



CITY OF HERMOSA BEACH SEWER SERVICE CHARGES

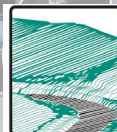
COMMENCING FISCAL YEAR 2015/2016

ENGINEER'S REPORT



June 23, 2015

Submitted by: PENCO Engineering, Inc.



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Jeffrey M. Cooper, RCE 31572
June 23, 2015



INTRODUCTION

In order to effectively establish a capital improvement program to implement the needed wastewater system improvements, an equitable method of prioritizing projects must be established. In general, sewer facilities having the greatest degree of defects and deterioration at the present time will receive higher priority than those which are in better conditions.

In 1994, an Infrastructure Management Project Report, prepared by ITX, analyzed the City's sewer network and also recommended a rehabilitation program to address the immediate needs of the sewer network.

In 2008, considering the City's 85 years old sewer network of concrete and clay pipes, City embarked on the implementation of a Sanitary Sewer Master Plan that updated the Sewer portion of the Infrastructure Management Project Report prepared by ITX in 1994. Building on the work the City had completed through the undertaking of previous studies and projects, the Sewer Master Plan was prepared based upon newly collected data from the 2008 Closed Circuit TV (CCTV) inspection of the entire sewer system. This Sewer Master Plan, dated April 2009 and revised March 2011, currently lists the existing defects and deficiencies and identifies projects for improvements for a 10 year program. At the end of the ten year rehabilitation program, CCTV inspection of the entire sewer system is recommended for monitoring any remaining or newly developed physical deterioration and maintenance problems. This would allow the City to continue with development and implementation of a cost effective rehabilitation program that will insure the long-term integrity of the sewer system and service to the community.

The City is now considering to bond for needed capital improvements using a portion of the proposed sewer service charges to pay annual debt service to address major repairs and rehabilitation of the sewer system based on the priority set in the Sewer Master plan. In support of this endeavor and per City's request, a more up to date cost to rehabilitate the sewer system over the next ten (10) years is presented in the following section of this update to the Sewer Master Plan.

SUMMARY AND RECOMMENDATIONS

This section puts forth a rehabilitation program cost estimate considering the needs of the sanitary sewer infrastructure over the next ten (10) years; however a plan is in place to implement the necessary improvements within seven years. As was previously stated, the City has undertaken rehabilitation work of its sewer system based on programs outlined in previous studies that recommended the City to plan for the eventual replacement of the entire sanitary sewer system. City is estimated to currently have 194,000 lineal feet of sanitary sewer pipes, 880 sewer manholes, one (1) main wastewater pump station and three (3) small beach restroom pumps.

In 2008, Closed Circuit TV (CCTV) inspection of the entire sewer system, that was accessible, was completed and prioritized for repair in the 2009 Sewer Master Plan. Of the 194,000 lineal feet of sanitary sewer pipes in the system, 38,000 lineal feet of sewer pipes were not accessible by CCTV due to obstructions. These pipes are likely to be badly deteriorated considering their age and limited accessibility for routine maintenance. Therefore, these pipes are considered a priority for rehabilitation and repair.

Based on existing records, 53,800 feet of pipe is considered to be in good condition and requires no rehabilitation for a minimum of ten years. The remaining 140,200 feet of pipe in the system; requires some form of rehabilitation within the next ten years.



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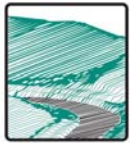
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Since 1985, approximately 180 manholes have been rehabilitated or replaced. The remaining 700 manholes are over 85 years old. Some of the existing manhole openings do not provide adequate access and hinder the City's use of closed circuit television inspection and emergency bypass equipment. Some of the manhole bottoms are deteriorated and need to be replaced. It is anticipated that in the next ten (10) years about 15% of the remaining 700 manholes will have to be reconstructed and or replaced.

An estimate of the City's sewer system rehabilitation cost over the next seven (7) years follows. An inflation rate of 2% per year as well as 10% contingency and 20% soft costs (Design and Inspection) is incorporated.¹

¹ Information from the City of Hermosa Beach Master Plan prepared by MBF Consulting.



REHABILITATION COST ANALYSIS (over next 7 years)

Total pipe inventory	194,000 ft.
Pipes in good condition for next ten years	53,800 ft.
Pipes to be rehabilitated	$(194,000 - 53800) = 140,200$ ft.
Pipe Rehabilitation Unit Cost (based on past 3 years average cost)	50.00 \$/ft.
Pipe Rehabilitation Quantity per Year (spread equally over 7 years)	$140,200/7=20,029$ ft. /yr.
Pipe Rehabilitation Cost (1 st year) - assume 2% inflation	$(20,029) (50.0) (1.02) = \$1,021,479$
Pipe Rehabilitation Cost (2 nd year) - assume 2% inflation	$(20,029) (50.0) (1.02)^2 = \$1,041,909$
Pipe Rehabilitation Cost (3 rd year) - assume 2% inflation	$(20,029) (50.0) (1.02)^3 = \$1,062,747$
Pipe Rehabilitation Cost (4 th year) - assume 2% inflation	$(20,029) (50.0) (1.02)^4 = \$1,084,002$
Pipe Rehabilitation Cost (5 th year) - assume 2% inflation	$(20,029) (50.0) (1.02)^5 = \$1,105,682$
Pipe Rehabilitation Cost (6 th year) - assume 2% inflation	$(20,029) (50.0) (1.02)^6 = \$1,127,793$
Pipe Rehabilitation Cost (7 th year) - assume 2% inflation	$(20,029) (50.0) (1.02)^7 = \$1,150,351$
Manholes -15% need reconstruction	$(700) (.15) (\$8,000) = \$840,000$
TOTAL CONSTRUCTION COST	\$8,433,963
Contingency -10%	\$843,396
Design & Inspection Costs-20%	\$1,686,793
TOTAL REQUIRED BUDGET	\$10,964,152²

² Information from the City of Hermosa Beach Master Plan prepared by MBF Consulting.



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This Engineer's Report ("Report") has been prepared for the City of Hermosa Beach commencing in Fiscal Year 2015/2016 and consists for four (4) parts:

PART A – PLANS AND SPECIFICATIONS

Contains a summary of the improvements within the City to be maintained and the proposed services and activities to be funded by the sewer services charges.

PART B – ESTIMATE OF COST

Identifies the estimated cost of the services and/or maintenance to be provided by the City, including annual service and maintenance expenses; debt service for capital outlays, repairs, rehabilitation or replacement of equipment or facilities; as well as operational and incidental costs and expenses in connection therewith.

PART C – CHARGE CALCULATION AND PROPOSED CHARGES

Outlines the basis on which the annual charges will be calculated for each parcel within the City.

PART D – BOUNDARY DIAGRAM

Contains a Diagram showing the exterior boundaries of the territory within the City of Hermosa Beach subject to annual sewer services charges, which is coterminous with the boundaries of the City of Hermosa Beach. Parcel identification, the lines and dimensions of each lot, parcel and subdivision of land within proposed sewer services boundary described herein are identified and correspond to the Los Angeles County Assessor's Parcel Maps for said parcels as they existed at the time this Report was prepared and shall include all subsequent subdivisions, lot-line adjustments or parcel changes therein. Reference is hereby made to the Los Angeles County Assessor's maps for a detailed description of the lines and dimensions of each lot and parcel of land within the City of Hermosa Beach and subject to the proposed annual sewer services charges to be levied on behalf of the City.



PART A – PLANS AND SPECIFICATIONS

CITY SEWER IMPROVEMENTS³

The sewer improvements within the City of Hermosa Beach for which the City proposes to be responsible for maintenance and operation of the sewer system as well as levy and collect charges to maintain such improvements, includes, but is not limited to, and may be generally described as follows:

- Approximately 194,000 feet of main sewer lines consisting of the following:
 - 28,868 linear feet (LF) of 6" sewer lines;
 - 149,993 linear feet (LF) of 8" sewer lines;
 - 4,204 linear feet (LF) of 10" sewer lines;
 - 5,071 linear feet (LF) of 12" sewer lines;
 - 1,254 linear feet (LF) of 15" sewer lines;
 - 1,150 linear feet (LF) of 18" sewer lines;
 - 805 linear feet (LF) of 21" sewer lines; and
 - 2,655 linear feet (LF) of 24" sewer lines.
- 880 Sewer Manholes
- Four Lift/Pump station: 394 – 21 inch and 2,629 – 24 inch
 - Three (3) Beach restroom pumps
 - The Strand - 34th

The specific plans and specifications for the city-owned sewer improvements are incorporated and contained in the sewer construction plans and specifications for the various sewer segments of the sewer system within the City of Hermosa Beach. These plans and specifications are voluminous and are not bound in this report but by this reference are incorporated and made a part of this report. The specific plans and specifications for the city-owned sewer improvements are on file in Public Works at the City.

OPERATIONS, MAINTENANCE AND SERVICES

The City of Hermosa Beach proposes to collect funds to cover the expenses for the overall operation, maintenance and servicing of the city-owned sewer system as well as funds that may be necessary to pay for capital outlay expenditures including repairs, rehabilitation or replacement of equipment or facilities. The following is a summary of the services and activities associated with the maintenance, operation, servicing and capital outlay expenditures for the City's sewer system. The frequency, extent and/or level of the services and activities identified below may be modified based on available funding and priorities as determined by the City:

Preventive Maintenance

One of the City's primary objectives for assuming responsibility and management of the operation and maintenance of the City's sewer system is to provide a cost-effective and efficient program that will ensure the integrity and long term stability of the sewer system. This is best accomplished by implementing preventive maintenance program that addresses the entire sewer system. This preventive maintenance should include, but is not limited to, regular inspection of the sewer manholes, pipes, siphons, pump stations and related facilities as well as regular cleaning,

³ Information from the City of Hermosa Beach Master Plan prepared by MBF Consulting.



repair, and related activities as warranted. These activities are intended to detect and correct potential problems before they develop into major problems. The following is a general summary of those preventive maintenance activities.

- **Sewer Line and Manhole Inspection** - The interior and exterior of manholes to be inspected (at least once a year) for any structural defects, sewage flow condition, presence of vermin or rodents, deleterious industrial waste, odors, and any signs of unusual settlement around or evidence of debris within the manholes and along sewer alignments.
- **Sewer Line Cleaning** - Sewer lines will be videoed and cleaned by hydro jet or rodding as needed based on a scheduled that ensures each sewer line is addressed at least every three-five years. The actual frequency of cleaning may vary based on inspection records. Sewer lines known to cumulate grease, garbage grinds, or sand may be addressed more frequency with possible monthly, quarterly, or semi-annual cleaning schedule. Those areas prone to root growth may be periodically rodded or chemically treated.
- **Sewage Pump Stations** - All pump stations are equipped with telemetry/alarm systems and will be inspected at least once a week. Pumps and motors will be inspected and lubricated, control mechanisms and valves will be checked and adjusted as necessary. Pump station equipment will be repaired or modified as required.
- **Gas Trap Manholes and Siphons** - Inspected and cleared of any stoppages or flow restrictions on a monthly basis.
- **Drop Manholes** - Inspected and cleared of stoppages and flow restrictions on variable frequencies based on prior inspection records.
- **Vermin and Rodent Control** - On an as-needed basis, sewers infested by insects will be chemically treated, and those infested by rodents will be baited.

Capital Outlay, Rehabilitation and Replacement

The City plans to bond for needed capital improvements using a portion of the proposed sewer service charge to pay annual debt service to address major repairs and rehabilitation of the sewer system on a priority basis. However, in addition the City plans to develop and implement a long-term replacement and refurbishment program that will ensure not only the short term integrity of the sewer system, but also the long-term integrity and continue service to the community. As the city's sewer collection system ages, the risk of failure will ultimately increase due to deterioration, collapse, blockage, excessive inflow and infiltration, overflow, and other potential service interruptions. Therefore, while the scheduling of major repairs, rehabilitation projects and replacement projects will ultimately be implemented based on available funding, highest priority will be given to structural deficiency. However, by developing a long-term replacement and refurbishment program with the goal of eventually addressing the entire system, the City may also address hydraulic deficiency in addition to the structural deficiency.

Sewer System Management

- **Mapping** - As-built plans of the sewer facilities will be maintained by the City. Data on the plans, such as system locations and alignment, pipe material, size, etc., will be maintained and stored electronically by the City. These maps will be available and utilized by the field crews for work scheduling and responding to emergencies, and will be updated to reflect any changes in the system.



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- Work Scheduling - Field crew activities will be recorded and tract by the City utilizing various forms including, but not limited to service requests, cleaning reports, sewer maintenance daily reports, overflow reports forms, project work orders, etc.



PART B – ESTIMATED COST OF THE IMPROVEMENTS

The net amount to be charged on the lots or parcels within the City is based on an initial estimate of the annual cost and expenses for the maintenance, operation, servicing of the City's existing sewer system improvements as well as the funding deemed appropriate and necessary for future capital improvements and reserves (Replacement funding). It is estimated that sewer capital improvements are needed at \$11 million for the current planning period.

It is the City's plan to spend \$3 Million in cash plus finance an additional \$8 Million to fund needed improvements.

USE OF REVENUE	
O & M/year (range)	\$250,000 - \$450,000
Available for Improvement Financing / Year	\$700,000 - \$900,000
\$ Charge/1 ESU (Single Family Resident)	\$115/year



PART C – CHARGE CALCULATION AND PROPOSED CHARGES

The sewer service charge for 2015/2016 is being established by the City. The charge multiplied by the Equivalent Sewer Units assigned to each parcel will be the charge for each parcel. The Equivalent Sewer Unit (ESU) determination for each parcel is described below.

LAND USE	ESU
Single Family	1.0
Condominiums	1.0
Multi Family	0.6

Sewage Generation Factors

The City of Hermosa Beach updated their sanitary sewer master plan in April 2009 and again in March 2011, both were prepared by MBF Consulting.

A numeric relationship between the various lots and parcels is necessary for the allocation of the costs of sewer maintenance among the lots and parcels. It is customary to relate the various land uses to the single family residential lot which is established as one Equivalent Sewage Unit (ESU), and all other lots and parcels are related proportionally to the single family residential lot. Based on sewage generation rates, a typical single family lot generates 260 gallons per day in Los Angeles County⁴. Therefore, for purposes of comparison of the various land uses for lots and parcels, 260 gallons per day is designated as the equivalent of 1 ESU.

Non-residential Land Uses

The ESU for various non-residential land uses is calculated by the following equation:

$$\text{ESU} = [\text{Commercial Water Consumption GPD}] / 260 \text{ GPD per SFRU}$$

Single family residential units will be charge at 1.0 ESU per parcel, the multi-family residential units will be charged at 0.6 ESU per parcel and condominiums at 1.0 ESU per parcel as they are similar to single family residents in use. For the non-residential, it was allocated by water consumption values for all of Hermosa Beach from information provided by California Water Services Company annually. Vacant parcels of any use are charged 0.5 ESU.

⁴ West Hollywood Sewer Charge Report.



Government Facilities and Parcels

There are several parcels that receive sewer service that are owned and operated by local government. Proposition 218 requires that each parcel not pay more than the proportional cost of providing the service. Therefore, because these government parcels use the sewer service, they are included in the computation of the charge and are charged.

CALCULATION OF THE CHARGE

The sewer service charge is based on the direct cost of providing the service. These costs include staff, rent, utilities, and other costs as needed for sewer repair and improvements as described earlier in this report.

The \$115 charge per ESU for 2015/2016 as adopted by the City Council on April 28, 2015 is multiplied by the ESUs for each residential parcel and by water consumption for non-residential to determine the charge for each parcel. The proposed 2015/2016 revenue for the sewer services (as shown previously) will be funded by the total of the charges from the parcels.

ANNUAL INCREASES

Because the costs of providing the sewer service may increase over time, beginning July 1, 2016 and each July thereafter, the charge per ESU established in 2015/2016 shall be increased by the annual increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers in the Los Angeles-Riverside-Orange County, CA Area (CPI), including all items as published by the US Bureau of Labor Statistics as of March 1 of each year, not to exceed two percent (2%) per year. The annual increases can only be authorized for a five year period. To increase the charge after the initial five year period, would require a new Proposition 218 hearing.

PROPOSITION 218 CONSIDERATIONS

Proposition 218, which the voters of the State of California passed on November 5, 1996, contains requirements for the imposition of a fee or charge for property related services. Requirements for fees and charges are contained in Section 6 of Article XIII D.

Paragraph (b) describes the requirements for new, existing, or increased fees and charges, as:

- (1) Revenues shall not exceed the funds required to provide the service.
- (2) Revenues shall not be used for any other purpose.
- (3) The amount of the fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- (4) No fee or charge may be imposed unless the service is actually used by or immediately available to the owner of the property in question.
- (5) No fee or charge shall be imposed for general governmental services, i.e., police, ambulance, library, where the service is available to the public at large in substantially the same manner as it is to the property owners.



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This report and recommended charges complies with all five of these requirements.

1. Revenues generated by this charge will not exceed funds required to provide sewer services and shall not be used for any other purpose, besides what has been described herein.
2. The sewer charge is the proportional cost of provided service to the parcels in the City and the charge is for actual use or is immediately available to the property in question.

Due to the number of parcels in the City of Hermosa Beach that will be subject to the Sewer Service Charge, the Parcel Charges (a listing of the Assessor's Parcel Numbers to be levied the proposed charge amounts) is not contained in this Report, but will be filed with the City Clerk in an electronic format prior to the public hearing regarding the levy and collection of the charges for Fiscal 2015/2016. The proposed Parcel Charge Roll, after being filed with the City Clerk, shall be available for public inspection in the City Clerk's Office during normal business office hours. However, the following tables provide a summary of the estimated ESUs by land use anticipated for Fiscal Year 2015/2016, per the County's assigned land use classification of each parcel within the City that was available at the time this Report was prepared.



EXAMPLES OF ESUs BY LAND USE - Residential

Residential Parcel Breakdown by Land Use			
Code	Land Use Description	Total Parcels	Total ESU's
100	1 Unit	2899	2899.00
101	1 Unit, Pool	81	81.00
103	1 Unit	9	9.00
104	1 Unit, Therapy Pool	160	160.00
108	1 Unit	3	3.00
109	1 Unit, Other Improvements	9	9.00
110	1 Unit	44	44.00
111	Residential	5	5.00
113	Residential	1	1.00
114	Residential	2	2.00
120	1 Unit	1	1.00
200	2 Units, 1-4 Stories	899	1078.80
201	2 Units, 1-4 Stories, Pool	7	8.40
204	2 Units, Therapy Pool	7	8.40
300	3 Units, 1-4 Stories	156	282.00
304	Residential	1	1.00
400	4 Units, 1-4 Stories	155	372.00
500	5+ Units, 1-4 Stories	164	801.60
501	5+ Units, 1-4 Stories, Pool	8	389.40
510	5+ Units	2	6.60
900	Mobile Home Park	3	84.60
010C	1 Unit, Condominium	1491	1491.00
010D	1 Unit, Planned Community	102	102.00
010E	1 Unit, Condo Conversion	103	103.00
010V	Vacant Residential	69	34.50
01DC	1 Unit, Condominium	5	5.00
020C	1 - 4 Units, Condominium	11	31.00
020V	2 Units, Vacant	1	0.50
030C	3 Units, 1-4 Stories, Condominium	1	3.00

Totals Parcels	6,399
Total ESU's	8,016.80



EXAMPLES OF ESUs BY LAND USE - Non-Residential

Non-Residential Parcel Breakdown by Land Use			
UseCode	UseCodeDesc	Parcel Count	Total ESU's
1100	Store, 1 Story	88	84.52
1102	Store, 2 Stories	2	6.61
1200	Store and Office, 1 Story	18	52.71
1210	Store and Residence, 1 Story	30	45.38
1212	Store and Residence, 2 Stories	2	0.54
1340	Retail Warehouse, 1 Story	1	0.30
1400	Supermarket, 12000+ SqFt, 1 Story	1	3.08
1420	Supermarket, Under 6000 SqFt, 1 Story	2	0.32
1500	Shopping Center, Community, 1 Story	10	68.42
1700	Office Building, 1 Story	56	18.19
1702	Office Building, 2 Stories	4	3.67
1703	Office Building, 3 Stories	5	12.86
1820	Motel, 1-49 Rooms, 1 Story	3	13.68
1830	Motel, 50+ Rooms, 1 Story	3	66.78
1900	Professional Building, 1 Story	3	1.97
1902	Professional Building, 2 Stories	1	3.26
1910	Professional Building, Med/Dental, 1 Story	3	2.29
1920	Professional Building, Veterinary, 1 Story	1	0.39
2100	Restaurant, Lounge or Tavern, 1 Story	26	43.71
2102	Restaurant, Lounge or Tavern, 2 Stories	1	12.38
2110	Fast Food, Walk Up, 1 Story	2	6.79
2120	Fast Food, Auto Oriented, 1 Story	1	2.77
2300	Bank or Savings and Loan, 1 Story	3	0.98
2400	Service or Repair Shop, 1 Story	1	0.05
2500	Service Station, 1 Story	1	0.82
2600	Auto Body and Fender, 1 Story	25	10.40
2601	Auto Sales & Service	1	0.32
2620	New Car Sales and Service, 1 Story	2	0.83
2630	Car Wash, 1 Story	1	25.16
2700	Parking Lot, Patron/Employee, 1 Story	46	20.02
3100	Light Manufacturing, 1 Story	28	4.08
3350	Mini Public Storage, 1 Story	1	0.32
6400	Clubs, Lodge Halls, Fraternal Orgs, 1 Story	2	0.95
7100	Churches, 1 Story	7	13.96
7200	Private Schools, 1 Story	4	4.14
7500	Home For Aged and Others, 1 Story	1	1.34
8800	Government, Unassigned	52	16.69
100V	Commercial, Unassigned, Vacant	30	15.00
110C	Store, Condominium	4	0.24
17TO	Commercial	1	2.36
270V	Parking Lot, Vacant	1	0.50
300V	Industrial, Vacant	3	1.50
880V	Government Owned, Vacant	5	2.50
XXXX	Unclassified	203	1,343.63

Total Parcels	685
Total ESU's	1916.41



PART D – BOUNDARY DIAGRAM

The parcels within the Sewer Service Charge Area consist of all lots, parcels and subdivisions of land within the City of Hermosa Beach. A copy of the Boundary Diagram is provided below.

CITY OF HERMOSA BEACH BOUNDARY DIAGRAM

