,673.28	\$248.64
<b>Institutions</b>								
Government Institutions	\$5.0	\$1,075.50	\$12,906.00	\$261.00	\$5.6	\$1,204.56	\$14,454.72	\$248.64
Schools	\$5.0	\$572.50	\$6,870.00	\$261.00	\$5.6	\$641.20	\$7,694.40	\$248.64
<b>High Strength</b>								
Restaurants (c)	\$8.4	\$453.37	\$5,440.39	\$2,720.20	\$9.5	\$498.32	\$5,979.89	\$2,989.94
Supermarkets (with grinders)	\$8.4	\$953.43	\$11,441.12	\$5,720.56	\$9.5	\$1,300.02	\$15,600.20	\$7,800.10

**Figure 5** compares Belmont’s single-family residential customers with neighboring communities.

**Figure 5. Monthly Residential Bills Comparison**



Proposition 218 – Public Protest Hearing to Increase Sewer Rates

On May 22nd, staff provided the Council with a summary report of the proposed sewer rates. As a result of a recent California Supreme Court decision, those rates are now subject to the 45 day noticing provisions of Proposition 218 which includes a protest hearing. In order to meet the County’s deadline for placement of the sewer charges on the FY 2008 tax roll, the notice was distributed to property owners on June 8th. The notice itemizes the proposed rates and sets July 24th for the protest hearing.

On July 24th, the Council will conduct the protest hearing and set the rates for FY 2008 and approve an emergency ordinance. The emergency ordinance allows the City to meet the County’s deadline to include the rates on the Property Tax Rolls if the property owners approved the new rates. NBS will notify Council if the rates have been approved based on the protests received by the property owners.

Capital Projects Funded by 2001 & 2006 Sewer Bonds

The City passed the 2001 & 2006 Sewer bonds to fund sewer and storm drainage capital improvement projects. The City has been able to use sewer funds for the storm drainage system

because storm drainage facilities reduce the inflow and infiltration of runoff into the sewer systems.

The following schedule shows the capital projects that have been funded to date by the 2001 & 2006 Sewer Bonds. At the end of May, there was \$5.9 million remaining to fund sewer and storm drainage capital projects. Please note that by FY 2009, the funds from these bonds will be exhausted assuming the current CIP Plan is implemented, hence the reason that a bond is planned for that year as stated earlier in consultant’s summary.

<b>Sewer and Storm Drainage Projects</b>	
<b><i>Sewer Projects:</i></b>	
	\$
27" Diary Ln Sanitary Rehab.	121,156
Administrative Charge	92,175
North Rd Pump station rehab.	13,370
Other Professional	16,377
Pump station Rehab.-Haskins	106,627
Ralston/Ciprian	435,243
S.B.S.A. Sewer	1,876,803
San Juan Force	43,257
San Juan Pump station Improvement	250,863
S.B.S.A.-Plant Upgrade	969,108
Sewer Rehab.-Basins 2, 3, 5, 6	557,750
Sewer Rehab.-Basins 4, 5, 6	1,196,955
Sewer Rehab.-Basins 9,11,12,15	233,202
Sewer Replacement Program Improvement	241,036
Sewer Study-Reevaluate	<u>498,678</u>
<b>Total of Sewer Projects</b>	<u><b>6,652,601</b></u>
 <b><i>Storm Drainage Projects:</i></b>	
Storm Drainage Rehabilitation	237,383

Water Dog Lake	55,148
Corp Yard Draining Rack	73,102
1143-1145 Alameda Storm Drain	148,702
Storm Drain Project	241,749
System Analysis	199,649
Corrugated Metal Pipe Rep	230,893
Administrative Charge	69,214
Total of Storm Drainage Projects	1,255,840

	13,869,00
Total Project Costs as of 5/31/07	0

**Sources**

**Sources:**

2001 Sewer Bond		
		\$6,791,23
Proceeds available for projects		6
Interest		449,208
2006 Sewer Bond		
Proceeds available for projects		6,457,841
Interest-as of 3/31/07		170,715

	\$
Total Sources	412,464

	\$5,960,55
Net Amount Remaining for Sewer and Stormdrain Projects	9

*Other Funding Considerations*

The City has no dedicated funding source for storm drainage capital improvement projects. As stated earlier, monies from the sewer bonds has been used because storm drainage facilities

reduce the inflow and infiltration of runoff into the City's sewer system.

The following are other funding sources that may be considered for future storm drainage capital improvement projects:

1. Development Impact Fees – impact fees are a type of fee paid by at the time of development. However, because there is limited development in the City, the amount collected from this impact fee would be insignificant.
2. Developer Contributions – contributions from developers from facilities that benefit the developer can be negotiated as condition for the development. However, because there is limited large development in the City, this form of funding will provide an insignificant contribution.
3. Assessment District Financing – Assessment districts can be formed to finance the construction cost for facilities that benefit the neighborhood. A majority vote is required to establish the district where storm drain improvements are required.
4. Storm Water Fee – A storm water fee could be used to fund the costs that are not appropriately funded by the sewer/storm drainage fee. The fee would be based on the parcel size, surface type and runoff characteristics. Based on the recommendations of the Master Plan, a thorough review of the storm drainage operating and capital costs indicates that these costs are appropriately funded from the sewer/storm drainage fee. Hence, there is no practical need for a new storm water fee at this time.

### **Fiscal Impact**

The 5-year updated CIP budget for sewers and storm drains projects total \$14,572,700. The City currently has available \$5,960,559 in bond proceeds. The rate consultant has included a bond in FY 08/09 that is sized sufficiently to fund remaining projects included in the 5-year CIP.

As required by Proposition 218 to raise sewer rates the Council has set a Public Protest Hearing on July 24<sup>th</sup>. To allow the Proposition 218 process to continue, Council will set the prosed FY 2008 sewer rates which will be considered by property owners for approval at the Public Protest Hearing.

### **Public Contact**

Posting of City Council agenda.

### **Recommendation**

It is recommended that the City Council:

#### **Wastewater Collection System**

1. Review and comment on the 2007 Sewer Rehabilitation Master Plan.
2. Direct staff to establish a funding mechanism to fund future sewer improvements using the following strategies:
  - a. Sewer Bond Sale
  - b. Set Proposed Sewer Rate Increase to be considered on July 24<sup>th</sup> at the Public Protest Hearing as required by Proposition 218
  - c. Development Impact Fees
  - d. Developer Contributions
  - e. Assessment District Financing
3. Direct staff to implement one of the following sewer lateral programs:
  - a. Establish a private lateral compliance program.
  - b. Implement external lateral reconnections or reconstruction as part of all sewer main rehabilitations.
  - c. Rehabilitate or replace the lower portion of the service laterals (between the sewer cleanout and sewer main) whenever a sewer main is rehabilitated or replaced.
  - d. Require property owners to test/inspect their sewer laterals whenever a public sewer main project is scheduled on their street.

#### **Storm Drain Collection System**

1. Review and comment on the 2007 Storm Drain Master Plan.
2. Direct staff to establish a funding mechanism to fund future storm improvements using the following strategies:
  - a. Sewer Bond Sale
  - b. Storm Fees
  - c. Development Impact Fees
  - d. Developer Contributions
  - e. Assessment District Financing

#### **Consultant's Recommendations on Sewer Rates**

1. Funding stormwater expenses. Our review of the stormwater operating and capital expenses with City Staff again confirms that these programs lead to the reduction of inflow and infiltration to the sanitary sewers and reduce pollutants in runoff that would otherwise require treatment. Because of the savings realized by sewer customers from the

stormwater programs, we confirm that it is appropriate for sewer customers to fund the stormwater programs.

2. Operating Reserve Minimum Balance. Rates appear to be set high enough to achieve the 75% minimum fund balance earlier than projected last year when the target was increased from 50% to 75% over a three-year period.
3. Rate Increase. A 12% rate increase is recommended for FY 2007-08 to fund the current level of costs, not including the proposed SBSA improvements. Funding these improvements would require an additional 65% rate increase for low-strength customers and 38% for high-strength customers.

**Alternatives**

1. Take no action.
2. Refer to staff for more questions.

**Attachments**

- A. Map Identifying Age of Pipes and Sewer Related Calls
- B. Consultant's Rate Study Report

Respectfully submitted,

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Bozhena Palatnik  
Acting Associate Engineer

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Gilbert Yau  
Senior Civil Engineer

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Raymond E. Davis III PE, POTE  
Director of Public Works

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Jack R. Crist  
City Manager

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Attachment A – Age of Sewer Pipes vs. Number of Sewer Activities per 1,000 Feet

