

In the opinion of Orrick, Herrington & Sutcliffe LLP, Bond Counsel to the City and County, based upon an analysis of existing laws, regulations, rulings and court decisions, and assuming, among other matters, the accuracy of certain representations and compliance with certain covenants, interest on the Series 2010 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986. In the further opinion of Bond Counsel, interest on the Series 2010 Bonds is not a specific preference item for purposes of the federal individual or corporate alternative minimum taxes, although Bond Counsel observes that such interest is included in adjusted current earnings when calculating corporate alternative minimum taxable income. The Series 2010 Bonds and the income therefrom are exempt from all taxation by the State of Hawaii or any county or other political subdivision thereof, except inheritance, transfer, estate and certain franchise taxes. Bond Counsel expresses no opinion regarding any other tax consequences related to the ownership or disposition of, or the accrual or receipt of interest on, the Series 2010 Bonds. See "TAX MATTERS" in this Official Statement.

\$100,755,000

**City and County of Honolulu
Wastewater System Revenue Bonds
(Second Bond Resolution)
Junior Series 2010A Bonds**

Dated: Date of Delivery

Due: July 1, as shown on inside cover

The City and County of Honolulu Wastewater System Revenue Bonds (Second Bond Resolution), Junior Series 2010A Bonds (the "Series 2010 Bonds"), are issuable in fully registered form and when issued will be registered initially in the name of Cede & Co., as nominee of The Depository Trust Company ("DTC"), New York, New York. So long as DTC or its nominee is the registered owner of the Series 2010 Bonds, purchases of the Series 2010 Bonds will be made in book-entry form only, through brokers and dealers who are, or who act through, DTC participants; beneficial owners of the Series 2010 Bonds will not receive physical delivery of Bond certificates; payment of the principal of and interest and any premium on the Series 2010 Bonds will be made directly to DTC or its nominee; and disbursement of such payments to DTC participants will be the responsibility of DTC and disbursement of such payments to the beneficial owners will be the responsibility of DTC participants. Purchases of the Series 2010 Bonds may be made in the denomination of \$5,000 or any integral multiple thereof.

The Series 2010 Bonds bear interest payable on January 1 and July 1 of each year, commencing January 1, 2011. The Series 2010 Bonds are subject to redemption prior to the stated maturity thereof as described herein. The proceeds of the Series 2010 Bonds will be used to refund certain outstanding wastewater system revenue bonds of the City and County of Honolulu (the "City and County") and to pay the costs of issuance of the Series 2010 Bonds.

The Series 2010 Bonds will be issued by the City and County under a bond resolution, as supplemented (the "Bond Resolution"), pursuant to which the City and County has previously issued bonds and may issue additional bonds on a parity with the Series 2010 Bonds, as described herein (collectively with the Series 2010 Bonds, the "Bonds"). The Series 2010 Bonds are limited special obligations of the City and County payable solely from, and secured solely by, a pledge of proceeds of Bonds held or set aside under the Bond Resolution, the Net Revenues, and certain funds and accounts established by the Bond Resolution, on a parity with all other Bonds issued under the Bond Resolution. Such pledge of the Net Revenues is junior and subordinate to the pledge of Net Revenues by the City and County in respect of bonds which have been and may in the future be issued under the First Bond Resolution referred to herein. **The Bonds are not a general or moral obligation of the State of Hawaii or any political subdivision thereof, including the City and County, and the faith and credit of the State of Hawaii or any political subdivision thereof, including the City and County, are not pledged to the payment of the principal of, premium, if any, or interest on the Bonds, and no holder of the Bonds shall have the right to compel the exercise of the taxing power of the State of Hawaii or any political subdivision thereof, including the City and County, in connection with any default with respect to the Bonds.**

This cover page contains certain information for quick reference only. It is not a summary of the bond issue. Prospective investors must read the entire Official Statement (including the Appendices) to obtain information essential to the making of an informed investment decision.

The Series 2010 Bonds are offered when, as and if issued and received by the Underwriters, and are subject to the approval of legality by Orrick, Herrington & Sutcliffe LLP, Bond Counsel to the City and County. Certain legal matters will be passed upon for the Underwriters by their counsel, McCarriston Miller Mukai MacKinnon LLP, Honolulu, Hawaii. It is expected that the Series 2010 Bonds in definitive form will be available for delivery to DTC, in New York, New York, on or about November 17, 2010.

BofA Merrill Lynch

Piper Jaffray & Co.

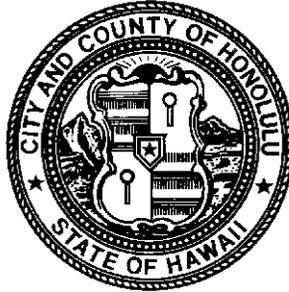
MATURITY SCHEDULE

\$100,755,000
City and County of Honolulu
Wastewater System Revenue Bonds
(Second Bond Resolution)
Junior Series 2010A Bonds

<u>Year</u> <u>(July 1)</u>	<u>Principal</u> <u>Amount</u>	<u>Interest</u> <u>Rate</u>	<u>Yield</u>	<u>CUSIP</u> [†] <u>(438701)</u>
2024	\$18,370,000	5.000%	3.740%	QV9
2025	19,215,000	4.000	4.000	QW7
2026	20,100,000	5.000	3.900	QX5
2027	21,080,000	4.500	4.080	QY3
2028	21,990,000	4.000	4.150	QZ0

[†] Copyright 2010, American Bankers Association. CUSIP data provided by Standard & Poor's CUSIP Service Bureau, a division of The McGraw-Hill Companies, Inc. CUSIP Numbers are provided for convenience of reference only. Neither the City and County nor the Underwriters take any responsibility for the accuracy of such numbers.

City and County of Honolulu
State of Hawaii
(Incorporated 1907)



MAYOR

Peter B. Carlisle

CITY COUNCIL

Todd K. Apo
Chair and Presiding Officer

Nestor R. Garcia
Vice-Chair

Ikaika Anderson
Floor Leader

Romy M. Cachola

Donovan M. Dela Cruz

Lee D. Donahue

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ACTING DIRECTOR OF BUDGET AND FISCAL SERVICES

Michael R. Hansen

ACTING DIRECTOR OF ENVIRONMENTAL SERVICES

Timothy E. Steinberger

DEPUTY DIRECTORS OF ENVIRONMENTAL SERVICES

Manuel Lanuevo

Ross S. Tanimoto

ACTING CORPORATION COUNSEL

Carrie K. S. Okinaga

BOND COUNSEL

Orrick, Herrington & Sutcliffe LLP
San Francisco, California

CAUTIONARY STATEMENTS REGARDING
FORWARD-LOOKING STATEMENTS IN
THIS OFFICIAL STATEMENT

Certain statements included or incorporated by reference in this Official Statement constitute forward-looking statements. Such statements are generally identifiable by the terminology used such as “plan,” “expect,” “estimate,” “project,” “budget” or other similar words. The achievement of certain results or other expectations contained in such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements described to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. No assurance is given that actual results will meet the forecasts of the City and County in any way, regardless of the level of optimism communicated in the information. The City and County is not obligated to issue any updates or revisions to the forward-looking statements if or when its expectations, or events, conditions or circumstances on which such statements are based occur.

THE ACHIEVEMENT OF CERTAIN RESULTS OR OTHER EXPECTATIONS CONTAINED IN SUCH FORWARD-LOOKING STATEMENTS INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES AND OTHER FACTORS WHICH MAY CAUSE ACTUAL RESULTS, PERFORMANCE OR ACHIEVEMENTS DESCRIBED TO BE MATERIALLY DIFFERENT FROM ANY FUTURE RESULTS, PERFORMANCE OR ACHIEVEMENTS EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS. THE CITY AND COUNTY DOES NOT PLAN TO ISSUE ANY UPDATES OR REVISIONS TO THOSE FORWARD-LOOKING STATEMENTS IF OR WHEN ANY OF ITS EXPECTATIONS, OR EVENTS, CONDITIONS OR CIRCUMSTANCES ON WHICH SUCH STATEMENTS ARE BASED OCCUR.

* * * * *

The information contained in this Official Statement has been obtained from the City and County of Honolulu and other sources deemed reliable. No guaranty is made, however, as to the accuracy or completeness of such information. The Underwriters have provided the following sentence for inclusion in this Official Statement. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information. This Official Statement, which includes the cover page and appendices, does not constitute an offer to sell the Series 2010 Bonds in any state to any person to whom it is unlawful to make such offer in such state. No dealer, salesman or other person has been authorized to give any information or to make any representations, other than those contained in this Official Statement, in connection with the offering of the Series 2010 Bonds, and if given or made, such information or representations must not be relied upon. The information contained herein is subject to change without notice and neither the delivery of this Official Statement nor any sale hereunder at any time implies that the information contained herein is correct as of any time subsequent to its date.

THE SERIES 2010 BONDS HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, IN RELIANCE UPON AN EXEMPTION CONTAINED IN SUCH ACT. THE SERIES 2010 BONDS HAVE NOT BEEN REGISTERED OR QUALIFIED UNDER THE SECURITIES LAWS OF ANY STATE. IN CONNECTION WITH THIS OFFERING THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE SERIES 2010 BONDS OFFERED HEREBY AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

TABLE OF CONTENTS

	<u>Page</u>		<u>Page</u>
INTRODUCTORY STATEMENT	1	Management’s Discussion of Financial Performance	30
PLAN OF REFUNDING.....	3	Billing and Collection	31
APPLICATION OF PROCEEDS.....	4	Ten Largest Customers	31
THE SERIES 2010 BONDS.....	4	Rates and Charges	37
General.....	4	DEBT AND FINANCIAL POLICIES AND INDEBTEDNESS.....	43
Optional Redemption	4	General.....	43
Notice of Redemption	4	Investments	43
Effect of Redemption	5	Indebtedness.....	43
Selection for Redemption.....	5	FINANCIAL STATEMENTS.....	46
Book-Entry System.....	5	PENDING LITIGATION.....	49
SECURITY FOR THE BONDS.....	7	RATINGS.....	50
General.....	7	UNDERWRITING	50
Funds and Accounts	8	TAX MATTERS	51
Common Reserve Subaccount	9	APPROVAL OF LEGAL PROCEEDINGS.....	52
Rate Covenant.....	11	CONTINUING DISCLOSURE.....	52
Additional Bonds and Refunding Bonds.....	12	VERIFICATION	53
Proposed Amendments to Bond Resolution.....	13	MISCELLANEOUS.....	53
THE CITY AND COUNTY AND THE DEPARTMENT.....	14	Appendix A: Economic and Demographic Factors	
Purpose and Powers	14	Appendix B: Consulting Engineer’s Study	
Department Work Force.....	15	Appendix C: Summary of Certain Provisions of the Bond Resolution	
Department Principal Officers	19	Appendix D: Proposed Form of Continuing Disclosure Certificate	
THE WASTEWATER SYSTEM.....	19	Appendix E: Proposed Form of Opinion of Bond Counsel	
Introduction.....	19		
General Description of Existing Facilities	20		
Environmental Compliance.....	21		
Projected Customer Growth.....	22		
CAPITAL IMPROVEMENT PROGRAM	23		
1995 Consent Decree	23		
Criteria for Ranking CIP Projects by Priority	24		
Classification of CIP Projects	24		
2011-2015 Capital Improvement Program.....	25		
2011-2020 Capital Improvement Program.....	26		
2001-2020 Capital Improvement Program.....	26		
HISTORICAL AND PROJECTED REVENUES, EXPENSES AND COVERAGES	28		
CONCLUSIONS OF CONSULTING ENGINEER	29		
CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION AND STATISTICS	30		

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OFFICIAL STATEMENT

\$100,755,000
City and County of Honolulu
Wastewater System Revenue Bonds
(Second Bond Resolution)

Junior Series 2010A Bonds

INTRODUCTORY STATEMENT

This Official Statement, which includes the cover page and the appendices, provides certain information in connection with the issuance by the City and County of Honolulu (the “City and County”) in the State of Hawaii of \$100,755,000 aggregate principal amount of Wastewater System Revenue Bonds (Second Bond Resolution), Junior Series 2010A Bonds (the “Series 2010 Bonds”). The Series 2010 Bonds are to be issued under and secured by the Second Wastewater Revenue Bond Resolution adopted by the City Council of the City and County on November 10, 1998 (as amended and supplemented from time to time, the “Bond Resolution”), and the Series 2010 Resolution adopted by the City Council of the City and County on October 13, 2010 (the “Series 2010 Resolution”). The Series 2010 Bonds are also to be issued under a certain Bond Series Certificate of the City and County dated the date of this Official Statement, relating to the Series 2010 Bonds (the “Series 2010 Certificate”).

The capitalization of any word herein not conventionally capitalized indicates that such word is defined in the Bond Resolution, the Series 2010 Certificate or this Official Statement. A glossary of certain terms used in this Official Statement and the Bond Resolution is set forth in Appendix C under “Certain Definitions.”

The proceeds of the Series 2010 Bonds will be used to refund certain “Refunded Bonds” (as hereinafter defined) and to pay the costs of issuance of the Series 2010 Bonds. See “PLAN OF REFUNDING” and “APPLICATION OF PROCEEDS” herein.

The Series 2010 Bonds are the sixth series of bonds (each a “Series” and collectively, the “Bonds” or the “Junior Bonds”) issued under and pursuant to the Bond Resolution and will be secured by and entitled to the protection of the Bond Resolution on a parity with all Bonds heretofore issued and to be hereafter issued under and pursuant to the Bond Resolution. The Bonds are limited special obligations of the City and County payable solely from, and secured solely by a pledge of, proceeds of Bonds held or set aside under the Bond Resolution, the Net Revenues, and certain funds and accounts established by the Bond Resolution. Such pledge of the Net Revenues is junior and subordinate to the pledge of the Net Revenues by the City and County to secure obligations issued under and pursuant to the First Bond Resolution, as described below, but is senior and superior to any pledge of Net Revenues to secure obligations under any other bond resolution. See “SECURITY FOR THE BONDS.”

The City and County currently has \$437,282,890 principal amount of Junior Bonds outstanding. The City and County also has \$809,655,000 principal amount of bonds outstanding secured by Net Revenues on a senior basis to the Junior Bonds (collectively, the “Senior Bonds”). The outstanding Senior Bonds were issued, and additional Senior Bonds may be issued, by the City and County under a First Wastewater Revenue Bond Resolution adopted by the City and County on November 10, 1998 (as amended and supplemented from time to time, the “First Bond Resolution”). See “DEBT AND FINANCIAL POLICIES AND INDEBTEDNESS – Indebtedness” herein.

Concurrently with the issuance of the Series 2010 Bonds, the City and County is expected to issue \$204,435,000 aggregate principal amount of additional Senior Bonds, designated as its Wastewater System Revenue Bonds (First Bond Resolution), Senior Series 2010, consisting of Subseries 2010A Bonds and Subseries 2010B Build America Bonds (Taxable) (collectively, the “Senior Series 2010 Bonds”), to fund the costs of certain additions and improvements to the City and County’s Wastewater System and to refund certain outstanding Senior Bonds.

Carollo Engineers, P.C. (the “Consulting Engineer”), has projected revenues, expenses and coverages for the Wastewater System for the Fiscal Years 2011-2020, inclusive. The projections are based on

inflated dollars (i.e., adjusted from 2011 dollars). The projections indicate that with respect to the Fiscal Years 2011-2020 inclusive, the City and County can (i) issue the Senior Series 2010 Bonds to finance \$200 million of necessary additions and improvements to the Wastewater System, to fund the Separate Series Reserve Accounts for the Senior Series 2010 Bonds, and to pay the costs of issuing the Senior Series 2010 Bonds; (ii) finance an additional \$3.65 billion of improvements to the Wastewater System from proceeds of additional Senior Bonds and Subordinate Obligations to be hereafter issued, proceeds of Reimbursable Obligations previously issued and currently available, proceeds of Senior Bonds and Subordinate Obligations previously issued and currently available, the Net Revenues and Wastewater System Facility Charges over the ten-year period; and (iii) fully meet all reserve funding and coverage requirements under the First Bond Resolution and the Bond Resolution through an adopted increase of sewer rates and charges of 15% in Fiscal Year 2011, and planned rate increases of between 4% and 10% from Fiscal Year 2012 through Fiscal Year 2020, and (iv) meet all reserve funding and coverage requirements by modifying adopted or projected sewer rates to enable financing of prospective requirements of pending revisions to the City and County's consent decree or other regulatory enforcement actions, and (v) implement an approved 3% increase of Wastewater System Facility Charges in Fiscal Year 2011 and additional planned increases of 3% in each of the Fiscal Years thereafter through June 30, 2020. The monthly residential wastewater bill for a customer with metered water consumption of 10,000 gallons, and billed for 7,000 gallons of wastewater volume, is expected to increase from \$90.96 to \$157.84 between Fiscal Year 2011 and Fiscal Year 2020. The revenues from the Wastewater System Facility Charge, which are not included in calculations of Revenues under the Bond Resolution, were approximately 2% of total revenues of the Wastewater System in Fiscal Year 2010 and are projected to remain at approximately 2% through Fiscal Year 2020. The Consulting Engineer has concluded that current customer rates and charges for the City and County are comparable to other similar wastewater agencies in the Western United States. See "CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION AND STATISTICS — Rates and Charges" and Appendix B, "Consulting Engineer's Study" for a discussion of the Rate Ordinance.

The Department of Environmental Services (the "Department") has the full and complete authority to manage, control and operate the Wastewater System owned or managed and under the jurisdiction of the City and County, including all materials, supplies, equipment and properties used or useful in connection with the Wastewater System. The Department was created July 1, 1998, as part of a city-wide reorganization. Previously, the Department of Wastewater Management, created by a City Charter change effective July 1, 1993, provided operation, maintenance, planning, design and construction of wastewater facilities in the City and County. The City Charter and Chapter 49, Hawaii Revised Statutes (the "Act") empower the City and County to issue revenue bonds in its name for the purposes of the Wastewater System. See "THE CITY AND COUNTY AND THE DEPARTMENT."

As of June 30, 2010, the Wastewater System serviced approximately 143,500 separate accounts and a population of approximately 640,000, which is approximately 71% of the total population of the City and County. The service area covers nearly 600 square miles. The customer base includes the residential population, business and industrial users, and other users located in the service area. Of the approximately 143,500 accounts, approximately 136,000 are residential, representing approximately 71% of the total revenue from sewer service charges, and the remaining approximately 7,500 are non-residential, representing approximately 29% of the total revenue from sewer service charges. The average total volume of wastewater processed by the City and County's Wastewater System was 105.6 million gallons per day ("MGD") average day annual flow in Fiscal Year 2010. A number of small private wastewater systems also serve some areas in the City and County. The average total volume of wastewater processed by all such private systems is 4.5 MGD. See "THE WASTEWATER SYSTEM."

In 2005, the City and County adopted Ordinance No. 05-018 providing for increases in wastewater rates and for multi-year rate increases for the period effective July 1, 2005 to and including July 1, 2010. In 2007, the City and County adopted Ordinance No. 07-29 (together with Ordinance No. 05-018, the "Rate Ordinance") providing for additional increases in wastewater rates and for multi-year rate increases for the period effective July 1, 2007 to and including July 1, 2010, superseding those approved for that period in Ordinance No. 05-018. See "CERTAIN FINANCIAL OPERATIONS AND OTHER INFORMATION AND STATISTICS—Rates and Charges."

The Department is currently undertaking a five-year capital improvement program adopted by the Department and approved by the City Council (the "2011-2015 Capital Improvement Program"). The 2011-2015

Capital Improvement Program is projected to cost approximately \$1.55 billion (in inflated dollars, *i.e.*, adjusted from 2010 dollars) and is being undertaken for the purposes, among others, of meeting certain consent decrees, permits, or administrative orders entered into by the Department with Federal and State regulatory bodies and reliably serving projected growth in the number of customers served by the Wastewater System. The 2011-2015 Capital Improvement Program is a part of the 2001-2020 twenty-year capital improvement program (the “2001-2020 Capital Improvement Program”) the Department has undertaken. The 2001-2020 Capital Improvement Program is projected to cost approximately \$5.42 billion (in inflated dollars) and has been undertaken for the same basic purposes as the 2011-2015 Capital Improvement Program. The cost of the 2001-2020 Capital Improvement Program, including the 2011-2015 Capital Improvement Program, is expected to be financed primarily from (i) proceeds of Senior Bonds as well as Bonds, Reimbursable Obligations and Subordinate Obligations previously issued, (ii) proceeds of additional Senior Bonds, Bonds and Subordinate Obligations to be hereafter issued, (iii) Net Revenues of the Wastewater System, and (iv) Wastewater System Facilities Charges. See “CAPITAL IMPROVEMENT PROGRAM.”

Pursuant to the Act and the City Charter, the City Council has the power to impose, prescribe and collect rates, rentals, fees or charges for the use and services of, and the facilities furnished by, the Wastewater System so that the Wastewater System will be and remain self-sustaining. The rates, rentals, fees or charges imposed and prescribed are required to produce revenues which will be at least sufficient to pay debt service on all revenue bonds issued for the purposes of the Wastewater System, including the Bonds and the Subordinate Obligations, to provide reserves therefor, to pay the costs of operation, maintenance and repair of the Wastewater System, and to carry out the covenants of all resolutions authorizing the issuance of revenue bonds for the purposes of the Wastewater System, including the Bond Resolution and the Second Resolution. The rates and charges fixed and imposed by the City Council are not subject to approval by any federal or state regulatory bodies. See discussion under “HISTORICAL AND PROJECTED REVENUES, EXPENSES AND COVERAGES.”

PLAN OF REFUNDING

In connection with the issuance of the Series 2010A Bonds, the City and County will enter into an escrow agreement (the “Escrow Agreement”) with Wells Fargo Bank, National Association, as escrow agent (the “Escrow Agent”) for the purpose of refunding a portion of the City and County’s Outstanding Wastewater System Revenue Bonds (Second Bond Resolution), Junior Series 1998, previously issued under the Bond Resolution (the “Refunded Bonds”). Upon the issuance of the Series 2010A Bonds, a portion of the proceeds thereof will be deposited into an escrow fund (the “Escrow Fund”) held by the Escrow Agent under the Escrow Agreement. The moneys and securities held in the Escrow Fund are to be applied to the payment of principal of, premium, if any, and interest on the Refunded Bonds. Pending application, moneys deposited in the Escrow Fund will be invested in noncallable direct obligations of the United States (the “Escrow Securities”) which, together with cash held uninvested in the Escrow Fund, will be sufficient, without reinvestment, and will be applied to pay the principal or redemption price of and interest on the Refunded Bonds to and including their respective maturity dates or redemption dates. The maturing principal of and interest on the Escrow Securities and cash held in the Escrow Fund, in the amounts needed to pay the principal or redemption price of and interest on the Refunded Bonds, are pledged solely for the benefit of the holders of the Refunded Bonds. The Escrow Securities will be purchased from the Treasury Department of the United States of America or in the open market, in either case at interest rates and prices which will cause the yield thereon, computed in accordance with the provisions of Section 148 of the Internal Revenue Code of 1986, as amended (the “Code”), not to exceed the applicable yield permitted by such provisions. See “VERIFICATION.”

APPLICATION OF PROCEEDS

Proceeds from the sale of the Series 2010 Bonds, in an amount equal to the principal thereof plus net original issue premium, will be applied to make the following deposits:

Escrow Fund	\$104,384,880.00
General Trust Fund of the City and County	226,330.39
Costs of Issuance *	<u>532,803.01</u>
Total Uses	<u>\$105,144,013.40</u>

* Includes Underwriter's discount.

THE SERIES 2010 BONDS

General

The Series 2010 Bonds will be dated as of the date of their issuance and will bear interest at the rates and mature on the dates and in the principal amounts set forth on the inside cover page of this Official Statement. The Series 2010 Bonds will be issued in minimum denominations of \$5,000 principal amount.

Interest will accrue on the Series 2010 Bonds from the date of their issuance and will be due and payable semiannually on January 1 and July 1 of each year, commencing January 1, 2011.

The Director of Budget and Fiscal Services of the City and County will serve as the initial Paying Agent for the Series 2010 Bonds.

Optional Redemption

The Series 2010 Bonds maturing on and after July 1, 2021 are subject to redemption prior to the stated maturity thereof at the option of the City and County at any time and from time to time on or after July 1, 2020, in whole or in part (if in part, the maturities or portions thereof to be redeemed to be selected by the City and County in its sole discretion), in each case at a redemption price equal to the principal amount of such Series 2010 Bonds or portions thereof to be redeemed plus accrued interest to the date of redemption.

Notice of Redemption

The City and County will mail notice of redemption not less than 30 days prior to the redemption date by registered, certified or regular first-class mail, to the registered owners of any of the Series 2010 Bonds or portions of the Series 2010 Bonds which are to be redeemed, at their last addresses appearing upon the Bond Registry. The City and County may also but is not required to cause such notice to be published at least once in such newspapers as provided in the Bond Resolution not less than thirty (30) days prior to the date fixed for redemption date. Failure of the City and County to publish any such notice shall not affect the validity of the proceedings for the redemption of such Series 2010 Bonds. See "THE SERIES 2010 BONDS—Book-Entry System."

Any notice of optional redemption may state that such redemption may be conditional upon the receipt by the Paying Agent on the date fixed for redemption of moneys sufficient to pay in full the redemption price of the Series 2010 Bonds proposed to be redeemed. If the notice contains such condition, and moneys sufficient to pay in full the redemption price of the Series 2010 Bonds proposed to be redeemed shall not be received on or prior to the date fixed for redemption, such notice of redemption shall be null and void and of no force and effect, the City and County shall not redeem or be obligated to redeem any Series 2010 Bonds, and the Paying Agent at the City and County's direction shall give notice, in the same manner as notice of redemption is given, that moneys sufficient to pay in full the redemption price of the Series 2010 Bonds proposed to be redeemed were not received on or prior to the date fixed for redemption and such redemption did not occur. In the event of the failure to redeem, all Series 2010 Bonds surrendered for redemption shall be promptly returned to the holder or holders by the Paying Agent.

Effect of Redemption

If, on the redemption date, moneys for the redemption of all the Series 2010 Bonds or portions thereof of any maturity to be redeemed, together with interest to the redemption date, shall be held by the City and County or Paying Agent so as to be available therefor on said date and if notice of redemption shall have been given as provided in the Bond Resolution, then, from and after the redemption date, interest on the Series 2010 Bonds or portions thereof of such maturity so called for redemption shall cease to accrue and become payable. If such moneys shall not be so available on the redemption date, such Series 2010 Bonds or portions thereof shall continue to bear interest until paid at the same rate as they would have borne had they not been called for redemption.

Selection for Redemption

If less than all Series 2010 Bonds of a series are to be redeemed, the City and County will select the maturities of Bonds of such series to be redeemed. If less than all Series 2010 Bonds of a maturity are to be redeemed, the Series 2010 Bonds of such maturity shall be selected for redemption by lot.

Book-Entry System

Information concerning DTC and the Book-Entry System contained in this Official Statement has been obtained from DTC and other sources that the City and County and the Underwriters believe to be reliable, and is not guaranteed as to accuracy or completeness by, and is not to be construed as a representation by, the Underwriters or the City and County.

DTC will act as securities depository for the Series 2010 Bonds. The Series 2010 Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered bond certificate will be issued for each maturity of the Series 2010 Bonds, each in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC, the world's largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has Standard & Poor's highest rating: AAA. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

Purchases of Series 2010 Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Series 2010 Bonds on DTC's records. The ownership interest of each actual purchaser of each Series 2010 Bond ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2010 Bonds are to be

accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Series 2010 Bonds, except in the event that use of the book-entry system for the Series 2010 Bonds is discontinued.

To facilitate subsequent transfers, all Series 2010 Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Series 2010 Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series 2010 Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Series 2010 Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of the Series 2010 Bonds may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Series 2010 Bonds, such as redemptions defaults, and proposed amendments to the Series 2010 Bond documents. For example, Beneficial Owners of the Series 2010 Bonds may wish to ascertain that the nominee holding the Series 2010 Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the Paying Agent and request that copies of notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the bonds within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2010 Bonds unless authorized by a Direct Participant in accordance with DTC's Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the City and County as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts Series 2010 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Redemption proceeds, distributions, and dividend payments on the Series 2010 Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the City and County or Paying Agent, on the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC or its nominee, the Paying Agent, or the City and County, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of redemption proceeds, distributions, and dividend payments to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the City and County or the Paying Agent, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as depository with respect to the Series 2010 Bonds at any time by giving reasonable notice to the City and County or the Paying Agent. Under such circumstances, in the event that a successor depository is not obtained, Series 2010 Bond certificates are required to be printed and delivered.

The City and County may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Series 2010 Bond certificates will be printed and delivered to DTC.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the City and County believes to be reliable, but the City and County takes no responsibility for the accuracy thereof.

SECURITY FOR THE BONDS

General

The Bonds issued under and pursuant to the Bond Resolution, including the Series 2010 Bonds, are limited special obligations of the City and County. Pursuant to the Bond Resolution, there has been pledged, as security for the payment of the debt service on the Bonds, proceeds of the Bonds held or set aside under the Bond Resolution, the Net Revenues, and all Funds and Accounts established by the Bond Resolution other than the Rebate Account, the Third Lien Obligation Subaccount and, in certain instances pursuant to the Bond Resolution, the Common Reserve Subaccount or Separate Series Reserve Subaccounts. The Bonds are equally and ratably payable and secured under the Bond Resolution except that the City and County has reserved the right under the Bond Resolution to afford a particular Series of Bonds or particular Bonds additional or different security through a Support Facility, escrow funds, or the establishment of separate funds and accounts with respect to a particular Series of Bonds funded from sources other than the Net Revenues.

Under the Bond Resolution, Net Revenues means, with respect to any period, the Revenues during such period less amounts required to pay Operation and Maintenance Expenses. Revenues means (i) the Revenues under the First Bond Resolution; (ii) all income from investments of moneys held under the Bond Resolution except the Rebate Subaccount and the Third Lien Obligation Subaccount; and (iii) all payments made by Counterparties pursuant to Interest Rate Exchange Agreements. Revenues under the First Bond Resolution means the moneys, including any moneys collected from the City and County or any department thereof other than the Department, derived by the Department from the rates, rentals, fees and charges prescribed for the use and services of, and the facilities and commodities furnished by, the Wastewater System. Revenues under the First Bond Resolution include (i) all income, receipts, profits, and other moneys derived from the furnishing or supplying of the services, facilities and commodities through the Wastewater System; (ii) all income from investments of moneys held under the Bond Resolution except the Rebate Account, the Subordinate Obligation Account or the Reimbursable Obligation Account; (iii) all payments made by Counterparties pursuant to Interest Rate Exchange Agreements; and (iv) moneys and Investment Securities transferred from the Rate Stabilization Account to the Sewer Fund within 90 days following the end of a Fiscal Year. Certain items do not constitute Revenues under the Bond Resolution, including certain deposits subject to refund, certain contributions in-aid-of construction and assessment, impact and other similar fees imposed and collected by the City and County, income, fees, charges, receipts, profits or other moneys derived by the Department from the ownership or operation of any separate utility system, and certain gifts, grants and donations, moneys and Investment Securities transferred from the Sewer Fund to the Rate Stabilization Account within 90 days following the end of a Fiscal Year, or Wastewater System Facility Charges.

The pledge of the Net Revenues for the security and payment of the Bonds under the Bond Resolution is (i) junior and subordinate to the pledge made in the First Bond Resolution for the security and payment of the First Resolution Obligations; and (ii) prior and superior to the pledge made in the First Bond Resolution for the security and payment of the Reimbursable Obligations authorized to be issued pursuant to the First Bond Resolution and in the Bond Resolution for the security and payment of Third Lien Obligations authorized to be issued pursuant to the Bond Resolution. "Reimbursable Obligations" are reimbursable general obligation bonds issued and delivered or to be issued and delivered by the City and County to finance certain costs related to the Wastewater System. The debt service on Reimbursable Obligations is paid from moneys in the City and County's general fund. Pursuant to State law, the amount of such debt service may be reimbursed from the Net Revenues. As of June 30, 2010, \$1,274,463 principal amount of Reimbursable Obligations were outstanding. "Third Lien Obligations" are any obligations of the City and County payable from the Revenues, other than the First Resolution Obligations, the Bonds and the Reimbursable Obligations, issued in compliance with the provisions of the First Bond Resolution or the Bond Resolution, as applicable. There are currently no Third Lien Obligations outstanding. See "DEBT AND FINANCIAL POLICIES AND INDEBTEDNESS" herein.

The Series 2010 Bonds will constitute Bonds under the Bond Resolution. The Series 2010 Bonds are the sixth Series of Bonds to be issued under the Bond Resolution. The City and County expects to issue additional Bonds under the Bond Resolution on a parity with the Series 2010 Bonds.

The Bonds are not a general or moral obligation of the State of Hawaii or any political subdivision thereof, including the City and County, and the faith and credit of the State of Hawaii or any political subdivision thereof, including the City and County, are not pledged to the payment of the principal or redemption price of or interest on the Bonds, and no holder of the Bonds shall have the right to compel the exercise of the taxing power of the State of Hawaii or any political subdivision thereof, including the City and County, in connection with any default with respect to the Bonds.

Funds and Accounts

The various funds and accounts established under or pledged by the Bond Resolution, the flow of Revenues through such funds and accounts, the rights and remedies of Bondholders under the Bond Resolution and other related matters are summarized in Appendix B, "Summary of Certain Provisions of the Bond Resolution."

The City and County has established the Sewer Fund by ordinance. Revenues are deposited in the Sewer Fund. The First Bond Resolution establishes various accounts in the Sewer Fund, none of which except the Subordinate Obligation Account is pledged as security for the payment of debt service on the Bonds. Such pledge of the Subordinate Obligation Account is subject to the terms and provisions of and the exceptions provided in the First Bond Resolution and the Bond Resolution. Under the First Bond Resolution, the Department will, in each month, transfer from the Sewer Fund to the Subordinate Obligation Account a sufficient amount required by the Bond Resolution to pay all accrued and unpaid amounts and amounts to accrue and become payable during the succeeding calendar month which are payable from the Subordinate Obligation Account, but only after (i) making the transfer, if any, to the Wastewater System Facility Charge Account of all moneys received as Wastewater System Facility Charges, (ii) paying or setting aside a sufficient amount to pay the Operating and Maintenance Expenses, (iii) making the transfer to the Rebate Account under the First Bond Resolution, (iv) transferring a sufficient amount to the Debt Service Account under the First Bond Resolution to pay debt service on First Resolution Obligations, (v) transferring a sufficient amount to the Common Reserve Account and each Separate Series Reserve Account under the First Bond Resolution to eliminate any deficiency therein, and (vi) maintaining in the Sewer Fund a reasonable and necessary amount for working capital and operating reserves.

The Bond Resolution establishes in the Subordinate Obligation Account a Debt Service Subaccount. The Debt Service Subaccount is pledged as security for the payment of debt service on all Bonds subject to the terms and provisions of and the exceptions provided in the Bond Resolution. The Bond Resolution also establishes a Common Reserve Subaccount in the Subordinate Obligation Account and permits the establishment in the Subordinate Obligation Account of one or more Separate Series Reserve Subaccounts. The Common Reserve Subaccount is pledged as additional security for the payment of debt service on the Bonds of such Series designated by the City and County to be entitled to the benefit of the Common Reserve Subaccount. Each Separate Series Reserve Subaccount is pledged as additional security for the payment of debt service on the Bonds of such individual Series designated by the City and County to be entitled to the benefit of such Separate Series Reserve Subaccount.

The debt service on and redemption price of the Bonds are payable from the Debt Service Subaccount in the Subordinate Obligation Account. In the event of a deficiency in the Debt Service Subaccount, the debt service on and redemption price of particular Bonds are payable from the Common Reserve Subaccount or the Separate Series Reserve Subaccounts, as applicable, but only if such Bonds are entitled to the benefit of such Reserve Subaccounts.

Under the First Bond Resolution, moneys deposited and retained in the Sewer Fund may be maintained in an amount which is reasonable and necessary for working capital and reserves. The First Bond Resolution establishes, among other accounts, the Rate Stabilization Account, the Renewal and Replacement Account and the Wastewater General Account. Such accounts are not pledged as security for the payment of debt service on and redemption price of the Bonds. However, moneys in such accounts may be transferred to the Subordinate Obligation Account on the terms and conditions as provided in the First Bond Resolution. The Rate

Stabilization Account is to be used to stabilize the rates and charges of the Wastewater System. The Rate Stabilization Account is to be maintained in an amount as provided in the Annual Budget and is to be funded as provided in the Annual Budget from (i) the Revenues but only after paying the Operation and Maintenance Expenses and after transferring required amounts to other funds and accounts as provided in the First Bond Resolution, and (ii) transfers from the Wastewater General Account. The Renewal and Replacement Account is to be used to pay the costs of improvements to or reconstruction of the Wastewater System, repairs, major or extraordinary repairs and renewals or replacements of the Wastewater System and under certain conditions, as set forth in the Bond Resolution, to meet deficiencies in the Debt Service Subaccount, the Common Reserve Account, Separate Series Reserve Accounts, if any, the Subordinate Obligation Account, including the Debt Service Subaccount, the Common Reserve Subaccount and all Separate Series Subaccounts, and the Reimbursable Obligation Account, and will be maintained in an amount provided for in the Annual Budget. The Wastewater General Account may be used for any lawful purpose of the City and County, including funding of the Rate Stabilization Account, and under certain conditions, may be used to meet deficiencies in the Sewer Fund, the Common Reserve Account, Separate Series Reserve Accounts, if any, the Renewal and Replacement Account, the Rebate Account, the Subordinate Obligation Account and the Reimbursable Obligation Account.

The Bond Resolution also establishes in the Subordinate Obligation Account a Rebate Subaccount and a Third Lien Obligation Subaccount. Such accounts are not pledged as security for the Series 2009 Bonds, or any other Bonds. The funds in the Third Lien Obligation Subaccount are to be used to pay debt service on and redemption price of Third Lien Obligations, provide necessary debt service reserves and other reserves and pay other costs related to Third Lien Obligations. The funds in the Rebate Subaccount are to be used to pay required rebates to the United States Treasury Department incurred in respect of the Bonds.

The First Bond Resolution also establishes in the Sewer Fund, the Wastewater System Facility Charge Account. Wastewater System Facility Charges collected by the Department are deposited in the Wastewater System Facility Charge Account. The Wastewater System Facility Charge Account is pledged under the First Bond Resolution as security for the payment of debt service on and redemption price of the First Resolution Obligations but not for the Bonds. If any amounts are used to pay the debt service on or redemption price of First Resolution Obligations, the Wastewater System Facility Charge Account must be reimbursed from the Net Revenues with the priority set forth in the First Bond Resolution. The Wastewater System Facility Charges are not considered to be Revenues under the First Bond Resolution.

The City and County has also established by ordinance the Improvement Fund. The Bond Resolution establishes in the Improvement Fund an Improvement Second Account and permits the establishment within the Improvement Second Account of one or more Series Improvement Second Subaccounts and one or more Series Improvement Second Interest Subaccounts. Proceeds of Bonds issued under the Bond Resolution are to be deposited in the Improvement Second Account or a Series Improvement Second Subaccount pending application to pay the Costs of Improvements. Proceeds of Bonds issued under the Bond Resolution which are to be used to pay capitalized interest on the Bonds of a Series during the period of construction of an Improvement and for six months thereafter must be deposited in a Series Improvement Second Interest Subaccount. The Improvement Second Account, each Series Improvement Second Subaccount and each Series Improvement Second Interest Subaccount (but not the Improvement Fund) are pledged under the Bond Resolution as security for the payment of debt service on and redemption price of the Bonds.

Common Reserve Subaccount

The Bond Resolution establishes a Common Reserve Subaccount and authorizes the establishment of a Separate Series Reserve Subaccount for Bonds of any Series not entitled to the benefit of the Common Reserve Subaccount. The Common Reserve Subaccount secures all Bonds previously issued and currently outstanding under the Resolution. The Series 2010 Bonds will be secured by the Common Reserve Subaccount and not by a Separate Series Reserve Subaccount.

Common Reserve Subaccount. Under the Bond Resolution, the City and County may designate one or more Series of Bonds to be entitled to the benefit of the Common Reserve Subaccount. As stated above, the Series 2010 Bonds will be entitled to the benefit of the Common Reserve Subaccount. The moneys held in the Common Reserve Subaccount are to be used to pay debt service on the Bonds entitled to the benefit of the Common

Reserve Subaccount in the event of a deficiency in the Debt Service Subaccount to pay such debt service. The Common Reserve Subaccount is to be maintained in an amount not less than the Common Reserve Subaccount Requirement. The Common Reserve Subaccount Requirement is an amount that is equal to the greatest amount of Aggregate Debt Service for the then current or any future Fiscal Year on all Outstanding Bonds entitled to the benefit of the Common Reserve Subaccount; provided, however, that if upon the issuance of a Series of Bonds entitled to the benefit of the Common Reserve Subaccount, such amount would require moneys credited to the Common Reserve Subaccount from the proceeds of such Bonds in an amount in excess of the maximum amount permitted under the Code, the Common Reserve Subaccount Requirement will then be the Common Reserve Subaccount Requirement immediately preceding the issuance of such Bonds and the maximum amount permitted under the Code to be deposited from the proceeds of such Bonds, as certified by an Authorized Officer. The Bond Resolution provides that the Aggregate Debt Service is to be computed with respect to each Variable Rate Bond entitled to the benefit of the Common Reserve Subaccount by using the Assumed Long-Term Fixed Rate.

In lieu of cash or securities, the Bond Resolution permits the Department to satisfy the Common Reserve Subaccount Requirement in part or in whole by causing to be deposited into the Common Reserve Subaccount a Support Facility (which may be an irrevocable letter of credit, surety bond, loan agreement, standby bond purchase agreement, or other agreement facility or insurance or guaranty agreement issued by a bank or banks, or other financial institution or institutions, or any combination of the foregoing) in an amount equal to the difference between the Common Reserve Subaccount Requirement and the sums then on deposit in the Common Reserve Subaccount, if any. The Support Facility must be payable (upon the giving of notice as required thereunder) on or before any interest payment date on which moneys will be required to be withdrawn from the Common Reserve Subaccount and applied to the payment of principal or redemption price of or interest on any Bonds and such withdrawal cannot be met by amounts on deposit in the Common Reserve Subaccount or provided from any other available Fund under the Bond Resolution. Any Support Facility deposited in the Common Reserve Subaccount or the long-term debt of the issuer of any Support Facility deposited in the Common Reserve Subaccount must, in each case, be rated in the highest rating category by each Rating Agency and, if rated by A.M. Best & Company, must also be rated in the highest rating category by A.M. Best & Company. In the event any Support Facility deposited in the Common Reserve Subaccount or the long-term debt of the issuer of any Support Facility deposited in the Common Reserve Subaccount falls below the second highest rating category of each Rating Agency, and A.M. Best & Company, if rated by A.M. Best & Company, the City and County must, within 120 days, obtain a new Support Facility which, or which the long-term debt of the issuer of such new Support Facility, is rated in the highest rating category of such rating agencies; provided, however, that if the new Support Facility is not obtained within 120 days, the City and County must deposit in the Common Reserve Subaccount Net Revenues in the amount provided in the Bond Resolution. If a disbursement is made pursuant to a Support Facility deposited in the Common Reserve Subaccount, the City and County must: first, reinstate the full amount of such Support Facility; and second, if necessary, deposit Net Revenues in the Common Reserve Subaccount in the amount of the disbursement made under such Support Facility, in either case such that the amount in the Common Reserve Subaccount will equal the Common Reserve Subaccount Requirement within a period of time not longer than would be required to restore the Common Reserve Subaccount by application of moneys in the Sewer Fund as required by the Bond Resolution. The City and County may at any time deposit cash or Investment Securities as replacement for one or more Support Facilities.

In April 2008, the City and County deposited \$10,428,847 cash into the Common Reserve Subaccount established under the First Bond Resolution, and in October 2008, the City and County deposited \$43,982,197 cash into the Common Reserve Subaccount established under the Bond Resolution, in each case to replace certain Support Facilities on deposit therein which fell below the highest rating category of each Rating Agency. As a result, the Common Reserve Subaccount Requirement for each such Common Reserve Subaccount is currently fully funded with cash. Although replaced for purposes of meeting the Common Reserve Subaccount Requirement, the Support Facilities remain on deposit in the Common Reserve Subaccounts.

Transfers to Reserve Subaccounts. The Bond Resolution requires that in each month, after transferring to the Debt Service Subaccount an amount sufficient to pay debt service on the Bonds to accrue in such month, moneys in the Subordinate Obligation Account are to be transferred pro rata to the Common Reserve Subaccount and each Separate Series Reserve Subaccount in such amounts as are required so that the balances in the Common Reserve Subaccount and each Separate Series Reserve Subaccount are equal to their respective

requirements, or at the election of the Department, so that at least one-sixth of any deficiency in the Common Reserve Subaccount or each Separate Series Reserve Subaccount is eliminated.

Rate Covenant

The City and County is required by the Bond Resolution, among other things, to fix, charge and collect such rates and other charges as shall be required in order that in each Fiscal Year the Net Revenues shall not be less than the Net Revenue Requirement for such Fiscal Year. The Net Revenue Requirement means with respect to any Fiscal Year or any period, an amount equal to the greater of: (i) the sum of (a) the Aggregate Debt Service under the First Bond Resolution and the Aggregate Debt Service in such Fiscal Year or such period and (b) the Required Deposits for such Fiscal Year or such period; or (ii) 1.10 times the Aggregate Debt Service (as defined in the First Bond Resolution) under the First Bond Resolution and 1.10 times the Aggregate Debt service in such Fiscal Year or such period plus 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding as of the end of such Fiscal Year or such period. Net Revenues means, with respect to any period, the Revenues during such period less amounts required to pay Operation and Maintenance Expenses. Required Deposits means, for any period, (i) the Required Deposits under the First Bond Resolution exclusive of transfers from the Sewer Fund to the Subordinate Obligation Account; and (ii) the amounts, if any, required: (a) to be paid into the Rebate Subaccount, the Common Reserve Subaccount, each Separate Series Reserve Subaccount, and the Third Lien Obligation Subaccount, and (b) to pay Support Facility Reimbursement Obligations. Required Deposits under the First Bond Resolution means, for any period, the amounts, if any, required: (i) to be paid into the Common Reserve Account, each Separate Series Reserve Account, the Subordinate Obligation Account and the Reimbursable Obligation Account under the First Bond Resolution; and (ii) to pay Support Facility Reimbursement Obligations under the First Bond Resolution. Aggregate Debt Service means, for any period and as of any date of computation, the sum of the amounts of Debt Service for such period with respect to all Series of Bonds or all First Resolution Obligations, as applicable. Support Facility Reimbursement Obligations are obligations of the City and County to directly reimburse the Support Facility Provider of a Support Facility for amounts paid thereunder or a Counterparty under an Interest Rate Exchange Agreement for amounts paid, whether or not such obligation to reimburse is evidenced by a promissory note or similar instrument.

Failure by the City and County to comply with the foregoing rate covenant in any Fiscal Year will not constitute an Event of Default under the Bond Resolution so long as the provisions of the Bond Resolution described below are complied with. Prior to the end of each Fiscal Year the Director of Environmental Services or the Director of Budget and Fiscal Services if requested by the Director of Environmental Services is required by the Bond Resolution to complete a review of the financial condition of the Department for the purpose of estimating whether the Net Revenues for such Fiscal Year and for the next succeeding Fiscal Year will be sufficient to comply with the foregoing rate covenant and to make a written certification with respect to compliance or noncompliance. Such review is to take into consideration the completion of any uncompleted Improvements and the issuance of future Series of Bonds if necessary to finance the completion of such Improvements. Such written certification is to set forth a reasonably detailed statement of the actual and estimated Revenues, Operation and Maintenance Expenses, Aggregate Debt Service, and any other estimates or assumptions upon which such determination was based, shall be filed with the City Clerk on or before July 1 in each year. If it is determined in such written certification that the Revenues may not be so sufficient, the Director of Environmental Services or the Director of Budget and Fiscal Services if requested by the Director of Environmental Services must forthwith make a study for the purpose of determining a schedule of fees, rates and charges which, in the opinion of the Director of Environmental Services or the Director of Budget and Fiscal Services, will cause sufficient Revenues to be collected in the following Fiscal Year to comply with such rate covenant, or the Director of Environmental Services or the Director of Budget and Fiscal Services may elect to cause the Consulting Engineer to make such a study and render such certification. The City Council, as promptly as practicable but no later than 120 days following such determination by the Director of Environmental Services or the Director of Budget and Fiscal Services, or receipt of the Consulting Engineer's recommendation, is required to adopt and place in effect a schedule of fees, rates and charges as so determined or recommended. See "CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION AND STATISTICS – Rates and Charges" for current sewer charges, "HISTORICAL AND PROJECTED REVENUES, EXPENSES AND COVERAGES" for a discussion of the Department's projected rates, revenues and expenses, and "THE CITY AND COUNTY AND THE DEPARTMENT – Purpose and Powers" for a discussion of the rate making powers of the City Council.

Additional Bonds and Refunding Bonds

The Bond Resolution permits the issuance of additional Series of Bonds (exclusive of refunding Bonds) on a parity with the Bonds then Outstanding (“Additional Bonds”) for any lawful use or purpose relating to the Wastewater System, including, without limitation, payment of all or a portion of the Costs of Improvements, but only upon compliance as to each such Series with the conditions set forth in the Bond Resolution. The Series 2010 Bonds are being issued as Additional Bonds under the Bond Resolution and their issuance is subject to compliance with such conditions, which include delivery to the Director of Budget and Fiscal Services of the following documents or moneys or securities:

1. A written certificate of the City and County stating the amount required to be in the Common Reserve Subaccount after issuance of the Bonds then to be issued and that the amounts deposited will not be less than the Common Reserve Subaccount Requirement.

2. A written certificate of the City and County stating the amount required to be in the Separate Series Reserve Subaccount established for the Bonds of such Series after issuance of the Bonds then to be issued and that the amounts deposited will not be less than the Separate Series Reserve Subaccount Requirement for the Bonds of such Series.

3. Either (I) a Written Certificate of the City and County based: (i) on audited figures or (ii) to the extent audited figures are not available, on figures taken by an independent certified public accountant from the Department’s books and records, showing that the Net Revenues for: (a) the most recent Fiscal Year, or (b) any consecutive twelve (12) months’ period out of twenty four (24) months immediately preceding the month in which such Bonds are issued were not less than the sum of (1) 1.10 times the maximum Aggregate Debt Service (as defined in the First Bond Resolution) on all First Resolution Obligations issued and outstanding under and pursuant to the terms of the First Bond Resolution and the Aggregate Debt Service on all Bonds then Outstanding and on the proposed Series of Bonds in any Fiscal Year and (2) 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding under the First Bond Resolution and this Resolution as of the date of the Written Certificate of the City and County; or (II) a Written Certificate of the City and County or Certificate of the Consulting Engineer that the Net Revenues to be derived in each of the five (5) Fiscal Years following the earlier of: (i) the end of the period during which interest is capitalized or, if no interest is to be capitalized, the Fiscal Year in which the proposed Series of Bonds are issued, and (ii) the date on which substantially all Improvements to be financed with the proceeds of the proposed Series of Bonds are expected to commence operations, or, if the proceeds of such Series of Bonds will not be used to fund the Costs of Improvements, the Fiscal Year in which the proposed Series of Bonds are issued, are estimated to be not less than the sum of (1) 1.10 times the maximum of the sum of the Aggregate Debt Service (as defined in the First Bond Resolution) on all First Resolution Obligations issued and outstanding under and pursuant to the First Bond Resolution and the Aggregate Debt Service on all Bonds then Outstanding and on the proposed Series of Bonds in any such Fiscal Year, and (2) 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding under the First Bond Resolution and this Resolution as of the date of such Written Certificate of the City and County or certificate of the Consulting Engineer, as the case may be.

In determining Net Revenues for purposes of the certificates described above, the City and County or the Consulting Engineer, as the case may be, is permitted, and in certain instances is required, to make certain adjustments as provided in the Bond Resolution. In addition, the Bond Resolution requires that certain other adjustments to Net Revenues derived from Debt Service on Variable Rate Bonds and debt service on Bond Anticipation Notes and short-term Subordinate Obligations and Reimbursable Obligations be made for purposes of the written certificates described above. See Appendix C, “Summary of Certain Provisions of the Bond Resolution.”

Bonds may be issued as variable rate bonds, fixed rate bonds, bonds providing for the right of the owner thereof to present the Bond for redemption or purchase prior to maturity, zero interest rate or deep discount bonds, bonds providing for the compounding of interest, or any combination thereof. Bonds may be issued or outstanding from time to time with or without credit enhancement provisions. See Appendix C, “Summary of Certain Provisions of the Bond Resolution.”

The Bond Resolution also permits the issuance of Bonds (“Refunding Bonds”) on a parity with the Bonds then Outstanding to refund all or any part of: (i) a Series of Outstanding Bonds; (ii) Subordinate Obligations; or (iii) Reimbursable Obligations. Refunding Bonds may only be issued by the City and County upon satisfaction of certain conditions set forth in the Bond Resolution.

A more detailed description of the requirements relating to the issuance of Additional Bonds or Refunding Bonds is set forth in Appendix C under “Additional Bonds and Refunding Bonds.”

The Bond Resolution also permits the issuance of notes in anticipation of a Series of Bonds if the City and County has theretofore authorized the issuance of such Bonds. The interest on such notes (and any renewal thereof) shall be payable from the proceeds of such notes or other notes or from the proceeds of the sale of the Bonds in anticipation of which such notes are issued. A more detailed description of the provisions for security for payment of such notes and other requirements relating to the issuance of notes is set forth in Appendix C under “Bond Anticipation Notes.”

Proposed Amendments to Bond Resolution

Under the current provisions of the Bond Resolution, Refundable Credits or other moneys initially deposited in the Rate Stabilization Fund and subsequently transferred to the Sewer Fund within 90 days following the end of a Fiscal Year are treated as Revenues for purposes of the rate covenant, additional bonds test and other calculations of the ratio between Net Revenues and Debt Service. By resolution of the City Council adopted on October 13, 2010, the City and County proposes to amend the Bond Resolution to provide for Refundable Credits to be applied as an offset to Debt Service instead of being treated as Revenues. The proposed amendments are summarized as follows:

Definition of Debt Service. The City and County proposes to amend the definition of “Debt Service” to provide that: “in determining the amount of interest coming due during any applicable period on any Series of Bonds that are issued as Interest Subsidy Bonds, amounts equal to Refundable Credits the City and County is scheduled to receive during such period shall be deducted from such interest.”

Deposit and Application of Refundable Credits. The City and County further proposes to amend the provisions of the Bond Resolution regarding the Debt Service Subaccount by adding a new subsection (7) which reads as follows”

(7) All of the Refundable Credits received by the City and County shall be deposited immediately upon receipt in the Debt Service Subaccount, and such Refundable Credits are hereby irrevocably pledged to the punctual payment of the interest on the respective Series of Interest Subsidy Bonds to which such Refundable Credits relate, and the Refundable Credits shall not be used for any other purpose while any of the Interest Subsidy Bonds remain Outstanding. All the Refundable Credits as received by the City and County shall immediately be subject to the lien of this pledge without any physical delivery thereof or further act, and the lien of the pledge shall be valid as against, and prior to the lien of, all parties having claims of any kind in tort, contract or otherwise against the City and County irrespective of whether such parties have notice thereof. Notwithstanding the foregoing deposit and pledge, the Refundable Credits are not considered Revenues or included in the calculation of Revenues under this Resolution. Additionally, in calculating the amount that the City and County pays out of the Debt Service Subaccount to the applicable Paying Agents as provided in (A)(1) above, the City and County or the Paying Agent, as applicable, shall take into account Refundable Credits only if they have been deposited in the Debt Service Subaccount on or prior to the Business Days preceding the applicable interest payment date and have not previously been expended to pay Debt Service on the Bonds issued as Interest Subsidy Bonds or otherwise transferred out of the Debt Service Subaccount.

Under the Bond Resolution, the terms “Interest Subsidy Bonds” and “Refundable Credits” (as used in the proposed amendments) are defined as follows:

“Interest Subsidy Bonds” means (a) any bonds or other obligations issued as Build America Bonds under Section 54AA of the Code, or under any other provision of the Code that creates a

substantially similar direct-pay subsidy program, (b) any bonds or other obligations issued as Recovery Zone Economic Development Bonds under Section 1400U-2 of the Code, or under any other provision of the Code that creates a substantially similar direct-pay subsidy program, or (c) any other any bonds or other obligations issued under any provision or provisions of the Code that create substantially similar direct-pay subsidy programs to such programs with respect to Build America Bonds and Recovery Zone Economic Development Bonds.

“Refundable Credits” means (a) with respect to a Series of Bonds issued as Build America Bonds under Section 54AA of the Code, the amounts which are payable by the Federal government under Section 6431 of the Code, which the City and County has elected to receive under Section 54AA(g)(1) of the Code, (b) with respect to a Series of Bonds issued as Recovery Zone Economic Development Bonds under Section 1400U-2 of the Code, the amounts which are payable by the Federal government under Section 6431 of the Code, which the City and County has elected to receive under Section 1400U-2 of the Code, and (c) with respect to a Series of Bonds issued as any other type of Interest Subsidy Bonds, the amounts which are payable by the Federal government under provisions of the Code governing a direct-pay subsidy program or programs substantially similar to such programs with respect to Build America Bonds and Recovery Zone Economic Development Bonds.

Under the terms of the Bond Resolution, the proposed amendments will not go into effect until such time as the City and County has obtained the consents of the Holders of not less than a majority of the Outstanding Bonds. See “SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION-Amending and Supplementing of Resolution-*Amendment of Resolution with Consent of Holders of the Bonds*” in Appendix C hereto. BY PURCHASING SERIES 2010 BONDS, THE HOLDERS THEREOF SHALL BE DEEMED TO HAVE CONSENTED TO THE PROPOSED AMENDMENTS, AND SUCH CONSENT WILL BE BINDING ON ALL SUCCESSIVE HOLDERS OF THE SERIES 2010 BONDS. Upon the issuance of the Series 2010 Bonds, there will be \$538,037,890 of Bonds Outstanding, of which \$100,755,000 (representing the aggregate principal amount of the Series 2010 Bonds) will be deemed to have consented to the proposed amendments.

THE CITY AND COUNTY AND THE DEPARTMENT

Purpose and Powers

The City and County. The City and County of Honolulu includes the entire island of Oahu and a number of outlying islands. Of the eight major islands that constitute the State of Hawaii, Oahu, with an area of 597 square miles, is smaller than the Islands of Hawaii and Maui but larger than the Islands of Kauai, Molokai, Lanai, Niihau and Kahoolawe. With slightly less than a tenth of the land area in the entire State, Oahu contains more than two-thirds of the State’s resident population. The U.S. Census Bureau estimates that as of July 1, 2009 the resident population of the State was 1,295,178, and that of Oahu was 907,574, or approximately 70% of the total State population. Honolulu is the seat of the State Government and is the State’s trade, finance, communication, and transportation center. Most Federal establishments and personnel (both civilian and military), manufacturing, major educational and scientific, and significant agricultural activities are located on Oahu.

City Council and Mayor. The City Council is the governing body of the City and County and it consists of nine members. All members are elected from nine districts to serve four-year terms with a limitation of two consecutive full terms. Pursuant to the City Charter of the City and County, the City Council has the power, among other things: (i) to exercise the legislative power of the City and County, (ii) to enact operating and capital budget ordinances, (iii) with certain exceptions, to fix fees and charges for services rendered by the City and County, and (iv) to authorize the issuance of revenue bonds for the purpose of initiating, constructing, acquiring, extending, replacing or otherwise improving any revenue-producing facility. The Mayor is the Chief Executive Officer of the City and County. The Mayor is elected to serve a four-year term with a limitation of two consecutive full terms. The Mayor exercises direct supervision over all agencies specifically identified in the City Charter and, through the Managing Director, exercises supervision over all other executive agencies of the City and County.

Department of Environmental Services. The Department was established on July 1, 1998, pursuant to a plan of reorganization which combined certain components of the Department of Wastewater

Management, the department which previously administered the Wastewater System, with other administrative departments having compatible functions. The Department, among other things, is charged with the responsibility to administer the planning, design and construction of wastewater facilities, oversee the operation and maintenance of sewer lines, treatment plants and pumping stations, monitor the collection, treatment and disposal of wastewater, provide pumping of cesspools, provide solid waste processing, collection and disposal, promulgate rules and regulations as necessary to administer and enforce requirements established by law, and perform such other duties as may be required by law. The Department consists of four divisions: Environmental Quality, Wastewater Treatment and Disposal, Collection System Maintenance, and Refuse Collection and Disposal, plus an Office of Administrative Support.

Power to Fix and Collect Rates and Charges. By ordinance and resolution, the City Council requires that revenues of the Wastewater System be kept in the Sewer Fund and that the wastewater program shall be self-supporting. Consistent with such requirements, the Department is budgeted as a self-sustaining enterprise for the purpose of determining costs associated with providing wastewater services. Through the adoption of the annual operating and capital budgets, the revenue requirements and wastewater rates are reviewed to determine the adequacy of revenues to meet needs. Pursuant to the Act and the City Charter, the City Council has the power to impose, prescribe and collect rates, rentals, fees or charges for the use and services of, and the facilities furnished by, the Wastewater System so that the Wastewater System will be and remain self-sustaining. The rates, rentals, fees or charges imposed and prescribed are required to produce revenues which will be at least sufficient to pay debt service on all revenue bonds issued for the purposes of the Wastewater System, including the Bonds, and including reserves therefor, to pay the costs of operation, maintenance and repair of the Wastewater System, and to carry out the covenants of all resolutions authorizing the issuance of revenue bonds for the purposes of the Wastewater System, including the Bond Resolution and the Second Resolution. The rates and charges fixed and imposed by the City Council are not subject to approval by any federal or state regulatory bodies. Rates and charges are determined on the basis of a recommendation by the Director of Environmental Services and the Mayor, subject to approval by ordinance of the City Council. An ordinance requires three readings and a public hearing for enactment by the City Council.

Department Work Force

The Department's current operating budget provides for 731 full-time equivalent employees in various managerial, clerical, engineering and operational positions in support of wastewater activities. This work force, with the exception of 18 excluded and 4 exempt employees, is represented by one blue-collar, non-supervisory bargaining unit, one blue-collar, supervisory bargaining unit, one white-collar, non-supervisory bargaining unit, one white-collar, supervisory bargaining unit, and one professional and scientific bargaining unit. All bargaining unit contracts are state-wide and apply to all State government and county government activities. Contracts with the five public bargaining units representing Department employees will expire on June 30, 2011.

Health Care Benefits. All regular employees of the City and County are eligible for coverage under health plans provided through the State of Hawaii Public Employer-Union Health Benefit Trust Fund (the "Trust Fund"), which was established in 2003 to design, provide and administer health and other benefit plans for State and county employees, retirees and their dependents. The Trust Fund is administered by a ten-member Board of Trustees appointed by the Governor (the "Board") comprised of five union representatives and five management representatives. The Board is responsible for determining the nature and scope of health plans offered by the Trust Fund, negotiating and entering into contracts with insurance carriers, ruling on eligibility and establishing management policies for the Trust Fund and overseeing Trust Fund activities. The Trust Fund currently provides medical, prescription drug, dental, vision, chiropractic and group life benefits. Benefits with respect to regular employees are funded by a combination of employer contributions set by collective bargaining agreement or by executive order (with respect to non-union employees) and employee contributions through payroll deductions. Benefits for retirees are funded by a statutory formula.

In recent years, public and private health plan providers nationwide and in Hawaii, including the Trust Fund, have experienced substantial increases in health care costs. In the case of the Trust Fund, the current fiscal situation faced by the State and county employers has made it extremely difficult for the employers to offer more employer contributions for medical benefits to maintain the historical employer-employee contribution ratio. As a result, plan rates were increased for Fiscal Year 2010 with employees bearing a larger share up to the full cost

of the increase. The Board took action to mitigate the extent of the Fiscal Year 2010 rate increases by modifying plan benefits. For Fiscal Year 2011, the Trust Fund is again faced with the prospect of further rate increases. At this time, the Board has taken no action to either increase plan rates or to make further modifications to available benefits, although there has been considerable discussion of various alternative courses of action. Current plan rates have been temporarily extended until December 31, 2010. Consequently, the City and County cannot predict how such actions taken by the Board in the future may affect its employee relations or its financial obligations with respect to employee health benefits.

Pensions. All regular employees of the City and County are covered under the Employees' Retirement System of the State (the "State Retirement System"), a cost-sharing, multiple-employer defined benefit pension plan that provides retirement, disability and death benefits funded by employee contributions and by employer contributions determined on an actuarial reserve basis. Employees are covered under a contributory plan, a noncontributory plan or a hybrid contributory plan. Actuarial valuations are prepared annually by the consulting actuary to the State Retirement System's Board of Trustees to determine the employer contribution requirement.

Employer contributions are determined in accordance with Sections 88-122 and 88-123, Hawaii Revised Statutes, as amended. Employer contributions are determined separately for two groups of covered employees: (1) police officers, firefighters, and corrections officers; and (2) all other employees who are members of the State Retirement System. Commencing with the 1995 fiscal year, the total employer contribution requirement has been calculated to include the normal cost (based on the entry age normal actuarial cost method) plus the level annual payment required to amortize the unfunded accrued liability over a period of 29 years from July 1, 2000. As discussed below, the total unfunded actuarial accrued liability for the State Retirement System as a whole (including the State and the counties) was estimated to be approximately \$6.24 billion as of June 30, 2009. In recent years, the total actuarially determined employer contribution was reduced by some or all of the investment earnings in excess of the investment yield rate (currently established by statute at 8% per annum) applied in actuarial valuations to determine the net employer appropriations to be made to the State Retirement System.

Effective July 1, 2005, Section 88-122 was amended to establish fixed employer contribution rates as a percentage of compensation. Employers' contribution rates were initially set at 15.75% for their police officers and firefighters and 13.75% for other employees, increasing effective July 1, 2008 to 19.70% for police officers and firefighters and 15.00% for all others. The contribution rates are subject to adjustment: (1) if the actual period required to amortize the unfunded accrued liability exceeds thirty years; (2) if there is no unfunded accrued liability; or (3) otherwise as determined on the basis of an actuarial investigation conducted in accordance with Section 88-105, Hawaii Revised Statutes.

Each employer's (i.e., the State's or a county's) annual contribution to the State Retirement System is determined by multiplying (1) the total employer contribution requirement derived from the annual actuarial valuation as of the next preceding June 30, by (2) the ratio of that employer's (i.e., the State's and each of the respective county's) payroll over the total covered payroll included in the actuarial valuation. For example, the City and County's contribution requirement for the 2009-2010 Fiscal Year is based on the June 30, 2007 actuarial valuation and the payroll used in that valuation. Historically, the City and County's contribution has been approximately 14.84% of the total employer appropriation to the State Retirement System. The City and County's contribution to the State Retirement System for the last five Fiscal Years, exclusive of costs for employees of the Board of Water Supply, was \$47,700,000 for 2005, \$63,300,000 for 2006, \$67,500,000 for 2007, \$73,000,000 for 2008 and \$88,600,000 for 2009, including amortization of a portion of prior service cost in each such year.

Legislation enacted in 1984 created a noncontributory retirement plan for certain members of the State Retirement System. All persons hired after June 30, 1984, and those contributory members who elected to join the plan, are covered under the provisions of the noncontributory retirement plan. Police officers, firefighters, elected officers and those employed in positions not covered by social security are excluded from the noncontributory retirement plan. Retirement, disability, and death benefits under the noncontributory plan are less than the contributory plan. There is no major change in the City and County's funding requirements because the cost of the noncontributory retirement plan is about the same as the contributory retirement plan.

Effective July 1, 2006, a hybrid contributory plan was established for most new employees hired after that date and certain then-current employees who elected to join the hybrid plan. The State Retirement System's actuary has determined that the new plan is cost neutral.

The total assets of the State Retirement System on a market value basis amounted to approximately \$10.8 billion as of June 30, 2008, and \$8.8 billion as of June 30, 2009. Actuarial certification of assets as of June 30, 2008 was \$11.4 billion. The June 30, 2009 actuarial certification of assets was \$11.4 billion, and its unfunded actuarial accrued liability was \$6.236 billion. The funded ratio (actuarial assets divided by actuarial accrued liability) for the State Retirement System was 68.8% as of June 30, 2008 and 64.6% as of June 30, 2009. The actuarial value of assets is based on a four-year smoothed valuation that recognizes the excess or shortfall of investment income over or under the 8% actuarial investment assumption. The actuary for the State Retirement System does not provide a breakdown of the unfunded liability for the counties. The State Retirement System issues a Comprehensive Annual Financial Report that may be obtained by writing to the Employees' Retirement System of the State of Hawaii, 201 Merchant Street, Suite 1400, Honolulu, Hawaii 96813.

The following schedule obtained from the State shows the total actuarially determined employer contribution rate for all employees based on the last six annual actuarial valuations.

Actuarial Valuation as of June 30	Total Calculated Employer Contribution Rate for All Employees (% of total payroll)	Funding Period (Years)
2004	13.95 ¹	22.6
2005	13.95 ¹	25.7
2006	13.95 ¹	35.2
2007	13.95 ¹	25.5
2008	15.46 ¹	22.6
2009	15.47 ¹	28.2

¹ Reflects Act 181, SLH 2004, which amended HRS Sections 88-105, 88-122, 88-123, 88-124, 88-125 & 88-126.

In 2005, the funding period increased due to recognition of large actuarial losses. In 2006, the funding period increased due to a large increase in the liabilities associated with the adoption of new actuarial assumptions. The funding period decreases in 2007 and 2008 reflect an increase in employer contribution rates that became effective July 1, 2008, and the net asset gain from investments that offsets actuarial losses resulting from higher than expected salary increases. The increase in 2009 was due to the net asset loss from the significant decline in the financial markets during the 2009 fiscal year.

A summary of the actuarial certification of the State Retirement System as of June 30, 2008 and 2009 is set forth below:

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII
Summary of Actuarial Certification as of June 30, 2008 and 2009
(Includes all counties)

ASSETS	2008	2009
Total current assets	\$11,380,961,003	\$11,400,116,874
Present value of future employee contributions	1,321,322,095	1,454,290,782
Present value of future employer normal cost contributions	1,567,124,012	1,658,595,716
Unfunded actuarial accrued liability	5,168,108,050	6,236,315,442
Present value of future employer Early Incentive Retirement Program contribution	N/A	N/A
TOTAL ASSETS	<u>\$19,437,515,160</u>	<u>\$20,749,318,814</u>
LIABILITIES		
Present value of benefits to current pensioners and beneficiaries	\$ 8,230,338,790	\$ 8,584,029,950
Present value of future benefits to active employees and inactive members	<u>11,207,176,371</u>	<u>12,165,288,864</u>
TOTAL LIABILITIES	<u>\$19,437,515,161</u>	<u>\$20,749,318,814</u>

Source: Gabriel, Roeder, Smith & Company.

In addition to contributions to the State Retirement System, the City and County makes payments under three pension systems established prior to the establishment of the State Retirement System in 1926. These pension systems are administered by the City's Department of Budget and Fiscal Services. At June 30, 2009, there were four beneficiaries under these pensions. Such unfunded payments amounted to \$41,511 for 2005, \$29,012 for 2006, \$19,927 for 2007, \$18,504 for 2008 and \$17,904 for 2009. No estimates have been made of the cost of future benefits.

Other Post-Employment Benefits. In addition to pension benefits, beginning with the Fiscal Year ending June 30, 2008, state and local governments are required to account for and report other post-employment benefits ("OPEBs") under Statement No. 45 ("GASB 45") issued by the Governmental Accounting Standards Board. OPEBs consist of certain health and life insurance benefits provided through the Trust Fund to retired State and county employees and their dependents, including retired City and County employees. Employer contributions to the Trust Fund for these benefits are determined by the Trust Fund based on employees' hiring dates and years of service.

In September 2008, the State's independent actuarial consultant estimated the actuarial accrued liabilities and annual OPEB costs under GASB 45 for the State and the counties for the Fiscal Year ending June 30, 2008. These estimates were based on earlier projections (as of July 1, 2007) and address two distinct scenarios: (1) no prefunding of obligations; and (2) full prefunding of obligations. The actuarial accrued liabilities for Trust Fund OPEBs for the City and County were estimated to be approximately \$1.95 billion with no prefunding or \$1.24 billion with full prefunding for such period. The corresponding annual required contribution for the Fiscal Year ended June 30, 2008 was estimated to be approximately \$142.4 million with no prefunding or \$101.4 million with full prefunding. The annual OPEB cost was \$101.4 million for 2008 and \$105.6 million for 2009. The State has indicated that its actuarial consultant is expected to deliver an updated actuarial report in the Fall of 2010.

On June 30, 2009, the City and County transferred \$40.11 million to the Trust Fund to prefund its OPEB obligations in part. Additional transfers for this purpose will be determined on a year-by-year basis.

Department Principal Officers

The principal officers of the Department include the Director, Deputy Director and Executive Assistant. The following are brief biographies of the Department's principal officers:

Timothy E. Steinberger, Acting Director. Mr. Steinberger served as the Director of the Department of Environmental Services from 2001 through 2002. In 2003, he was appointed as the Director of Design and Construction, City and County of Honolulu, where he served for the remainder of the Harris Administration. From 2005 to 2008, Mr. Steinberger was employed in the private sector by URS Corporation, as the Hawaii/Guam area manager. He returned to the Department of Environmental Services in 2009 as Director, bringing his previous experience as Director and Deputy Director of Environmental Services and, as a department employee involved in consent decree oversight and wastewater planning. Mr. Steinberger is a licensed Civil Engineer in the State of Hawaii and has a long history of public service in the wastewater arena. He has a Bachelor of Science degree in Mechanical Engineering from the University of Maryland and a Master of Science Degree in Mechanical Engineering from the University of Hawaii.

Manuel Lanuevo, Deputy Director. Mr. Lanuevo joined the Department of Environmental Services in January 2009 as Deputy Director. He is an Electrical Engineer who served with the State of Hawaii, Department of Transportation, Airports Division, Engineering Branch, from 1998 to 2009. Mr. Lanuevo holds a Bachelor of Science in Electrical Engineering from the Mapua Institute of Technology, Manila, Philippines. He is a licensed Professional Electrical Engineer, Philippines; Professional Engineer (Electrical), State of Hawaii; Certified Lighting Efficiency Professional (CLEP), Association of Energy Engineers; and a Leadership in Energy & Environmental Design, Accredited Professional, LEED AP, U.S. Green Building Council.

Ross S. Tanimoto, Deputy Director. Mr. Tanimoto became Deputy Director on April 19, 2007. Mr. Tanimoto has been with the Department of Environmental Services and its predecessor agencies since 1992 and has served as both the Assistant Chief, Division of Environmental Quality, and Branch Chief, Monitoring and Compliance Branch. He has a Master of Science Degree in Mechanical Engineering from California State University, Long Beach, and Bachelor of Science degrees in Mechanical Engineering and Meteorology from the University of Hawaii. Mr. Tanimoto is a registered Professional Engineer in Mechanical Engineering in the States of Hawaii and California.

Timothy A. Houghton, Executive Assistant. Mr. Houghton served as Executive Assistant for the Department of Wastewater Management from its creation on July 1, 1993, and has continued in that role with the Department of Environmental Services, except for the period from July, 2003, through December, 2004, when he served as Deputy Director of the Department. As Executive Assistant, among other things, Mr. Houghton is responsible for Department financial and personnel activities. Prior to that he worked on the Honolulu Rapid Transit Project and with the Department of Auditoriums. Mr. Houghton has a Bachelor of Arts degree from San Francisco State University and a Master of Science in Systems Management degree from the University of Southern California. Mr. Houghton is currently a member of the Board of Directors for the National Association of Clean Water Agencies, serves as its Clean Water Funding Issues Leader, and has previously served as Vice Chair of the Utility Management Committee.

THE WASTEWATER SYSTEM

Introduction

As of June 30, 2010, the Wastewater System serviced approximately 143,500 separate accounts and a population of approximately 640,000, which is approximately 73% of the total population of the City and County. The population outside the city service area is composed primarily of military bases with on-site treatment facilities and one private system. The remainder of the population is situated in widely distributed rural communities. The service area covers nearly 600 square miles. The customer base includes the residential population, business and industrial users, and other users located in the service area. Of the approximately 143,500 accounts, approximately 136,000 are residential and provide approximately 71% of the total revenue from sewer service charges; the remaining approximately 7,500 are non-residential, representing approximately 29% of the total revenue from sewer service charges. See "CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION

AND STATISTICS.” The average volume of wastewater processed by the City and County’s Wastewater System was 105.6 MGD in Fiscal Year 2010. A number of small private wastewater systems also serve some areas in the City and County. The average volume of wastewater processed by all such private systems is approximately 4.2 MGD.

General Description of Existing Facilities

The Wastewater System serving the island of Oahu is divided into eight wastewater basins for planning purposes: East Mamala Bay, West Mamala Bay, Kailua/Kaneohe/Kahaluu, North Oahu (West), North Oahu (East), Central Oahu, Waianae and Waimanalo. Each basin is served by a major wastewater treatment plant (“WWTP”). The function of each WWTP is to treat wastewater by removing or reducing organic and inorganic materials to levels that satisfy federal and state permit requirements for the discharge of such wastewater into the ocean, streams, reservoirs or injection wells. In addition to treatment facilities, the Wastewater System includes collection, pumping and other related facilities.

A description of the wastewater basins and major facilities is as follows:

East Mamala Bay. The largest and the most densely populated basin is East Mamala Bay. Approximately 361,500 people reside in East Mamala Bay, representing approximately 41% of the resident population of the entire island. The basin is served by the Sand Island WWTP, a primary treatment plant, and the largest treatment facility in the Wastewater System in terms of wastewater flow. The treatment plant has a primary treatment capacity of 86 MGD, and in Fiscal Year 2010, average daily flows were 62.8 MGD.

West Mamala Bay. West Mamala Bay is the second largest basin and includes Ewa, Central Oahu as far north as Mililani, and the Halawa to Pearl City area. The population of the basin area is approximately 292,500, or 33% of the estimated population of Oahu. The basin is served by the Honouliuli WWTP, which is the second largest treatment plant in the Wastewater System, with a primary treatment design capacity of 40 MGD and a secondary treatment design capacity of 13 MGD. In Fiscal Year 2010, average daily flows were 25.4 MGD. The secondary treated effluent is provided to a recycled water facility.

Kailua/Kaneohe/Kahaluu. The third largest basin includes the communities of Kailua, Kaneohe, and Kahaluu and surrounding areas in the eastern part of the island. The eastern portion of Oahu is also referred to as the Windward basin area. The basin area population is approximately 104,100, or approximately 12% of the island’s population. The basin is served by the Kailua Regional WWTP, the third largest treatment plant in the Wastewater System. The Kailua WWTP has a design capacity of 16 MGD and in Fiscal Year 2010 average daily flows were approximately 11.3 MGD.

North Oahu (East and West). Most of the North Oahu area does not have centralized sewer service though there are three small facilities, including the Kahuku WWTP (0.4 MGD capacity, secondary), the Pa’alaa Kai WWTP (0.15 MGD capacity, secondary), and the formerly privately operated Laie WWTP (0.9 MGD capacity, tertiary) which the City and County began operating on November 1, 2006. In Fiscal Year 2010, these facilities treated estimated average daily flows of 0.18 MGD, 0.09 MGD and 0.43 MGD, respectively.

Central Oahu. Central Oahu (with a population of approximately 37,500, including military bases and the communities of Wahiawa and Whitmore Village, is served by the Wahiawa WWTP (2.6 MGD capacity, secondary with sand filtration). The estimated average daily flows were 1.68 MGD in Fiscal Year 2010.

Waianae. The Waianae basin serves the west coast of the island, which has a population of approximately 44,500. The Waianae WWTP has the capacity to process 5.5 MGD at a secondary level. Estimated average daily flows were 3.15 MGD in Fiscal Year 2010.

Waimanalo. The Waimanalo basin is served by the Waimanalo WWTP, which is owned by the State and operated by the City and County. It is a secondary plant with sand filtration. The State recently completed an upgrade of the facility to an average daily flow of 1.155 MGD. The WWTP serves the Waimanalo community of 10,000, and in Fiscal Year 2010 average daily flows were estimated at 0.61 MGD.

The Sand Island WWTP, the Honouliuli WWTP and the Kailua Regional WWTP are the three largest WWTPs. The remaining WWTPs provide treatment of wastewater to the rest of the island. Though the six basin areas of Central Oahu, North Oahu (East and West), Waianae, and Waimanalo comprise the majority of the geographical area of the island, the population density is much lower in comparison to the East and West Mamala Bay and the Kailua/Kaneohe/Kahaluu basin areas. The combined population of the six basin areas is less than 15% of the total population of Oahu. The total design capacity of the WWTPs in the six basin areas is approximately 9 MGD and the wastewater flow in Fiscal Year 2010 was approximately 6.1 MGD. A private wastewater system provides collection and treatment for the community of Hawaii Kai. The Hawaii Kai system has an average flow of 4.2 MGD, including flows from the City and County's Kuliouou Wastewater Pumping Station ("WWPS"). The system processes less than 4% of the average flow of the City and County's Wastewater System.

Environmental Compliance

The WWTPs and other facilities operated by the Department are governed either by National Pollutant Discharge Elimination System (NPDES) permits or by State of Hawaii Department of Health Underground Injection Control permits. Since 1991, the U.S. Environmental Protection Agency ("EPA"), the State of Hawaii Department of Health ("DOH") and several environmental groups have filed various legal and regulatory actions against the City and County alleging violations of the federal Clean Water Act and the several NPDES and DOH permits held by the Department. The City and County has entered into settlements and consent decrees with respect to several of such actions which require the City and County, among other things, to rehabilitate and expand certain existing facilities, to implement pretreatment programs, to institute efficient effluent and biosolids reuse, and to construct new facilities. The Department has undertaken the rehabilitation and expansion of existing facilities, the implementation of pretreatment programs, effluent and biosolids reuse, and the construction of new facilities in the last several years to comply with these consent decrees. The Department also developed the 2001-2020 Capital Improvement Program, in part, to comply with the consent decrees as well as federal and state administrative orders and NPDES permit requirements.

A rupture of the Beachwalk force main on Kaiolu Street occurred in March 2006, resulting in the release of 48.7 million gallons of untreated wastewater into the Ala Wai Canal in Waikiki. The City and County repaired the force main, which was put back into service on March 29, 2006, and a new permanent force main is under contract and is expected to be in service by December 2012.

As a result of the 2006 Beachwalk spill, and after one year of negotiations, the EPA, U.S. Department of Justice ("DOJ"), DOH, and the City and County entered into a stipulated order that addresses the Beachwalk force main, five other force mains, and one pump station. The stipulated order, which has been accepted by the court, resolves the entire civil enforcement action that was simultaneously filed with the stipulated order against the City and County with respect to the spill. The estimated cost of the work in the stipulated order is approximately \$300 million (to be funded out of sewer funds and wastewater revenue bonds). This requirement would be included in the proposed consent decree identified below.

In January 2009, the EPA issued final decisions to deny applications for renewed variances from secondary treatment for the Sand Island and Honouliuli wastewater treatment plants. The City and County has vigorously challenged these decisions and submitted appeals to the Environmental Appeals Board in February and March 2009. If the City and County's appeals were to be denied, the project costs for secondary treatment at Honouliuli and Sand Island are estimated to be \$400 million and \$800 million, respectively (to be funded out of sewer funds and wastewater revenue bonds). A resolution of these denials is included in the proposed consent decree identified below.

As discussed under "PENDING LITIGATION" herein, the City Council has approved the terms of a proposed consent decree with the EPA, the DOH, the Sierra Club, Hawaii Chapter, Our Children's Earth Foundation, and Hawaii's Thousand Friends that would resolve the 1994, 2004, and 2006 lawsuits and the EPA's January 2009 final decisions, discussed in the foregoing paragraphs. The proposed consent decree allows 10 years for completion of work on the collection system, 14 years for the upgrade of the Honouliuli WWTP to secondary treatment, and up to 25 years, with the possibility of a three-year extension, for the upgrade of the Sand Island WWTP to secondary treatment. The City is expected to incur \$3.7 billion in capital costs through fiscal year 2020 (which coincides with the term of the collection system portion of the consent decree). This amount will largely be

spent on the collection system, and much of it will go toward work that was already required or planned. This amount also includes a portion of the costs of treatment plant upgrades at Sand Island and Honouliuli. Costs for the treatment plant upgrades include approximately \$550 million to replace primary treatment facilities at both plants and \$1.15 billion to upgrade the plants to secondary treatment plants. The settlement also requires the payment of a civil penalty in the amount of \$800,000 to the United States, and \$800,000 to the State of Hawaii. In addition, the City will provide \$800,000 to the Sierra Club, Hawaii Chapter, Our Children’s Earth Foundation, and Hawaii’s Thousand Friends, to fund four identified supplemental environmental projects.

The proposed consent decree has been approved by DOJ and lodged with the federal court and was subject to a 30-day public comment period which ended September 15, 2010. After reviewing the public comments, the United States will decide whether to move for its entry and the Court will decide whether to grant the motion. The consent decree will become effective upon its entry by the Court. Plaintiffs’ claims for attorneys’ fees remain outstanding and will be resolved separately by the federal Magistrate Judge.

The cost of any potential liability for the above referenced events for alleged violations or penalties, beyond the City and County’s approximate \$5.42 billion (in inflated dollars) 2001-2020 Capital Improvement Program to upgrade its collection systems and wastewater treatment plants, is speculative.

See “CAPITAL IMPROVEMENT PROGRAM” herein. See also “PENDING LITIGATION” ” herein and Appendix B – “Consulting Engineer’s Study” for a further discussion of the actions, existing consent decrees and proposed consent decree.

Projected Customer Growth

The resident population in Oahu, the area served by the Wastewater System, is projected to grow modestly through 2035. The actual and projected resident population, by basin area, for the years 2005 through 2035 is shown in the following tables. The majority of growth between the years 2005 and 2035 is expected to occur in East and West Mamala Bay. Of the total population growth projected to occur between 2005 and 2035, approximately 93,000, or 73%, is expected to take place in West Mamala Bay, and over 33,000, or 24%, is expected to occur in East Mamala Bay. The tables show an estimated average annual population increase of 5,084 between 2005 and 2035, or roughly 0.5% annually.

Table 1

**Actual and Projected Resident Population
by Basin, Oahu, 2005-2035**

<u>Basin</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Kahuku	8,457	8,254	8,472	8,636	8,756	8,844	8,895
Laie	6,025	5,902	6,120	6,263	6,394	6,492	6,557
Kailua-Kaneohe	106,656	104,122	104,954	105,026	103,894	102,334	100,849
Waimanalo	10,348	10,087	10,677	11,092	11,081	10,909	10,745
East Mamala Bay	359,196	361,476	371,211	376,928	382,307	387,511	392,277
West Mamala Bay	279,237	292,468	308,355	328,370	348,633	367,765	385,399
Waianae	43,923	44,490	45,518	46,776	47,847	48,667	49,217
Wahiawa	38,330	37,504	37,524	36,973	36,462	36,028	35,662
North Shore	<u>18,118</u>	<u>17,724</u>	<u>18,325</u>	<u>18,770</u>	<u>19,126</u>	<u>19,375</u>	<u>19,517</u>
Total	870,290	882,027	911,156	938,834	964,500	987,925	1,009,118

Source: City and County of Honolulu, Department of Environmental Services; City and County of Honolulu, Department of Planning and Permitting, 2009.

Table 2

**Actual and Projected Percentage Growth in Resident Population
by Basin, Oahu, 2005-2035**

Basin	2005-2010		2005-2035	
	Average Annual Change	Percent of Total Growth¹	Average Annual Change	Percent of Total Growth¹
Kahuku	-41	-1.7%	26	0.5%
Laie	-25	-1.0	26	0.5
Kailua-Kaneohe	-507	-21.6	-131	-2.6
Waimanalo	-52	-2.2	26	0.5
East Mamala Bay	456	19.4	1,232	24.2
West Mamala Bay	2,646	112.7	3,717	73.1
Waianae	113	4.8	189	3.7
Wahiawa	-165	-7.0	-74	-1.4
North Shore	<u>-79</u>	<u>-3.4</u>	<u>72</u>	<u>1.4</u>
Total	2,347	100.0%	5,084	100.0%

¹ Totals may not add due to rounding.

Source: City and County of Honolulu, Department of Environmental Services; City and County of Honolulu, Department of Planning and Permitting, 2009.

The Department has developed the 2011-2015 Capital Improvement Program, the 2011-2020 Capital Improvement Program and the 2001-2020 Capital Improvement Program, in part to provide new facilities which will be required to reliably serve projected growth in the number of customers served by the Wastewater System. See “CAPITAL IMPROVEMENT PROGRAM” herein.

CAPITAL IMPROVEMENT PROGRAM

The Department staff manages and updates at least annually a long-range Capital Improvement Program (the “CIP”) to achieve several goals. The CIP is a long-range planning tool used to estimate project costs and timing of expenditures over a 20-year period, currently through 2020. The 2011-2015 Capital Improvement Program and the 2011-2020 Capital Improvement Program are part of this 20-year plan. The Department develops the CIP with the objective of providing safe and reliable facilities to process the wastewater discharge of all sewer customers throughout Oahu. CIP projects are needed to meet the requirements of the 2010 consent decree, for the rehabilitation of existing facilities, the expansion of capacity to accommodate growth, and the improvement of facilities and processes.

1995 Consent Decree

The City and County, EPA and DOH entered into a consent decree filed in the United States District Court, District of Hawaii, on May 15, 1995 that has established the City and County’s direction on future wastewater issues. The overall goal established by the consent decree is to develop a proactive plan to reduce and prevent wastewater spills and bypasses from the collection system, pump stations, and treatment plants. See “PENDING LITIGATION” herein for a description of actions filed against the City and County by the EPA, the DOH, the Sierra Club and other environmental groups.

A number of projects identified in the CIP are designed to comply with the 1995 Consent Decree. Consent decree projects are developed to meet three major program objectives:

1. *Pretreatment*: Source control program to control introduction of inappropriate materials into the collection and treatment system. This program does not require funding of any CIP project.

2. *Collection system compliance:* Spill reduction program for both dry weather spills and wet weather spills.
3. *Supplemental environmental projects:* City and County commitment to undertake beneficial and feasible effluent and sludge reuse projects.

Reference is made to “PENDING LITIGATION” herein and Appendix B – “Consulting Engineer’s Report” for a discussion of a further proposed consent decree currently pending with EPA, DOH and several environmental groups. If approved, the proposed consent decree will supersede the 1995 consent decree.

Criteria for Ranking CIP Projects by Priority

The Department considers the CIP to be a flexible tool which allows the Department staff to determine the impact of adjusting the phasing and priority of projects. As of June 2010, the long-range CIP covering the 20-year period from 2001 through 2020 included a list of projects with estimated appropriations totaling approximately \$5.42 billion (in inflated dollars). Many of the projects shown in the CIP may not begin in the year specified or at all if needs change. The Department staff has developed a policy for ranking the CIP projects by priority to determine order and timing of projects. The policy is shown in the following table, with the highest priority criteria listed first:

Table 3

Priority for CIP Projects

<u>Priority Class</u>	<u>Description</u>
I	Safety and public health – immediate
II	Protection of the environment – immediate
III	Permit and regulatory compliance – immediate
IV	Completion of ongoing projects
V	Preventive
VI	Funding requirements
VII	System expansion
VIII	Other

The rankings are intended as guidelines for CIP project planning, not as hard and fast rules. A project considered in a low priority class may be upgraded to a high priority position in the CIP due to any number of factors. For example, if a service area is very close to reaching and surpassing the capacity of its wastewater facilities, the expansion of the system in that area rises in priority. System expansion can entail projects which affect permit and regulatory compliance, protection of the environment, or safety and public health. Through the use of these guidelines combined with analyses of funding and other resource constraints, Department staff can develop a CIP which best satisfies the needs of the Department customer base. The 2001-2020 Capital Improvement Program was developed using these CIP guidelines and constitutes the current 20-year CIP.

Classification of CIP Projects

The City and County expects to use various funding sources to finance CIP projects: (i) proceeds of additional Senior Bonds, Junior Bonds and other Subordinate Obligations to be issued, (ii) proceeds of Reimbursable Obligations previously issued and currently available, (iii) proceeds of Senior Bonds and Junior Bonds previously issued and currently available, (iv) the Net Revenues of the Wastewater System, and (v) Wastewater System Facility Charges. Revenues from Wastewater System Facility Charges are intended to cover a portion of the project expenditures relating to expansion of the Wastewater System to serve future growth in the number of customers. Revenues from sewer service charges are earmarked for the expenditures resulting from rehabilitation or upgrade of the wastewater system for existing users. To effectively determine the costs to be recouped by these respective charges, the Department makes a fair estimate of the share of costs attributable to expansion and rehabilitation. Where an improvement benefits both existing and future users, the Department

identifies the relative portion allocable to each. The classes of CIP projects include system expansion, system upgrade, and replacement/rehabilitation.

System expansion: Improvements which increase the design capacity of treatment, transmission, or support facilities and equipment to accommodate new or future growth. Future users would finance system expansion project costs partially through revenues from Wastewater System Facility Charges.

System upgrade: Improvements which upgrade the service level standard. For example, an upgrade to secondary treatment processes where only primary treatment processes were used. To fairly allocate costs between future and existing users, the portions of upgrade costs attributable to expansion and current use must be identified.

Replacement/rehabilitation: Improvements which replace or rehabilitate facilities serving existing development. Existing users pay the costs of replacement and rehabilitation projects through sewer service charges.

2011-2015 Capital Improvement Program

To meet certain consent decrees entered into by the Department with Federal and State regulatory bodies and to reliably serve projected growth in the number of customers served by the Wastewater System, the Department has developed and adopted the 2011-2015 Capital Improvement Program. The additions and improvements to the Wastewater System, the costs of which are to be financed in part from the proceeds of the Series 2010 Bonds, are part of the 2011-2015 Capital Improvement Program. The City and County expects to appropriate approximately \$1.55 billion (in inflated dollars) for the 2011-2015 Capital Improvement Program. A portion of these appropriations will actually be expended after the 2011-2015 period. The projected appropriations for the various CIP projects of and the expected sources of funding for the 2011-2015 Capital Improvement Program are set forth in the following tables.

Table 4

**Projected Appropriations for
2011-2015 Capital Improvement Program**

<u>Project</u>	<u>Projected Cost</u>
CIP Projects	\$1,485,450
Project Management	40,140
Capital Equipment	<u>26,209</u>
Total	\$1,551,799

Table 5

**Expected Sources of Funding for
2011-2015 Capital Improvement Program**

<u>Funding Source</u>	<u>Projected Amount</u>
Subordinate Obligations ¹	\$ 43,893
Facility Charges ²	47,070
Net Revenues ³	295,520
Additional Bonds	<u>1,165,316</u>
Total	\$1,551,799

¹ State revolving fund loan proceeds.

² Fees collected for new Wastewater System connections.

³ Cash funded CIP.

2011-2020 Capital Improvement Program

The 2011-2020 Capital Improvement Program is part of the 2001-2020 Capital Improvement Program. The City and County expects to appropriate approximately \$3.65 billion (in inflated dollars) for the 2011-2020 Capital Improvement Program. A portion of these appropriations will actually be expended after the 2011-2020 period. The projected appropriations for the various CIP projects of and the expected sources of funding for the 2011-2020 Capital Improvement Program are set forth in the following tables.

Table 6

Projected Appropriations for 2011-2020 Capital Improvement Program

<u>Project</u>	<u>Projected Cost</u>
CIP Projects	\$3,512,662
Project Management	82,952
Capital Equipment	<u>55,222</u>
Total	\$3,650,836

Table 7

Expected Sources of Funding for 2011-2020 Capital Improvement Program

<u>Funding Source</u>	<u>Projected Amount</u>
Subordinate Obligations ¹	\$ 93,893
Facility Charges ²	101,630
Net Revenues ³	615,520
Additional Bonds	<u>2,839,793</u>
Total	\$3,650,836

¹ State revolving fund loan proceeds.

² Fees collected for new Wastewater System connections.

³ Cash funded CIP.

2001-2020 Capital Improvement Program

The 2001-2020 Capital Improvement Program is the current twenty-year CIP the Department has undertaken. The City and County expects to appropriate approximately \$5.42 billion (in inflated dollars) for the 2001-2020 Capital Improvement Program. A portion of these appropriations will actually be expended after the 2001-2020 period. The projected appropriations for the various CIP projects of and the expected sources of funding for the 2001-2020 Capital Improvement Program are set forth in the following tables.

Table 8

Projected Appropriations for 2001-2020 Capital Improvement Program

<u>Project</u>	<u>Projected Cost</u>
CIP Projects	\$5,191,759
Project Management	141,326
Capital Equipment	<u>88,662</u>
Total	\$5,421,747

Table 9

**Expected Sources of Funding for
2001-2020 Capital Improvement Program**

<u>Funding Source</u>	<u>Projected Amount</u>
Subordinate Obligations ¹	\$ 205,269
Facility Charges ²	110,914
Net Revenues ³	649,432
Prior Bonds	83,985
Additional Bonds	<u>4,372,147</u>
Total	\$5,421,747

¹ State revolving fund loan proceeds.

² Fees collected for new Wastewater System connections.

³ Cash funded CIP.

HISTORICAL AND PROJECTED REVENUES, EXPENSES AND COVERAGES

Since its initial revenue bond issue in 1998, the Department has exceeded coverage requirements, as shown since 2008 in Table 10, which sets forth historical and projected revenues, expenses and debt service coverage of the Wastewater System.

Table 10

Historical and Projected Revenues, Expenses and Debt Service Coverages (\$ in thousands) (Fiscal Year Ending June 30)

	<u>Actual</u>		<u>Estimated</u>			<u>Projected</u>		
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Revenues ¹								
Sewer Service Charges ²	\$219,907	\$250,265	\$299,502	\$318,510	\$331,518	\$345,993	\$361,090	\$380,283
Interest Earnings	17,884	7,080	2,265	185	8,799	9,046	9,026	8,810
BABs/RZEDBs Subsidy ³	0	0	0	0	2,217	1,766	1,783	1,783
Other Revenues	<u>173</u>	<u>276</u>	<u>2,219</u>	<u>2,545</u>	<u>187</u>	<u>188</u>	<u>189</u>	<u>190</u>
Total Revenues	\$237,964	\$257,621	\$303,985	\$321,240	\$342,721	\$356,993	\$372,088	\$391,066
Operating Expenses ⁴	109,749	114,823	105,128	132,853	137,660	142,049	146,595	\$151,303
Net Revenues	\$128,215	\$142,798	\$198,857	\$188,387	\$205,062	\$214,945	\$225,493	\$239,763
Annual Debt Service								
Senior Lien Bonds ⁵	\$ 34,422	\$ 42,281	\$ 38,184	\$ 49,644	\$ 73,878	\$ 92,286	\$113,433	\$134,366
D/S Coverage ⁶	3.72x	3.38	5.21	3.79	2.78	2.33	1.99	1.78
Senior and Junior Lien Bonds ^{5,7}	\$ 54,924	\$ 63,941	\$ 64,324	\$ 79,652	\$108,322	\$128,305	\$149,456	\$170,390
D/S Coverage ⁶	2.33x	2.23	3.09	2.37	1.89	1.68	1.51	1.41
Total Obligations ⁸	\$ 68,667	\$ 93,687	\$ 92,048	\$105,107	\$131,625	\$150,649	\$170,254	\$189,258
D/S Coverage ⁶	1.94x	1.54	2.23	1.88	1.63	1.49	1.38	1.32

¹ Does not include System Facility Charges, which are pledged under the Resolution but are not defined in Revenues.

² Sewer service charges increased by 25% in 2008, 18% in 2009, 18% in 2010 and 15% in 2011. Projections reflect additional planned increases of between 4% and 10% annually beginning in 2012.

³ Includes Refundable Credits in the form of federal interest subsidies received with respect to the Series 2009B and 2009C Bonds issued under the Bond Resolution. Under the current provisions of the Bond Resolution, such interest subsidies are not treated as Revenues in the year of receipt for purposes of the rate covenant, additional bonds test or other calculations of the ratio between Net Revenues and Debt Service. However, if initially deposited in the Rate Stabilization and subsequently transferred to the Sewer Fund within 90 days following the end of a fiscal year, such interest subsidies may be treated as Revenues in the year of the transfer. See "SECURITY FOR THE BONDS – Proposed Amendments to Bond Resolution" for a discussion of certain proposed amendments to such provisions.

⁴ Operating expense projections reflect both anticipated operational changes and beyond 2010 are inflated at 3% per year for expenses and 3% per year for personnel costs. Operating expenses do not include debt service, depreciation, or cash expenditures on capital improvements. Cash expenditures on capital improvements exceeded \$19.2 million in F Y2009 and \$14.5 million in FY 2010, reflecting funds generated through previous years coverage earnings.

⁵ Includes actual debt service for Senior Series 2001, 2005, 2006, 2007 and 2009 Bonds, estimated debt service for Series 2010 Bonds, and assumes a 5.75% interest rate for additional issues of Senior Bonds through 2014 and a 5.5% interest rate for Senior Bonds issued thereafter.

⁶ Minimum debt service coverage requirements are: Senior Lien Bonds – 1.2x; Senior and Junior Lien Bonds – 1.1x; Total Obligations – 1.0x. Debt service coverage for Total Obligations includes revenue from System Facility Charges. System Facility Charge revenues are shown in Table 18.

⁷ Includes actual debt service for Junior Series 1998, 2003, 2008 and 2009 Bonds. Excludes debt service for optional Junior Series 2010 Bonds.

⁸ Includes actual debt service for existing obligations including Senior and Junior Bonds; reimbursable General Obligation Bonds; State Revolving Funds Loans; and any other debt obligations and assumes future interest rates for Revenue Bonds as indicated above.

CONCLUSIONS OF CONSULTING ENGINEER

The Consulting Engineer has projected revenues, expenses and coverages for the Wastewater System for the Fiscal Years 2011-2020, inclusive. The projections are based on inflated dollars (i.e., adjusted from 2011 dollars). The projections indicate that with respect to the Fiscal Years 2011-2020 inclusive, the City and County can (i) issue the Senior Series 2010 Bonds to finance \$200 million of necessary additions and improvements to the Wastewater System, to fund the Separate Series Reserve Accounts for the Senior Series 2010 Bonds, and to pay the costs of issuing the Senior Series 2010 Bonds; (ii) finance an additional \$3.65 billion of improvements to the Wastewater System from proceeds of additional Senior Bonds and Subordinate Obligations to be hereafter issued, proceeds of Reimbursable Obligations previously issued and currently available, proceeds of Senior Bonds and Subordinate Obligations previously issued and currently available, the Net Revenues and Wastewater System Facility Charges over the ten-year period; and (iii) fully meet all reserve funding and coverage requirements under the First Bond Resolution and the Bond Resolution through an adopted increase of sewer rates and charges of 15% in Fiscal Year 2011, and planned rate increases of between 4% and 10% from Fiscal Year 2012 through Fiscal Year 2020, and (iv) meet all reserve funding and coverage requirements by modifying adopted or projected sewer rates to enable financing of prospective requirements of pending revisions to the City and County's consent decree or other regulatory enforcement actions, and (v) implement an approved 3% increase of Wastewater System Facility Charges in Fiscal Year 2011 and additional planned increases of 3% in each of the Fiscal Years thereafter through June 30, 2020. The monthly residential wastewater bill for a customer with metered water consumption of 10,000 gallons, and billed for 7,000 gallons of wastewater volume, is expected to increase from \$90.96 to \$157.84 between Fiscal Year 2011 and Fiscal Year 2020. The revenues from the Wastewater System Facility Charge, which are not included in calculations of Revenues under the Bond Resolution, were approximately 2% of total revenues of the Wastewater System in Fiscal Year 2010 and are projected remain at approximately 2% through Fiscal Year 2020. The Consulting Engineer has concluded that current customer rates and charges for the City and County are comparable to other similar wastewater agencies in the Western United States. See "CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION AND STATISTICS — Rates and Charges" and Appendix B, "Consulting Engineer's Study" for a discussion of the Rate Ordinance.

The Consulting Engineer, based upon its studies, the assumptions discussed in the Engineer's Report and its review of the data and analysis provided by the City and County and its consultants, has concluded in its Engineer's Report that:

- Department management has qualifications and experience commensurate with its responsibilities, and demonstrated commitment to the Department's vision and mission.
- The FY 2011 to FY 2015 CIP projects implement collection system and treatment facility modifications required to improve operations, accommodate planned growth, and comply with current federal and state regulatory requirements.
- The 2010 Draft Consent Decree adds certainty to the Department's short and long-term CIP and operational needs. Many of the projects mandated in the 2010 Draft Consent Decree are a continuation of previous consent decree work and were already included, and budgeted for, in the Department CIP and financial plans. The new, longer term projects provide some flexibility with regards to project schedule and may potentially benefit from future technological advancement.
- The CIP includes improvements to the System collection and pumping facilities to assure compliance with current federal and state regulatory requirements. These collection and pumping facilities constitute much of the need for capital facility improvements.
- Projects included in the Department's FY 2011 to FY 2020 CIP appropriations have been estimated based on known regulatory requirements and to conform to industry standard engineering practices. Project cost estimation procedures appear to be reasonable, and the construction schedules are achievable given implementation of effective construction management and program management.
- The projects to be financed by proceeds of the Series 2010 Bonds are the highest priority projects required to meet consent decree requirements and protect public health and keep the system in a state of good repair. They are included in facility plans and updates thereto, which identify the need for projects through the year 2020.

- The Department's financial planning and rate practices are both comprehensive and conform to established industry standard approaches.
- The Department and City Council have demonstrated through historical financial planning, adopted rate increases, and System performance, a commitment to conforming to established financial policies, as well as effectiveness in balancing rate increases with the financial requirements of the System (including debt service coverage requirements).
- The principal assumptions used in the financial forecast are reasonable given recent experience and current economic conditions. Variations in actual inflationary or interest rates may cause subsequent adjustments to future financial plans.
- Projected operating results are consistent with the Department's established financial policies and debt service requirements, and will provide funding necessary to implement the CIP as currently envisioned. Specifically, the projected sewer service charges will provide revenue sufficient to:
 - Meet currently projected costs of operation, maintenance, and routine replacement of sewer system facilities.
 - Meet the existing debt service obligations and the projected requirements for the Series 2010 Bonds and future bond issues.
 - Provide sufficient revenue to pay the costs of the Department's CIP through the end of the forecast period using system service charges, wastewater system facility charges (WSFCs), and other capital-related funding sources.
 - Meet reserve requirements of the Bond Resolution and the Department's policies.
- Monthly residential bills for wastewater service, billed for 10,000 gallons of wastewater volume, are forecasted to increase from \$90.96 to \$107.44 between FY 2011 and FY 2015. (A rate ordinance establishing rate increases from FY 2012 is expected to be implemented in the third quarter of FY 2011.)
- The Department's debt and financial policies target debt service coverage in excess of 1.60x on senior revenue bonds and 1.25x on all revenue bonds. Based on the forecast rate increases, net revenues of the Department are projected to be sufficient to meet these targets and on existing and projected future debt service obligations, including a 1.20x parity coverage requirement on senior lien debt and 1.10x parity coverage on junior lien debt, in accordance with the First Bond Resolution.

The Consulting Engineer's Report has been prepared at the request of BofA Merrill Lynch, the senior managing underwriter for the Series 2010 Bonds, on behalf of the Department for inclusion as an Appendix to the Official Statements relating to the issuance of the Series 2010 Bonds and the Senior Series 2010 Bonds. The conclusions, observations, and recommendations contained herein constitute only the opinions of the Consulting Engineer. The various background documents, statements, and other information supplied by the Department have been relied upon as being accurate in the performance of these analyses. However, no assurances are given nor warranties implied by the Consulting Engineer to the accuracy of such information. The Consulting Engineer makes no certification and gives no assurances except as explicitly set forth in the Consulting Engineer's Report.

CERTAIN FINANCIAL, OPERATING AND OTHER INFORMATION AND STATISTICS

Management's Discussion of Financial Performance

In the period since the wastewater program became fully self-supporting in 1993, the program's financial position has been consistently strong. The change to enterprise fund status in 1998 further strengthened the position of the utility through clearer definition of enterprise assets, understanding of their current value, and clarity in responsibilities. The sale of the initial wastewater revenue bonds in 1998, accompanied by a strong debt and financial policy adopted by the City Council, served to insure a continuing commitment to a strong financial posture for the wastewater enterprise.

In 2005, the City and County adopted a rate ordinance providing for increases in wastewater rates and future rate adjustments for the period July 1, 2005 through July 1, 2011, and in 2007 adopted increases to those rates for the period July 1, 2007 through July 1, 2011. See “Rates and Charges” below. Revenues have been sufficient throughout the period to meet all operation and maintenance and debt service requirements, including coverage. The significant base component of the rate structure and growth in customers prevents changes in water use from having a major impact on revenues. The sewer service charge program will remain strong reflecting the high residential component of wastewater customers and the lack of any single large commercial customer.

The Wastewater System Facility Charge accounts for approximately 2.2% of revenues, is solely dedicated to expansion, and is not considered when calculating debt service coverage for the Bonds and Subordinate Obligations. Wastewater System Facility Charge revenue peaked in Fiscal Year 2006 representing construction occurring in Fiscal Year 2007. Higher levels in Fiscal Year 2010 reflect pending future construction. However, it is anticipated that Wastewater System Facility Charge revenue will not increase further through Fiscal Year 2011. This revenue source reflects the limited growth of service area population and generally only the redistribution of that population. As such, it is not considered a major source of funds on which to base financial capability.

Efforts continue to control expenses, however, cost escalation, additional facilities, and increased operational requirements have resulted in higher operating budgets. Continuing analyses of operational procedures and increased automation opportunities are expected to help control expenses in the long term.

Net revenues have increased through Fiscal Year 2010, reflecting increased revenue from rate increases. The enterprise has continued to maintain a surplus throughout that period. The Department expects to meet or exceed revenue projections for Fiscal Year 2011 notwithstanding recent economic conditions. This is due to the lack of reliance on a specific business or industry as a major source of revenue. The residential customer class continues to pay water/sewer bills without a significant increase in delinquencies. Further, revenue projections are conservative and have been consistently exceeded in previous years.

As part of the commitment to ensure the financial strength of the Wastewater System, the City Council adopted Ordinance No. 05-006 on March 31, 2005, pledging not to transfer Sewer Fund monies to the City and County’s General Fund.

In the opinion of the Department, the financial position of the Wastewater System is strong, with a substantial reserve balance which provides reasonable protection against unforeseen events and financial flexibility for the future. Financial planning continues to identify the best alternative to maintain a strong financial posture while providing quality service to the customer and the community at a reasonable price. City Council and administration policies support the continuing revenue levels necessary to provide for current and future requirements.

See Appendix A, “Economic and Demographic Factors,” for a discussion of certain economic conditions that could potentially impact the City and County’s revenues.

Billing and Collection

Over 95% of Wastewater System sewer service charge billing is done by the Board of Water Supply through inclusion on the water bill. The delinquency rate for this billing program (*i.e.*, the dollar amount of bills more than 60 days past due expressed as a percentage of total revenues) during fiscal years 2006 through 2010 was 0.75%, 0.87%, 0.97%, 0.90% and 0.83%, respectively. Should bills not be paid, the authority exists, and has been exercised, to terminate water service for nonpayment of water and sewer service charges.

Ten Largest Customers

The ten largest customers of the Wastewater System in Fiscal Year 2010 (see table below) account for 6.4% of the annual revenues of the system.

Table 11

**Ten Largest Customers
Fiscal Year 2010**

<u>Customer</u>	<u>Sewer Service Charges</u>	<u>Percentage of Revenues</u>
University of Hawaii	\$3,502,739.22	1.27%
State of Hawaii, Airport Maintenance	3,425,474.90	1.24
State of Hawaii, Hawaii Public Housing Authority	3,346,788.74	1.21
Hilton Hotels Corporation	2,696,250.06	0.98
Sheraton Waikiki Hotel	1,020,626.90	0.37
United Laundry Services	855,391.82	0.31
State of Hawaii, Central Service Division	831,248.54	0.30
Hyatt Regency Waikiki	741,864.14	0.27
State of Hawaii, Halawa Correctional Center	683,007.30	0.25
Halekulani Hotel	<u>550,704.76</u>	<u>0.20</u>
TOTAL	\$17,654,096.38	6.40%

Certain operating and financial statistics of the Department are summarized in the following tables. Unless otherwise noted, tables provided herein contain data furnished by the City and County.

Table 12**Board of Water Supply (BWS) and Wastewater Customer Accounts as of June 30, 2010**

	A	B	C	D	E	F	G	J	L	M	N	P	Q	S		
Customer Class	Sewer Regular Monthly Charges	Cesspool Monthly Charge (Contract)	Cesspool Per Call	Separate BWS Water Meter (domestic use)	Cesspool Chemical Treat	Agreed to Monthly Charge	Sewer No Charge	Non-residential SS surcharge	Private Water Well	Private Waste-water Meter	Private Water Meter	Minimum Monthly Charge Only	Septic System	Submetr Program	Total	Percent Accounts
1 - Public Sewer																
10 – Single family/duplex	129,236	5	11,122	0	0	5	8,839	0	616	0	1	0	679	125	150,628	88.01%
15 – Mixed residential	0	0	4	0	0	0	196	0	2	0	10	0	1	0	213	0.12%
20 - Multi-family	5,885	0	114	0	0	0	492	0	15	0	2	0	3	121	6,632	3.87%
25 – Mixed users	3	0	6	0	0	2	309	0	1	0	20	0	2	0	343	0.20%
Total BWS residential accounts	135,124	5	11,246	0	0	7	9,836	0	634	0	33	0	685	246	157,816	92.21%
WW Res Accts	135,124	0	0	0	0	7	0	0	634	0	33	0	0	246	136,044	94.80%
30 – Commercial	4,753	0	672	1	0	20	3,130	604	15	0	33	83	35	113	9,459	5.53%
40- Hotels	246	0	6	0	0	0	10	0	1	0	0	0	0	0	263	0.15%
50 – Industrial	432	0	86	0	0	1	23	0	0	0	0	0	2	0	544	0.32%
61 - US Military Installation	11	0	13	0	0	0	13	0	0	0	2	0	1	0	40	0.02%
62 - US Non-military	25	0	7	0	0	0	5	0	0	0	1	0	0	0	38	0.02%
63 - State	208	0	105	0	0	162	357	0	1	0	8	0	2	15	858	0.50%
65 - City	112	0	140	0	0	130	666	0	0	0	4	45	6	0	1,103	0.64%
70 – Agriculture	2	0	435	0	0	0	30	0	0	0	0	0	15	0	482	0.28%

Table 12

Board of Water Supply (BWS) and Wastewater Customer Accounts as of June 30, 2010

	A	B	C	D	E	F	G	J	L	M	N	P	Q	S		
Customer Class	Sewer Regular Monthly Charges	Cesspool Monthly Charge (Contract)	Cesspool Per Call	Separate BWS Water Meter (domestic use)	Cesspool Chemical Treat	Agreed to Monthly Charge	Sewer No Charge	Non-residential SS surcharge	Private Water Well	Private Waste-water Meter	Private Water Meter	Minimum Monthly Charge Only	Septic System	Submetr Program	Total	Percent Accounts
80 – Religious	456	0	50	0	0	2	12	0	0	0	5	0	4	22	551	0.32%
Total BWS Non-res Accts	6,245	0	1,514	1	0	315	4,246	604	17	0	53	128	65	150	13,338	7.79%
WW Non-res Accts	6,245	0	0	1	0	315	0	604	17	0	53	128	0	93	7,456	5.20%
Total BWS Accounts	141,369	5	12,760	1	0	322	14,082	604	651	0	86	128	750	396	171,154	100.00%
Total WW Accts	141,369	0	0	1	0	322	0	604	651	0	86	128	0	339	143,500	100.00%
% Total BWS Accts	82.60%	0.00%	7.46%	0.00%	0.00%	0.19%	8.23%	0.35%	0.38%	0.00%	0.05%	0.07%	0.44%	0.23%	100.00%	
% WW Accts	98.51%	0.00%	0.00%	0.00%	0.00%	0.22%	0.00%	0.42%	0.45%	0.00%	0.06%	0.09%	0.00%	0.24%	100.00%	

Table 13**History of New Sewer Connections by Type**

Fiscal Year Ended June 30	Single Family	Multi Family		Nonresidential	Total
	New Units	New Units	ESDUs	ESDUs	ESDUs
2006	1,210	1,664	1,165	2	2,377
2007	1,950	3,379	2,365	168	4,483
2008	307	874	612	24	943
2009	437	780	546	15	998
2010	221	324	227	0	448
Five year average	825	1,404	983	42	1,850
Projected annual growth	1,200	529	370	30	1,600

Table 14**Existing Sewer Users
Fiscal Year Ended June 30, 2010**

Customer Classification	Number of Living Units	Number Of Equivalent Single-Family Dwelling Units (ESDUs)	Estimated Wastewater Flow (MGD)
Residential			
Single family/duplex	136,240	136,240	41.553
Multi-family residences	120,407	83,706	25.530
Less: Hawaii Kai	994	994	0.303
Total residential	255,653	218,952	66.780
Nonresidential	-	78,241	23.864
Infiltration/Inflow	-	-	15.446
Total	255,653	297,193	106.090

Table 15**Historic Population Growth
Oahu, 2000 - 2009¹**

Calendar Year	Resident Population	De facto Population²
2000	875,061	924,624
2001	877,189	921,147
2002	882,628	926,225
2003	888,026	925,595
2004	894,406	935,671
2005	900,340	941,498
2006	903,467	943,613
2007	898,695	936,937
2008	902,745	931,973
2009	907,574	936,600

¹ Population estimates are based on revisions released by the U.S. Census Bureau in March 2009 and may differ somewhat from earlier figures cited in other tables.

² Includes visitor population.

Source: State of Hawaii, Department of Business, Economic Development & Tourism, Data Book, 2009.

Table 16**Number of Equivalent Single-Family Dwelling Units (ESDUs)**

Fiscal Year Ending June 30	Single-Family Units	Multifamily Units	ESDUs	Commercial ESDUs	Total ESDUs
2001	126,873	110,226	76,742	77,786	281,401
2002	128,109	110,521	76,788	77,832	282,729
2003	129,187	111,436	77,426	77,967	284,580
2004	130,624	112,955	78,489	77,986	287,099
2005	132,115	113,386	78,791	78,032	288,938
2006	133,325	115,050	79,956	78,034	291,315
2007	135,275	118,429	82,321	78,202	295,798
2008	135,582	119,303	82,933	78,226	296,741
2009	136,019	120,083	83,479	78,241	297,739
2010	136,240	120,407	83,706	78,241	298,187

Table 17**Wastewater Flows by Treatment Facility (MGD)¹**

Treatment Facility²	Design Capacity³	2010 Flow⁵	Projected Flow (2020)
Sand Island	82.00	62.82	92.60
Kahuku WWTP	0.40	0.18	0.15
Honouliuli WWTP	38.00	25.42	32.80
Waimanalo WWTP	0.70	0.61	0.62
Kuliouou WWPS (Hawaii Kai WWTP) ^{2, 4}	-	0.46	0.38
Wahiawa WWTP	2.50	1.68	1.89
Kailua WWTP	15.25	11.26	13.40
Waianae WWTP	5.20	3.15	3.50
Paalaa Kai WWTP	0.14	0.09	0.14
Laie WRF ⁶	<u>0.90</u>	<u>0.43</u>	<u>0.63</u>
TOTAL:	145.09	106.09	146.11

¹ Average day annual flow (ADAF), MGD.

² Does not include 0.385 MGD of flow from the City and County's Kuliouou WWPS which is treated by the Hawaii Kai WWTP, a private treatment facility.

³ ADAF estimated based on 105% of design capacity for average dry weather flow.

⁴ The Kuliouou WWPS does not provide treatment, but pumps wastewater from a Department Collection System to a private treatment plant (Hawaii Kai WWTP). Inclusion here is to show total volume of wastewater handled by the Department.

⁵ Actual average daily flow during 2010 may have exceeded ADAF Design Capacity or Projected Flow due to weather conditions

⁶ The City and County assumed operational responsibility for the Laie Water Reclamation Facility on November 1, 2006.

Table 18

History of Major Wastewater Revenue Sources

Fiscal Year Ended June 30	Sewer Service Charges*	Wastewater Facility Charges**
2001	\$110,409,000	\$1,413,000
2002	112,147,942	1,607,571
2003	111,878,243	3,811,825
2004	111,886,155	3,076,678
2005	112,746,082	5,339,119
2006	142,167,282	8,822,000
2007	160,963,313	4,691,000
2008	219,906,956	5,024,765
2009	250,264,958	1,555,359
2010	299,501,972	6,686,130

* Sewer service charge only - does not include connection or lateral installation charges.

** Fluctuations in Wastewater Facility Charges are due largely to the timing of major development projects.

Rates and Charges

The City and County adopted the Rate Ordinance in June 2005 which provided for immediate increases in wastewater rates and future rate adjustments over the six-year period from July 1, 2005 through June 30, 2011. The City and County adopted an amendment to the Rate Ordinance in June 2007 which provides for immediate and greater increases in wastewater rates and future rate adjustments from July 1, 2007 through June 30, 2011. The schedule of rates under the Rate Ordinance is intended to allow for financial planning and projection for the Department and the City and County. Tables 19 and 20 below set forth schedules under the Rate Ordinance for residential and non-residential users, respectively.

Table 21 sets forth a schedule of Wastewater System Facility Charge adjustments, effective July 1, 2005 (Ordinance No. 05-019) through June 30, 2011.

Table 19

Schedule of Residential Sewer Service Charges

Effective July 1 of:

Single-family and duplex dwellings served by city water system per dwelling unit per month:

1. Monthly base charge		
	2007	\$42.71
	2008	50.40
	2009	59.47
	2010	68.39
2. Monthly usage charge – First 2,000 gallons of metered water consumed.		No charge
3. Charge per 1,000 gallons of metered water consumed over 2,000 gallons, the water consumed reduced by the water irrigation factor of 18%; provided that residential users who install and maintain a water meter for submetering nonsewer water shall not have the water consumed reduced by the water irrigation factor.	2007	\$1.80
	2008	2.12
	2009	2.51
	2010	2.88

Single-family and duplex dwellings not served by city water system per dwelling unit per month

	2007	\$52.58
	2008	62.04
	2009	73.21
	2010	84.19

Multiple-unit dwellings served by city water system per dwelling unit per month

1. Monthly base charge		
	2007	\$29.91
	2008	35.30
	2009	41.65
	2010	47.90
2. Monthly usage charge—First 2,000 gallons of metered water consumed		No charge
3. Charge per 1,000 gallons of metered water consumed over 2,000 gallons, the water consumed reduced by the water irrigation factor of 18%; provided that residential users who install and maintain a water meter for submetering nonsewer water shall not have the water consumed reduced by the water irrigation factor	2007	\$1.80
	2008	2.12
	2009	2.51
	2010	2.88

	Effective July 1 of:	
Multiple-unit dwellings not served by city water	2007	\$40.48
	2008	47.76
	2009	56.36
	2010	64.81

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Table 20

Schedule of Non-Residential Sewer Service Charges

Effective July 1 of:

Domestic Strength Wastewater:

1. Metered Water Usage:

a. If 9,000 gallons or less per month:

(1) Monthly base charge:

2007	\$38.41
2008	45.33
2009	53.49
2010	61.51

(2) Charge per 1,000 gallons:

2007	\$1.95
2008	2.31
2009	2.72
2010	3.13

b. If more than 9,000 gallons per month, charge per 1,000 gallons

2007	\$6.22
2008	7.34
2009	8.66
2010	9.96

2. Metered Wastewater Discharge:

a. If 7,000 gallons or less per month:

(1) Monthly base charge:

2007	\$38.41
2008	45.33
2009	53.49
2010	61.51

(2) Charge per 1,000 gallons:

2007	\$2.50
2008	2.95
2009	3.48
2010	4.00

b. If more than 7,000 gallons per month, charge per 1,000 gallons

2007	\$7.90
2008	9.32
2009	11.00
2010	12.65

Effective July 1 of:

Extra Strength Wastewater

1. Charge per 1,000 gallons of water usage: use the following formula:	2007	\$6.22
	2008	7.34
0.857 + 0.143(SSm/200) multiplied by applicable rate	2009	8.66
	2010	9.96
2. Charge per 1,000 gallons of wastewater discharge, use the following formula:	2007	\$7.90
	2008	9.32
0.857 + 0.143(SSm/200) multiplied by applicable rate	2009	11.00
	2010	12.65

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Table 21

Schedule of Wastewater System Facility Charges

- (1) Residential wastewater system facility charge per ESDU:

<u>Fiscal Year</u>	<u>Amount</u>
2006/07	\$4,923
2007/08	5,071
2008/09	5,223
2009/10	5,380
2010/11	5,541

- (2) Low-income housing wastewater system facility charges per ESDU:

<u>Amount</u>
\$1,146

- (3) Nonresidential wastewater system facility charge for domestic strength wastewater per ESDU:

<u>Fiscal Year</u>	<u>Amount</u>
2006/07	\$4,923
2007/08	5,071
2008/09	5,223
2009/10	5,380
2010/11	5,541

- (4) Nonresidential wastewater system facility charge for extra-strength wastewater per ESDU based on the following formula:

$$\text{Wastewater System Facility Charge for extra-strength wastewater} = A + ((\text{SSi}/200) \times B)$$

where SSi = the imputed suspended solids loading, in mg/L and applicable values for terms “A” and “B” are set forth as follows:

<u>Fiscal Year</u>	<u>Terms in Extra-Strength Surcharge Formula</u>	
	<u>A</u>	<u>B</u>
2006/07	4,231	692
2007/08	4,358	713
2008/09	4,489	734
2009/10	4,624	756
2010/11	4,763	778

Each fiscal year, the council shall review the wastewater system facility charge to determine if it remains appropriate or should be revised.”

DEBT AND FINANCIAL POLICIES AND INDEBTEDNESS

General

The City Council, by resolution adopted on November 10, 1998, established the Debt and Financial Policies for the Wastewater System to provide a general framework for the conduct of financial activities and has been in compliance with such policies since their adoption. Such debt and financial policies specify, among other things, that the City and County will target to maintain revenues (excluding Wastewater System Facility Charges) of 1.60 times senior revenue bond debt service and 1.25 times debt service for all revenue bonds, regardless of the priority of lien. It is expected that the City and County will adopt increases in the sewer service charges necessary to meet the debt service coverage requirements prescribed in its debt and financial policies. The debt and financial policies do not constitute an agreement with holders of Bonds, and the City and County has not undertaken any obligation to such holders or any other person to comply with such policies or to meet such targets. Since establishment of these policies in November 1998, the Wastewater Enterprise has consistently met or exceeded all policy requirements.

Investments

The City and County manages its own investment portfolio in accordance with state law and a written investment policy of the City and County. The City and County does not engage in pooled investments, speculate with investments or leverage its investments. The City and County's investment portfolio does not include any derivative or structured instruments and has minimal exposure to auction rate securities. The City and County's philosophy and policy in managing its investments is: first, for safety of public funds; second, for liquidity, so that funds are available when needed; and third, for yield, after the first two considerations are met. All Sewer Fund investments, except for a single investment agreement holding the common reserve subaccount for the Senior Series 2006 Bonds issued under the First Bond Resolution, are managed as part of the City and County investment pool.

Indebtedness

Table 22 sets forth the outstanding revenue bonds of the City and County secured by the Net Revenues under the First Bond Resolution and the Second Bond Resolution; Table 23 sets forth the debt service requirements for such revenue bonds before giving effect to the proposed refunding of the Refunded Bonds. All of such revenue bonds have fixed rates of interest.

Table 22

Outstanding Wastewater Revenue Bonds

<u>Bonds</u>	<u>Original Issue Amount</u>	<u>Bonds</u>	<u>Amount Outstanding as of July 1, 2010</u>
<u>Senior Bonds</u>		<u>Outstanding Senior Bonds</u>	
2001 Senior Bonds	\$136,020,000	2001 Senior Bonds	\$ 3,170,000
2005 Senior Bonds	152,815,000	2005 Senior Bonds	149,640,000
2006 Senior Bonds	340,760,000	2006 Senior Bonds	337,885,000
2007 Senior Bonds	171,890,000	2007 Senior Bonds	171,890,000
2009 Senior Bonds	148,285,000	2009 Senior Bonds	<u>147,070,000</u>
		Total	\$809,655,000
<u>Junior Bonds</u>		<u>Outstanding Junior Bonds</u>	
Junior Series 1998 Bonds ¹	\$264,152,890	Junior Series 1998 Bonds	\$128,932,890
Junior Series 2003 Bonds	218,400,000	Junior Series 2003 Bonds	80,475,000
Junior Series 2008 Bonds	112,440,000	Junior Series 2008 Bonds	106,860,000
Junior Series 2009 Bonds	127,045,000	Junior Series 2009 Bonds	<u>121,015,000</u>
		Total	\$437,282,890

¹ Used to refund certain reimbursable general obligation bonds of the City and County issued to finance the wastewater system of the City and County.

In addition, as of June 30, 2010, \$179,012,489 principal amount of Subordinate Obligations (other than Junior Bonds) and Reimbursable Obligations were outstanding. Subordinate Obligations include Junior Bonds and State Revolving Fund loans (which are junior in right of payment to the Junior Bonds), and do not include Reimbursable Obligations.

Table 23

**Revenue Bond Debt Service Requirements
(Years Ending June 30) ^{1,2}**

Fiscal Year	Series 2010 Bonds			Debt Service on Outstanding Junior Bonds ³	Total Junior Debt Service ³	Debt Service on Outstanding Senior Bonds	Total Debt Service ³	BABS/RZEDB Subsidy ⁴	Total Net Debt Service ³
	Principal	Interest	Total						
2011	\$ --	\$ 552,481	\$ 552,481	\$ 7,191,819	\$ 7,744,300	\$ 19,641,219	\$ 27,385,519	\$ (1,731,355)	\$ 25,654,164
2012	--	4,520,300	4,520,300	29,825,466	34,345,766	65,042,048	99,387,813	(5,892,288)	93,495,525
2013	--	4,520,300	4,520,300	31,400,188	35,920,488	66,811,848	102,732,336	(5,367,122)	97,365,214
2014	--	4,520,300	4,520,300	31,403,619	35,923,919	66,811,615	102,735,533	(5,367,122)	97,368,411
2015	--	4,520,300	4,520,300	31,405,175	35,925,475	69,066,505	104,991,980	(5,367,122)	99,624,858
2016	--	4,520,300	4,520,300	31,405,194	35,925,494	73,685,490	109,610,983	(5,367,122)	104,243,861
2017	--	4,520,300	4,520,300	31,402,356	35,922,656	73,680,058	109,602,715	(5,367,122)	104,235,593
2018	--	4,520,300	4,520,300	31,405,725	35,926,025	73,690,677	109,616,702	(5,367,122)	104,249,580
2019	--	4,520,300	4,520,300	31,415,669	35,935,969	73,724,635	109,660,603	(5,367,122)	104,293,481
2020	--	4,520,300	4,520,300	31,413,819	35,934,119	73,716,673	109,650,792	(5,367,122)	104,283,670
2021	--	4,520,300	4,520,300	31,415,856	35,936,156	73,717,277	109,653,433	(5,325,087)	104,328,346
2022	--	4,520,300	4,520,300	31,404,978	35,925,278	73,612,275	109,537,553	(5,237,136)	104,300,417
2023	--	4,520,300	4,520,300	31,406,850	35,927,150	73,514,066	109,441,216	(5,141,046)	104,300,171
2024	--	4,520,300	4,520,300	31,414,375	35,934,675	73,410,495	109,345,170	(5,035,813)	104,309,357
2025	18,370,000	4,061,050	22,431,050	13,932,275	36,363,325	73,283,001	109,646,326	(4,921,003)	104,725,323
2026	19,215,000	3,217,500	22,432,500	13,934,025	36,366,525	73,161,290	109,527,815	(4,756,101)	104,771,714
2027	20,100,000	2,330,700	22,430,700	13,936,650	36,367,350	72,977,679	109,345,029	(4,534,340)	104,810,690
2028	21,080,000	1,353,900	22,433,900	13,934,025	36,367,925	72,745,412	109,113,337	(4,296,412)	104,816,925
2029	21,990,000	439,800	22,429,800	13,932,763	36,362,563	72,490,580	108,853,142	(4,049,025)	104,804,118
2030	--	--	--	13,939,125	13,939,125	68,824,359	82,763,484	(3,790,040)	78,973,444
2031	--	--	--	13,934,000	13,934,000	68,557,208	82,491,208	(3,518,853)	78,972,355
2032	--	--	--	13,938,125	13,938,125	68,275,735	82,213,860	(3,234,861)	78,979,000
2033	--	--	--	13,934,875	13,934,875	58,801,745	72,736,620	(2,937,507)	69,799,113
2034	--	--	--	-	-	58,499,890	58,499,890	(2,627,997)	55,871,894
2035	--	--	--	-	-	58,180,232	58,180,232	(2,391,084)	55,789,148
2036	--	--	--	-	-	57,817,218	57,817,218	(2,078,551)	55,738,667
2037	--	--	--	-	-	47,009,038	47,009,038	(1,700,446)	45,308,592
2038	--	--	--	-	-	31,608,900	31,608,900	(1,307,606)	30,301,294
2039	--	--	--	-	-	19,766,053	19,766,053	(899,812)	18,866,240
2040	--	--	--	-	-	19,339,087	19,339,087	(476,478)	18,862,610
2041	--	--	--	-	-	12,547,616	12,547,616	(130,416)	12,417,200
Total	\$100,755,000	\$70,719,331	\$171,474,331	\$539,326,950	\$710,801,281	\$1,884,009,927	\$2,594,811,208	\$(118,950,231)	\$2,475,860,977

¹ Based on payments, not on accruals.

² Totals may not add due to rounding.

³ Excludes Junior Bonds proposed to be refunded with a portion of the proceeds from the Series 2010 Bonds.

⁴ Includes BABS/RZEDBs subsidies relating to the Senior 2009 and 2010 Bonds. The subsidies will be deposited into the Rate Stabilization Fund upon receipt and subsequently transferred to the Sewer Fund. Under the provisions of the Bond Resolution, subsidies transferred from the Rate Stabilization Fund to the Sewer Fund within 90 days after the end of a fiscal year will be treated as Revenues in the year of the transfer. See "SECURITY FOR THE BONDS – Proposed Amendments to the Bond Resolution" for certain proposed amendments to such provisions..

FINANCIAL STATEMENTS

The operations of the Department are accounted for in the Sewer Fund and the Wastewater System Facility Charge Account. The Sewer Fund is classified as an enterprise fund of the City and County and is currently audited as a part of the City and County's general purpose financial statements that are prepared annually.

The financial statements of the City and County as of June 30, 2009, including information relating to the Sewer Fund, together with the auditor's report thereon delivered by Nishihama & Kishida, CPA's, Inc., may be found at the Website of the City and County at <http://www.co.honolulu.gov/budget/cafr.htm>, or may be obtained from the Department by request to the attention of the Director of Budget and Fiscal Services, City and County of Honolulu, 530 South King Street, Honolulu, Hawaii 96813. Except for such financial statements and auditor's report, the contents of the City and County's website are not part of this Official Statement and are not incorporated herein by the above reference. Nishihama & Kishida, CPA's, Inc. has not reviewed and has no responsibility with respect to this Official Statement.

The following tables have been extracted from audited financial statements of the City and County relating to the Department. It should be noted that "Revenues" as defined in the Bond Resolution does not include Wastewater System Facility Charges.

Table 24 summarizes revenues and expenses and Table 25 provides fund balances, both reflecting enterprise accounting and consistency with GASB 34 reporting requirements.

Table 24

**Department of Environmental Services
Sewer Fund
Enterprise Fund Statement of Revenues, Expenses and Charges in Retained Earnings (Deficit)
(amounts in thousands)***

	<u>2006/2007</u>	<u>2007/2008</u>	<u>2008/2009</u>
Operating Revenues:			
Sewer Service Charges	\$160,963	\$ 219,907	\$250,265
Other Revenue	<u>4,951</u>	<u>5,197</u>	<u>1,688</u>
Total Operating Revenues	\$165,914	\$ 225,104	\$251,953
Operating Expenses:			
Administrative and general	\$ 36,749	\$ 40,790	\$ 29,962
Maintenance	436	487	818
Depreciation	35,311	39,363	40,682
Contractual services	8,687	13,718	17,054
Fringe benefits	11,762	17,696	12,911
Materials and supplies	5,079	10,702	8,957
Fuel and lubricants	2,162	2,633	2,279
Utilities	<u>11,868</u>	<u>17,088</u>	<u>17,683</u>
Total Operating Expenses	\$112,054	\$142,477	\$130,346
Operating Income	\$ 53,860	\$ 82,627	\$121,607
Nonoperating Revenues (Expenses):			
Interest income	\$ 13,736	\$ 17,884	\$ 7,080
Interest expense	(44,266)	(50,469)	(45,270)
Other	<u>(1,404)</u>	<u>(1,115)</u>	<u>(3,329)</u>
Total Nonoperating Expenses	\$(31,934)	\$(33,700)	\$(41,518)
Income before operating transfers and contributed capital	\$ 21,926	\$ 48,927	\$ 80,089
Transfers In	\$ 5,139	\$ --	\$ --
Operating Transfers Out	(7,031)	(11,944)	(12,931)
Contributed Capital	<u>4,228</u>	<u>78</u>	<u>5,678</u>
Change in Net Assets	\$ 24,262	\$ 37,061	\$ 72,835
Net Assets at Beginning of Year, as previously reported			
Prior period adjustment			
Net Assets at Beginning of Year, as restated	\$666,416	\$690,678	\$727,739
Net Assets at End of Year	\$690,678	\$727,739	\$800,575

* Differs from presentation in Table 10 due to the fact that information presented in this Table 24 is presented in conformance with GAAP whereas information in Table 10 is presented in accordance with definitions presented in the First Bond Resolution.

Table 25

**Department of Environmental Services
Sewer Fund
Enterprise Fund Balance Sheet
(amounts in thousands)**

	<u>2006/2007</u>	<u>2007/2008</u>	<u>2008/2009</u>
ASSETS			
Current Assets:			
Cash and cash equivalents	\$ 35,361	\$ 35,984	\$ 324,297
Investments	240,484	369,081	12,707
Receivables			
Accounts	23,531	31,818	34,551
Interest	733	2,878	25
Due from other funds	3,928	2,875	1,117
Inventories of parts, materials and supplies at cost	6,350	8,016	9,125
Prepaid expenses	<u>2,975</u>	<u>1,825</u>	<u>1,895</u>
Total Current Assets	\$ 313,362	\$ 452,477	\$ 383,717
Fixed Assets:			
Land	6,065	6,065	6,101
Land improvements	3,510	3,510	3,510
Buildings and Improvements	709,054	718,168	783,081
Transmission and distribution system	969,641	1,020,625	1,016,908
Equipment and machinery	30,098	32,167	33,135
Construction work in progress	138,054	196,811	348,609
Accumulated depreciation	<u>(239,605)</u>	<u>(278,193)</u>	<u>(318,186)</u>
Total Assets	\$1,934,932	\$2,159,639	\$2,264,214
LIABILITIES AND FUND EQUITY (DEFICIENCY)			
Current Liabilities:			
Accounts payable	\$ 16,792	\$ 28,087	\$ 30,714
Due to other funds	26	55	--
Interest payable-current	23,751	27,490	26,284
Notes payable-current	8,852	9,451	12,471
Bonds payable-current	15,375	15,584	19,446
Tax-exempt commercial paper	0	0	0
Other current liabilities	<u>532</u>	<u>610</u>	<u>463</u>
Total Current Liabilities	\$ 65,328	\$ 81,278	\$ 89,377
Notes payable	103,894	105,396	144,839
General obligation bonds payable	21,418	13,398	6,441
Revenue bonds payable	1,048,323	1,222,684	1,210,029
Deferred credits and other liabilities	<u>5,291</u>	<u>9,143</u>	<u>12,953</u>
Total Liabilities	\$1,244,254	\$1,431,900	\$1,463,639
Commitments and Contingencies Net Assets:			
Invested in capital assets	596,298	558,436	574,370
Reserved for debt service	59,409	84,981	131,469
Unrestricted	<u>34,971</u>	<u>84,322</u>	<u>94,736</u>
Total net assets	\$ 690,678	\$ 727,740	\$ 800,575

The Bond Resolution requires the Department to maintain and keep proper books of account relating to the Wastewater System and in accordance with generally accepted accounting principles. The Bond Resolution also requires that within one hundred eighty (180) days after the end of each Fiscal Year the Department will cause such books of account to be audited by an independent certified public accountant. Such audit may be part of a comprehensive audit of the City and County if the Wastewater System in such audit is treated as an

“enterprise fund” and the revenues and expenses of the Wastewater System are stated in a manner which permits identification by category of the sources and uses of the Revenues.

PENDING LITIGATION

In the normal course of business, claims and lawsuits are filed against the City and County and the Department and their respective officers and employees. The City and County and the Department are generally self-insured with respect to general liability claims. In the Fiscal Years ended June 30, 2007 through 2009, the Department reached settlements of lawsuits and claims paid from the General Fund totaling \$182,326, \$260,044 and \$419,191, respectively.

A lawsuit filed by the U.S. Environmental Protection Agency (“EPA”) and State Department of Health (“DOH”) against the City and County in 1994 resulted in a consent decree which requires the City and County, among other things, to comply with the Clean Water Act, to establish a schedule under which the City and County will implement preventive maintenance and sewer replacement and rehabilitation necessary to reduce and prevent spills, to implement and enforce its pretreatment program to regulate industrial discharges, and to develop and implement an effluent and sludge reuse program. The court has retained continuing jurisdiction over implementation of the consent decree. Pursuant to the consent decree, the City and County has established and is currently implementing a \$5.42 billion (in inflated dollars), 20-year capital improvement plan (Fiscal Year 2001 to Fiscal Year 2020) to upgrade its wastewater collection and treatment system (to be funded out of sewer funds and wastewater revenue bonds).

In July 2004, the Sierra Club and other environmental groups filed a lawsuit against the City and County seeking injunctive relief and penalties for alleged Clean Water Act violations arising from the City and County’s wastewater collection and treatment system. Of plaintiffs’ original twelve claims, six have been dismissed. Partial summary judgment has been entered with respect to four of the six remaining claims in this litigation. The court has not addressed the amount of penalties, if any, that would be assessed against the City and County. The final outcome of this litigation cannot be predicted at this stage of the proceedings, and any potential liability in this litigation beyond the costs of the 20-year wastewater system capital improvement plan (to be funded out of sewer funds and wastewater revenue bonds) is speculative. The proposed consent decree identified below would address this litigation.

As a result of a March 2006 sewer spill and after one year of negotiations, the EPA, the U.S. Department of Justice, the DOH and the City and County signed a stipulated order that requires the City and County to take certain actions to evaluate, repair, rehabilitate or replace certain force mains and one pump station in its wastewater collection system, and develop site-specific spill contingency plans. This stipulated order, which has been accepted by the court, resolves the entire civil enforcement action that was simultaneously filed with the stipulated order against the City and County with respect to the spill. The estimated cost of the work in the stipulated order is approximately \$300 million (to be funded out of sewer funds and wastewater revenue bonds). This requirement would be included in the proposed consent decree identified below.

In January 2009, the EPA issued final decisions to deny applications for renewed variances from secondary treatment for the Sand Island and Honouliuli wastewater treatment plants. The City and County has vigorously challenged these decisions and submitted appeals to the Environmental Appeals Board in February and March 2009. If the City and County’s appeals were to be denied, the project costs for secondary treatment at Honouliuli and Sand Island are estimated to be \$400 million and \$800 million, respectively (to be funded out of sewer funds and wastewater revenue bonds). A resolution of these denials is included in the proposed consent decree identified below

On July 14, 2010, the City Council approved the terms of a proposed consent decree with the EPA, the DOH, the Sierra Club, Hawaii Chapter, Our Children’s Earth Foundation, and Hawaii’s Thousand Friends. The proposed consent decree would resolve the 1994, 2004, and 2006 lawsuits and the EPA’s January 2009 final decisions, discussed in the foregoing paragraphs. The proposed consent decree allows 10 years for completion of work on the collection system, 14 years for the upgrade of the Honouliuli WWTP to secondary treatment, and up to 25 years, with the possibility of a three-year extension, for the upgrade of the Sand Island WWTP to secondary

treatment. The City is expected to incur \$3.7 billion in capital costs through fiscal year 2020 (which coincides with the term of the collection system portion of the consent decree). This amount will largely be spent on the collection system, and much of it will go toward work that was already required or planned. This amount also includes a portion of the costs of treatment plant upgrades at Sand Island and Honouliuli. Costs for the treatment plant upgrades include approximately \$550 million to replace primary treatment facilities at both plants and \$1.15 billion to upgrade the plants to secondary treatment plants. The settlement also requires the payment of a civil penalty in the amount of \$800,000 to the United States, and \$800,000 to the State of Hawaii. In addition, the City will provide \$800,000 to the Sierra Club, Hawaii Chapter, Our Children's Earth Foundation, and Hawaii's Thousand Friends, to fund four identified supplemental environmental projects.

The proposed consent decree has been approved by the United States Department of Justice and lodged with the federal court and was subject to a 30-day public comment period which ended September 15, 2010. After reviewing the public comments, the United States will decide whether to move for its entry and the Court will decide whether to grant the motion. The consent decree will become effective upon its entry by the Court. Plaintiffs' claims for attorneys' fees remain outstanding and will be resolved separately by the federal Magistrate Judge.

The Corporation Counsel reports that there is no controversy or litigation now pending or, to the best of the Corporation Counsel's knowledge, threatened, which seeks to restrain or enjoin the execution, issuance, sale or delivery of the Series 2010 Bonds or that in any way contests the validity of the Series 2010 Bonds; or any proceedings of the City and County taken with respect to the authorization, sale, or issuance of the Series 2010 Bonds, the pledge or application of any moneys provided for the payment of or security for the Series 2010 Bonds.

RATINGS

Fitch, Inc., Moody's Investors Service and Standard & Poor's Ratings Group, a division of the McGraw Hill Companies, Inc., have assigned ratings of "AA-," "Aa3" and "AA-," respectively, to the Series 2010 Bonds. Such ratings reflect only the respective views of such organizations, and an explanation of the significance of such ratings may be obtained from the rating agency furnishing the same, at the following addresses: Fitch, Inc., One State Street Plaza, New York, New York 10004, Moody's Investors Service, Inc., 99 Church Street, New York, New York 10007 and Standard & Poor's Ratings Group, 55 Water Street, New York, New York 10041. There is no assurance that such ratings will continue for any given period of time or that they will not be revised or withdrawn entirely by such rating agencies, if in the judgment of such rating agencies, circumstances so warrant. Any such downward revision or withdrawal of such ratings may have an effect on the market price of the Series 2010 Bonds.

UNDERWRITING

The Series 2010 Bonds are being purchased for reoffering by Merrill Lynch, Pierce, Fenner & Smith Incorporated and Piper Jaffray & Co., as Underwriters. The Underwriters have agreed to purchase the Series 2010 Bonds at an aggregate purchase price of \$104,123,547.89, being an amount equal to the principal amount of the Series 2010 Bonds, plus a net original issue premium of \$3,901,350.90, and less an underwriting discount of \$532,803.01. The contract of purchase with respect to the Series 2010 Bonds provides that the Underwriters will purchase all the Series 2010 Bonds if any are purchased. The initial public offering prices are set forth on the inside cover page of this Official Statement. The Underwriters may offer and sell the Series 2010 Bonds to certain dealers (including depositing the Series 2010 Bonds into investment trusts) and others at prices lower than the initial public offering prices stated on the cover page hereof. The public offering prices may be changed from time to time by the Underwriters.

Piper Jaffray & Co. ("Piper") has entered into an agreement (the "Distribution Agreement") with Advisors Asset Management, Inc. ("AAM") for the distribution of certain municipal securities offerings, including the Series 2010 Bonds, allocated to Piper at the original offering prices. Under the Distribution Agreement, Piper will share with AAM a portion of the fee or commission, exclusive of management fees, paid to Piper. Piper also has entered into an agreement with UBS Financial Services Inc., under the terms of which UBS retail customers will

have access to the offering at the original issue price. Piper will share a portion of its underwriting compensation for the Series 2010 Bonds with UBS Financial Services Inc.

TAX MATTERS

In the opinion of Orrick, Herrington & Sutcliffe LLP (“Bond Counsel”), bond counsel to the City and County, based upon an analysis of existing laws, regulations, rulings, and court decisions, and assuming, among other matters, the accuracy of certain representations and compliance with certain covenants, interest on the Series 2010 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986 (the “Code”), and the Series 2010 Bonds and the income therefrom are exempt from all taxation by the State or any county or other political subdivision thereof, except inheritance, transfer, estate and certain franchise taxes. Bond Counsel is also of the opinion that interest on the Series 2010 Bonds is not a specific preference item for purposes of the federal individual or corporate alternative minimum taxes, although Bond Counsel observes that such interest is included in adjusted current earnings when calculating corporate alternative minimum taxable income. A complete copy of the proposed form of opinion of Bond Counsel is set forth in Appendix E hereto.

To the extent the issue price of any maturity of the Series 2010 Bonds is less than the amount to be paid at maturity of such Series 2010 Bonds (excluding amounts stated to be interest and payable at least annually over the term of such Series 2010 Bonds), the difference constitutes “original issue discount,” the accrual of which, to the extent properly allocable to each beneficial owner thereof, is treated as interest on the Series 2010 Bonds which is excluded from gross income for federal income tax purposes and State of Hawaii tax purposes. For this purpose, the issue price of a particular maturity of the Series 2010 Bonds is the first price at which a substantial amount of such maturity of the Series 2010 Bonds is sold to the public (excluding bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers). The original issue discount with respect to any maturity of the Series 2010 Bonds accrues daily over the term to maturity of such Series 2010 Bonds on the basis of a constant interest rate compounded semiannually (with straight-line interpolations between compounding dates). The accruing original issue discount is added to the adjusted basis of such Series 2010 Bonds to determine taxable gain or loss upon disposition (including sale, redemption, or payment on maturity) of such Series 2010 Bonds. Beneficial owners of the Series 2010 Bonds should consult their own tax advisors with respect to the tax consequences of ownership of Series 2010 Bonds with original issue discount, including the treatment of beneficial owners who do not purchase such Series 2010 Bonds in the original offering to the public at the first price at which a substantial amount of such Series 2010 Bonds is sold to the public.

Series 2010 Bonds purchased, whether at original issuance or otherwise, for an amount higher than their principal amount payable at maturity (or, in some cases, at their earlier call date) (“Premium Bonds”) will be treated as having amortizable bond premium. No deduction is allowable for the amortizable bond premium in the case of bonds, like the Premium Bonds, the interest on which is excluded from gross income for federal income tax purposes. However, the amount of tax-exempt interest received, and a beneficial owner’s basis in a Premium Bond, will be reduced by the amount of amortizable bond premium properly allocable to such beneficial owner. Beneficial owners of Premium Bonds should consult their own tax advisors with respect to the proper treatment of amortizable bond premium in their particular circumstances.

The Code imposes various restrictions, conditions and requirements relating to the exclusion from gross income for federal income tax purposes of interest on obligations such as the Series 2010 Bonds. The City and County has made certain representations and covenanted to comply with certain restrictions, conditions and requirements designed to ensure that interest on the Series 2010 Bonds will not be included in federal gross income. Inaccuracy of these representations or failure to comply with these covenants may result in interest on the Series 2010 Bonds being included in gross income for federal income tax purposes, possibly from the date of original issuance of the Series 2010 Bonds. The opinion of Bond Counsel assumes the accuracy of these representations and compliance with these covenants. Bond Counsel has not undertaken to determine (or to inform any person) whether any actions taken (or not taken), or events occurring (or not occurring), or any other matters coming to Bond Counsel’s attention after the date of issuance of the Series 2010 Bonds may adversely affect the value of, or the tax status of interest on, the Series 2010 Bonds. Accordingly, the opinion of Bond Counsel is not intended to, and may not, be relied upon in connection with any such actions, events or matters.

Although Bond Counsel is of the opinion that interest on the Series 2010 Bonds is excluded from gross income for federal income tax purposes and that the Series 2010 Bonds and the income therefrom are exempt from taxation by the State or any political subdivision thereof, except inheritance, transfer, estate and certain franchise taxes, the ownership or disposition of, or the accrual or receipt of interest on, the Series 2010 Bonds may otherwise affect a beneficial owner's federal, state or local tax liability. The nature and extent of these other tax consequences depends upon the particular tax status of the beneficial owner or the beneficial owner's other items of income or deduction. Bond Counsel expresses no opinion regarding any such other tax consequences.

Future legislative proposals, if enacted into law, clarification of the Code or court decisions may cause interest on the Series 2010 Bonds to be subject, directly or indirectly, to federal income taxation or to be subject to or exempted from state income taxation, or otherwise prevent beneficial owners from realizing the full current benefit of the tax status of such interest. The introduction or enactment of any such future legislative proposals, clarification of the Code or court decisions may also affect the market price for, or marketability of, the Series 2010 Bonds. Prospective purchasers of the Series 2010 Bonds should consult their own tax advisers regarding any pending or proposed federal tax legislation, regulations or litigation, as to which Bond Counsel expresses no opinion.

The opinion of Bond Counsel is based on current legal authority, covers certain matters not directly addressed by such authorities, and represents Bond Counsel's judgment as to the proper treatment of the Series 2010 Bonds for federal income tax purposes. It is not binding on the Internal Revenue Service ("IRS") or the courts. Furthermore, Bond Counsel cannot give and has not given any opinion or assurance about the future activities of the City and County, or about the effect of future changes in the Code, the applicable regulations, the interpretation thereof or the enforcement thereof by the IRS. The City and County covenanted, however, to comply with the requirements of the Code.

Bond Counsel's engagement with respect to the Series 2010 Bonds ends with the issuance of the Series 2010 Bonds and, unless separately engaged, Bond Counsel is not obligated to defend the City and County or the beneficial owners regarding the tax-exempt status of the Series 2010 Bonds in the event of an audit examination by the IRS. Under current procedures, parties other than the City and County and their appointed counsel, including the beneficial owners, would have little, if any, right to participate in the audit examination process. Moreover, because achieving judicial review in connection with an audit examination of tax-exempt bonds is difficult, obtaining an independent review of IRS positions with which the City and County legitimately disagrees, may not be practicable. Any action of the IRS, including but not limited to selection of the Series 2010 Bonds for audit, or the course or result of such audit, or an audit of bonds presenting similar tax issues may affect the market price for, or the marketability of, the Series 2010 Bonds, and may cause the City and County or the beneficial owners to incur significant expense.

APPROVAL OF LEGAL PROCEEDINGS

The validity of the Series 2010 Bonds and certain other legal matters are subject to the approving opinion of Orrick, Herrington & Sutcliffe LLP, Bond Counsel to the City and County. A complete copy of the proposed form of Bond Counsel opinion is contained in Appendix E hereto. Bond Counsel undertakes no responsibility for the accuracy, completeness or fairness of this Official Statement. Certain legal matters will be passed upon for the Underwriters by their counsel, McCorriston Miller Mukai MacKinnon LLP, Honolulu, Hawaii.

CONTINUING DISCLOSURE

In order to assist the Underwriters in complying with Rule 15c2-12 promulgated by the Securities and Exchange Commission ("Rule 15c2-12"), the City and County will undertake in a Continuing Disclosure Certificate, the form of which is set forth in Appendix D (the "Continuing Disclosure Certificate"), to provide to the Municipal Securities Rulemaking Board on an annual basis certain financial and operating data concerning the Department, financial statements, notice of certain events if material, and certain other notices, all as described in the Continuing Disclosure Certificate. The undertaking is an obligation of the Department that is enforceable as described in the Continuing Disclosure Certificate. Beneficial Owners of the Bonds are third party beneficiaries of the Continuing Disclosure Certificate. The execution of the Continuing Disclosure Certificate is a condition

precedent to the obligation of the Underwriters to purchase the Series 2010 Bonds. The City and County has never failed to comply with any previous undertaking under Rule 15c2-12.

VERIFICATION

Causey, Demgen & Moore, Inc. (the "Verification Agent") will verify from the information provided by the Underwriters the mathematical accuracy as of the date of issuance of the Bonds of (1) the computations contained in the schedules provided by the Underwriters to determine that the anticipated receipts from the securities and cash deposits listed in such schedules to be held in escrow will be sufficient to pay when due the principal, interest and any call premium payment requirements of the Refunded Bonds, and (2) the computations of yield on both the Escrow Securities and the Series 2010 Bonds contained in the schedules provided to Bond Counsel for use in its determination that the interest on the Series 2010 Bonds is excluded from gross income for federal income tax purposes. The Verification Agent will express no opinion on the reasonableness of the assumptions provided to them, the likelihood that the principal of and interest on the Series 2010 Bonds will be paid as described in the schedules provided to them, or the exclusion of the interest on the Series 2010 Bonds from gross income for federal income tax purposes.

MISCELLANEOUS

Additional information may be obtained, upon request, from either the Department of Budget and Fiscal Services or the Department of Environmental Services of the City and County.

Reference in this Official Statement to the Act, the City Charter, the Bond Resolution, the Series 2010 Resolution and the Series 2010 Certificate do not purport to be complete. Refer to the Act, the City Charter, the Bond Resolution, the Series 2010 Resolution and the Series 2010 Certificate for full and complete details of their provisions. Copies of the City Charter, the Bond Resolution and the Series 2010 Resolution are on file with the City Clerk of the City and County.

The agreements of the City and County with holders of the Series 2010 Bonds are fully set forth in the Bond Resolution and the Series 2010 Resolution. Neither any advertisement of the Series 2010 Bonds nor this Official Statement is to be construed as a contract with purchasers of the Series 2010 Bonds.

Any statements in this Official Statement involving matters of opinion or of estimates, whether or not expressly stated, are intended merely as expressions of opinion or estimates, and not as representations of fact, and no representation is made that any of the estimates will be realized.

The City and County's use of certain information included in this Official Statement has been furnished or reviewed and authorized by the sources described below. While the City and County believes that these sources are reliable, the City and County has not independently verified this information and does not guarantee the accuracy or completeness of the information furnished by the respective sources. The City and County is relying on certificates from certain sources, to be delivered at or prior to the time of delivery of the Series 2010 Bonds, as to the accuracy of such information provided or authorized by such sources.

The information regarding DTC and DTC's book-entry system has been furnished by DTC.

Appendix B, "Consulting Engineer's Study" has been prepared by Carollo Engineers, P.C., Consulting Engineer.

Extracts of the financial statements of the City and County as of June 30, 2009, relating to the Sewer Fund, together with the auditor's report thereon, may be found at <http://www.co.honolulu.hi.us/budget/cafr.htm>.

The execution and delivery of this Official Statement by the Acting Director of Environmental Services and the Acting Director of Budget and Fiscal Services have been duly authorized by the City and County.

/s/ Michael R. Hansen
Acting Director of Budget and Fiscal Services
City and County of Honolulu

/s/ Timothy E. Steinberger
Acting Director of Environmental Services
City and County of Honolulu

APPENDIX A

ECONOMIC AND DEMOGRAPHIC FACTORS

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APPENDIX A

ECONOMIC AND DEMOGRAPHIC FACTORS

Introduction

Honolulu is a major metropolitan city, ranked 55th out of 366 metropolitan statistical areas in the United States based on population. The United States Census Bureau estimates the population of the City and County of Honolulu was 907,574 as of July 1, 2009, or approximately 70% of the population of the State of Hawaii. Honolulu's underlying economy is strong, supported by several diversified areas, which include tourism, the federal government and military operations, State and local governments, manufacturing, construction, real estate, education, research and science, trade and services, communications, finance and transportation.

Honolulu also is viewed as a premier world-class destination, and has received several accolades from the visitor industry. The natural beauty of Oahu, coupled with the security of a U.S. destination, make Honolulu attractive to both domestic and international visitors. Although the visitor industry is being negatively affected by global and national economic conditions, it continues to serve as a critical cornerstone of the City and County's economy, with more than four million people visiting Oahu in 2009. Further description of Honolulu's visitor industry is provided below.

Oahu is situated between 21 degrees and 22 degrees north latitude, just below the Tropic of Cancer. The climate has an average mean winter temperature of 70.2 degrees and an average mean summer temperature of 78.6 degrees. Oahu has neither the cold of the temperate zones nor the heat and humidity of the tropics. Two modest mountain ranges, the Koolau and the Waianae, intercept the dominant northeast tradewinds. Average rainfall varies widely from one area of Oahu to another. Rainfall is comparatively light in the leeward coastal area where the larger part of the population is located. Waikiki, located on the leeward side of Oahu, has a dry climate with annual precipitation averaging about 27 inches; precipitation in the upper reaches of the Koolau mountains averages about 400 inches a year and provides an adequate supply of water for irrigation use and retention in large subterranean reservoirs for household and industrial uses.

Land Use

State law establishes four major land use categories in which all lands in the State are to be placed: urban, rural, agricultural, and conservation. The Hawaii State Land Use Commission is vested with authority for grouping contiguous land areas in all of the counties into one of these four major categories. For the City and County of Honolulu, the permitted major uses are: (1) urban, (2) agricultural and (3) conservation. Conservation lands include mountainous regions unsuitable for urban or agricultural development, lands of a historic or scenic nature and lands having recreational uses. As of December 31, 2006 (the most recent date for which data is available), of the total 386,188 acres on Oahu, 100,764 acres, or 26.1%, were classified urban, 156,614 acres, or 40.6%, were classified conservation, and 128,810 acres, or 33.4%, were classified agricultural.

Visitor Industry

The visitor industry encompasses an array of businesses including hotels, restaurants, airlines, travel agencies, taxis, tour-bus operators, gift shops and other service and recreational industries.

Hawaii's tourism sector, which had been in decline from the second quarter of 2008 through the second quarter of 2009, showed signs of improvement during the last two quarters of 2009. This improvement continued through the second quarter of 2010 with a 7.1 percent increase in visitor arrivals by air over the same quarter of 2009.

The average daily visitor census, which takes into account visitors' length of stay, increased 5.3 percent in the second quarter of 2010 over the same quarter of 2009. This was in sharp contrast to the roughly 10-14 percent quarterly declines experienced through most of 2008 and into the first quarter of 2009.

Visitor expenditures also showed significant improvement. After seven consecutive quarters of decline, total expenditures were up 5.4 percent and 10.4 percent in the first and second quarters of 2010, respectively, from same periods in the previous year.

The second quarter growth in total visitor arrivals by air was boosted by a 19.9 percent increase in international arrivals by air compared with the same period in the previous year. Arrivals on domestic flights increased 3.4 percent in the second quarter of 2010.

In terms of major market areas, from the second quarter of 2009 to the same period of 2010, arrivals from the U.S. West increased 5.2 percent, arrivals from the U.S. East increased 1.5 percent, and arrivals from Japan increased a substantial 18.1 percent. The large increase in Japanese arrivals in the second quarter of 2010 was also due to the substantial decrease of Japanese arrivals in the second quarter of 2009. For the first two quarters of 2010, arrivals from the U.S. West were up 4.3 percent, arrivals from the U.S. East were up 0.2 percent, and Japanese arrivals were up 7.2 percent from the same period last year.

Total airline capacity, in terms of the number of available seats on planes to Hawaii, also showed an increase after a nearly three-year downward trend. Capacity increased 4.2 percent in the second quarter of 2010 from the same period of 2009. Domestic seat capacity increased 5.3 percent and international seats increased 1.2 percent in the second quarter of 2010 compared to the same quarter of 2009. In addition, Japan Airlines, All Nippon Airways and Hawaiian Airlines are each expected to begin flights between Honolulu and Tokyo's downtown Haneda Airport later this year.

According to the most recent data available, statewide hotel occupancy averaged 70.8 percent in the first quarter of 2010, up 4.1 percentage points from the same quarter of 2009.

Additional statistics on the visitor industry are set forth in the table below:

Table I
SELECTED STATE OF HAWAII AND OAHU VISITOR STATISTICS

	<u>Year Ended December 31</u>					<u>Second Quarter</u>	
	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009⁽³⁾</u>	<u>2009⁽³⁾</u>	<u>2010⁽³⁾</u>
Arrivals by Air – State ⁽¹⁾	7,417	7,528	7,497	6,713	6,420	1,595	1,709
Domestic	5,313	5,550	5,583	4,902	4,672	1,232	1,274
International	2,103	1,978	1,914	1,812	1,748	363	435
Arrivals by Air – Oahu ⁽¹⁾	4,732	4,688	4,695	4,194	4,025	985	1,056
Domestic	2,808	2,891	2,950	2,555	2,447	657	661
International	1,923	1,797	1,744	1,639	1,578	329	395
Average Daily Visitor Census – State ⁽¹⁾	185.4	189.4	189.4	172.5	165.1	161.8	170.4
Domestic	144.4	149.5	151.0	135.2	129.1	130.6	134.5
International	41.0	39.9	38.5	37.2	39.0	31.2	35.9
Visitor Expenditures – State ⁽²⁾	\$11,650	\$12,243	\$12,578	\$11,182	\$9,794	\$2,327	\$2,570
Hotel Occupancy Rate – State	81.1%	79.5%	75.0%	70.4%	64.9%	63.0%	N/A
Hotel Occupancy Rate – Oahu	85.3%	82.5%	76.8%	75.0%	73.3%	69.2%	N/A

⁽¹⁾ In thousands.

⁽²⁾ In millions of dollars. By persons arriving by air and staying overnight or longer (excludes supplemental business expenditures).

⁽³⁾ 2009 data are revised and 2010 data are preliminary.

Source: State of Hawaii Department of Business, Economic Development & Tourism.

The City and County of Honolulu continues to attract major investment to support the visitor industry, including hotels, restaurants, and recreation facilities.

Waikiki Beach Walk, an eight-acre complex bordered by Kalakaua Avenue, Lewers Street, Kalia Road, Beach Walk and Saratoga Road, was reconstructed in recent years as a showcase and gathering place in Waikiki,

featuring an outdoor entertainment plaza, 40 new retailers, six restaurants, and four hotels. The Beach Walk project, which represents an investment of approximately \$535 million, is part of Outrigger Enterprises' master plan for Waikiki. The project includes the newly constructed Trump International Hotel, a 38-story, 464-unit condominium-hotel, and the recently completed \$110 million renovation of the Outrigger Reef on the Beach property, converting 836 rooms into 639 larger rooms.

The success of the Waikiki Beach Walk project has inspired other improvements nearby, such as the \$85 million renovation and retenanting of the Royal Hawaiian Shopping Center, providing additional retail and restaurant options for visitors; Ala Moana Shopping Center's addition of approximately 300,000 square feet; Hilton Grand Vacation Club's new 38-story Grand Waikikian time-share located between the Hilton Hawaiian Village and Ilikai Hotel; the new Allure Waikiki on Kalakaua Avenue, a 35-story condominium; and the new Waikiki Edition, a 353-room luxury hotel developed by boutique hotelier Ian Schrager and Marriott International in the former Yacht Harbor Tower of the Ilikai Hotel. There are also plans for an expansion of the Hilton Hawaiian Village, including two separate towers consisting of over 550 time share units. Construction of the towers is expected to begin in 2013 and 2018, respectively. Sheraton Hotels & Resorts has also undertaken a \$200 million renovation of its Sheraton Waikiki Beach Resort and has plans to follow that project with improvements to its Princess Kaiulani and Moana Surfrider properties. In addition, a developer recently purchased the 359-room Pagoda Hotel and Floating Restaurant and is expected to infuse the hotel and dining facilities with state-of-the-art technology and upgrades.

The Turtle Bay Resort, on Oahu's north shore, recently completed a \$50 million renovation. And in November 2008, Disney broke ground on its first Hawaii resort. The \$800 million Disney project is currently under construction on 21 acres at Ko'Olina Resort & Marina, and will feature 350 hotel rooms and 480 Disney Vacation Club time-share villas. The project is scheduled to open in 2011.

Employment

The following table sets forth certain employment statistics for the City and County for the five years ending December 31, 2005 through 2009 and the second quarters of 2009 and 2010. As indicated below, the unemployment rate for the City and County increased from 3.6% in 2008 to 5.7% in 2009. This compares favorably to the 2008 and 2009 unemployment rates for the State (4.0% in 2008 and 6.8% in 2009) and the nation as a whole (8.2% in 2008 and 10.0% in 2009). The City and County's unemployment rate for the second quarter of 2010 stood at 5.4%, which again compares favorably to the unemployment rates for the State (6.5%) and the nation (9.5%) for the quarter.

Table II
EMPLOYMENT STATISTICS
CITY AND COUNTY OF HONOLULU⁽¹⁾

	<u>Year Ended December 31</u>					<u>Second Quarter</u>	
	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2009</u>	<u>2010</u>
Civilian Labor Force	441,850	448,050	447,800	448,450	444,800	447,200	447,750
Annual Average							
Civilian Employment	430,100	437,300	436,650	432,350	419,300	420,650	423,500
Unemployment	11,750	10,750	11,150	16,100	25,500	26,500	24,250
Unemployment Rate	2.7%	2.4%	2.5%	3.6%	5.7%	5.9%	5.4%
Total Job Count	444,650	453,650	456,000	454,150	442,600	440,950	443,350

⁽¹⁾ Data reflects 2000-based geography, new model controls, 2000 census inputs and methodological changes. Data for 2008 and 2009 benchmarked by the State of Hawaii Department of Labor & Industrial Relations in March 2010 to reflect revised inputs, re-estimation and new statewide controls, but are pending BLS approval.

Source: State of Hawaii Department of Labor & Industrial Relations and Department of Business, Economic Development & Tourism.

Federal Government and Military

The Federal government plays an important role in Hawaii's economy as the second largest industry behind tourism. According to the most recent data available, total federal direct expenditures or obligations in Hawaii reached \$15.0 billion in the federal fiscal year ending September 30, 2008, an increase of 6.7% over the previous year. Between federal fiscal years 1997 and 2008, the annual average growth rate for federal expenditures was about 5.7%.

In 2008, total federal government compensation of employees in Hawaii reached \$8,258.0 million, an increase of 6.2% from 2007. Between 1998 and 2008, the annual average growth rate for federal government compensation of employees in Hawaii was 6.8%. According to the most recent data available, federal government accounted for about 13.7% of State GDP in Hawaii in 2007, much of which is defense-related.

The latest data from the U.S. Department of Commerce indicate that the total earnings of federal government personnel in Hawaii in the third quarter of 2009 increased 8.0% compared to the same quarter of 2008. For the first three quarters of 2009, total earnings of federal government personnel increased 9.0% from the same period of 2008. Year-to-date total military earnings and total federal civilian earnings increased 10.1% and 7.1%, respectively, from the same period of 2008.

The large military establishment maintained in Hawaii is almost entirely on the Island of Oahu. Members of the armed services on Oahu totaled 45,920 as of September 30, 2007. Civilian dependents of these military personnel totaled approximately 48,500. In addition to uniformed personnel and their dependents, the military agencies in Hawaii provided employment for some 17,340 civilians as of September 30, 2008. Pearl Harbor, located on the island of Oahu, is home of the Commander-in-Chief of the United States Pacific Fleet and headquarters of the Third Fleet. The command stretches from the West Coast of the Americas to the Indian Ocean and from the North Pole to the South Pole. In July 2009, the USS Hawaii became the first Virginia-Class submarine to be home-ported in Pearl Harbor. By the end of this year, eighteen attack submarines are expected to be berthed in Pearl Harbor, two more than currently assigned.

Under the American Recovery and Reinvestment Act of 2009, Hawaii also expects to receive \$184 million for the U.S. Department of Defense for facilities, sustainment, restoration, and modernization projects, including \$19.4 million for the Child Development Center at Marine Corps Base Hawaii; \$137 million from the U.S. General Services Administration for energy improvements to transform the Prince Kuhio Kalaniana'ole Federal Building in Honolulu into a high-performance green building; \$1 million from the U.S. Department of Veterans Affairs for repairs, facility upgrades and a green energy project at the Spark M. Matsunaga VA Medical Center at Tripler Medical Center and the National Memorial Cemetery of the Pacific; and approximately \$41 million for public transportation investments for the City and County. In addition, the City and County's Department of Environmental Services and Board of Water Supply expect to receive approximately \$7.4 million and \$5.0 million, respectively, under the American Recovery and Reinvestment Act.

Ongoing programs to privatize construction, renovation and operation of military housing is expected to contribute an estimated \$3 billion over the next decade. The U.S. military has announced plans and begun the process of privatizing the military housing stock on Oahu. The plans, at various stages by each branch of service, call for nearly \$2 billion in bonds coupled with approximately \$8 million from developers to be spent over the next ten years for the renovation, demolition and new construction of over 16,000 homes, as well as community centers and landscaping improvements. The largest privatized military housing transaction to date (approximately \$1.49 billion) sold in April 2005 providing funds for costs associated with the design, demolition, construction and renovation of 8,132 housing units in six military multi-family rental housing communities on Oahu. At the end of the development period (scheduled for 2015), a total of 7,894 new family housing units are expected to be in place as well as construction of eleven community centers that will offer swimming pools, water parks and tot lots. The scope of work is expected to take ten years to complete with construction spread over three phases.

Projects currently in progress include a construction project by the U.S. Navy to make Ford Island the center of Pearl Harbor Naval Base operations. This project is part of a master development project that will eventually add 430 new navy housing units to the island. The infrastructure phase will require the services of 250 construction workers and at the peak of construction could potentially provide employment to approximately 400

local workers. The work involves installing new electrical and telecommunication systems, as well as major improvements to the sewer system and roadways. Once infrastructure work is complete, construction of the new housing units will begin.

Sporting Events

Honolulu is a popular venue for sporting events. Aloha Stadium, located minutes from downtown Honolulu, hosts the University of Hawaii's football team each year. The National Football League's Pro Bowl game was held at Aloha Stadium annually from 1980 through 2009. The Pro Bowl was relocated to Miami, Florida in 2010, but the State and the NFL have negotiated arrangements for the return of the Pro Bowl to Honolulu in 2011 and 2012.

The Waialae Country Club in East Honolulu is home to the Sony Hawaiian Open Golf Tournament on the PGA tour. Other major golf tournaments on the island include the Pearl Open and Pro-Am, Mid-Pacific Open, PGA Classic, Turtle Bay Resort Match Play Championship, and the Governor's Cup.

The Men's & Women's OP Pro Hawaii surfing competitions, the O'Neill World Cup surfing competition, and the Billabong Pipeline Masters are all held on Oahu. The Honolulu Marathon, one of the largest in the world, has been held in City each December since 1973.

Several South Korean League baseball teams hold their spring camps in Hawaii, some at Aloha Stadium. Hawaii is considered a premier destination for spring training, as it is significantly warmer than the harsh temperatures of South Korea.

Entertainment

The Neal Blaisdell Center in downtown Honolulu includes a concert hall, arena, exhibition hall, and conference rooms and hosts a wide variety of attractions, including musical performances, trade shows, business meetings and sporting events. The Diamond Head Theatre is another live theatre venue in the City. The theatre is Hawaii's oldest performing arts center and typically seats over 40,000 patrons each year.

Honolulu Academy of Arts, founded in 1927, has a collection of over 50,000 works of art and administers the Academy Art Center at Linekona. The Arts of Paradise Gallery, located in Waikiki, features the art of more than 40 of local artists. The Bishop Museum, located in downtown Honolulu, was founded in 1889 by a member of the Hawaiian royal family. The museum primarily focuses on history and science, and is home to the world's largest collection of Polynesian cultural and scientific artifacts. The Mission Houses Museum, established in 1920, provides a glimpse into 19th century Hawaii life. The museum hosts a wide variety of events including lectures, gallery talks, public programs, demonstrations and workshops.

The Hawaii State Art Museum (HiSAM) exhibits the work of Hawaii Artists. Located in Honolulu's downtown Capitol District, HiSAM has three galleries, a 70-seat events room and a café.

Film and Television

Hawaii is a premier location for filming both television series and major motion pictures. In addition to the lush tropical setting, Hawaii offers a one-stop process to obtain State permits, tax incentives and the only state-owned and operated film studio in the country.

State and County Governments

With Honolulu as the State capital, most State government activity is concentrated on the Island of Oahu. As of December 2009, the State government generated 73,650 jobs, of which approximately 76% were located on Oahu. The largest number of State employees work in public education and the State university system, with approximately 80% of these employed on Oahu. The City and County government generated approximately 12,100 jobs in 2009.

Construction

The value of new building permits issued by the City and County in 2008 decreased 11.6% from 2007, the first year-over-year decline in total permit value since 2001. The decline continued in 2009, with a further 15.6% decrease in value of new building permits compared to the prior year. The value of private building permits issued by the City and County in the second quarter of 2010 was \$371.1 million, compared to \$316.3 million in the same quarter of 2009.

Table III shows the estimated value of construction authorizations for private buildings for the City and County and for the State as a whole for the last ten years.

Table III

ESTIMATED VALUE OF BUILDING PERMITS

Year	State ⁽¹⁾	% Change from Prior Year	City & County of Honolulu ⁽¹⁾	% Change from Prior Year
2000	\$1,512,601	14.6%	\$ 694,223	-1.7%
2001	1,585,739	4.8	682,660	-1.7
2002	1,772,027	11.7	876,049	28.3
2003	2,361,233	33.3	1,109,568	26.7
2004	2,726,536	15.5	1,320,552	19.0
2005	3,491,964	28.1	1,364,030	3.3
2006	3,770,051	8.0	1,625,328	19.2
2007	3,585,447	-4.9	1,676,232	3.1
2008	2,906,578	-18.9	1,481,272	-11.6
2009	1,998,908	-31.2	1,247,196	-15.8

⁽¹⁾ In thousands of dollars.

Source: State of Hawaii Department of Business, Economic Development and Tourism
(compiled from data collected by county building departments).

See also “Visitor Industry” above for a description of certain construction projects related to the visitor industry, and “Transportation” below for a description of the State of Hawaii’s multi-year improvement programs for the airports and harbors systems and the City and County’s proposed fixed guideway mass transit system.

Diversified Manufacturing and Agriculture

Manufacturing is a relatively small sector in the State’s and the City and County’s economy. This sector consists principally of manufacturing cement (one plant), refining oil (two refineries), and converting oil into synthetic natural gas (one plant). Other activities include the manufacturing of garments, plastic and concrete pipe, jewelry and gift items, and the processing and packaging of tropical fruits, nuts and other food items.

Education, Research and Science

The main campus of the University of Hawaii is located on Oahu, at Manoa, as is a smaller campus of the University in West Oahu. There are also four community colleges, three private universities, and one private college on Oahu. The federally funded East-West Center is adjacent to the Manoa Campus of the University of Hawaii.

The University of Hawaii at Manoa is a research university of international standing. It has a Carnegie classification of Research University/very high research activity (RU/VH), the top classification for doctoral/research universities, and the closest to the old “Carnegie Research I University” classification no longer in use. Students have special opportunities for Hawaiian, Asian, and Pacific educational experiences and involvement in research activities, learning community service, and co-curricular activities. The University is one of 39

universities or consortia in the United States designated as a land, sea and space grant college. As a major research university, the University of Hawaii at Manoa has the capability of serving not only the State but the nation and the international community as well. The University at Manoa has widely recognized strengths in tropical agriculture, tropical medicine, oceanography, astronomy, electrical engineering, volcanology, evolutionary biology, comparative philosophy, comparative religion, Hawaiian studies, Asian studies, Pacific Islands studies, and Asian and Pacific region public health. The University at Manoa offers instruction in more languages than any United States institution outside the United States Department of State. In addition to the University faculty expertise in benthic and pelagic oceanography, the Hawaii Institute of Marine Biology leads global research in coral reefs and zooxanthellae.

The University of Hawaii at Manoa is the University's flagship research campus and was recently ranked 29th out of all public universities in the United States in research expenditures. The University has research partnerships with local, mainland and international universities, research institutions and business organizations. The University has also been designated as the fifth Naval University Affiliated Research Center, which is expected to generate at least \$10 million in additional funding per year beginning in 2009. The University secures research funding from various other sources, including the State, the National Science Foundation, National Institutes of Health, Department of Defense, Department of Agriculture, National Aeronautics and Space Administration, Department of Energy and the Environmental Protection Agency. The University was awarded one of eight Regional Biocontainment Laboratory grants from the National Institutes of Health, valued at \$32.5 million.

The University is expected to begin construction later this year on the new Cancer Research Center of Hawaii next to the John A. Burns School of Medicine in Kakaako. The \$180.4 million state-of-the-art research facility is expected to be completed in early 2013.

Federal government research agencies in Honolulu include the U.S. Bureau of Commercial Fisheries and the Environmental Science Services Administration. Among private research organizations on Oahu are the Oceanic Institute and the Bishop Museum. The three high technology centers located on Oahu are the Mililani Technology Park, the Kaimuki Technology Enterprise and the Manoa Innovation Center.

Trade and Services

The economy of both the City and County and the State as a whole is heavily trade and service-oriented, largely because of the heavy volume of purchases by visitors to the State. According to the State's Department of Taxation, the State's general excise tax base for trade and service activities exceeded \$33 billion through the third quarter of 2009, with retail, wholesale and service activities accounting for the majority. Of the State's 603,600 non-agricultural jobs in 2009, retail and wholesale trade together accounted for 85,400 jobs, or 14.2% of the total, and professional and business services, educational services, food services and other services together accounted for 168,950 jobs, or 28.2% of the total.

Finance

Honolulu has a full range of financial services, including banks, savings and loan associations and industrial loan companies. Branch banking is permitted in Hawaii. As of December 31, 2008, total assets of all State of Hawaii chartered financial institutions, including banks, trust companies and savings and loan associations, were reported at \$29.8 billion. The five state chartered banks (197 branches) in Hawaii had combined assets of some \$29.1 billion. In addition, a state chartered financial services company with 15 branches within the State has assets of approximately \$690 million.

Transportation

All parts of the City and County are connected by a comprehensive network of roads, highways, and freeways, and all of the populated areas of the island are served by a bus transit system (TheBus). Ridership has grown from 30 million passengers per year to approximately 71 million today. TheBus is now the 20th most utilized transit system in the country and the 13th most utilized bus fleet. Additionally, on a per-capita basis, the City and County has the sixth highest transit ridership in the country.

The City and County also is planning a new \$5.3 billion, 20-mile fixed guideway mass transit system to provide rail service along the island's east-west corridor between Kapolei and downtown Honolulu (Ala Moana Center). Over 60% of the City and County's population currently lives within the area served by this corridor, and this area is projected to continue to grow faster than the rest of Oahu. Construction of the proposed transit system is subject to completion of an environmental impact statement, a draft of which has been prepared and is currently under review. Due to the size and cost of the overall project, it is likely to be built in several phases lasting several years. The City and County has awarded a design-build contract for the first 6.5 mile segment of the system and intends to solicit proposals for the design and construction of the next phase of the system later this year.

State law allows counties to impose a 0.5% surcharge (to be collected and distributed by the State) on the existing 4.0% State general excise tax in order to fund transportation projects. The City and County began imposing this surcharge on January 1, 2007 and plans to apply proceeds of the surcharge to fund the proposed fixed guideway mass transit system described above. For the fiscal year ended June 30, 2008, the City and County received \$169.1 million from the general excise tax surcharge, net of administrative fees charged by the State.

Honolulu is the hub of air and sea transportation for the entire Pacific. Honolulu International Airport (HNL) is located approximately five miles by highway from the center of the downtown area of Honolulu. It has four runways, of which two, at 12,001 feet and 12,357 feet, respectively, are among the nation's longest. According to preliminary data from the publication of the Airports Council International, Honolulu International Airport is one of the busiest air terminals in the world, ranking 60th in the world and 25th in the United States in total passengers serviced in 2007. Approximately 60 aircraft can be handled at one time at the terminal complex, including 36 wide-bodied aircraft. In fiscal year 2009, HNL recorded 276,272 aircraft operations as compared to 304,839 for fiscal year 2008. In addition, HNL passenger counts for fiscal year 2009 decreased from 20,808,838 in fiscal year 2008 to 17,806,225. The decreases are a reflection of the worldwide economic downturn.

The Airports Division is in the process of implementing a modernization program which will include significant capital improvements for several of the major airports in the State, including Honolulu, Kahului, Kona and Lihue. The program is currently estimated to cost in excess of \$2.0 billion through 2021, \$1.7 billion of which is allocable to HNL, and will be paid for from a variety of sources including cash, grants, passenger facility charges and revenue bonds.

Honolulu Harbor is the hub of the Statewide Commercial Harbors System. It serves as a major distribution point of overseas cargo to the neighbor islands and is the primary consolidation center for the export of overseas cargo. Overseas and inter-island cargo tonnage handled through Honolulu Harbor was 10.1 million short tons in fiscal year 2008, 9.0 million short tons in fiscal year 2009 and 8.8 million short tons in fiscal year 2010. The State manages, maintains and operates the statewide harbors system to provide for the efficient movement of cargo and passengers.

Act 200, SLH 2008, was enacted to authorize a statewide Harbors Modernization Plan to address harbor infrastructure improvements to Kahului Harbor on Maui, Nawiliwili Harbor on Kauai, Hilo and Kawaihae Harbors on Hawaii, and Honolulu and Kalaeloa Harbors on Oahu. In addition to the six commercial harbors included in the plan, the law placed Hana Harbor on Maui under the jurisdiction of the Harbors System and included appropriations for its upgrade. Act 200 also designated the Aloha Tower Development Corporation as the entity responsible for the management and implementation of the Harbors Modernization Plan under the direction of the Department of Transportation. The Act authorizes the Department of Transportation to issue harbor revenue bonds to finance the improvements. The cost of the Plan is estimated at \$618 million, of which \$318 million is allocable to Honolulu Harbor.

APPENDIX B

CONSULTING ENGINEER'S STUDY

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Final Report

**Consulting Engineers Report
Wastewater System Revenue Bonds
Series 2010**

Prepared for
City and County of Honolulu
Department of Environmental Services
Honolulu, Hawaii

October 2010



CAROLLO ENGINEERS, INC.
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CITY AND COUNTY OF HONOLULU

CONSULTING ENGINEER'S STUDY WASTEWATER
SYSTEM REVENUE BOND SERIES 2010

TABLE OF CONTENTS

	<u>Page No.</u>
EXECUTIVE SUMMARY	ES-1
CHAPTER 1 - INTRODUCTION	1-1
1.1 PURPOSE	1-1
1.2 SCOPE	1-1
1.3 SERIES 2010 BONDS.....	1-1
1.4 CAROLLO ENGINEERS QUALIFICATIONS	1-2
1.5 REFERENCES	1-3
1.6 REPORT ORGANIZATION	1-3
CHAPTER 2 – DEPARTMENT OF ENVIRONMENTAL SERVICES.....	2-1
2.1 BACKGROUND	2-1
2.2 MISSION, DUTIES, AND FUNCTIONS.....	2-1
2.3 ORGANIZATION	2-2
2.3.1 Office of Administrative Support	2-3
2.3.2 Collection System Maintenance	2-4
2.3.3 Environmental Quality.....	2-4
2.3.4 Wastewater Treatment and Disposal.....	2-5
2.3.5 Program Management/Project Delivery	2-5
2.4 KEY INITIATIVES.....	2-6
2.4.1 Strategic Planning	2-6
2.4.2 Pump Station/Force Main	2-7
2.4.3 Leadership Development and Management/Technical Training	2-7
2.4.4 Wastewater Engineering.....	2-7
2.4.5 Organization Review and Consolidation.....	2-7
2.4.6 Asset Management.....	2-8
2.4.7 Business Process Improvements	2-8
2.4.8 Energy Management	2-9
2.4.9 IT Enhancement	2-9
2.4.10 Capacity Management and Operation and Maintenance	2-10
2.4.11 Community Relations/Outreach.....	2-10
2.5 ACCOMPLISHMENTS	2-10
2.6 EMPLOYEE POPULATION AND BARGAINING UNITS.....	2-12
CHAPTER 3 – WASTEWATER SYSTEM	3-1
3.1 OVERVIEW	3-1
3.2 SYSTEM DESCRIPTION	3-1
3.2.1 East Mamala Bay.....	3-3
3.2.2 West Mamala Bay.....	3-4
3.2.3 Kailua/Kaneohe/Kahaluu	3-5
3.2.4 Waianae	3-6
3.2.5 North Oahu (East and West)	3-6
3.2.6 Central Oahu	3-7

3.2.7	Waimanalo.....	3-7
3.2.8	Hawaii Kai.....	3-7
3.2.9	Summary	3-7
3.3	SYSTEM PERFORMANCE.....	3-8
3.3.1	WWTP Discharge Requirements.....	3-8
3.3.2	Collection System Operation and Maintenance.....	3-13
3.3.3	Legal and Regulatory Actions.....	3-13
CHAPTER 4 – CAPITAL IMPROVEMENT PROGRAM		4-1
4.1	SYSTEM PLANNING AND MANAGEMENT	4-1
4.1.1	System Planning.....	4-1
4.1.2	Infiltration and Inflow (I/I) Management	4-2
4.1.3	Project Management.....	4-3
4.2	CAPITAL IMPROVEMENT PROGRAM ACCOMPLISHMENTS	4-4
4.3	FIVE-YEAR (FY 2011 TO FY 2015) CAPITAL IMPROVEMENT PLAN	4-5
4.3.1	Five-Year (FY 2011 to FY 2015) CIP Conveyance System Improvements.....	4-5
4.3.2	Five-Year (FY 2011 to FY 2015) CIP Wastewater Treatment Plant Improvements.....	4-7
4.3.3	Five-Year (FY 2011 to FY 2015) CIP Summary	4-8
4.3.4	Five-Year (FY 2011 to FY 2015) CIP Funding Sources	4-8
4.4	TEN-YEAR (FY 2011 TO FY 2020) CAPITAL IMPROVEMENT PLAN.....	4-9
4.4.1	Ten-Year (FY 2011 to FY 2020) CIP Conveyance System Improvements.....	4-9
4.4.2	Ten-Year (FY 2011 to FY 2020) CIP Wastewater Treatment Plant Improvements.....	4-9
4.4.3	Ten-Year (FY 2011 to FY 2020) CIP Summary.....	4-12
4.4.4	Ten-Year (FY 2011 to FY 2020) CIP Funding Sources	4-12
CHAPTER 5 – FINANCIAL PERFORMANCE		5-1
5.1	FINANCIAL PLANNING AND MANAGEMENT	5-1
5.1.1	Financial Planning Process	5-1
5.1.2	Financial Policies.....	5-2
5.2	RATES AND CHARGES	5-3
5.2.1	Sewer Service Charges.....	5-3
5.2.2	Rate Structure.....	5-3
5.2.3	Wastewater System Facility Charges	5-5
5.3	HISTORICAL PERFORMANCE	5-6
5.3.1	Revenues.....	5-6
5.3.2	Expenses.....	5-8
5.3.3	Historical Operating Results and Debt Service Coverage	5-8
5.4	FORECAST PERFORMANCE	5-9
5.4.1	Sewer Fund Resources and Requirements.....	5-9
5.4.2	Capital Financing.....	5-11
5.4.3	Forecast Operating Results and Debt Service Coverage.....	5-14
5.5	RATE COMPARISON	5-14
5.6	PRINCIPAL ASSUMPTIONS	5-17
CHAPTER 6 - CONCLUSIONS		6-1
6.1	CONCLUSIONS	6-1

LIST OF APPENDICES

- A – References
- B - Capital Improvement Projects Summary

LIST OF TABLES

Table ES.1	Summary of FY 2011 to 2015 CIP Appropriations.....	ES-4
Table 2.1	Peak Performance Awards.....	2-11
Table 2.2	Distribution of FY 2011 Budget Full-Time Equivalent Positions	2-12
Table 3.1	Account and Wastewater Sales Distribution by Customer Class	3-1
Table 3.2	Historical Projected Resident Population By Basin	3-2
Table 3.3	FY 2010 Wastewater Flows by Treatment Facility and Drainage Basin.....	3-3
Table 3.4	Summary of Draft 2010 Consent Decree Improvements.....	3-15
Table 4.1	Prioritization Criteria	4-2
Table 4.2	Summary of FY 2011 to 2015 CIP Appropriations.....	4-6
Table 4.3	FY 2011 to FY 2015 CIP Expenditures and Funding Sources	4-8
Table 4.4	FY 2011 to 2020 CIP Appropriations	4-10
Table 4.5	FY 2011 to FY 2020 CIP Expenditures and Funding Sources	4-12
Table 5.1	Impact of Proposed Rate Increases on Typical Wastewater Bills	5-4
Table 5.2	Adopted Wastewater System Facility Charges.....	5-5
Table 5.3	Historical Operating Results	5-7
Table 5.4	Historical Number of ESDUs and System Facilities Charge Revenues	5-8
Table 5.5	Sewer Fund Forecast Sources and Uses of Funds.....	5-10
Table 5.6	Adopted and Planned Future System-Wide Rate Increases	5-11
Table 5.7	CIP Cash Flow.....	5-12
Table 5.8	Projected Debt Service	5-13
Table 5.9	Projected Operating Results.....	5-15
Table 5.10	Wastewater Bill Comparisons.....	5-16
Table 5.11	Wastewater System Facility Charge Comparison	5-17

LIST OF FIGURES

Figure 2-1	Department of Environmental Services Organization Chart.....	2-2
Figure 3-1	Service Area Map	3-2
Figure 3-2	Sand Island Service Area	3-4
Figure 3-3	Map of Honouliuli	3-5
Figure 3-4	Map of Kailua.....	3-6
Figure 3-5	Sand Island WWTP Concentrations and Permit Limits, BOD.....	3-9
Figure 3-6	Sand Island WWTP Concentrations and Permit Limits, TSS	3-9
Figure 3-7	Honouliuli WWTP Concentrations and Permit Limits, BOD.....	3-11
Figure 3-8	Honouliuli WWTP Concentrations and Permit Limits, TSS.....	3-11
Figure 3-9	Kailua Regional WWTP Concentrations and Permit Limits, BOD	3-12
Figure 3-10	Kailua Regional WWTP Concentrations and Permit Limits, TSS	3-12
Figure 4-1	Historical and Projected CIP Expenditures and Appropriations.....	4-11

EXECUTIVE SUMMARY

This report evaluates the City and County of Honolulu's Department of Environmental Services' (Department) capital improvement and financial plans and presents the financial feasibility of the Department's Senior Subseries 2010A and 2010B, and Junior Series 2010A Wastewater System Revenue Bonds (Series 2010 Bonds).

The Series 2010 Bonds are expected to be issued in the following approximate amounts, based on preliminary analysis:

- \$203,330,000¹ Senior Subseries 2010A (Tax Exempt) and 2010B (Taxable) Bonds (combined with interest earnings) will be used (i) to fund the cost of certain additions and improvements to the City and County's Wastewater System, (ii) to fund a Separate Senior Series Reserve Account for the Series 2010 Bonds, and (iii) to pay the costs of issuance of the Senior Series 2010 Bonds.
- \$102,785,000¹ Junior Series 2010A Bonds will be used (i) to fund the refunding or redemption of any or all of the outstanding Junior Series 1998 Wastewater System Revenue Bonds, and (ii) to pay the costs of issuance of the Junior Series 2010 Bonds.

The information presented in this report demonstrates that the Department can support projected operation and maintenance (O&M) expenses, meet requirements of existing bond covenants, and fund planned capital improvements over the next 10 years. This report also presents information on the Department's management and organization, and the characteristics of the wastewater system (collectively, the "System"). This report has been developed based on, and relies on, information provided by Department staff responsible for planning, operating, maintaining, and upgrading the System.

To prepare this report, Carollo Engineers (Carollo) has:

- Reviewed the Department's organizational structure, management, record of performance, and key initiatives to assess the capability of the Department to manage the operational and project delivery requirements contemplated by its planned capital program.
- Reviewed the Department's capital planning in the context of identified System needs and regulatory requirements, and its estimated capital project costs to meet these requirements, and the capital project schedules. This review builds on the Department's regular re-evaluation of capital project plans, which assess the adequacy of the Department's facilities and planned projects to meet all regulatory requirements, as well as the operational integrity and adequate renewal and replacement of system assets.

¹ Preliminary, subject to change.

- Reviewed projections of O&M expenses based on the Department's FY 2011 budget, cost escalation factors, adjustments for one-time expenditures, and expected variances between budgeted and actual expenditures. The underlying forecast assumptions are included within the body of this report.
- Reviewed System financial performance for the period FY 2011 to FY 2020, determining the Department's ability to fund O&M expenses, meet debt service coverage targets, and comply with established financial policies based on projected rate increases as presented in this report.
- Evaluated the impacts of adopted and planned rate increases on typical residential and non-residential ratepayer bills, and the comparability of these bills with other wastewater systems in Hawaii and the United States.

In conducting our review of the Department, the System, regulatory requirements, the Capital Improvement Plan (CIP), and financial projections, the following information and factors are particularly noteworthy for assessing the feasibility of the Series 2010 Bonds:

- In July, 2010, the City approved the terms of the Draft 2010 Consent Decree. The proposed Draft 2010 Consent Decree would result in the dismissal of the 1994, 2004, and 2006 lawsuits and the resolution of the EPA's January 2009 final decisions. Therefore, the Draft 2010 Consent Decree provides several benefits to the City. First, it provides certainty and resolution on outstanding litigation issues related to the permit. Specifically, it focuses on collection system improvements required in the first five-years to reduce environmental impacts associated with spills or overflows. Second, the Draft 2010 Consent Decree provides certainty in terms of what treatment projects need to be constructed and the timing of these future projects over the planning horizon. The Department's CIP and financial plans address the needs of the short- and long-term CIP and Draft 2010 Consent Decree mandated projects.
- The Department has an authorized staffing level of 731 full time equivalent (FTE) positions related to the System that is sufficient to enable effective project delivery and operation of the System². Of the City and County of Honolulu's (City's) five public bargaining units representing Department employees, all have received negotiated settlements resulting in 2-year contracts beginning July 1, 2009 and ending June 30, 2011. The Department has secured external program management assistance and Indefinite Delivery/Indefinite Quantity (IDIQ) contracts, which have been successfully employed by numerous other communities, several of which were subject to wastewater consent decrees. This assistance helps ensure timely and cost-effective delivery of its projected capital improvement program.
- The Department operates and maintains a complex wastewater system comprising nine drainage basins, each served by separate wastewater treatment facilities and related infrastructure (e.g., pump stations and collection lines).

² The Department also includes 444 FTEs assigned to the Refuse Collection and Disposal Division.

- The System provides wastewater services to a population of approximately 640,000, which is 73 percent of the total population of the City and County. The City population outside the service area is comprised primarily of military bases with on-site treatment facilities and one private system. The remainder of the population is situated in widely distributed rural communities.
- The Department has developed a comprehensive long-term planning program for the System, which includes the completion of facility plans and preliminary designs for most of the major wastewater facilities. The 20-year CIP covers the years from FY 2001 to FY 2020.
- The City has entered into settlements, with respect to various legal and regulatory actions against the City, alleging violations of the Federal Clean Water Act and several National Pollutant Discharge Elimination System (NPDES) and State of Hawaii permits held by the Department. The Department has developed the FY 2011 to FY 2015 CIP and the FY 2001 to FY 2020 CIP, in part, to comply with these consent decrees, federal and state administrative orders, and NPDES permit requirements. The Department has undertaken the rehabilitation and expansion of existing facilities, the implementation of pre-treatment programs, effluent reuse, and biosolids reuse, and the construction of new facilities in the last several years in large part for the purpose of complying with these consent decrees and regulatory requirements.
- The Department's FY 2011 to FY 2015 CIP identifies appropriations as shown in Table ES.1. Appropriations reflect total project costs and are assumed to be expended over a 5 year cycle, but may vary.
- Based on appropriated projects, the Department's capital financing plan contemplates expenditures will be primarily funded by net revenue bond proceeds, operating revenue such as service charges and system facility charge revenue, and State Revolving Fund (SRF) loans.
- The City and County has a successful record of acquiring SRF funding for its capital projects with favorable terms.
- The Department is committed to full compliance with all federal, state, and local water quality regulations. The Department plans to implement adjustments to the capital project delivery and financing plans, including rate adjustments, to ensure continued compliance with the recent regulatory terms.
- The Department's financial policy framework was designed to meet a number of objectives related to management of the wastewater system enterprise, including (1) continued financial integrity and self-sufficiency, (2) equitable cost allocation, (3) risk management, (4) economic efficiency, and (5) rate affordability. Related to these objectives, the City has committed, through the adoption of Ordinance No. 05-006 (March 31, 2005), not to transfer Sewer Fund monies to the City's General Fund.

Table ES.1 Summary of FY 2011 to 2015 CIP Appropriations^{(1), (2)}						
2010 Consulting Engineers Report						
City and County of Honolulu						
Project Type	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Appropriations FY 2011 to FY 2015
Collection System						
Mandated	\$265,231	\$195,162	\$187,241	\$220,602	\$84,326	\$952,562
Discretionary	26,659	114,264	62,071	56,539	76,724	336,257
Subtotal Collection	\$291,890	\$309,426	\$249,312	\$277,141	\$161,050	\$1,288,819
Treatment Plant						
Mandated	-	2,803	4,061	6,702	32,153	45,719
Discretionary	31,153	25,160	13,351	9,947	9,926	89,537
Subtotal Treatment	\$31,153	\$27,963	\$17,412	\$16,648	\$42,079	\$135,256
Project Mgmt, Equip. and Other ⁽³⁾	21,523	18,388	34,134	34,388	19,290	127,724
Total CIP	\$344,566	\$355,777	\$300,859	\$328,177	\$222,420	\$1,551,799
Notes:						
(1) Dollars presented are in thousands of inflated dollars.						
(2) Numbers may not add up exactly, due to rounding.						
(3) Includes all miscellaneous projects not included in collection system or treatment plant costs as well as appropriations for project management and equipment.						

- The Department's financial plan was developed to ensure adequate cash flows to support the Department's operations and projected expenditures on capital improvements.
- On June 22, 2005, the City adopted an ordinance which provided for six consecutive annual rate increases, with the first increase effective July 1, 2005. The rate package adopted in 2005 and modified in 2007 provided the necessary revenues to meet projected System costs and conform to adopted financial policies. The initial rate increase (effective July 1, 2005) resulted in a 25 percent increase in rates and charges for all customer classes. This was followed by a 10 percent rate increase on July 1, 2006. These increases were followed by a 25 percent increase on July 1, 2007, and an 18 percent increase on July 1, 2008 and July 1, 2009. These increases were followed by a 15 percent increase on July 1, 2010 (FY 2011). Additional rate increases are anticipated for future years.
- Application of the anticipated system-wide average rate increases uniformly across customer classes, results in the nominal monthly wastewater bill for a typical single family residential customer (with metered use of 10,000 gallons, and therefore billed volume of 7,000 gallons), increasing from \$90.96 in FY 2011 to \$107.44 in FY 2015. For non-residential customers with domestic strength wastewater and billed volumes of 25,000 gallons, the nominal wastewater bill will increase from \$248.68 in FY 2011 to \$293.71 in FY 2015.

- Annual operating expenditures are projected to increase each year at roughly 3 percent per year beginning FY 2011. Non-salary expenses are projected to increase at 6 percent per year through FY 2019 and at 3 percent per year thereafter.
- Capital appropriations and expenditures are projected to increase due to inflation at rates of 1.5 percent per year beginning FY 2011 through FY 2014 and 3 percent per year thereafter.

Based on our review, Carollo concludes that:

- Department management has qualifications and experience commensurate with its responsibilities, and demonstrated commitment to the Department's vision and mission.
- The FY 2011 to FY 2015 CIP projects implement collection system and treatment facility modifications required to improve operations, accommodate planned growth, and comply with current federal and state regulatory requirements.
- The Draft 2010 Consent Decree adds certainty to the Department's short and long-term CIP and operational needs. Many of the projects mandated in the Draft 2010 Consent Decree are a continuation of previous consent decree work and were already included, and budgeted for, in the Department's CIP and financial plans. The new, longer term projects provide some flexibility with regards to project schedule and may potentially benefit from future technological advancement.
- The CIP includes improvements to the System collection and pumping facilities to assure compliance with current federal and state regulatory requirements. These collection and pumping facilities constitute much of the need for capital facility improvements.
- Projects included in the Department's FY 2011 to FY 2020 CIP appropriations have been estimated based on known regulatory requirements and to conform to industry standard engineering practices. Project cost estimation procedures appear to be reasonable, and the construction schedules are achievable given implementation of effective construction management and program management.
- The projects to be financed by proceeds of the Series 2010 Bonds are the highest priority projects required to meet consent decree requirements and protect public health and keep the system in a state of good repair. They are included in facility plans and updates thereto, which identify the need for projects through the year 2020.
- The Department's financial planning and rate practices are both comprehensive and conform to established industry standard approaches.
- The Department and City Council have demonstrated through historical financial planning, adopted rate increases, and System performance, a commitment to conforming to established financial policies, as well as effectiveness in balancing rate increases with the financial requirements of the System (including debt service coverage requirements).

- The principal assumptions used in the financial forecast are reasonable given recent experience and current economic conditions. Variations in actual inflationary or interest rates may cause subsequent adjustments to future financial plans.
- Projected operating results are consistent with the Department's established financial policies and debt service requirements, and will provide funding necessary to implement the CIP as currently envisioned. Specifically, the projected sewer service charges will provide revenue sufficient to:
 - Meet currently projected costs of operation, maintenance, and routine replacement of sewer system facilities.
 - Meet the existing debt service obligations and the projected requirements for the Series 2010 Bonds and future bond issues.
 - Provide sufficient revenue to pay the costs of the Department's CIP through the end of the forecast period using system service charges, wastewater system facility charges (WSFCs), and other capital-related funding sources.
 - Meet reserve requirements of the Bond Resolution and the Department's policies.
- Monthly residential bills for wastewater service, billed for 10,000 gallons of wastewater volume, are forecasted to increase from \$90.96 to \$107.44 between FY 2011 and FY 2015³.
- The Department's debt and financial policies target debt service coverage in excess of 1.60x on senior revenue bonds and 1.25x on all revenue bonds. Based on the forecast rate increases, net revenues of the Department are projected to be sufficient to meet these targets and on existing and projected future debt service obligations, including a 1.20x parity coverage requirement on senior lien debt and 1.10x parity coverage on junior lien debt, in accordance with the First Bond Resolution.

The financial forecast relies on certain assumptions related to future System conditions.

The principal assumptions used in this forecast are:

- Growth in ESDUs is assumed to occur at 1,600 per year through FY 2020, resulting in an average annual rate of growth of 0.55 percent.
- Metered water usage and wastewater discharges per account will remain at current levels.
- Capital expenditures are assumed to be required and incurred as reflected in Table 5.7 in order to meet consent decree and regulatory requirements, and accommodate modest population growth. The capital expenditures reflect an average inflation factor of 1.5 percent through FY 2014 and 3.0 percent thereafter, and a 5-year spend-down schedule provided by the Department. Per the City's adopted financial policies, the City Council will revise rates as needed in the future to accommodate any additional needs.

³ A rate ordinance establishing rate increases from FY 2012 is expected to be implemented in the third quarter of FY 2011.

- Planned rate increases through FY 2020 (identified in Table 5.6) are expected to be implemented on schedule and revised as necessary in the future to accommodate any additional capital improvement requirements.
- Interest earnings on cash balances are assumed at 3 percent through 2020. Interest earnings on debt service reserves are assumed at 1.0 percent in FY 2011, 2.0 percent in FY 2012 and FY 2013, and 3.0 percent thereafter.
- The net cash available from the BABs/RZEDBs subsidies for the 2009 Issue has been included as a source of revenue one-year after receipt. Cash flow from the 2010 BABs/RZEDBs has been excluded as a source of revenue.
- All future debt service reserve requirements will be funded from revenue bond proceeds. The senior and junior lien common reserves will be 100 percent cash funded.
- A separate reserve fund will be created for the Senior Series 2010 bonds and the reserve requirement will be 50 percent of maximum annual debt service. The Junior Series 2010 bonds will remain in the junior common reserve. It is assumed that future bond reserve requirements will be funded from proceeds generated by the future bond issues.
- Debt service on the Series 2010 issue is estimated to be 5.75 percent. Future revenue bond issues through FY 2014 are based on an interest rate of 5.75 percent. Issues from FY 2015 through FY 2019 are based on an interest rate of 5.5 percent. Any issues beyond FY 2019 assume an interest rate of 5.25 percent. All revenue bonds assume a 30-year debt service term and interest only payments for two years. All future revenue bonds issued to fund the CIP are assumed to be issued on parity with the Series 2010 Senior Bonds.
- Bond issuance costs for the 2010 Bonds are estimated at 1.2 percent of the total par amount (issuance costs include Underwriter's discount, bond insurance and other costs of issuance.)
- Any future rate structure changes will conform to established system-wide revenue requirements.
- Operating expenditures are projected to total \$132.8 million and \$137.7 million in FY 2011 and FY 2012, respectively. Operation and maintenance costs will increase on average 3.0 percent per year, beginning in FY 2012. Non-salary expenses are estimated to increase at 6.0 percent per year from FY 2012 through FY 2019 and at 3.0 percent per year thereafter. This forecast captures projected increases in treatment and disposal costs.
- Discharge characteristics from existing customers will not vary significantly from the values identified in the various wastewater facilities plans.

- No catastrophic events resulting from natural or human causes will occur that will have a substantial adverse impact on the integrity of the Department's facilities or the activities of customers served.

INTRODUCTION**1.1 PURPOSE**

The purpose of this report is to review the City and County of Honolulu's Department of Environmental Services' (Department) wastewater system (collectively, the System) and capital improvement plans (CIPs), and to summarize a forecast of the Department's prospective financial operating results and cash flows. This report has been developed based on discussions with Department personnel that are responsible for planning, operating, maintaining, and upgrading the System, and review of system planning and financial documents and models provided by the Department.

1.2 SCOPE

This report summarizes the results of Carollo Engineers (Carollo) review of the System, including the Draft 2010 Consent Decree and other regulatory requirements, and the Department's capital and financial plans. Our financial evaluation has included review of financial performance reports, as well as the Department's financial planning model that forecasts System cash flows. The financial plan employs Fiscal Year (FY) 2011 departmental operating budget data and forecasts of capital financing expenses. The sources of funds include use of long-term revenue bonds, low-interest Hawaii State Revolving Fund (SRF) loans, Wastewater System Facility Charge (WSFC) revenues, and Net Revenues¹. The resultant financial plan presented in this report projects financial performance under the rate plan adopted by the City Council on June 6, 2007, and under the assumption that future rates will be as presented, demonstrates compliance with covenants of the City and County of Honolulu's (City's) First and Second Bond Resolution.

1.3 SERIES 2010 BONDS

The Subseries 2010A Senior bonds and Subseries 2010B Senior Build America Bonds (Taxable), and Series 2010A Junior refunding bonds, collectively Series 2010 Bonds, are expected to be issued in the following approximate amounts, based on preliminary analysis:

\$ 25,915,000² Senior Subseries 2010A Bonds

\$ 177,415,000² Senior Subseries 2010B Build America Bonds

\$ 102,785,000² Junior Series 2010A Refunding Bonds

¹ As defined in the first Bond Resolution, Net Revenue means, with respect to any period, the Revenues during such period less amounts required to pay operation and maintenance expenses.

² Preliminary, subject to change.

The proceeds of the Senior Series 2010 Bonds will be used: i) to fund the cost of certain additions and improvements to the City and County's Wastewater System, (ii) to fund a Separate Senior Series Reserve Account for the Series 2010 Bonds, and (iv) to pay the costs of issuance of the Senior Series 2010 Bonds. The portion of the proceeds used to fund the Senior series reserve and cover cost of issuance is expected to be applied in the following approximate amounts:

- \$5,999,700³ to fund the Senior series reserve account; and
- \$2,336,900³ costs of issuance

The City and County of Honolulu has authorized the issuance of Junior Series Bonds, secured on a subordinate basis to the Senior Series 2010 Bonds, for the purposes of (i) funding the refunding and redemption of any or all of the outstanding Wastewater System Revenue Bonds Junior Series 1998, and (ii) to pay the costs of issuance of the Junior Series 2010 Bonds. For the purposes of this report, the debt service for the Junior Series Bonds reflect the principal and interest requirements on the outstanding 1998 Junior Bonds and excludes the optional Junior Series 2010 bonds.

1.4 CAROLLO ENGINEERS QUALIFICATIONS

Carollo Engineers, Inc. (Carollo) is a professional services engineering firm specializing in water and wastewater environmental engineering with 31 main offices and several project offices throughout the country. Carollo was founded in 1933 and is currently ranked within Engineering News-Record's (ENR) top 100 design firms. ENR's annual Source Book ranks Carollo among the top 15 firms for water and wastewater treatment plant design.

Carollo was selected to prepare this report as a result of their leadership in the water and wastewater industry and familiarity and knowledge of the City and County of Honolulu's wastewater treatment and conveyance facilities and operation and maintenance practices. Carollo is familiar with the City and County of Honolulu's wastewater facilities through previous studies and evaluations. Carollo Engineers has performed a Wastewater Asset Evaluation and Condition Assessment as part of the City's Wastewater Asset Management Program. Carollo has also performed an Operations and Maintenance Evaluation of the Sand Island Wastewater Treatment Plant (WWTP) to assess overall effectiveness and efficiency. Carollo has also completed several projects for the City and County of Honolulu, including the 1998, 2001, 2005 and 2007 Wastewater System Revenue Bond Engineering Reports.

Carollo has a total staff of over 650 professional employees including over 320 registered engineers in such disciplines as civil, structural, environmental, mechanical, chemical, and sanitary engineering.

³ Preliminary, subject to change.

1.5 REFERENCES

Carollo reviewed and relied upon information provided by the Department to develop this report. Information that has been developed by others and relied upon by Carollo includes estimated capital costs for the CIP projects and potential new treatment facilities, annual operations and maintenance budgets, and financial performance reports including fund balances, and other accounting information. Although Carollo offers no assurances regarding information not independently verified, it has no reason to believe that the information is invalid for the purposes of this report. Information used to complete this report is referenced in Appendix A.

1.6 REPORT ORGANIZATION

This Series 2010 Wastewater System Revenue Bond Consulting Engineers Report (2010 Consulting Engineers Report) has been organized into six sections, with two appendices, as follows:

- **Executive Summary:** Summarizes the 2010 Consulting Engineers Report including key findings, assumptions, and conclusions.
- **Section 1- Introduction:** Outlines the purpose and scope of the report, a review of the Series 2010 Bonds, consulting engineer's qualifications, references, and report organization.
- **Section 2 - Department of Environmental Services:** Provides an overview of the Department, its mission and functions, organization, and key initiatives.
- **Section 3 - Wastewater System:** Describes the System's service areas, facilities, operations, and assets. Provides information on legal and regulatory requirements, including a summary of the requirements of the Draft 2010 Consent Decree.
- **Section 4 - Capital Improvement Program:** Describes the Department's capital planning process and a summary of the FY 2001 through FY 2020 CIP, including recent accomplishments and near-term (FY 2011 through FY 2015) and longer-term planned improvements. Projects are assessed in terms of compliance with regulatory requirements as well as the operational integrity and reliability of the System.
- **Section 5 - Financial Performance:** Provides information on the Department's current wastewater rates and WSFCs, and historical operating results; and establishes projections of revenues and expenses and financial performance metrics, including debt service coverage and fund balances for the period FY 2011 through FY 2020.
- **Section 6 - Conclusions:** Summarizes the results of the study, including confirmation of the Department's ability to meet its covenants with respect to the City's First and Second Bond Resolutions, in connection with the issuance of the Series 2010 Bonds.

- Appendix A - References: Provides references for publications used to prepare this report.
- Appendix B - Capital Improvement Projects: Provides a list of planned capital projects with appropriations in the Department's five year CIP.

DEPARTMENT OF ENVIRONMENTAL SERVICES

2.1 BACKGROUND

The Department was established on July 1, 1998, pursuant to a plan of reorganization which combined certain components of the Department of Wastewater Management with other administrative departments having compatible functions. Previously, the Department of Wastewater Management, created by a City Charter change effective July 1, 1993, provided for planning, design, construction, operation, and maintenance of the City's wastewater facilities. Prior to that time, wastewater management services were delivered through a division of the Department of Public Works.

2.2 MISSION, DUTIES, AND FUNCTIONS

The Department's mission is: Protect public health and the environment by efficiently and effectively managing the wastewater and solid waste systems of the City and County of Honolulu. With respect to wastewater service¹, the Department fulfills this mission by operating and maintaining WWTPs, pump stations and pipelines, and chemical treatment and pumping of cesspools.

The Department's vision is to be viewed as a trusted environmental steward by citizens, regulators, and industry to protect public health and the environment. The Department's values are community, commitment, and continuity.

- Community: Provide transparent, collaborative, responsive service.
- Commitment: Do the right thing for the environment and public health.
- Continuity: Plan, design, and operate for the good of future generations.

The goals and objectives of the Department are as follows:

1. Achieve and/or exceed regulations: Use industry-standard practices and credible science to achieve regulatory compliance.
2. Improve efficiency: Operate using sound business principles to improve accountability, demonstrate fiscal responsibility.
3. Invest in employees: Coach, train, develop, and recruit staff with industry-standard operational and fiscal competencies, thereby protecting the health of our citizens and the quality of our environment— and the financial interests of our ratepayers.

¹ In addition to the above services, the Department is responsible for management of the City's stormwater permit program. The Department is also responsible for the City's refuse collection and disposal programs, designated separately in Figure 2.1. and for which a separate enterprise fund is established.

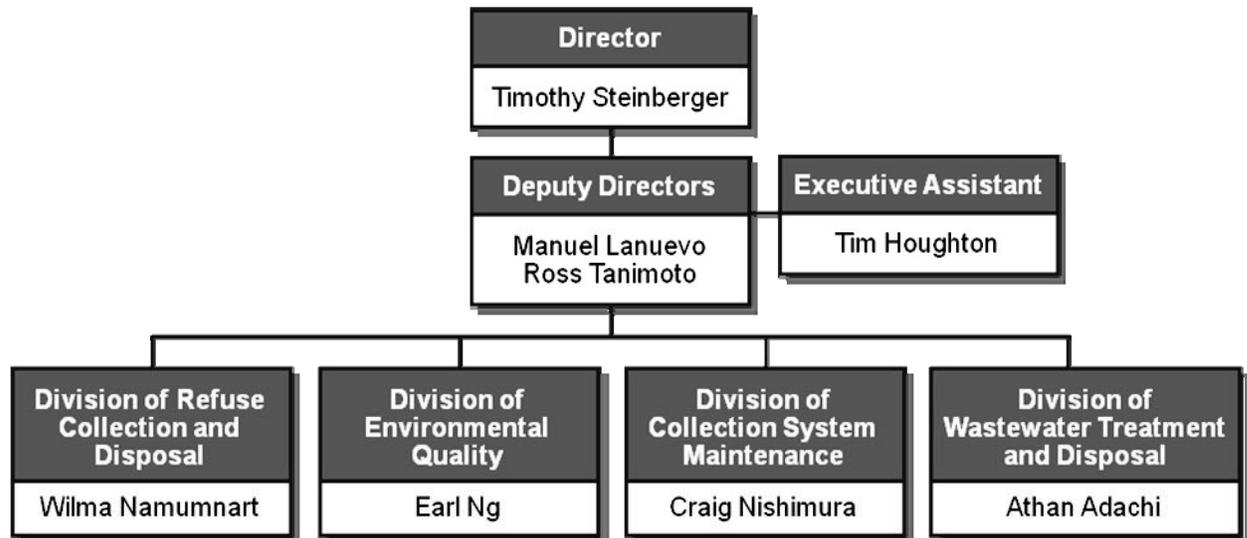
4. Collaborate and communicate with stakeholders: Collaborate and communicate with staff, customers, and partners in order to enable success and encourage action and accountability for results.

Several of these initiatives are discussed in Section 2.4.

2.3 ORGANIZATION

The Department consists of four divisions: Environmental Quality, Wastewater Treatment and Disposal, Collection System Maintenance, and Refuse Collection and Disposal. The Department also includes an Office of Administrative Support. Figure 2-1 presents an organization chart for the Department of Environmental Services. The Department organization may be subject to update based on recently completed City elections. The new City administration took office on October 8, 2010.

Figure 2-1 Department of Environmental Services Organization Chart



Source: Department of Environmental Services, City and County of Honolulu

The Department's executive team is comprised of tenured leaders familiar with successful operation of the Department. The principal officers of the Department include the Director, Deputy Directors and Executive Assistant.

Timothy E. Steinberger, Acting Director. Mr. Steinberger served as the Director of the Department of Environmental Services from 2001 through 2002. In 2003, he was appointed as the Director of Design and Construction, City and County of Honolulu. He served in this function through early 2005. From 2005 to 2008, Mr. Steinberger was employed in the private sector by the URS Corporation, as the Hawaii/Guam area manager. He returned to the Department of Environmental Services in 2009 as Director, bringing his previous experience as Director and Deputy Director of Environmental Services and as a department employee involved in consent decree oversight and wastewater planning. Mr. Steinberger is

a licensed Civil Engineer in the State of Hawaii and has a long history of public service in the wastewater arena. He has a Bachelor of Science degree in Mechanical Engineering from the University of Maryland and a Master of Science Degree in Mechanical Engineering from the University of Hawaii.

The Department Deputy Directors include Mr. Manuel Lanuevo and Mr. Ross Tanimoto.

Manuel Lanuevo, Deputy Director. Mr. Lanuevo joined the Department of Environmental Services in January 2009 as Deputy Director. He is an Electrical Engineer who served with the State of Hawaii, Department of Transportation, Airports Division, Engineering Branch, from 1998 to 2009. Mr. Lanuevo holds a Bachelor of Science in Electrical Engineering from the Mapua Institute of Technology, Manila, Philippines. He is a licensed Professional Electrical Engineer, Philippines; Professional Engineer (Electrical), State of Hawaii; Certified Lighting Efficiency Professional (CLEP), Association of Energy Engineers; and a Leadership in Energy & Environmental Design Accredited Professional (LEED AP), U.S. Green Building Council.

Ross Tanimoto, Deputy Director. Mr. Tanimoto became Deputy Director on April 19, 2007. Mr. Tanimoto has been with the Department of Environmental Services and its predecessor agencies since 1992 and has served as both the Assistant Chief, Division of Environmental Quality, and Branch Chief, Monitoring and Compliance Branch. He has a Master of Science Degree in Mechanical Engineering from California State University, Long Beach, and Bachelor of Science degrees in Mechanical Engineering and Meteorology from the University of Hawaii. Mr. Tanimoto is a registered Professional Engineer in Mechanical Engineering in the States of Hawaii and California.

Tim Houghton, Executive Assistant. Mr. Houghton served as Executive Assistant for the Department of Wastewater Management from its creation on July 1, 1993, and has continued in that role with the Department of Environmental Services, except for the period from July, 2003, through December, 2004, when he served as Deputy Director of the Department. As Executive Assistant, among other things, Mr. Houghton is responsible for Department financial and personnel activities. Prior to his work at the Department, Mr. Houghton worked on the Honolulu Rapid Transit Project and with the Department of Auditoriums. Mr. Houghton has a Bachelor of Arts degree from San Francisco State University and a Master of Science in Systems Management degree from the University of Southern California. Mr. Houghton is currently a member of the Board of Directors for the National Association of Clean Water Agencies, serves as its Clean Water Funding Issues Leader, and has previously served as Vice Chair of the Utility Management Committee.

2.3.1 Office of Administrative Support

The Office of Administrative Support (OAS) directs and coordinates financial planning and CIP development, scheduling, and tracking for the Department. The OAS also provides centralized personnel, financial, and administrative services and is responsible for

development and coordination of the Department's enterprise asset management system and information technology enhancement initiatives (see Section 2.4 below). The FY 2011 budget for the OAS is \$12.7 million.

2.3.2 Collection System Maintenance

The Collection System Maintenance Division (CSM) is responsible for operation, maintenance, and repair of the wastewater collection system, including cleaning and closed circuit television inspection of wastewater collection lines, cured-in-place pipe (CIPP) lining, and cesspool pumping. Operational responsibility of the pump stations, preliminary treatment facilities, and storm drain pump stations was transferred to the Division of Collection System Maintenance effective July 1, 2010. Maintenance support continues to come from the Wastewater Treatment and Disposal Division. CSM is initiating an active flow monitoring program to support optimization of system flow characteristics and hydraulic analysis. The FY 2011 budget for the CSM Division is \$11 million. The CSM Division is expected to clean and inspect over 725 miles of pipe in FY 2011.

2.3.3 Environmental Quality

The Environmental Quality (EQ) Division coordinates and manages activities related to state and federal regulatory compliance including industrial pre-treatment, wastewater discharge, permitting, water quality monitoring, and stormwater management. The EQ Division includes four branches: Regulatory Control, Monitoring Compliance, Stormwater Quality, and Water Quality Laboratory. In recent years, the EQ Division has increased enforcement activities (informational letters, written warnings, notices of violations, and fines) to enhance grease management, prevent illegal discharges, and monitor industrial site and construction activity. In addition, the EQ Division has facilitated a broad array of community relations and outreach activities, highlighted on the Environmental Protection Agency's (EPA's) web site, including public service announcements and partnerships with other government agencies, businesses, and community organizations.

The regulatory control branch oversees the pretreatment program whilst the monitoring compliance branch prepares the permit-required annual assessment reports for the wastewater treatment plants. The City's wastewater National Pollutant Discharge Elimination System (NPDES) permit, which was to expire on September 8, 2009, has been administratively extended to an indefinite period. Interim limits were provided for the Sand Island and Honouliuli wastewater treatment facilities as part of the Draft 2010 Consent Decree. (Note: The interim limits in the pending 2010 Consent Decree will become effective upon its scheduled final adoption in mid-October 2010).

The storm water quality branch is responsible for administering the municipal storm water management program required under the City's Municipal Storm Sewer System (MS4) NPDES permit, which was reissued effective March 31, 2006.

The EQ Division's Water Quality Laboratory conducts compliance monitoring activities of industrial wastewater, non-industrial wastewater, treatment plant effluent, receiving waters, well water, sludge, sediment, and fish tissue. The FY 2011 budget for the Environmental Quality Division is \$12.7 million.

2.3.4 Wastewater Treatment and Disposal

The Wastewater Treatment and Disposal (WTD) Division is responsible for continuous monitoring, operation, and maintenance, of treatment plants. Operational responsibility of the pump stations, preliminary treatment facilities, and storm drain pump stations was transferred to the Division of Collection System Maintenance effective July 1, 2010. Maintenance support for the sewer and storm pump stations and preliminary treatment facilities continues to come from the WTD Division. The WTD Division includes a Technical Services Branch, Central Shop, Office Services section, and three operations branches - Metro, Leeward, and Windward. Operations and maintenance activities are facilitated by a Supervisory Control and Data Acquisition (SCADA) system, and are a primary focus of the Department's business process improvement and asset management initiatives. Each branch is supported by the implementation of an advanced computerized maintenance management system (CMMS). Implementation of ultraviolet disinfection at the Kailua, Sand Island, and Wahiawa WWTPs enhances effluent quality. The Sand Island WWTP has implemented an In-vessel Bioconversion project to provide for beneficial reuse of biosolids. The WTD Division's FY 2011 budget is \$71.7 million.

2.3.5 Program Management/Project Delivery

The Department has recently secured consultant program management assistance to help ensure timely and cost-effective delivery of its expanded capital improvement program. Contract program management assistance has been successfully employed by numerous other similar agencies, perhaps most notably several communities under wastewater consent decrees.

The Department is experienced in working with program management consultants. For example, over the last five years the Department, working with program management consultants, has successfully managed annual professional planning and engineering services ranging from approximately \$11 million to over \$41 million over the last 10 years. The Department expects to continue its successful track record of program management performance, with the projected annual professional planning and engineering services ranging from \$22 million to \$48 million over the next five years, through the year 2015.

Program management services significantly leverage existing professional staff capabilities to manage the planning, design, construction, construction management, and other specialty delivery services necessary to maintain schedule compliance and effective project management and accountability.

Program management assistance will help support overall project control, project scheduling and cost-estimation functions, ensure standardization and documentation of project planning and design, and provide specialty quality assurance / quality control services. It will also facilitate use of alternative project delivery mechanisms to help the Department manage schedule compliance and project delivery risks.

Effective program management is essential early-on in the project delivery cycle, and results in refining the project definition and scope, estimated costs, project timing, and delivery and implementation plans for the overall CIP projects. This includes producing up to approximately 10 percent design deliverables for phased transition to the preliminary (10 to 30 percent design), and final design teams.

The Department has also retained an Indefinite Delivery/Indefinite Quantity (IDIQ) contract to provide as needed services to continue its collection system monitoring program. The work to be included as part of this contract involves sewer line cleaning and television inspection, rehabilitation of service laterals, installation of CIPP part-liners and service connection liners, point repair excavation and replacement of pipe, installation of new precast concrete manholes, rehabilitation of existing manholes using an epoxy coating or fiberglass reinforced polyester (FRP) insert, and providing temporary bypass pumping and traffic control work. The contract facilitates quick implementation of minor repair and maintenance projects as well as capital improvement program projects. In addition, the Department has retained a separate staff augmentation contract that can be utilized to provide resources as needed.

2.4 KEY INITIATIVES

The Department is pursuing a number of initiatives to improve operating efficiencies, enhance customer services, strengthen local enforcement of environmental regulations, and engage stakeholders. Several such initiatives are described below.

2.4.1 Strategic Planning

The Department has embarked on the development of a strategic plan to improve its operations. The Department updated its Mission and Vision to include values and goals that will guide its efforts in the upcoming year. The leadership team has evaluated several new initiatives to support managers provide the planning, resources and support to core wastewater collection, treatment and disposal facilities and operations. These include:

- Strategic Planning
- Pump Station/Force Main
- Leadership Development and Management/Technical Training
- Wastewater Engineering
- Organization Review and Consolidation

2.4.2 Pump Station/Force Main

In order to better provide wastewater collection system services, the Department transferred the responsibility of operating and maintaining sewer pump stations and force mains from the WTD Division to the CSM Division. This transfer will place the entire wastewater collection system under a single management structure, improving the Department's ability to focus its attention on gravity sewers, pump stations, and force mains as one single system. It will also provide more focused attention on the operation and maintenance of the treatment systems. This shift in responsibilities will include transfer of staff and resources from the WTD Division to the CSM Division. The transfer will occur in two phases, starting with the transfer of pump station resources followed by transfer of mechanical and electrical resources.

2.4.3 Leadership Development and Management/Technical Training

The Department recognizes that successful implementation of capital and operational improvements will require substantial training of staff, leadership development, and adequate succession planning (given the Department's age demographics which are typical of the wastewater industry).

Accordingly, the Department has invested in a new training curriculum based on peer group learning which has reached most of front line supervisors. Managers at the top of the organization are modeling performance management practices where individual goals are established, formal coaching is provided, and valid performance appraisals are conducted in a caring manner. An orientation program for both new and current employees is under development that will inform and align the workforce to the Department's mission and goals.

2.4.4 Wastewater Engineering

As part of this initiative, the Division of Wastewater Engineering, currently under the Department of Design and Construction, would be transferred to the Department. Housing the CIP design and construction engineering services, existing CIP planning, operations engineering support and asset management resources within the Department would increase interaction between Department staff and the engineers. This would provide the opportunity to consistently focus on the same strategic approach and a uniform understanding of needs and capabilities.

2.4.5 Organization Review and Consolidation

The Department will consider consolidation of appropriate technical functions, including wastewater engineering functions, with other key Department services such as SCADA, the laboratory, and others.

2.4.6 Asset Management

The Department has initiated implementation of asset management practices oriented toward minimizing asset life-cycle costs while delivering desired levels of customer service at acceptable levels of risk. The Department funds information technology staff to support this program and uses the Department's CMMS to track fixed assets at the component level to improve equipment life cycle histories and to manage collection system maintenance at the asset (pipe segment) level.

The WTD Manual of Practice has been expanded to include business processes designed to improve the integration of WTD's Engineering Functions into the operation and maintenance of WTD's assets, with the objective of extending asset service life and more cost effectively planning asset replacements.

Extensive user training and reconfiguration of the CMMS has been accomplished to improve the reporting capabilities of the CMMS on all aspects of asset life cycle work and equipment histories.

Oracle Work and Asset Management (Oracle WAM) software was implemented and is being interfaced to the CMMS database to provide improved historical documentation of routine and corrective work related to the underground assets. In addition, a permanent asset management staff position was created and hired within the Department.

2.4.7 Business Process Improvements

These efforts, which include and compliment information technology enhancement efforts, (described below) have included:

- Implementation of formal work planning processes at plants
 - Daily meetings attended by Operations and Maintenance staff are formally scheduled and held in all three Regions to facilitate improved communication and coordination of work activities and provide improved lead time for future project needs being added to the rehabilitation schedule.
- Redesign of storeroom function to improve materials handling
 - Existing underutilized buildings and storage areas were identified (approx. 18,000 sq.ft.) and are being converted to warehouse space tripling the storage capacity of the WTD warehouses allowing improved control of inventory, better tracking of parts and materials, more secure stock, and better setting of on-hand stock quantities.
 - A Wi-Fi Bar coding system is being implemented at all WTD warehouses to speed up and improve accuracy of the periodic physical counting of warehouse stock.
- Improvement of work backlog management.
- Employment of a full-time Communications Officer.

2.4.8 Energy Management

Given the significance of electricity costs in its operating cost structure, the Department is pursuing a number of means to reduce overall energy costs at its facilities. For example, at the Kailua WWTP and Sand Island WWTP, the Department is evaluating the feasibility of cogeneration to determine the potential to realize savings in energy costs through limited plant modifications. The Department is also assessing the addition of cogeneration facilities at the Honouliuli WWTP as part of ongoing upgrades. In addition, other energy management efforts implemented or currently being implemented include the use of variable speed drive pumps, redesign of lighting, and a coordinated effort to reduce energy bills through demand management.

2.4.9 IT Enhancement

While the Department has regularly upgraded individual information management technologies, an Information Technology Master Plan (ITMP) was completed in early 2007. This plan is oriented toward ensuring that information technology investments will facilitate development of a fully integrated information management system. In particular, the plan contemplates integration of Computerized Maintenance Management System (CMMS), geographical information system (GIS), SCADA, and regulatory and permitting databases. The ITMP vision of "one view: complete, correct and consistent" reflects a focus on addressing system redundancies and inefficiencies, accelerating implementation of recent technology investments, and support of interdivisional collaboration.

With an emphasis on IT governance, the ITMP provides for organizational changes and resource allocation to support the selected plans and strategies. The most significant organizational change is the recommendation of a new Information Technology Manager (ITM) position. The ITM will have department-wide responsibility for IT management in all divisions and for ensuring that IT hardware and software meet the standards for compatibility specified in the ITMP. Additional organizational changes include the identification of Key Application Managers and IT Project Managers, responsible for day-to-day applications and specific IT projects, respectively.

The ITMP also supports the asset management initiative and seeks to provide the best informational support to the asset management goals of long-term risk management and reduced life-cycle costs. The ITMP supports developing, updating, and reporting asset information through the CMMS and provides direction for CMMS integration with other tools such as GIS and SPL/Synergen. Data currently being integrated includes scanned Environmental Impact Report (EIR) documents.

Additionally, the ITMP identifies IT infrastructure that will be vital within the 5-year planning horizon. It addresses computer technology trends and presents recommendations with an emphasis on connectivity for monitoring, instrumentation and control, and security programs; work management systems and electronic documentation; and potential base stations for wireless field access to department systems.

2.4.10 Capacity Management and Operation and Maintenance

The Department has monitored the development of EPA's Capacity Management and Operation and Maintenance (CMOM) performance-based regulation related to collection system management. The CMOM planning framework covers operation and maintenance (O&M) planning, capacity assessment and assurance, capital improvement planning and financial planning. The Department plans to continue to monitor CMOM developments, ensure compliance with regulatory requirements, and employ CMOM prescribed activities to enhance system performance. As part of this effort, the Department has increased its CCTV monitoring of the collection system through its IDIQ contract.

2.4.11 Community Relations/Outreach

The Department has implemented a broad array of community relations / outreach activities oriented toward enhancing awareness of businesses and the general public of the appropriate uses of the System. Activities include:

- Update of the Department website to include easily navigable links to pertinent customer related information
- Watershed Partnerships with other government agencies, businesses, and community groups including the Ala Wai Watershed Association
- Training and partnerships with public schools in the Aiea, Waipahu, and Campbell high school districts

The Department has articulated successfully in the past the need for investment in the System, and did not encounter notable adverse reaction from the community to the adopted multi-year rate plan, which annually increased sewer rates through FY 2011 (Bill 37). The Department expects that continued outreach will result in a favorable outcome for the adoption of future planned rate increases.

2.5 ACCOMPLISHMENTS

The Department has a history of success in design and delivery of capital projects and has been recognized by the engineering and construction community on a number of occasions including:

- 2001 Grand Award - American Consulting Engineer's Council, Nimitz Highway Reconstructed Sewer
- 2001 Grand Conceptor Award - Consulting Engineer's Council of Hawaii, Nimitz Highway Reconstructed Sewer
- 2002 American Council of Engineering Companies "Honor Award" - Hart Street WWPS Force Main Project
- 2002 American Public Works Association (HI Chapter) Project of the Year - Hart Street WWPS Force Main Project

- 2004 American Society of Civil Engineers (ASCE) Outstanding Civil Engineering Achievement Award of Merit - Emergency Repair for the Waipahu WWPS
- 2005 American Council of Engineering Companies (ACEC) Hawaii Engineering Excellence Honor Award - Emergency Repair for the Waipahu WWPS
- 2006 American Public Works Association (HI Chapter), Environmental Project of the Year - Kainehe St, Hamakua Drive, Keolu Drive Reconstructed Sewer Project
- 2006 Build Hawaii Award, Award of Merit - Beachwalk Forcemain Emergency Project
- 2007 North American Society for Trenchless Technology 15th Anniversary National Achievement Award
- 2008 and 2009 Ala Wai School Certificate of Appreciation - Public Address System Beachwalk Forcemain Emergency Project
- 2009 Build Hawaii Award of Merit - Beachwalk Forcemain Emergency Project
- 2009 Build Hawaii Award of Excellence - Waimanalo WWTP Improvements
- 2009 ASCE Best Study/Research Project - Honolulu Membrane Bioreactor Study
- 2009 ASCE Best Water/Wastewater Environmental Project - Beachwalk WWPS Utility Vault and Receiving Pit
- 2010 ACEC Engineering Excellence Grand Conceptor - Beachwalk Emergency Bypass Force Main

Similarly, the Department has demonstrated professionalism and competence in the operation of its major treatment plants, particularly in the last few years as demonstrated by their earning National Association of Clean Water Agency (NACWA) Peak Performance Awards as shown in Table 2.1.

Table 2.1 Peak Performance Awards ⁽¹⁾ 2010 Consulting Engineers Report City and County of Honolulu					
Wastewater Treatment Plant	2005	2006	2007	2008	2009
Honouliuli	Silver	Gold	Gold	Silver	Gold
Kailua	Gold	Silver	--	Silver	Gold
Sand Island	Silver	Silver	--	Silver	Silver
Waianae	Gold	Platinum	Platinum	Platinum	Platinum
Wahiawa	Silver	Gold	Gold	Silver	Gold
Notes:					
(1) The awards were presented by the National Association of Clean Water Agencies (NACWA). Awards are granted for compliance with National Pollutant Discharge Elimination System (NPDES) permits.					

NACWA's peak performance awards are granted for compliance with NPDES permits. The Platinum Awards recognize 100 percent compliance with NPDES permits over a consecutive five-year period. The Gold Award honors treatment works that have achieved 100 percent compliance for an entire calendar year. The Silver Award honors treatment works that have no more than five NPDES permit violations in the calendar year.

2.6 EMPLOYEE POPULATION AND BARGAINING UNITS

The Department's FY 2011 Budget provides funding for 1,175 Full-Time Equivalent (FTE) positions. These positions are distributed across Divisions as shown in Table 2.2.

The Department work force, with the exception of 18 excluded and 4 exempt employees, is represented by one blue-collar, non-supervisory bargaining unit, one blue-collar, supervisory bargaining unit, one white-collar, non-supervisory bargaining unit, one white-collar, supervisory bargaining unit, and one professional and scientific bargaining unit. All bargaining unit contracts are state-wide and apply to all State government and county government activities. Contracts with the five public bargaining units representing Department employees will expire on June 30, 2011.

Table 2.2 Distribution of FY 2011 Budget Full-Time Equivalent Positions 2010 Consulting Engineers Report City and County of Honolulu	
Operating Division	Number of Budgeted FTEs
Administrative Support, Office of	40
Collection System Maintenance	181
Environmental Quality (Wastewater)	111
Wastewater Treatment and Disposal	399
Subtotal	731
Refuse Collection and Disposal	444
Total	1,175
<i>Source: City and County of Honolulu, Department of Environmental Services FY 2011 Operations Budget.</i>	

The Department staff is currently furloughed two days per month through Fiscal Year 2011. The approximate 10 percent reduction in staff hours is not expected to impact the delivery of the projects to be funded through the Series 2010 Bonds.

WASTEWATER SYSTEM

This section describes the System's service areas, facilities, operations, and assets. The section also presents a discussion of the system performance.

3.1 OVERVIEW

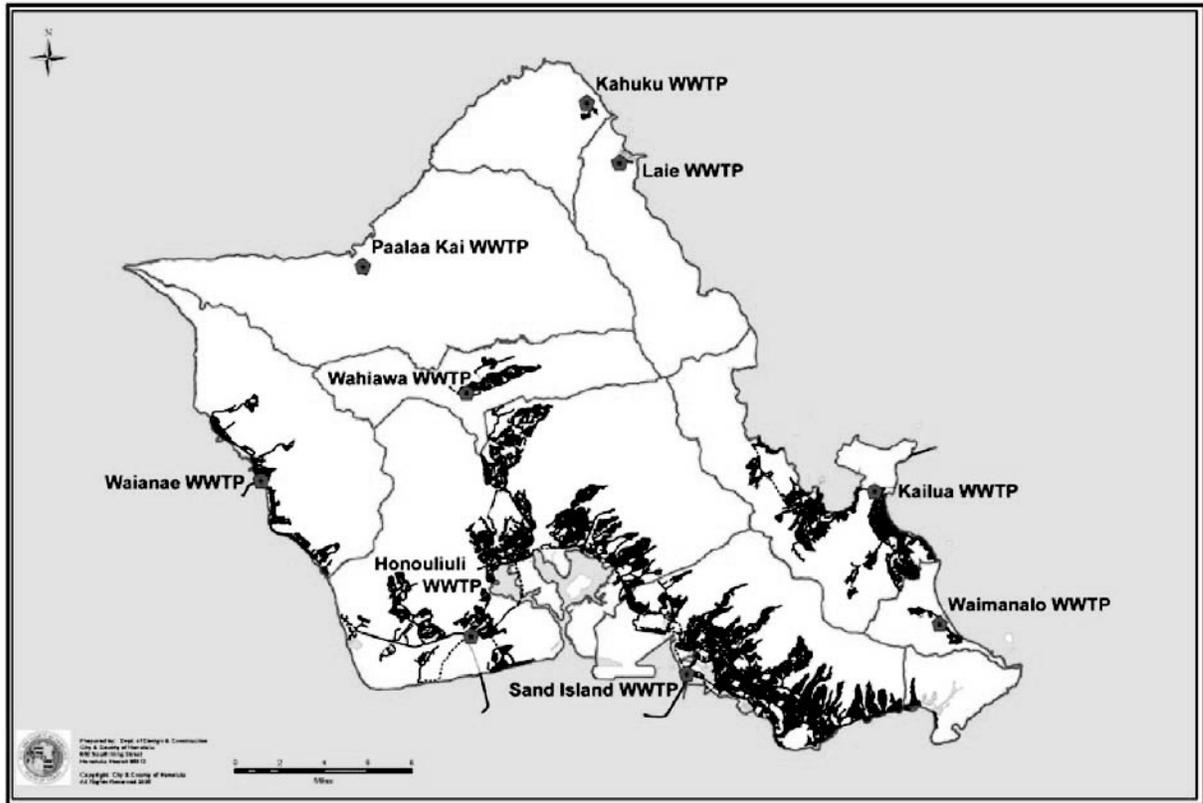
The System services a population of approximately 640,000, which is 73 percent of the total population of the City and County. The service area covers nearly 600 square miles. The City population outside the City service area is comprised primarily of military bases with on-site treatment facilities and one private system. The remainder of the population situated in widely distributed rural communities. The customer base includes a residential population, businesses and industries, and other users located in the service area. As shown in Table 3.1, of the 143,500 accounts, 136,044 are residential and provide about 71 percent of the total revenue from sewer service charges; the remaining 7,456 accounts are non-residential, representing about 29 percent of the total revenue from sewer service charges.

Table 3.1 Account and Wastewater Sales Distribution by Customer Class 2010 Consulting Engineers Report City and County of Honolulu			
Customer Class	Number of Accounts (June 2010)	Percentage of Accounts	Percentage of FY 2010 Wastewater Service Charge Revenues
Residential	136,044	95%	71%
Commercial and Industrial	6,974	5%	29%
Agricultural	482	0%	0%
Total	143,500	100%	100.0%
<i>Source: City and County of Honolulu, Department of Environmental Services</i>			

3.2 SYSTEM DESCRIPTION

The System is divided into nine drainage basins as shown in Figure 3-1. The nine wastewater basins are: East Mamala Bay, West Mamala Bay, North Oahu (West), Waianae, Central Oahu, Kailua/Kaneohe/Kahaluu, North Oahu (East - served by Kahuku WWTP), North Oahu (East - served by Laie WWTP) and Waimanalo. Population figures by basin are presented in Table 3.2. Estimated island-wide total population is estimated to be 882,027 in 2010, and is projected to increase at an average rate of about 0.6 percent per year through 2035, to about 1,009,118.

Figure 3-1 Service Area Map



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Table 3.2 Historical Projected Resident Population By Basin ⁽¹⁾
2010 Consulting Engineers Report
City and County of Honolulu

Basin	2005	2010	2015	2020	2025	2030	2035
East Mamala Bay	359,196	361,476	371,211	376,928	382,307	387,511	392,277
West Mamala Bay	279,237	292,468	308,355	328,370	348,633	367,765	385,399
Waianae	43,923	44,490	45,518	46,776	47,847	48,667	49,217
North Oahu (East/West) ⁽²⁾	32,600	31,880	32,917	33,669	34,276	34,711	34,969
Central Oahu	38,330	37,504	37,524	36,973	36,462	36,028	35,662
Kailua/Kaneohe/Kahaluu	106,656	104,122	104,954	105,026	103,894	102,334	100,849
Waimanalo	10,348	10,087	10,677	11,092	11,081	10,909	10,745
Total	870,290	882,027	911,156	938,834	964,500	987,925	1,009,118

Notes:

(1) Military bases are included in the numbers presented.

(2) Includes population of Laie, which is currently privately owned but operated by the City and County.

Source: City & County of Honolulu, Department of Planning and Permitting, 2009/City and County of Honolulu, Department of Environmental Services.

Each basin is served by a major WWTP as shown in Table 3.3 with corresponding FY 2010 actual flow and discharge location.

Table 3.3 FY 2010 Wastewater Flows by Treatment Facility and Drainage Basin 2010 Consulting Engineers Report City and County of Honolulu				
Region	Drainage Basin	Treatment Facility	FY 2010 Actual Flow (mgd)	Discharge Location
Metro	East Mamala Bay	Sand Island	62.82	Ocean
Leeward	West Mamala Bay	Honouliuli	25.41	Ocean/Reuse
	Waianae	Waianae	3.15	Ocean
	North Oahu (West)	Pa'alaa Kai	0.09	Injection Wells
	Central Oahu	Wahiawa	1.68	Reservoir
Windward	Kailua/Kaneohe/Kahaluu	Kailua Regional	11.26	Ocean
	North Oahu (East)	Kahuku	0.18	Injection Wells
	North Oahu (East)	Laie	0.43	Reuse
	Waimanalo	Waimanalo	0.61	Injection Wells
Private Systems				
	East Mamala Bay	Kuliouou WWPS (Hawaii Kai)	0.46	N/A
Total			106.09	
<i>Source: City and County of Honolulu, Department of Environmental Services.</i>				

The function of each WWTP is to treat wastewater by removing or reducing organic and inorganic materials to levels that satisfy federal and state permit requirements for the discharge of such wastewater into the ocean, streams, reservoirs or injection wells. In addition to treatment facilities, the System includes collection, pumping, and other related facilities.

Descriptions of the basins and major facilities are provided in the following subsections.

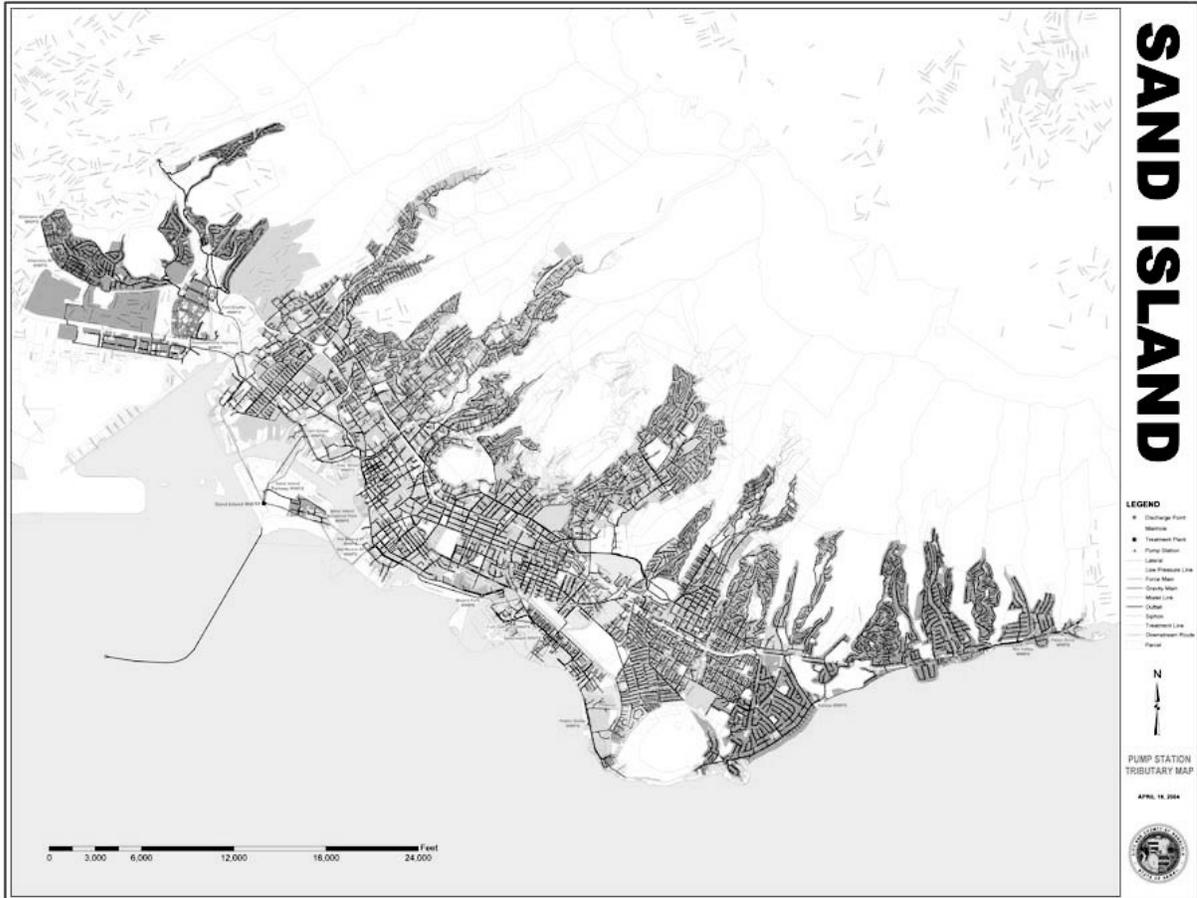
3.2.1 East Mamala Bay

The largest and the most densely populated basin is East Mamala Bay. Approximately 361,500 people reside in East Mamala Bay, representing approximately 41 percent of the resident population of the entire island. The basin is served by the Sand Island WWTP, a primary treatment plant, and the largest treatment facility in the System in terms of wastewater flow. The eastern most end of the basin, including Hawaii Kai, is served by a private wastewater facility. The Sand Island WWTP has a primary treatment average annual flow (ADAF) capacity of 86 million gallons per day (mgd) of wastewater flow and treated average flows of 62.82 mgd in FY 2010.

There are 19,342 gravity main segments in the area served by the Sand Island WWTP, representing 564 miles of total pipe length. Lateral segments make up 239 miles of pipe

length. Figure 3-2 shows the area served by the Sand Island WWTP and associated pipe segments and major facilities.

Figure 3-2 Sand Island Service Area

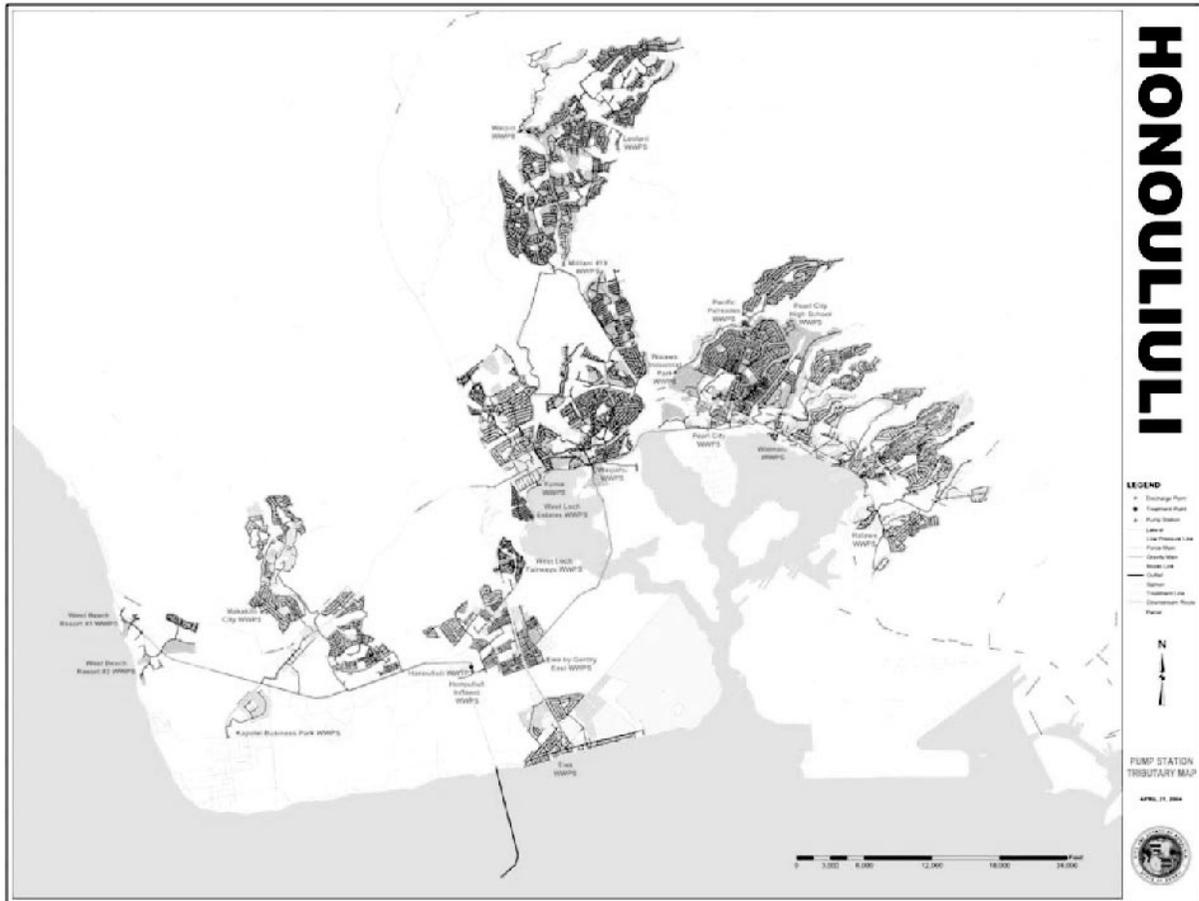


3.2.2 West Mamala Bay

West Mamala Bay is the second largest basin and includes Ewa, Central Oahu as far north as Mililani, and the Halawa to Pearl City area. The population of the basin area is approximately 292,500, or 33 percent of the estimated population of Oahu. The basin is served by the Honouliuli WWTP, which is the second largest treatment plant in the System, with a primary treatment ADAP design capacity of 40 mgd and a secondary treatment design capacity of 13 mgd. In FY 2010, average flows were 25.41 mgd. The secondary treated effluent is provided to a recycled water facility.

There are 16,150 gravity main segments in the area served by the Honouliuli WWTP, representing 516 miles of total pipe length. There are 54,284 lateral segments that make up approximately 223 miles of pipe length. Figure 3-3 shows the area served by the Honouliuli WWTP and associated pipe segments and major facilities.

Figure 3-3 Map of Honouliuli



3.2.3 Kailua/Kaneohe/Kahaluu

The third largest basin includes the communities of Kailua, Kaneohe, and Kahaluu and surrounding areas in the eastern part of the island. The eastern portion of Oahu is also referred to as the Windward basin area. The basin area population is about 104,100, or approximately 12 percent of the island's population. The basin is served by the Kailua Regional WWTP, the third largest treatment plant in the System. The Kailua WWTP has an ADAF design capacity of 16 mgd and in FY 2010, average flows were 11.26 mgd.

There are 6,936 gravity main segments in the area served by the Kailua Regional WWTP, representing 210 miles of total pipe length. There are 22,230 lateral segments that make up approximately 100 miles of pipe length. Figure 3-4 shows the area served by the Kailua Regional WWTP and associated pipe segments and major facilities.

Figure 3-4 Map of Kailua



3.2.4 Waianae

The Waianae basin serves the west coast of the island, which has a population of approximately 44,500. The Waianae WWTP has an ADAF capacity to process 5.5 mgd at a secondary level. In FY 2010, average flows were 3.15 mgd.

There are 1,682 gravity main segments in the area served by the Waianae WWTP, representing 61.8 miles of total pipe length. 6,422 lateral segments make up 24.3 miles of pipe.

3.2.5 North Oahu (East and West)

Most of the North Oahu area (population 31,900) does not have centralized sewer service, though there are three small System facilities including the Kahuku WWTP (0.4 mgd ADAF capacity, secondary), the Pa'alaa Kai WWTP (0.15 mgd ADAF capacity, secondary), and the formerly privately operated Laie WWTP (0.90 mgd ADAF capacity, tertiary). The City began operation of the Laie system in November 2006. In FY 2010, these facilities treated estimated average flows of 0.18 mgd, 0.09 mgd, and 0.43 mgd respectively.

There are 127 gravity main segments in the area served by the Kahuku WWTP, representing 4.2 miles of total pipe length. 493 lateral segments make up 1.7 miles of pipe length. In the area served by the Paalaa Kai WWTP, there are over 53 gravity main segments with a combined length of 1.6 miles and 308 lateral segments representing 1.3 miles of pipe. In the area served by the Laie WWTP, there are 86 gravity main segments with a combined length of 5.6 miles and 510 lateral segments representing 6.2 miles of pipe.

3.2.6 Central Oahu

Central Oahu (population of approximately 37,500), including military bases and the communities of Wahiawa and Whitmore Village, is served by the Wahiawa WWTP (2.6 mgd ADAF capacity, secondary with sand filtration). In FY 2010, average flows were 1.68 mgd.

There are 1,292 gravity main segments in the area served by the Wahiawa WWTP, representing 44.7 miles of total pipe length. 4,648 lateral segments make up 20.1 miles of pipe length.

3.2.7 Waimanalo

The Waimanalo basin is served by the Waimanalo WWTP, which is owned by the State and operated by the City and County. It is a secondary plant with sand filtration. The State recently completed an upgrade of the facility to an average daily flow of 1.155 mgd. The Waimanalo WWTP serves the Waimanalo community of 10,000 and in Fiscal Year 2010, average daily flows were estimated at .61 MGD.

There are 221 gravity main segments in the area served by the Waimanalo WWTP, representing 7.8 miles of total pipe length. 759 lateral segments make up 4.5 miles of pipe length.

3.2.8 Hawaii Kai

A private wastewater system provides collection and treatment for the community of Hawaii Kai. The Hawaii Kai system had an average flow of 4.2 mgd in FY 2010, including flows from the City's Kuliouou WWPS.

The Hawaii Kai system consists of 263 gravity main segments, representing 8.5 miles. 891 lateral segments make up 4.2 miles of pipe length.

3.2.9 Summary

The Sand Island WWTP, the Honouliuli WWTP, and the Kailua Regional WWTP are the three largest treatment facilities. Almost 95 percent of the System wastewater flows were treated by these facilities in FY 2010; the Sand Island WWTP treated 62.82 mgd from Honolulu, the Honouliuli WWTP treated 25.41 mgd from the Ewa, Mililani, and Pearl Harbor

areas, and the Kailua Regional WWTP treated 11.26 mgd from the eastern populated areas of the island.

Although the other six basin areas (including Central Oahu, North Oahu [East and West], Waianae, and Waimanalo) comprise the majority of the geographical area of the island, the population density is much lower in comparison to the East and West Mamala Bay and the Kailua/Kaneohe/Kahaluu basin areas. The combined population of the six basin areas is less than 15 percent of the total population of Oahu. The total ADAF design capacity of the WWTPs in the six basin areas is approximately 9 mgd and FY 2010 average wastewater flows were approximately 6.13 mgd.

In addition to the treatment facilities, gravity mains, and lateral pipe segments described by individual WWTP service areas, the Department maintains approximately 278,981 feet (52.8 miles) of force mains. The Department also operates 69 active pump stations which pumped an average of 129 mgd - or more than 47 billion gallons - in FY 2010. Eighteen pump stations handle an average of more than 1 mgd, and the largest facility (Ala Moana #1 Pump Station) pumps an average of almost 31 mgd.

3.3 SYSTEM PERFORMANCE

3.3.1 WWTP Discharge Requirements

WWTP discharges and compliance with biochemical oxygen demand (BOD) and total suspended solids (TSS) permit limits are presented for the three largest WWTPs within the system.

3.3.1.1 Sand Island WWTP

The Sand Island WWTP has a permitted discharge limit of 116 milligrams per liter (mg/L) for BOD and 69 mg/L for TSS. Figures 3-5 and 3-6 compare the actual discharges between January 2009 and June 2010 to the permit limit for BOD and TSS, respectively.

The average BOD discharge for the Sand Island WWTP was 104 mg/L over this time period, ranging between 93 and 119 mg/L. This represents discharges of between 80 and 103 percent of the BOD permit limit.

The average TSS discharge for the Sand Island WWTP was 36 mg/L over this time period, ranging between 33 and 40 mg/L. This represents discharges of between 48 and 58 percent of the TSS permit limit.

There were two exceedences of the permitted BOD limit during this time period - February 2010 and March 2010. During the February 2010 exceedance, BOD results for the majority of weekdays during February were over the permit limit. The exact cause of the higher BOD

Figure 3-5 Sand Island WWTP Concentrations and Permit Limits, BOD

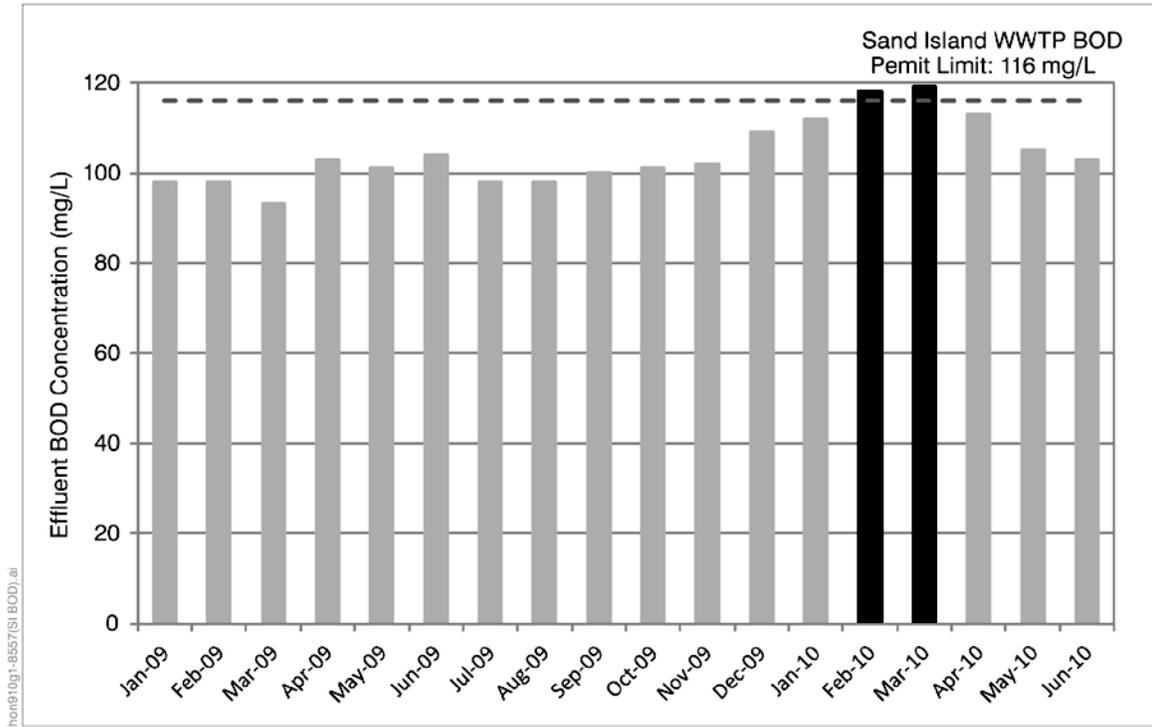
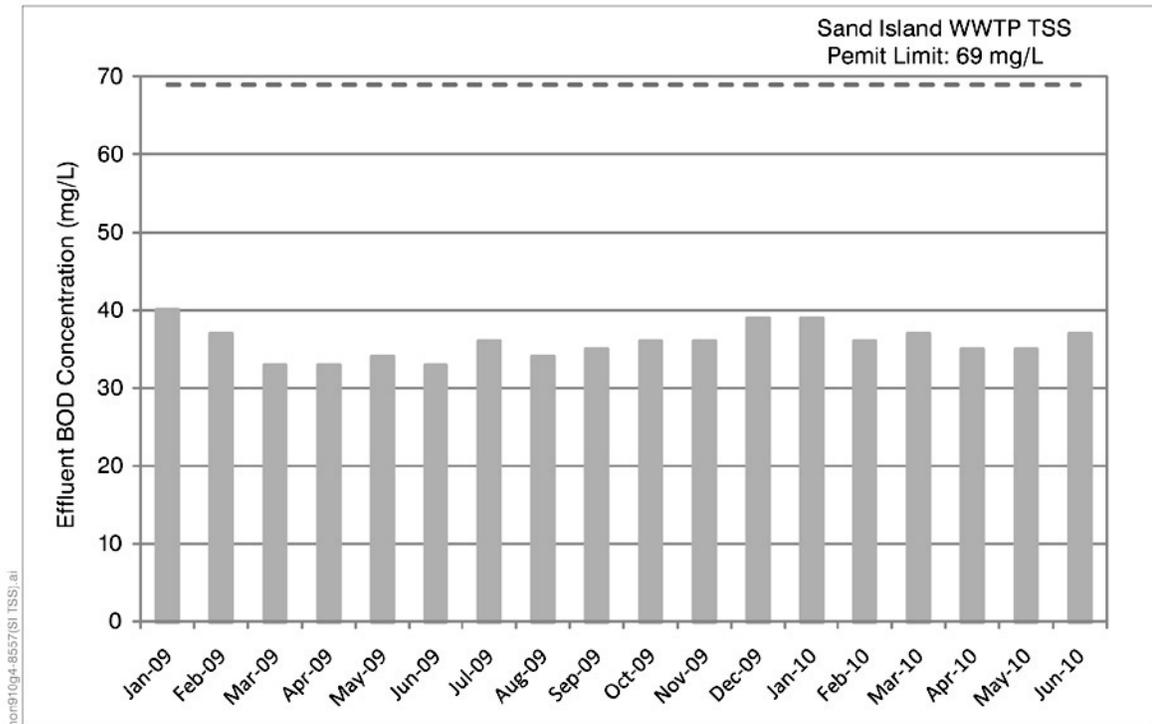


Figure 3-6 Sand Island WWTP Concentrations and Permit Limits, TSS



was unknown and the Regulatory Control Branch was asked to investigate whether materials having significant soluble BOD had been discharged to the Sand Island collection system. The monthly average effluent BOD limit was again exceeded in March 2010. Following the February exceedance, the Department believed soluble BOD to be the cause of the problem. The Department implemented a three part response to the exceedance.

1. An analysis of data comparing March 2010 to March 2009 was conducted to show that the influent BOD was generally higher in March 2010. The higher influent level was assumed to be caused through discharges to the collection system and the Regulatory Control Branch continued its investigation of the collection system discharge which was initiated following the February 2009 BOD noncompliance. The investigation included review of fats, oils, and grease processors and significant industrial users.
2. The Department analyzed existing operations and routine NPDES monitoring data and determined that plant process operation was not a contributing factor to the BOD noncompliance.
3. The City also monitored in-plant BOD, soluble BOD, and TSS. Sampling locations included the solids handling facilities at the Synargo biosolids facility where a broken pump caused a backlog in the sludge thickener tanks. The backlog was controlled by bringing Wet Sludge Storage Tank 4 online. The broken pump was fixed and the backlog cleared on March 16, 2010.

3.3.1.2 Honouliuli WWTP

The Honouliuli WWTP has a permitted discharge limit of 160 mg/L for BOD and 95 mg/L for TSS. Figures 3-7 and 3-8 compare the actual discharges between January 2009 and June 2010 to the permit limit for BOD and TSS, respectively.

The average BOD discharge for the Honouliuli WWTP was 137 mg/L over this time period, ranging between 110 and 155 mg/L. This represents discharges of between 69 and 97 percent of the BOD permit limit.

The average TSS discharge for the Honouliuli WWTP was 35 mg/L over this time period, ranging between 26 and 42 mg/L. This represents discharges of between 27 and 44 percent of the TSS permit limit.

Figure 3-7 Honouliuli WWTP Concentrations and Permit Limits, BOD

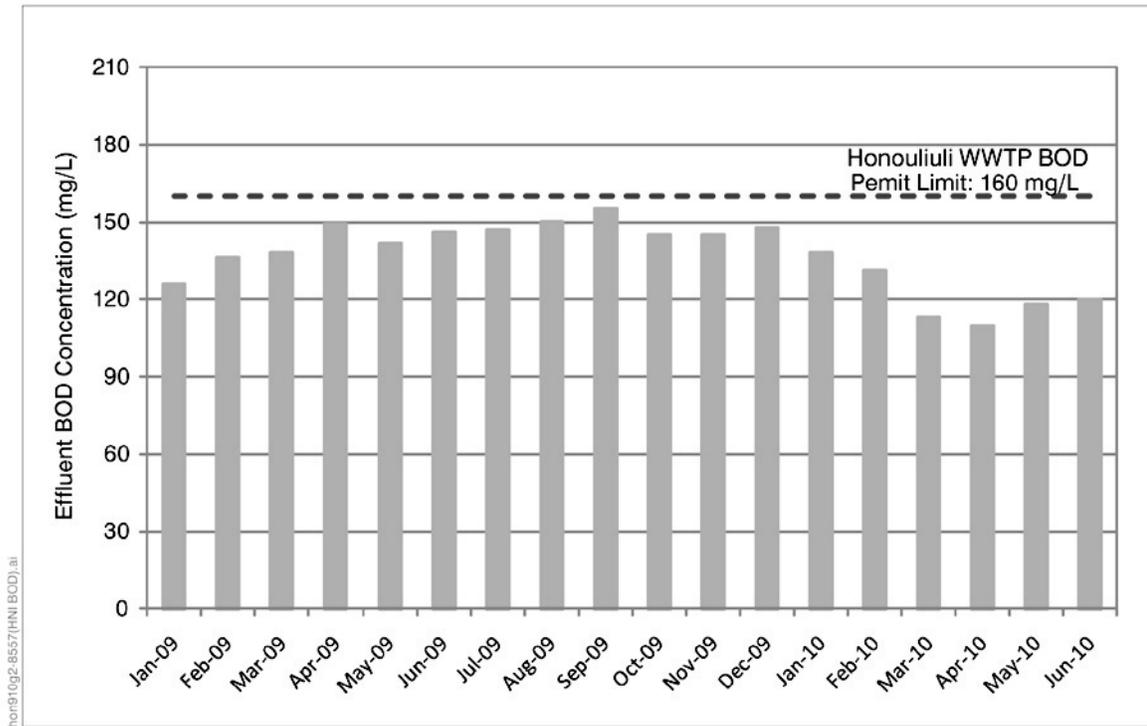
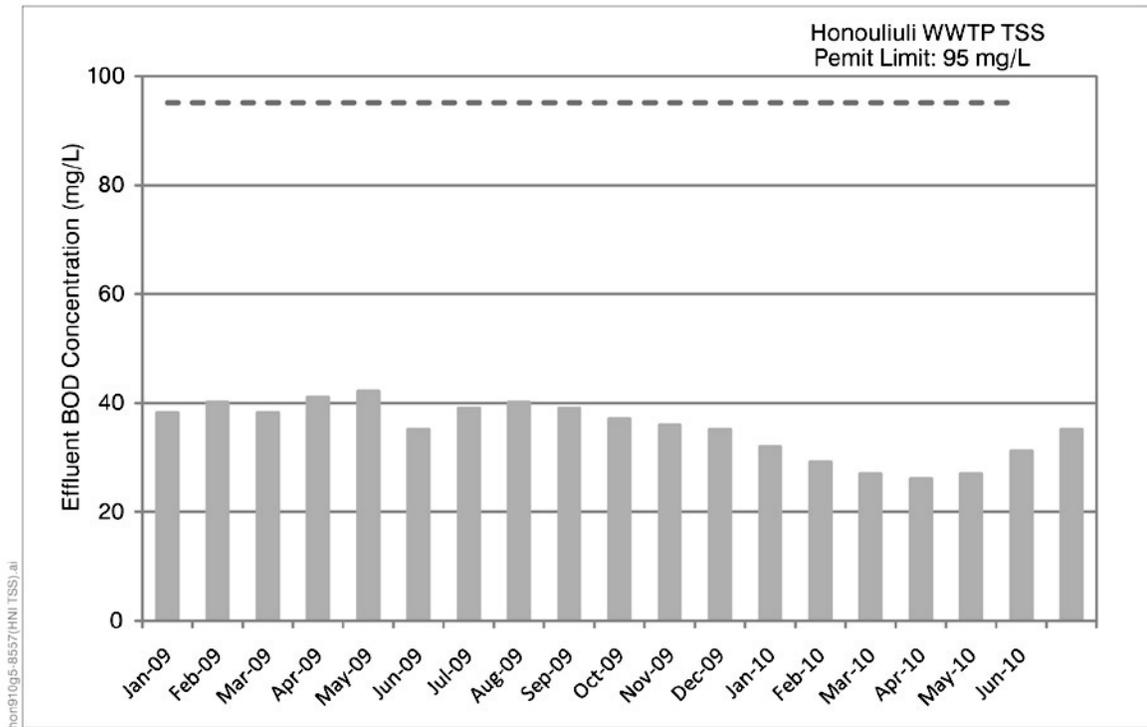


Figure 3-8 Honouliuli WWTP Concentrations and Permit Limits, TSS



3.3.1.3 Kailua Regional WWTP

The Kailua Regional treatment facility has a permitted discharge limit of 30 mg/L for BOD and 30 mg/L for TSS. Figures 3-9 and 3-10 compare the actual discharges between January 2009 and June 2010 to the permit limit for BOD and TSS, respectively.

Figure 3-9 Kailua Regional WWTP Concentrations and Permit Limits, BOD

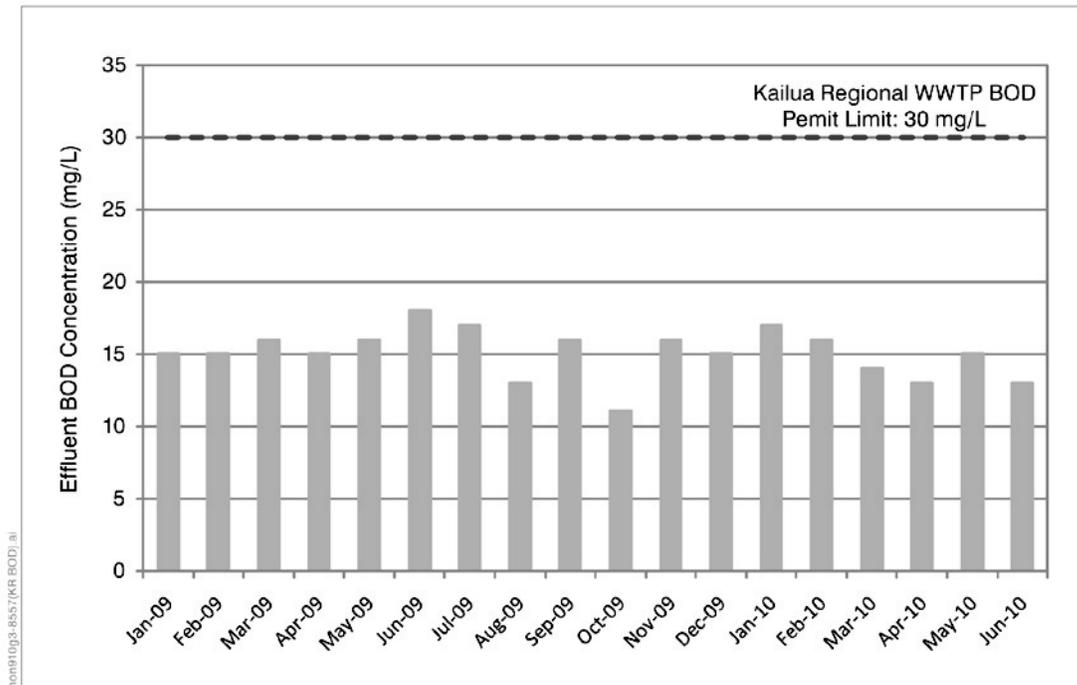
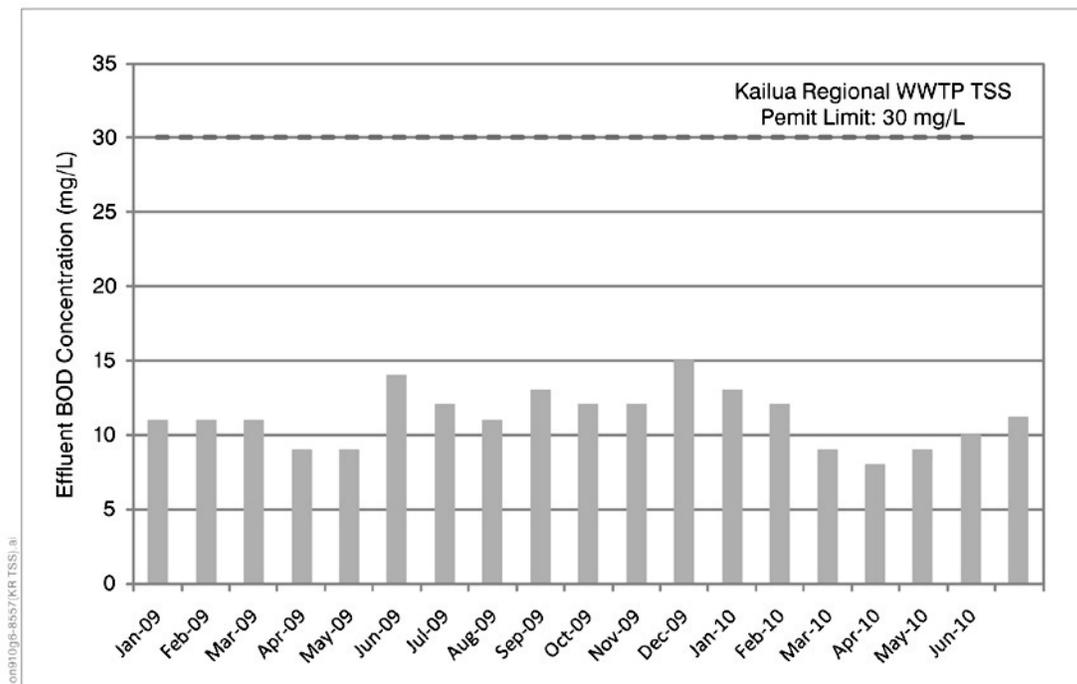


Figure 3-10 Kailua Regional WWTP Concentrations and Permit Limits, TSS



The average BOD discharge for the Kailua Regional WWTP was 15 mg/L over this time period, ranging between 11 and 18 mg/L. This represents discharges of between 37 and 60 percent of the BOD permit limit.

The average TSS discharge for the Kailua Regional WWTP was 11 mg/L over this time period, ranging between 8 and 15 mg/L. This represents discharges of between 27 and 50 percent of the TSS permit limit.

In summary, the Department has met monthly average BOD and TSS permit concentration limits for its three major WWTPs over the period January 2009 through June 2010 with the exception of two exceedences of monthly average BOD at the Sand Island WWTP.

3.3.2 Collection System Operation and Maintenance

The Department proactively operates and maintains an extensive wastewater collection system serving the nine drainage basins. In FY 2010, the Department cleaned and flushed 871 miles of sewer, cleaned 450 laterals, chemically treated 476 laterals, and inspected 33,270 manholes. Television inspections were conducted on 457,962 feet of sewer line.

Repairs were completed on 287 feet of sewers and 71 feet of laterals and extensions were installed. The Department maintains the low pressure sewer system (LPSS) in Laie. The Department maintained and operated more than 750 LPSS in Laie and rehabilitated 41,506 feet of sewer pipe with cured-in-place pipe lining.

3.3.3 Legal and Regulatory Actions

The WWTPs and other facilities operated by the Department are governed by either NPDES permits or State of Hawaii Department of Health (DOH) Underground Injection Control permits. Since 1991 the EPA, the State of Hawaii and several environmental groups have filed various legal and regulatory actions against the City and County alleging violations of the federal Clean Water Act and the several NPDES and State of Hawaii permits held by the Department. The City has entered into settlements with respect to several of such actions. The objectives of these actions ranged from development of spill reduction plans to repair and rehabilitation of the collection system to reduce infiltration and inflow (I/I).

Various judicial and administrative orders require the Department, among other things, to rehabilitate and expand certain existing facilities, to implement pre-treatment programs, to institute efficient effluent reuse and biosolids reuse, and to construct new facilities. The Department has undertaken this work, and the Department CIP has been developed, in part, to comply with these requirements, as well as other federal and state authorities.

A lawsuit was filed in 1994 by EPA and DOH against the City. United States of America, et al. v. City and County of Honolulu, Civil No. 94-00765 DAE-KSC. This lawsuit sought penalties and injunctive relief relating to the City's collection system. A consent decree (1995 Consent Decree) was entered into between the parties which requires the City,

among other things, to comply with the Clean Water Act, to establish a schedule under which the City shall implement preventive maintenance and sewer replacement and rehabilitation necessary to reduce and prevent spills, to require the City to implement and enforce its pretreatment program to regulate industrial discharges, and to develop and implement an effluent and sludge reuse program. The Sierra Club Hawaii Chapter, Hawaii's Thousand Friends, and Our Children's Earth Foundation ("NGOs") intervened in this lawsuit in 2007, subject to certain conditions.

In 2004, the NGOs filed a lawsuit against the City. The lawsuit alleged, among other things, violations of the Clean Water Act and Sand Island and Honouliuli WWTP NPDES permits.

As a result of the March 2006 Beachwalk spill and after one year of negotiations, the EPA, Department of Justice (DOJ), DOH and the City signed a Stipulated Order that requires the City to take certain actions to evaluate, repair, rehabilitate or replace certain force mains and one pump station in its wastewater collection system, and develop site-specific spill contingency plans (2007 Stipulated Order). This stipulated order, which has been accepted by the court, resolves the entire civil enforcement action that was simultaneously filed with the stipulated order against the City and County with respect to the spill. The estimated cost of the work in the 2007 Stipulated Order was approximately \$300 million dollars.

In January 2009, the EPA issued final decisions to deny applications for renewed variances from secondary treatment for the Sand Island and Honouliuli WWTPs. The City and County vigorously challenged these decisions and submitted appeals to the Environmental Appeals Board in February and March 2009.

The City, the EPA, the DOH, and the NGOs have reached agreement on a proposed 2010 Consent Decree that would resolve the 1994, 2004, and 2006 lawsuits and the City's appeals of the EPA's January 2009 final decisions, discussed in the previous paragraphs. The proposed 2010 Consent Decree has been approved by all parties and lodged with the federal court. It was subject to a 30-day public comment period which ended September 15, 2010. After reviewing the public comments, the United States will decide whether to move for its entry and the Court will decide whether to grant the motion. The 2010 Consent Decree will become effective upon its entry by the Court. Entry of the 2010 Consent Decree will provide certainty on outstanding litigation and to the Department's long-term CIP. It would result in the termination of the 1995 Consent Decree and the 2007 Stipulated Order, and the dismissal of the 2004 and 2006 lawsuits.

The proposed 2010 Consent Decree allows 10 years for completion of work on the collection system, 14 years for the upgrade of the Honouliuli WWTP to secondary treatment, and 25 years, with the possibility of a three-year extension, for the upgrade of the Sand Island WWTP to secondary treatment. The City is expected to incur \$3.7 billion in capital costs through fiscal year 2020 (which coincides with the term of the collection system portion of the consent decree). This amount will largely be spent on the collection system, and much of it will go toward work that was already required or planned. This

amount also includes a portion of the costs of treatment plant upgrades at Sand Island WWTP and Honouliuli WWTP. The costs of the treatment plant upgrades, which are included in the Department's CIP, include approximately \$550 million to replace primary treatment facilities at both plants and \$1.15 billion to upgrade the plants to secondary treatment plants. Table 3.4 summarizes the primary collection system and treatment facility terms of the proposed 2010 Consent Decree.

Table 3.4 Summary of Draft 2010 Consent Decree Improvements 2010 Consulting Engineers Report City and County of Honolulu
COLLECTION SYSTEM IMPROVEMENTS
Force Mains
<ul style="list-style-type: none"> • Provide new equipment at select pump stations to divert flows at specified force mains. • Plan and construct necessary improvements to provide for flow diversion capabilities at specified force mains. • Prepare spill contingency plans for specified force mains, and one programmatic spill contingency plan for small force mains. • Construct four back-up force mains and one replacement force main. • Conduct condition assessments of specified force mains and complete follow-up work identified by the condition assessments. • Implement an agreed-upon operation and maintenance program for all force mains.
Gravity Sewers
<ul style="list-style-type: none"> • Complete 40 projects by set deadlines through December 31, 2016, and evaluate another 38 projects over the next four years. • Update hydraulic data and flow projections, including rates of infiltration and inflow during wet weather. • Assess the condition, through closed-circuit television, of 650 miles of gravity sewers, 300 miles during the first three years, and 350 miles during years 4 through 10. • Repair or replace 144 miles of gravity sewers, 63 miles during the first three years, and 81 miles during years 4 through 10. • Clean 500 total miles of gravity mains per year.
Fats, Oils, and Grease.
<ul style="list-style-type: none"> • Continue program of permitting, inspecting, and enforcing installation of grease removal devices for food service establishments.
Pump Stations
<ul style="list-style-type: none"> • Perform specific repairs, storage projects and possible capacity upgrades at identified pump stations. • Update operations and maintenance manuals for all pump stations. • Develop standardized training procedures.

<p>Table 3.4 Summary of Draft 2010 Consent Decree Improvements 2010 Consulting Engineers Report City and County of Honolulu</p>
<p>Staffing for the Gravity Sewer System</p>
<ul style="list-style-type: none"> • Prepare a staffing plan and maintain staffing levels consistent with the staffing plan.
<p>Equipment</p>
<ul style="list-style-type: none"> • Maintain equipment inventory for gravity sewer maintenance and spill response.
<p>TREATMENT FACILITIES IMPROVEMENTS (SAND ISLAND AND HONOULIULI)</p>
<ul style="list-style-type: none"> • Honouliuli WWTP is required to be upgraded to meet secondary treatment standards by June 1, 2024. • Sand Island WWTP is required to be upgraded to meet secondary treatment standards by December 31, 2035, with the possibility of extending the deadline to December 31, 2038 if the City demonstrates that an earlier deadline is not technically feasible, or would impose undue financial hardship. • The consent decree provides for interim effluent limits that both plants must meet until they achieve full secondary treatment. • The operations and maintenance manuals for both treatment plants must be updated.

CAPITAL IMPROVEMENT PROGRAM

Over the last decade, the Department has undertaken important planning studies and other efforts in order to forecast System CIP improvements needed to meet their mission control objectives. The proposed 2010 Consent Decree provides certainty of both need and timing of many of the future facilities for the Department's five-year CIP and long-term financial plans. The following subsections summarize the Department's planning efforts and project prioritization criteria, CIP program, and major capital projects.

Capital program costs captured within this report are presented as both appropriations and cash flow expenditures. An appropriation represents a commitment by the City and County to undertake a given project and reflects the total costs of that project. Appropriated costs are assumed to be expended over a five-year cycle beginning in the year of the appropriation. These annual expenditures are then funded through bond proceeds and other capital funding sources.

The CIP and financial plan described herein include the projects related to the Draft 2010 Consent Decree requirements.

4.1 SYSTEM PLANNING AND MANAGEMENT

4.1.1 System Planning

The Department has developed a comprehensive long-term planning program for the System which includes the completion of facility plans and preliminary designs for most of the major wastewater facilities. The Department's original 20-year CIP covered the years from FY 1998 to FY 2017. The Department's current 20-year CIP captures appropriations from FY 2001 through FY 2020.

As part of the annual budget process, the upcoming FY project requirements (as defined by the CIP) are reviewed and refined as necessary to reflect updated cost estimates or other information related to the projects. Project cost estimates included in the CIP and financial plan are based on preliminary engineering reports and feasibility studies. These cost estimates represent Class 5 and Class 4 estimates as defined by the Advancement of Cost Engineering International (AACE International)¹. Typical accuracy ranges for Class 5 estimates are 20 percent to -50 percent on the low side, and +30 percent to +100 percent on the high side. Typical accuracy ranges for Class 4 estimates are -15 percent to -30 percent on the low side, and +20 percent to +50 percent on the high side. Project costs for the next five years are estimated from the 20-year plan and the 6-year projections (current fiscal year plus the five year projections), are forwarded to the

¹ Estimated level of accuracy is based on AACE International Recommended Practices and Standards, No. 18R-97.

Mayor for inclusion in the annual CIP and budget; only the first year of the budget is adopted by the City Council.

4.1.1.1 Prioritization Criteria

The Department has developed a procedure for prioritizing capital projects to determine order and timing of projects. The prioritization criteria are shown in Table 4.1, with the highest priority criteria listed first.

Table 4.1 Prioritization Criteria 2010 Consulting Engineers Report City and County of Honolulu	
Priority	Description
I	Safety and public health - immediate
II	Protection of the environment - immediate
III	Permit and regulatory compliance - immediate
IV	Completion of ongoing projects
V	Preventive
VI	Funding requirements
VII	System expansion
VIII	Other

The rankings are intended as guidelines for CIP project planning. A project considered in a low priority class may be upgraded to a higher priority position in the CIP due to any number of factors. For example, if a service area is close to reaching and surpassing the capacity of its wastewater facilities, the expansion of the system in that area rises in priority. System expansion can entail projects which affect permit and regulatory compliance, protection of the environment, or safety and public health. Through the use of these guidelines, combined with analyses of funding and other resource constraints, the Department develops a CIP which addresses regulatory requirements and service needs of customers.

The current CIP was developed using these guidelines and the priorities at the time of CIP development. The Department retains the responsibility for insuring that appropriate planning for the future continues as the program is executed, modified, and planned in, and beyond the current CIP period.

4.1.2 Infiltration and Inflow (I/I) Management

Similar to most other wastewater collection systems, extraneous stormwater enters the Department's sewers as wet weather infiltration and inflow (I/I). Infiltration occurs when water percolates through the ground and indirectly enters sewer pipes through structural defects such as openings in pipe joints, and cracked or corroded manholes and pipes. Inflow occurs when stormwater flows directly into the wastewater collection system

through manhole covers, cleanout lids, or illegally connected area drains or downspouts. The combined wastewater flows and wet weather I/I exceed the hydraulic capacity of certain elements of the wastewater collection system and result in sanitary sewer overflows (SSOs).

The Final Sewer Rehabilitation and Infiltration and Inflow Minimization Plan Program (Final Sewer I/I Plan) was completed by the Department in December 1999 to determine the optimal approach for the Department to minimize SSOs from its wastewater collection and treatment systems, and to fulfill a portion of the requirements of the 1995 Consent Decree. The Final Sewer I/I Plan was approved by EPA, and has served as the basis for identification and prioritization of collection system projects included in the five-year and ten-year capital plans.

4.1.3 Project Management

The Department uses a combination of professional engineering staff and specialty subcontractors to manage the capital program. As discussed in Section 2, the Department has recently secured consultant program management assistance to help ensure timely and cost-effective delivery of its expanded capital improvement program.

Program management services significantly leverage existing professional staff capabilities to manage the planning, design, construction, construction management, and other specialty delivery services necessary to maintain schedule compliance and effective project management and accountability.

Program management assistance will help support overall project control, project scheduling and cost-estimating functions, ensure standardization and documentation of project planning and design, and provide specialty quality assurance / quality control services. It will also facilitate use of alternative project delivery mechanisms to help the Department manage schedule compliance and project delivery risks. These specific tasks are expected to facilitate the Department implement the CIP and meet its compliance deadlines.

As described in Sections 2.3.5 and 2.5.10, in addition to the program management assistance, the Department has entered into an IDIQ contract described in Section 2.3.5, that enables the City to provide as needed services to continue its collection system monitoring program. The work to be included as part of this contract involves sewer line cleaning and television inspection, rehabilitation of service laterals, installation of CIPP part-liners and service connection liners, point repair excavation and replacement of pipe, installation of new precast concrete manholes, rehabilitation of existing manholes using an epoxy coating or FRP insert, and providing temporary bypass pumping and traffic control work.

4.2 CAPITAL IMPROVEMENT PROGRAM ACCOMPLISHMENTS

Since the development of the original 20-year CIP in 1998, the Department has completed a number of projects related to the consent decrees and regulatory requirements, as well as system expansion and other needs. Expenditures increased significantly between FY 1998 and FY 2003, and then remained relatively stable through FY 2008. Expenditures are projected to increase through FY 2015. Appropriated dollars reflect a commitment by the City and County to fund and construct the identified capital projects. It is assumed that a capital project, once appropriated, will be planned, designed, and constructed over a five year period beginning in the year of the appropriation.

A summary of recently constructed projects is provided below. Subsequent subsections discuss planned near and longer-term improvements.

- Kainehe Street, Hamakua Drive/Keolu Drive Reconstructed Sewer (\$26.4 million).
- Kalaheo Avenue Reconstructed Sewer - Phase 1 (\$34.4 million).
- Sand Island Parkway WWPS Modification (\$1.0 million).
- Amelia Street Sewer Relief (\$2.6 million).
- Fort DeRussy Sewer Force Main Extension (\$4.7 million).
- Halona Street Relief Sewer (\$3.6 million).
- Kailua/Kaneohe Reconstructed Sewer (\$13.9 million).
- Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1A through 1I (\$38.9 million).
- Kapiolani Area Revised Sewer System (\$11.7 million).
- Kuliouou Sewer Rehabilitation (\$10.3 million).
- Kuliouou WWPS Modifications (\$2.8 million).
- Renton Road Sewer and Manhole Rehabilitation (\$5.3 million).
- Waimalu Sewer Rehabilitation/Reconstruction (\$45.1 million).
- Waimanalo Sewer Rehabilitation (\$2.8 million).
- Facilities Plan for the Kailua/Kaneohe/Kahaluu Service Area (\$0.6 million).
- Niu Valley WWPS Force Main Reconstruction (\$13.1 million).
- Ala Moana WWPS Modifications (\$20.2 million).
- Beachwalk WWPS Emergency Construction Bypass (\$37.7 million).
- Nimitz Highway Sewer Reconstruction at OCCC (\$2.1 million).
- Sand Island WWTP UV Disinfection Facility/Effluent Pump Station (\$77.0 million).
- Kailua WWTP Digester Covers (\$3.9 million).
- Kailua WWTP Replace Primary Pumps and Dewatering Pumps (\$2.5 million).
- Sand Island WWTP Headworks Phase 2A (\$94.0 million).

- Sand Island WWTP Primary Treatment Expansion (\$77.5 million).
- Honouliuli WWTP New Solids Handling Facilities (\$49.9 million).
- Collection System Rehabilitation in Oahu (\$13.3 million).
- Sand Island WWTP Primary Clarifier Nos. 1, 2, 5 and 6 Repair (\$3.9 million).
- Waipahu WWPS Modifications (\$7.6 million).
- Honouliuli WWTP Disinfection Facilities (\$0.45 million).
- Wahiawa WWTP Conveyance and Effluent Disposal System (\$18.6 million).

4.3 FIVE-YEAR (FY 2011 TO FY 2015) CAPITAL IMPROVEMENT PLAN

The Department has identified a number of capital improvement projects to meet the regulatory requirements. The FY 2011 to FY 2015² CIP includes projects which have been identified as the highest priority for meeting these requirements, and addressing system reliability needs. The FY 2011 to FY 2015 CIP appropriations (adjusted for inflation) are summarized in Table 4.2. Project costs include planning, design, and construction, as well as all engineering, administrative, and legal expenses required to complete a project. A list of projects and project descriptions is provided in Appendix B.

4.3.1 Five-Year (FY 2011 to FY 2015) CIP Conveyance System Improvements

The majority of the projects scheduled for the FY 2011 to FY 2015 period are conveyance related collection system projects, including pipelines and pump stations. The collection system improvement projects are needed to replace or rehabilitate corroded pipe, to reduce I/I, and for minimal extension of service to unsewered areas. Rehabilitation or replacement of corroded pipe is an important part of the Department's I/I management program, as these improvements will reduce I/I during wet weather events, and may result in lower O&M costs for both the collection systems and associated WWTPs.

The following are typical of the kinds of projects to be initiated during this period:

Force Main Condition Assessments: This project includes development of condition assessments and follow-up action plans for the following force mains: Ahuimanu, Aliamanu No. 1, Aliamanu No. 2, Lualualei, Awa Street, Kaneohe Bay No. 3, Kunia, and Kailua Road, Ewa Beach and Halawa.

² The City's current CIP and Budget includes appropriations adopted for FY 2011 and programmed capital improvements through FY 2015; only the first 5 years (through FY 2015) are presented in this subsection.

Table 4.2 Summary of FY 2011 to 2015 CIP Appropriations^{(1), (2)} 2010 Consulting Engineers Report City and County of Honolulu						
Project Type	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Appropriations FY 2011 to FY 2015
Collection System						
Mandated	\$265,231	\$195,162	\$187,241	\$220,602	\$84,326	\$952,562
Discretionary	26,659	114,264	62,071	56,539	76,724	336,257
Subtotal Collection	\$291,890	\$309,426	\$249,312	\$277,141	\$161,050	\$1,288,819
Treatment Plant						
Mandated	-	2,803	4,061	6,702	32,153	45,719
Discretionary	31,153	25,160	13,351	9,947	9,926	89,537
Subtotal Treatment	\$31,153	\$27,963	\$17,412	\$16,648	\$42,079	\$135,256
Project Mgmt, Equip. and Other ⁽³⁾	21,523	18,388	34,134	34,388	19,290	127,724
Total CIP	\$344,566	\$355,777	\$300,859	\$328,177	\$222,420	\$1,551,799
Notes:						
(1) Dollars presented are in thousands of inflated dollars.						
(2) Numbers may not add up exactly, due to rounding.						
(3) Includes all miscellaneous projects not included in collection system or treatment plant costs as well as appropriations for asset management, project management and equipment.						

Gravity Main Condition Assessment: This project includes a comprehensive inspection and assessment of selected gravity mains. The Condition Assessment shall be directed at identifying gravity main defects or conditions that may cause or contribute to SSOs, including, but not limited to, design and construction defects, structural defects, debris, root intrusion, or grease accumulation. The project includes assessment of 300 miles of gravity mains from 2009 over the duration of three years.

Gravity Main Rehabilitation and Replacement Program: This project includes Rehabilitation and Replacement Program for City gravity mains in order to take corrective action necessary to address deficiencies, reduce the risk of SSOs, and lead to a long-term sustainable renewal of infrastructure.

Ala Moana WWPS Force Main No. 3 and No. 4: This project includes planning and design of new pump stations No. 3 and 4 to provide backup capacity and to convey the projected peak wet weather flows from the Ala Moana WWPS to the Sand Island WWTP.

Aliamanu No. 1 and No. 2 WWPS Upgrade and Sewer Relief: This project addresses hydraulic deficiencies in the existing WWPS and in the downstream sewer line, and is included in the EPA-approved Final Sewer I/I Plan.

Kanohe WWPTF Improvements and Equalization Basins: This project will address current hydraulic deficiencies at the Kaneohe Wastewater Pre Treatment Facility. The

planning phase will develop and evaluate alternatives to address the deficiency, including the proposed 6 million gallon wet weather storage basin, along with diversion pumping facilities, odor control, and other appurtenances.

Kaneohe/Kailua Force Main No. 1 and No. 2: This project includes improvements and rehabilitation work needed for the existing Kaneohe/Kailua Force Main No. 1, per recommendations from condition assessment work conducted in 2008. Improvements to Force Main No. 2 include construction of a new force main to provide continuity of sewer flow.

Waipahu Sewer Replacement/Relief: The project will address possible hydraulic deficiencies based on the projected peak wet weather design flows. The need for relief sewer lines, or rehabilitation of existing sewer lines, in the Awamoku St. area will be evaluated.

4.3.2 Five-Year (FY 2011 to FY 2015) CIP Wastewater Treatment Plant Improvements

Treatment plant improvements during the FY 2011 to FY 2015 period are needed to upgrade existing facilities, to satisfy regulatory requirements, and to improve the reliability of the facilities in handling peak wet weather flows.

The following are typical of the kinds of projects to be constructed during this period:

Sand Island WWTP Outfall Improvements/Rehabilitation: This project will conduct an assessment of the existing outfall, and provide recommendations for future improvements or rehabilitation work.

Honouliuli WWTP Outfall Improvements/Rehabilitation: This project will conduct an assessment of the existing outfall, and provide recommendations for future improvements or rehabilitation work.

Kailua WWTP Solids Dewatering System: This project will replace and/or modify the existing sludge dewatering system at the Kailua Wastewater Treatment Plant to improve and simplify its operations and increase the reliability. Planning phase will evaluate options for constructing a new dewatering building. Project includes odor control systems to adequately treat foul air from the dewatering operations.

Kaneohe Wastewater Pre-Treatment Facility Improvements and Equalization Facility: This project will address hydraulic deficiencies at the Kaneohe WWPTF. The planning phase will develop and evaluate alternatives to address the deficiency, including the proposed 6 million gallon wet weather storage basin, along with diversion pumping facilities, odor control, and other appurtenances. Required by the EPA-approved Final Sewer I/I Plan, this project will enable conveying the 2020 peak wet weather design flow to the Kailua Regional WWTP.

4.3.3 Five-Year (FY 2011 to FY 2015) CIP Summary

The FY 2011 to FY 2015 CIP has been developed to address system needs and comply with regulatory requirements in the short term. Carollo has reviewed the Department's FY 2011 to FY 2015 CIP, and finds the programmed projects to be technically sound and in conformance with industry-standard engineering practices. The project cost estimates appear reasonable based on the use of existing technologies, and the associated construction schedules achievable with the implementation of effective construction management and program management.

4.3.4 Five-Year (FY 2011 to FY 2015) CIP Funding Sources

Table 4.3 summarizes the anticipated funding sources for the FY 2011 to FY 2015 CIP expenditures (adjusted for inflation). Revenue Bond proceeds for the five-year period will fund a portion of the project costs. In addition, the City secured a commitment for \$44 million in SRF loan funding for projects through FY 2015 at an interest rate of 0.5 percent. The balance is to be funded by net revenues.

Table 4.3 FY 2011 to FY 2015 CIP Expenditures and Funding Sources 2010 Consulting Engineers Report City and County of Honolulu	
	Total ^{(1), (2)}
Funding Sources	
Net Revenues	\$295,520
Federal Grants	-
Net Revenue Bond Proceeds ⁽³⁾	1,082,473
Net SRF Proceeds	43,893
Total Sources	\$1,421,886
Uses	
CIP Expenditures ⁽⁴⁾	
Pre-FY 2011 Funded Projects ⁽⁵⁾	123,997
FY 2011 to FY 2015 Funded Projects ⁽⁶⁾	1,231,540
Other Expenditures ⁽⁷⁾	66,349
Total Uses	\$1,421,886
Notes:	
(1) Values are in thousands of inflated dollars.	
(2) Numbers may not add up exactly, due to rounding.	
(3) Adjusted for revenue bond proceeds required for CIP expenditures. Projected issues for the period total \$1,120,000.	
(4) Adjusted for inflation (1.5 percent through FY 2014 and 3.0 percent in FY 2015).	
(5) Forecast expenditures of prior year (pre-FY 2011) appropriations.	
(6) Forecast expenditures of appropriations within the FY 2011 to FY 2015 forecast period.	
(7) Includes asset management, project management and equipment.	

4.4 TEN-YEAR (FY 2011 TO FY 2020) CAPITAL IMPROVEMENT PLAN

In addition to the five-year CIP, the Department has identified facility needs through FY 2020 for the nine major WWTPs and associated collection system facilities. A summary of the estimated project costs the planning period is presented in Table 4.4. The CIP appropriations include the FY 2011 to FY 2015 CIP, as well as all other projects identified for the planning period. Treatment facility appropriations are projected to increase in FY 2017 to upgrade the primary and secondary treatment systems at the Honouliuli WWTP.

As previously discussed, the Department expends its project appropriations over a five year cycle beginning with the year of appropriation. Figure 4-1 provides historical (FY FY 2001 to FY 2010) and forecast (FY 2011 to FY 2020) CIP expenditures and appropriations.

4.4.1 Ten-Year (FY 2011 to FY 2020) CIP Conveyance System Improvements

Approximately 55 percent of the prorated CIP costs³ over the planning period are associated with conveyance system improvements. Some pipelines in the existing collection system are approaching the end of their useful lives: This is due to the fact that the major pipeline facilities were installed 40 to 100 years ago. Environmental considerations in certain portions of the System include the saline content of the high groundwater table as well as relatively flat slopes and tropical temperatures, which accelerate sulfide generation and corrosion rates.

As is the case with most municipal wastewater systems, the condition of the collection system has resulted in a high incidence of I/I that contributes to SSOs, as discussed previously. The FY 2011 to FY 2015 CIP includes most of the remaining high priority projects to address the high incidence of I/I.

4.4.2 Ten-Year (FY 2011 to FY 2020) CIP Wastewater Treatment Plant Improvements

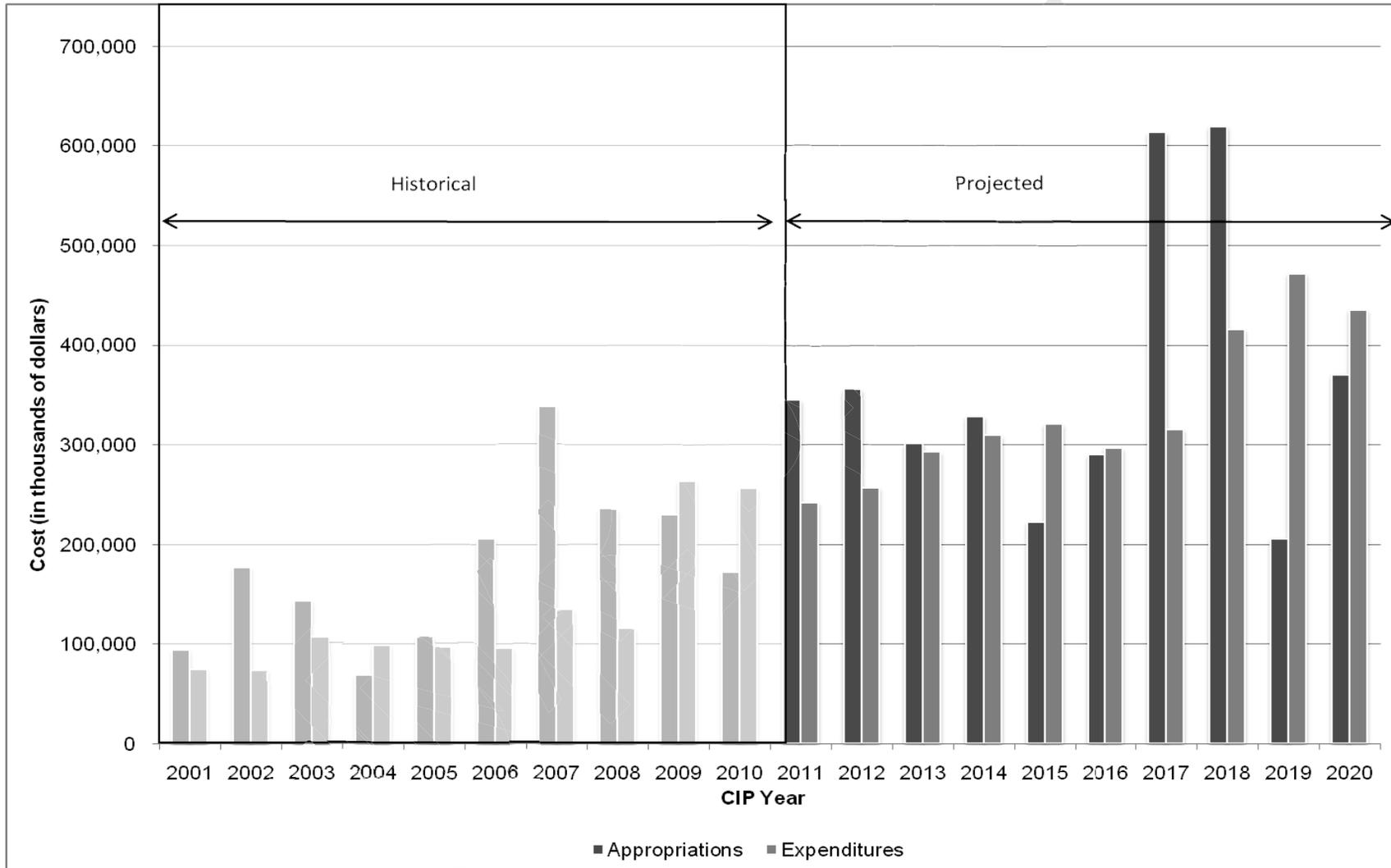
The Department's three major WWTPs are the Sand Island WWTP, the Honouliuli WWTP, and the Kailua Regional WWTP. Separate facility plans have been completed for each of these major facilities. Some facility plans are currently being updated. Per requirements of the Draft 2010 Consent Decree, the Sand Island WWTP and the Honouliuli WWTP will require upgrade to meet secondary effluent quality standards.

Approximately 45 percent of the prorated CIP costs³ over the planning period are associated with treatment facility improvements. Improvements are currently being constructed at the Sand Island and Honouliuli WWTPs, as discussed in previous subsections. These improvements will upgrade the plant facilities to address known regulatory and capacity requirements within the FY 2011 through FY 2020 planning

³ Prorated CIP costs represent collection and treatment system costs including the proportionate share of project management, equipment, and other costs.

Table 4.4 FY 2011 to 2020 CIP Appropriations ^{(1), (2), (3)}											
2010 Consulting Engineers Report											
City and County of Honolulu											
Project Type	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total Appropriations FY 2011 to FY 2020
Project Type											
Collection System											
Mandated	\$265,231	\$195,162	\$187,241	\$220,602	\$84,326	\$72,093	\$84,398	\$48,932	\$1,433	\$0	\$1,159,418
Discretionary	26,659	114,264	62,071	56,539	76,724	35,631	35,788	27,364	105,368	59,113	599,521
Subtotal Collection	\$291,890	\$309,426	\$249,312	\$277,141	\$161,050	\$107,724	\$120,186	\$76,296	\$106,801	\$59,113	\$1,758,939
Treatment Plant											
Mandated ⁽³⁾	-	2,803	4,061	6,702	32,153	152,036	374,651	382,644	-	-	955,050
Discretionary	31,153	25,160	13,351	9,947	9,926	11,099	81,791	80,996	30,971	170,269	464,663
Subtotal Treatment	\$31,153	\$27,963	\$17,412	\$16,648	\$42,079	\$163,135	\$456,442	\$463,640	\$30,971	\$170,269	\$1,419,713
Project Mgmt, Equip. and Other	21,523	18,388	34,134	34,388	19,290	18,994	36,900	79,534	67,968	141,064	\$472,184
Total CIP ⁽⁴⁾	\$344,566	\$355,777	\$300,859	\$328,177	\$222,420	\$289,852	\$613,527	\$619,471	\$205,741	\$370,446	\$3,650,836
Notes:											
(1) Values are in thousands of inflated dollars.											
(2) Numbers may not add up exactly, due to rounding.											
(3) The Draft 2010 Consent Decree requires upgrade of the Honouliuli WWTP secondary treatment at this facility by December 31, 2024. It is currently expected that upgrade of the primary facilities will be required prior to secondary upgrade. The cost of primary upgrade at Honouliuli WWTP is included in the mandated costs.											
(4) With inflation factor of 1.5 percent applied to FY 2011 through FY 2014 and 3 percent inflation thereafter.											
Source: City and County of Honolulu, Department of Environmental Services											

Figure 4-1 Historical and Projected CIP Expenditures and Appropriations



Note: Adjusted for Inflation at 1.5 percent through FY 2010 to FY 2014 and 3.0 percent thereafter.

horizon. The design of primary treatment at the Sand Island WWTP, and the design and construction of primary and secondary treatment at the Honouliuli WWTP, is expected to begin in the FY 2011 through FY 2020 CIP.

4.4.3 Ten-Year (FY 2011 to FY 2020) CIP Summary

The Department's FY 2011 through FY 2020 CIP has been developed to address system needs and comply with regulatory requirements. Carollo has reviewed the Department's FY 2011 to FY 2020 CIP, and finds the programmed projects to be technically sound to meet known regulatory requirements and to be in conformance with industry-standard engineering practices. Project cost estimation procedures appear reasonable based on existing technologies, and the associated construction schedules achievable with the implementation of effective construction management and program management.

4.4.4 Ten-Year (FY 2011 to FY 2020) CIP Funding Sources

Table 4.5 summarizes the anticipated funding sources for the FY 2011 to FY 2020 CIP expenditures (adjusted for inflation). Revenue Bond proceeds for the 10 year period will fund a portion of the project costs. The balance is to be funded by SRF proceeds and net revenues.

Table 4.5 FY 2011 to FY 2020 CIP Expenditures and Funding Sources	
2010 Consulting Engineers Report	
City and County of Honolulu	
	Total ^{(1), (2)}
Funding Sources	
Net Revenues	\$615,520
Federal Grants	-
Net Revenue Bond Proceeds ⁽³⁾	2,646,865
Net SRF Proceeds	93,893
Total Sources	\$3,356,279
Uses	
CIP Expenditures ⁽⁴⁾	
Pre-FY 2011 Funded Projects ⁽⁵⁾	123,997
FY 2011 to FY 2020 Funded Projects ⁽⁶⁾	3,094,107
Other Expenditures ⁽⁷⁾	138,175
Total Uses	\$3,356,279
Notes:	
(1) Values are in thousands of inflated dollars.	
(2) Numbers may not add up exactly, due to rounding.	
(3) Adjusted for revenue bond proceeds required for CIP expenditures. Projected issues for the period total \$2,680,000.	
(4) Adjusted for inflation (1.5 percent through FY 2014 and 3.0 percent in FY 2015).	
(5) Forecast expenditures of prior year (pre-FY 2011) appropriations.	
(6) Forecast expenditures of appropriations within the FY 2011 to FY 2015 forecast period.	
(7) Includes asset management, project management and equipment.	

FINANCIAL PERFORMANCE

This section presents an analysis of System financing and revenues. Also included are discussions of financial planning and management, sewer rates and charges, historical and projected operating results, capital financing, and user rate and facility charge comparisons. All data presented herein was supplied by the Department of Environmental Services.

5.1 FINANCIAL PLANNING AND MANAGEMENT

An overview of the Department's financial planning process and financial policies follows.

5.1.1 Financial Planning Process

The Department's financial planning process consists of the development of a long-term financial plan and preparation of an annual budget request.

5.1.1.1 Development of Financial Plan

The financial plan is the mechanism by which the Department reviews and evaluates service delivery and financial performance issues of the Sewer Fund. Initial operating and capital expenditure requirements of the Sewer Fund are developed through separate processes that are then brought together to develop overall revenue requirements and a corresponding funding program.

Proposed CIP and operational revenue requirements are consolidated and reviewed against available funding over the forecast interval. As necessary, CIP and operating expenditures are re-examined for potential reductions and for opportunities to reschedule projects in an effort to free up resources for highest priority funding needs in particular years or for confirming the need to propose rate increases. The CIP and operational plans, as well as assumptions regarding inflation, customer growth, changes in O&M costs, interest earnings, and other important financial parameters become part of the financial plan.

5.1.1.2 Preparation of Annual Budget Request

The annual budget request for the upcoming FY is based upon the corresponding FY of the financial plan. The Department submits the budget request for review and eventual inclusion within the Mayor's city-wide budget proposal submitted to City Council in March preceding the start of the FY (July 1).

5.1.2 Financial Policies

The Department's financial planning process is guided by a set of Debt and Financial Policies adopted by the City Council on November 10, 1998. The financial policy framework was designed to meet a number of objectives related to management of the System enterprise, including:

- Maintaining financial integrity and self-sufficiency.
- Equitable cost allocation.
- Risk management.
- Economic efficiency.
- Rate affordability.

Related to these objectives, the City has committed, through the adoption of Ordinance No. 05-006 (March 31, 2005), not to transfer Sewer Fund monies to the City's General Fund.

Key Debt and Financial Policy targets are summarized below:

Rate Setting: Annual review of rates, with adjustments made as needed to cover system costs, comply with bond covenants and maintain self-sufficiency. Establishment of WSFCs at levels sufficient to finance partially the costs of expanding the System.

Capital Financing: Long-term debt financing is the preferred funding method for most major system assets because it provides for cost recovery more consistent with asset life and minimizes rate fluctuations and impacts on current rate payers. Alternative debt timing and structures will be analyzed to ensure the most cost-efficient financing given prevailing market conditions. The amount and timing of debt will be planned to comply with applicable additional bonds tests and rate covenants.

Debt Service Coverage: Provide net income (exclusive of WSFC revenues) equal to 1.60 times the annual debt service requirement on senior lien debt, 1.10 standard for junior lien debt, and 1.25 times the annual debt service requirement on all (senior and junior lien) debt. This exceeds the 1.20 times standard for senior lien debt and 1.10 times standard for junior lien debt required by existing and proposed bond covenants, and serves three purposes:

- The absolute dollar difference between the planning standard and the Department's actual debt service coverage requirement provides a margin of safety for meeting coverage requirements;
- The 1.60/1.25 coverage targets demonstrate the Department's commitment to sound fiscal management of the System, thereby supporting efforts to maintain strong bond ratings and minimize borrowing costs; and

- The 1.60/1.25 coverage targets ensure ongoing equity contributions to the capital program, and sufficient liquidity which further strengthen the Department's financial performance.

Operating Reserves: Maintain operating reserves equal to at least 3 months of annual O&M costs.¹

The Department employs conservative debt practices and has historically issued, and continues to issue, fixed rate bonds with no exposure to variable rates or any derivative instruments or structured investments.

Since establishment of these practices and policies in 1998, the wastewater enterprise has consistently met or exceeded all policy requirements.

5.2 RATES AND CHARGES

5.2.1 Sewer Service Charges

On June 22, 2005, the City Council adopted an ordinance, which provided for six consecutive annual rate increases, with the first increase effective July 1, 2005. The adopted rate ordinance was modified and a new rate package was adopted by the City Council on June 6, 2007².

Table 5.1 compares FY 2011 through FY 2015 typical monthly bills for residential and non-residential customers based on the projected rate increases.

The Department has a small number of customers that are subject to special rate schedules. Specifically, rates for military customers who have prepaid capital contributions are slightly lower and a surcharge is added for customers in the Kalaeloa Community Development District.

5.2.2 Rate Structure

The existing residential rate structure consists of the following main components for metered water customers:

- Base charge
- Usage allowance
- Usage charge

¹ Per the First Bond Resolution, all costs includable in the operation and maintenance expense accounts of the Department relating to the System according to generally accepted accounting principles, exclusive of depreciation and amortization of property values or losses.

² Rate schedule adopted on June 6, 2007 considers rate increases until FY 2011.

Table 5.1 Impact of Proposed Rate Increases on Typical Wastewater Bills						
2010 Consulting Engineers Report						
City and County of Honolulu						
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2011 - FY 2015 Increase
Rate Increase ⁽¹⁾	15.00%	4.00%	4.00%	4.00%	5.00%	
Residential Bill ^(2,3,4)	\$90.96	\$94.60	\$98.38	\$102.32	\$107.44	\$16.47
Non-Residential Bill ^(2,3,5)	\$248.68	\$258.62	\$268.97	\$279.73	\$293.71	\$45.04
Notes:						
(1) Rates for FY 2012 through FY 2015 have not yet been adopted.						
(2) Values shown are in nominal (future) dollars.						
(3) Bills may exhibit slight differences in annual percent increases attributed to rounding of individual rate components.						
(4) Single family residential customer, based on billable flows of approximately 10,000 gallons per month.						
(5) Based on domestic strength wastewater flows of 25,000 gallons per month.						

The base charge is assessed monthly, regardless of water consumed. Annual revenue from the base charge represents about 80 percent of total annual revenue recovery from residential accounts and about 58 percent of total annual revenue recovery from all accounts³. The base charges have been designed to recover the majority of the system costs, in order to provide a stable funding source throughout the year, regardless of customer usage.

The rate structure includes a 2,000-gallon usage allowance for all residential customers. The usage charge is applied to monthly usage in excess of the usage allowance, adjusted for a water irrigation factor. It is common practice in the wastewater industry to adjust metered water volumes for residential customers to account for outdoor irrigation, which does not impact the System. For those customers who do not receive City water service, the Department charges customers based on a fixed monthly rate.

Rates for non-residential customers with metered wastewater discharge of 7,000 gallons or less per month include a base monthly charge and a usage charge that is applied to all volumes (i.e., there is no usage allowance). For larger volume customers, the rate is limited to a usage charge; however, the charge per unit of volume is set significantly higher in order that costs may be recovered from all users proportionately based on volumes.

The Department currently charges non-residential customers for extra strength wastewater discharges based upon samples taken and laboratory analysis of their sewage discharges. Extra strength wastewater is defined as TSS loadings greater than 200 mg/L.

³ Based on FY 2010 data provided by the Department. As presented in Chapter 3, 95 percent of the Department's accounts are residential accounts.

5.2.3 Wastewater System Facility Charges

The Department assesses WSFCs to new developments connecting to the system, per Ordinance No. 05-019. The WSFCs are designed to recover a portion of the costs of existing infrastructure and planned future facilities that will serve growth. *The revenue from WSFCs is not included as pledged System revenues for purposes of calculating debt service coverage (per the Bond Resolution).* These charges are currently \$5,541 per equivalent single family dwelling unit (ESDU) for FY 2011. ESDUs for residential structures are based on the number and type of dwelling units⁴, and ESDUs for non-residential structures are based on the size of water meter serving the development⁵.

Table 5.2 shows adopted WSFCs for current and future fiscal years.

Table 5.2 Adopted Wastewater System Facility Charges 2010 Consulting Engineers Report City and County of Honolulu			
Fiscal Year ⁽¹⁾	Residential and Nonresidential Domestic	Extra-Strength Surcharge Formula Components	
	Strength (per ESDU) ⁽²⁾	A	B
FY 2011	\$5,541	\$4,763	\$778
FY 2012	\$5,707	\$4,905	\$802
FY 2013	\$5,878	\$5,052	\$826
FY 2014	\$6,054	\$5,203	\$851
FY 2015	\$6,236	\$5,359	\$877
Low-Income Housing	\$1,146	NA ⁽³⁾	NA ⁽³⁾

Notes:
 (1) Rates for FY 2012 to FY 2015 have not yet been adopted.
 (2) ESDU = Equivalent Single Family Dwelling Unit.
 (3) NA = Not Applicable
 Source: City and County of Honolulu, Department of Environmental Services

The WSFCs for non-residential developments with extra-strength wastewater are based on the following formula:

$$A + ((SSi/200) \times B);$$

where SSi = the imputed suspended solids loading, in mg/L and applicable values for terms "A" and "B" are set forth in Table 5.2.

A developer of low-income housing may apply for a reduction of WSFCs. The rate for qualified low-income housing is \$1,146 per ESDU.

⁴ Units in multiple family dwellings with five units or more, condominiums, townhouses, retirement homes, mobile homes, and housing projects are equal to 0.7 ESDUs; all other residential dwellings equal 1 ESDU.

Ordinance No. 05-019 also provides that "each fiscal year, the council shall review the WSFC to determine if it remains appropriate or should be revised:"

5.3 HISTORICAL PERFORMANCE

The Department has a demonstrated track record of maintaining rates and charges at levels sufficient to provide for all operating expenditures, debt service, and bond coverage requirements, and to maintain a sufficient ending fund balance that serves as a contingency fund. In addition to meeting these requirements, the Department has generated sufficient revenue, along with use of long-term debt proceeds, to finance its CIP. WSFCs are not included in net revenues or debt service calculations per the First Bond Resolution.

Table 5.3 presents a brief overview of the financial performance of the Department from FY 2007 through FY 2011.

5.3.1 Revenues

As shown in Table 5.3, total revenue from service charges has increased annually, resulting largely from the adopted annual rate increases. Table 5.4 shows the historical number of ESDUs by customer class served by the system during the historical period.

Sewer service charge revenue for FY 2011 is projected to total \$319 million, which is approximately 15 percent higher than revenue for the previous year.

The Department is reviewing its rate structure to ensure appropriate distribution of costs to all users and rate affordability for all customers. The Department plans to evaluate its rates and propose a new rate ordinance in the third quarter of FY 2011. From the start of FY 2012, the Department will transition to monthly sewer billing in conjunction with the Honolulu Board of Water Supply, who is responsible for water and wastewater customer billing.

In addition to sewer service charges, WSFCs are a funding source for the Department. Unlike service charges, WSFCs may only be used to fund capital improvements and are not used to fund O&M expenses. In general, the State of Hawaii, including the City and County of Honolulu, is not significantly dependent upon growth as a revenue source. As a result, the Financial Plan described in this report reflects a lack of dependence on WSFCs as a revenue stream. Table 5.4 shows historical revenues from WSFCs. Annual revenues fluctuate in response to construction activity. Beginning in FY 2007, WSFCs were subject to a 3 percent annual escalator. The annual escalation expires in FY 2011 with the expiration of the rate or ordinance. Revenue from WSFCs was about \$6.7 million in FY 2010 and projected to total \$8.9 million in FY 2011. Per the Bond Resolution, WSFCs revenues are excluded from net revenues shown in Table 5.3.

⁵ It is accepted industry practice to assess WSFCs based on water meter size, as the capacity of the water meter is also a reasonable predictor of wastewater system impact.

**Table 5.3 Historical Operating Results ^{(1), (2)}
2010 Consulting Engineers Report
City and County of Honolulu**

	Actual FY 2007	Actual FY 2008	Actual FY 2009	Unaudited FY 2010	Budgeted FY 2011
Revenues					
Sewer Service Charges	\$160,963	\$219,907	\$250,265	\$299,502	\$318,510
System Facility Charges	4,691	5,025	1,555	6,686	8,870
Interest Earnings	13,736	17,884	7,080	2,265	185
Net BABs/RZEDBs Subsidy ⁽³⁾	-	-	-	-	-
Other revenues	260	173	276	2,219	2,545
Gross Revenues	179,651	242,989	259,176	310,671	330,110
Less: Operating expenses ⁽⁴⁾	83,853	109,749	114,823	105,128	132,853
Less: System Facility Charges	4,691	5,025	1,555	6,686	8,870
Net Revenues ⁽⁵⁾	91,106	128,215	142,798	198,857	188,387
Annual Revenue Bond Debt Service:					
Senior Lien ⁽⁶⁾	30,060	34,422	42,281	38,184	49,644
Subordinate Lien ⁽⁷⁾	11,461	20,502	21,660	26,139	30,008
Total Revenue Bonds	41,520	54,924	63,941	64,324	79,652
Total Obligations ⁽⁸⁾	56,690	68,667	93,687	92,048	105,107
Debt Service Coverage ⁽⁹⁾					
Senior Lien	3.03	3.72	3.38	5.21	3.79
All Revenue Bonds	2.19	2.33	2.23	3.09	2.37
Total Obligations ⁽¹⁰⁾	1.69	1.94	1.54	2.23	1.88
Ending Cash Balance					
Unrestricted Reserve ⁽¹¹⁾	24,783	50,762	41,452	137,066	193,506
Operating Reserve ⁽¹²⁾	20,963	27,437	28,706	26,282	33,213
Bond Payment Account ⁽¹³⁾	34,334	49,241	46,843	52,554	65,812

Note:

- (1) Dollars presented are in thousands of dollars.
- (2) Numbers may not add up exactly, due to rounding.
- (3) Equal to the net revenue available from the Build America Bond and Recovery Zone Economic Development subsidies for the 2009 Issue.
- (4) Operating expenses do not include debt service, depreciation, or cash expenditures on capital improvements.
- (5) Per the Bond Resolution, WSFC revenues are excluded from net revenues.
- (6) Includes actual debt service for Senior Series 2001, 2005, 2006, 2007, and 2009.
- (7) Includes actual debt service for Junior Series 1998, 2003, 2008 and 2009. Excludes optional Junior Series 2010.
- (8) Includes Revenue Bond, reimbursable General Obligation Bond and State Revolving Fund Loan debt service.
- (9) Legal debt service coverage requirements are: Sr. Lien Bonds - 1.2x; Sr. and Jr. Lien Bonds - 1.1x; Total Obligations - 1.0x.
- (10) Debt service coverage ratios based on revenues including system facility charges.
- (11) Equal to ending cash balance less operating and bond reserves. Adequate maintenance of these reserves has allowed the Department to cash fund existing DSRF requirements that were formerly satisfied by surety bond policies.
- (12) Equal to 3 months of operating expenses.
- (13) Equal to 50 percent of following year's debt service obligation (due July 1).

Source: City and County of Honolulu, Department of Environmental Services

Table 5.4 Historical Number of ESDUs and System Facilities Charge Revenues ^{(1), (2), (3)}					
2010 Consulting Engineers Report					
City and County of Honolulu					
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010 (Unaudited)
Existing as of July 1					
Residential	210,906	213,281	217,596	218,515	219,498
Non-Residential	78,032	78,034	78,202	78,226	78,241
Total	288,938	291,315	295,798	296,741	297,739
New ESDUs Added in Fiscal Year					
Residential	2,375	4,315	919	983	448
Non-Residential	2	168	24	15	0
Total	2,377	4,483	943	998	448
Residential Percent Increase	1.1%	2.0%	0.4%	0.5%	0.2%
Non-Residential Percent Increase	0.0%	0.2%	0.0%	0.0%	0.0%
Total Increase in EDUs	0.8%	1.6%	0.3%	0.3%	0.2%
WSFC Revenues (\$1,000) ⁽⁴⁾	\$8,822	\$4,691	\$5,025	\$ 1,555	\$ 6,686
Note:					
(1) Dollars presented are in thousands of dollars.					
(2) Numbers may not add up exactly, due to rounding.					
(3) ESDU = Equivalent Single Family Dwelling Unit.					
(4) Excluded from Net Revenues and revenue bond debt service coverage calculations per Bond Resolution.					
<i>Source: City and County of Honolulu, Department of Environmental Services</i>					

As shown in Table 5.3, additional revenue sources include interest earnings and other revenues (e.g., revenue from sewer lateral installations and connections).

5.3.2 Expenses

Table 5.3 shows historical total operating expenses for the System for the period FY 2007 through FY 2011. Treatment facility process changes contributed to the increase in operating expenditures between FY 2007 and FY 2008.

5.3.3 Historical Operating Results and Debt Service Coverage

Table 5.3 also presents historical operating results and debt service coverage for the period FY 2007 through FY 2010. During this period, the Department met its target debt service coverage ratios; the Department also met its operating reserve requirements during the historical period analyzed.

5.4 FORECAST PERFORMANCE

The accompanying financial forecast, based upon available information and reasonable and conservative assumptions, presents the expected revenues, expenditures, debt service, debt service coverage, and changes in fund balance of the System.

5.4.1 Sewer Fund Resources and Requirements

Table 5.5 summarizes the forecast resources and requirements for the Sewer Fund through FY 2020. Projections of new customers, and adopted or planned rate increases are used to forecast sewer service charge revenues over the forecast period. Customer growth is projected to average about 1,600 ESDUs per year (0.55 percent per year). Projected system-wide average rate increases are shown in Table 5.6. It is possible that individual rates and customer bills may change by different percentages than those shown in Table 5.6; however, future rates will conform to the system-wide revenue needs described in the current or future adopted financial plans.

Annual revenue from service charges is projected to increase over the projection horizon. Other resources include revenues from WSFCs, interest revenue, and other fees and charges. System facilities' charge revenues increase moderately over the forecast period based on customer growth and increases in charges. These WSFCs revenues are excluded from net revenue for calculation of debt coverage requirements.

As mentioned previously, the Department's long-term financial management policy is to maintain an operating reserve equal to 3 months of operating expenses. In addition, the Department's practice is to provide for a bond payment equal to half (50 percent) of the next year's debt obligations primarily due to the timing of its principal payments on July 1. In addition, a debt service common/series reserve is funded from revenue bonds. Ending cash balance in excess of the operating and common/series reserve and debt payment is shown in Table 5.5 as "unrestricted reserves." The forecast ending fund balances meet the Department's minimum targets in every year through FY 2020.

5.4.1.1 Requirements

Table 5.5 also presents the forecast financial requirements of the Sewer Fund. These include operating requirements, debt service, and net revenue funded CIP expenditures. Operating expenses include salaries, non-salary personnel costs (e.g., retirement and health benefits), current expenses (e.g., materials, supplies, and contractual services), administrative support, equipment, office space rental, and payments to other City agencies. The operating expense forecast reflects the Department's existing operating budget, assumed cost escalation factors, as well as adjustments for one-time expenses and operational efficiencies. The majority of expense categories are assumed to increase at a rate of 3 percent annually.

Table 5.5 Sewer Fund Forecast Sources and Uses of Funds ^{(1), (2), (3)}
2010 Consulting Engineers Report
City and County of Honolulu

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Sources										
Beginning Cash Balance:	\$215,902	\$292,532	\$305,100	\$308,801	\$303,726	\$294,209	\$306,768	\$338,888	\$366,993	\$382,234
Service Charges	318,510	331,518	345,993	361,090	380,283	404,117	437,151	481,223	520,532	563,036
System Facility Charges	8,870	9,131	9,405	9,686	9,978	10,277	10,586	10,902	11,229	11,566
Other Revenues	2,545	187	188	189	190	191	192	193	194	195
Net BABs/RZEDBs Subsidy ⁽⁴⁾	-	2,217	1,766	1,783	1,783	1,783	1,783	1,783	1,783	1,783
Interest Revenue	185	8,799	9,046	9,026	8,810	8,855	9,515	10,405	11,046	11,605
Total Sources	\$546,012	\$644,384	\$671,498	\$690,575	\$704,770	\$719,432	\$765,996	\$843,396	\$911,778	\$970,419
Uses										
Operating Expenses	132,853	137,660	142,049	146,595	151,303	156,373	160,236	164,974	171,402	177,401
Net Revenue Funding of Capital Projects	15,520	70,000	70,000	70,000	70,000	50,000	40,000	60,000	80,000	90,000
Debt Service										
Existing Obligations ⁽⁵⁾	105,107	107,553	111,263	109,726	109,217	109,077	109,007	108,635	107,540	105,912
Future Obligations ⁽⁶⁾	-	24,072	39,386	60,528	80,041	97,214	117,865	142,794	170,602	192,310
Total Debt Service	\$105,107	\$131,625	\$150,649	\$170,254	\$189,258	\$206,291	\$226,872	\$251,428	\$278,141	\$298,222
Ending Cash Balance	\$292,532	\$305,100	\$308,801	\$303,726	\$294,209	\$306,768	\$338,888	\$366,993	\$382,234	\$404,797
Unrestricted Reserve ⁽⁷⁾	193,506	195,361	188,162	172,449	153,237	154,239	173,115	186,679	190,272	200,834
Operating Reserve ⁽⁸⁾	33,213	34,415	35,512	36,649	37,826	39,093	40,059	41,243	42,851	44,350
Debt Service Payment Account ⁽⁹⁾	65,812	75,324	85,127	94,629	103,146	113,436	125,714	139,071	149,111	159,612
Total Uses	\$546,012	\$644,384	\$671,498	\$690,575	\$704,770	\$719,432	\$765,996	\$843,396	\$911,778	\$970,419
Note:										
(1) Dollars presented are in thousands of inflated dollars.										
(2) Numbers may not add up exactly, due to rounding.										
(3) Net of bond-funded projects.										
(4) Equal to the net revenue available from the Build America Bond and Recovery Zone Economic Development subsidies for the 2009 Issue.										
(5) Reflects debt service requirements on the outstanding 1998 Junior Bonds.										
(6) Includes Senior Series 2010. Excludes optional Junior Series 2010.										
(7) Equal to ending cash balance less operating and bond reserves.										
(8) Equal to 3 months of operating expenses.										
(9) Equal to 50 percent of following year's debt service obligation (which is due July 1).										
Source: City and County of Honolulu, Department of Environmental Services										

Table 5.6 Adopted and Planned Future System-Wide Rate Increases 2010 Consulting Engineers Report City and County of Honolulu			
Effective Date ⁽¹⁾	Amount	Effective Date ⁽¹⁾	Amount
1-Jul-09	18%	1-Jul-15	6%
1-Jul-10	15%	1-Jul-16	8%
1-Jul-11	4%	1-Jul-17	10%
1-Jul-12	4%	1-Jul-18	8%
1-Jul-13	4%	1-Jul-19	8%
1-Jul-14	5%	1-Jul-20	6%

Note:
(1) Rates adopted on June 06, 2007 are for years up to FY 2011 (Bill 37). Rates have not been adopted for FY 2012 to FY 2020. The rates presented above have been used for planning purposes.

Total debt service requirements are projected to increase through FY 2020. The CIP was presented in detail in Section 4. The CIP will be funded predominantly through debt proceeds (reflected in the increased debt service shown in Table 5.5) and net operating revenues.

5.4.2 Capital Financing

Table 5.7 shows the forecast resources and requirements for the CIP through FY 2020. Approximately 79 percent of the projected CIP expenditures over the forecast period are planned to be funded through debt proceeds. In addition to the Series 2010 Bonds, the Department anticipates that it will issue revenue bonds totaling about \$2.68 billion over the 10-year period. Of this, \$2.65 billion will be used to fund CIP expenditures in the forecast period. The remaining funding for the 10-year forecast capital expenditures will come from SRF funds, net operating revenues (which include service charge and system facilities charge revenues), and capital reserves.

Table 5.8 presents the forecast debt service requirements for existing and planned future senior and junior lien obligations, and the Department's other debt obligations. Senior lien obligations total \$49.6 million in FY 2011, and total (senior and junior) revenue bond obligations total almost \$79.7 million. Future bond issues are planned for each year of the forecast period. Total revenue bond debt service is forecast to be almost \$279.4 million in FY 2020.

Table 5.7 CIP Cash Flow ^{(1), (2)}											
2010 Consulting Engineers Report											
City and County of Honolulu											
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
Sources											
Beginning Cash Balance:	\$62,959	\$67,454	\$68,445	\$71,006	\$81,171	\$100,486	\$93,846	\$93,523	\$97,765	\$101,063	\$837,720
Net Revenue Funded CIP	15,520	70,000	70,000	70,000	70,000	50,000	40,000	60,000	80,000	90,000	615,520
Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Net Revenue Bond Proceeds	200,000	175,000	225,000	250,000	270,000	230,000	265,000	350,000	385,000	330,000	2,680,000
Net SRF Proceeds	30,893	13,000	-	-	-	10,000	10,000	10,000	10,000	10,000	93,893
Total Sources	\$309,373	\$325,454	\$363,445	\$391,006	\$421,171	\$390,486	\$408,846	\$513,523	\$572,765	\$531,063	\$4,227,133
Uses											
CIP Expenditures	241,918	257,009	292,439	309,835	320,684	296,640	315,323	415,758	471,702	434,969	3,356,279
Ending Cash Balance	67,454	68,445	71,006	81,171	100,486	93,846	93,523	97,765	101,063	96,094	870,855
Total Uses	\$309,373	\$325,454	\$363,445	\$391,006	\$421,171	\$390,486	\$408,846	\$513,523	\$572,765	\$531,063	\$4,227,133
Note:											
(1) Dollars presented are in thousands of inflated dollars.											
(2) Numbers may not add up exactly, due to rounding.											
<i>Source: City and County of Honolulu, Department of Environmental Services</i>											

Table 5.8 Projected Debt Service ^{(1), (2)} 2010 Consulting Engineers Report City and County of Honolulu										
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
<u>Senior Lien Revenue Bonds ⁽³⁾</u>										
Existing	\$49,644	\$51,879	\$55,310	\$55,310	\$57,565	\$57,560	\$57,553	\$57,568	\$57,600	\$57,594
<i>Projected</i>										
Future Revenue Bonds	-	21,999	36,976	58,124	76,802	93,558	113,478	137,681	164,769	185,763
Total Senior Lien	\$49,644	\$73,878	\$92,286	\$113,433	\$134,366	\$151,118	\$171,031	\$195,249	\$222,369	\$243,357
<u>Junior Lien Revenue Bonds ⁽⁴⁾</u>										
Existing	\$30,008	\$34,444	\$36,019	\$36,022	\$36,024	\$36,024	\$36,021	\$36,025	\$36,034	\$36,033
<i>Projected</i>										
Future ⁽⁵⁾	-	-	-	-	-	-	-	-	-	-
Total Junior Lien	\$30,008	\$34,444	\$36,019	\$36,022	\$36,024	\$36,024	\$36,021	\$36,025	\$36,034	\$36,033
<u>SRF Loans ⁽⁶⁾</u>										
Existing	\$20,049	\$19,980	\$19,921	\$18,381	\$15,619	\$15,485	\$15,423	\$15,033	\$13,903	\$12,283
<i>Projected</i>	\$0	2,073	2,410	2,405	3,240	3,655	4,387	5,112	5,833	6,547
Total SRF	\$20,049	\$22,053	\$22,331	\$20,785	\$18,859	\$19,140	\$19,810	\$20,145	\$19,736	\$18,831
<u>GO Bond Debt ⁽⁷⁾</u>										
Existing	\$5,406	\$1,250	\$13	\$13	\$9	\$9	\$9	\$9	\$2	\$2
<i>Projected</i>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total GO Bond	\$5,406	\$1,250	\$13	\$13	\$9	\$9	\$9	\$9	\$2	\$2
Total All Obligations	\$105,107	\$131,625	\$150,649	\$170,254	\$189,258	\$206,291	\$226,872	\$251,428	\$278,141	\$298,222
Total Revenue Bonds	\$79,652	\$108,322	\$128,305	\$149,456	\$170,390	\$187,142	\$207,053	\$231,274	\$258,403	\$279,389
Note:										
(1) Dollars presented are in thousands of inflated dollars.										
(2) Numbers may not add up exactly, due to rounding.										
(3) Includes actual debt service for Senior Series 2001, 2005, 2006, 2007, 2009, estimated debt service for Senior Series 2010, and assumes a 5.75% interest rate for issues through FY 2014, 5.5% for issues from FY 2015 through FY 2019, and 5.25% for all future issues.										
(4) Includes actual debt service for Junior Series 1998, 2003, 2008, 2009. Excludes debt service for optional Junior Series 2010.										
(5) Assumes that all future bond issues will be on the senior lien.										
(6) SRF = State Revolving Fund.										
(7) GO = General Obligation.										
Source: City and County of Honolulu, Department of Environmental Services										

5.4.3 Forecast Operating Results and Debt Service Coverage

Table 5.9 presents forecast operating results and debt service coverage for the forecast period. Gross revenues, including service and system facility charge revenues, interest income, and other charges are estimated to total \$330.1 million in FY 2011, and are projected to increase to \$588.2 million in FY 2020. When gross revenues are reduced by operating expenses and system facility charge revenues, net revenues are estimated to be \$188.4 million in FY 2011, increasing to \$399.2 million in FY 2020.

The legal senior lien debt service coverage requirement is 1.20 times the annual required debt service. As mentioned previously, the Department has established target coverage on senior lien bonds of 1.60. Based on the forecast net revenues and projected annual senior lien debt service requirements (including debt service on planned additional bonds), the projected senior lien coverage exceeds the established target coverage of 1.60 in each year of the forecast.

Target coverage on total senior and junior lien debt is 1.25. Based on the forecast net revenues and projected debt service requirements, the projected total coverage exceeds the established target coverage of 1.25 in each year of the forecast.

5.5 RATE COMPARISON

A comparison of typical monthly wastewater bills for residential and non-residential customers of various systems throughout the Hawaiian Islands and communities nationally is presented in Table 5.10.

This table indicates that, despite recent rate increases, the Department's current wastewater rates remain within the range of other service providers throughout US communities.

A comparison of WSFCs is shown in Table 5.11. The Department's charges are among the highest of the other communities, reflecting in part the Department's policy to have growth pay for growth, establish charges at a level sufficient to partially finance the costs of expanding the system, and the adopted annual fee adjustments designed to keep pace with inflation. As mentioned previously, growth is projected to be moderate during the forecast period, and revenue from WSFCs is excluded from net revenues for purposes of calculating debt service coverage.

Table 5.9 Projected Operating Results ^{(1), (2)}										
2010 Consulting Engineers Report										
City and County of Honolulu										
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Charges										
Average Monthly Sewer Service Charge ⁽³⁾	\$90.96	\$94.60	\$98.38	\$102.32	\$107.44	\$113.88	\$122.99	\$135.29	\$146.11	\$157.80
Increase over Prior Year	15%	4%	4%	4%	5%	6%	8%	10%	8%	8%
Revenues										
Sewer Service Charges ⁽⁴⁾	\$318,510	\$331,518	\$345,993	\$361,090	\$380,283	\$404,117	\$437,151	\$481,223	\$520,532	\$563,036
System Facility Charges	8,870	9,131	9,405	9,686	9,978	10,277	10,586	10,902	11,229	11,566
Interest Earnings	185	8,799	9,046	9,026	8,810	8,855	9,515	10,405	11,046	11,605
Net BABs/RZEDB Subsidy ⁽⁵⁾	-	2,217	1,766	1,783	1,783	1,783	1,783	1,783	1,783	1,783
Other revenues	2,545	187	188	189	190	191	192	193	194	195
Gross Revenues	\$330,110	\$351,853	\$366,398	\$381,774	\$401,044	\$425,223	\$459,228	\$504,508	\$544,784	\$588,186
Less: Operating expenses ⁽⁶⁾	132,853	137,660	142,049	146,595	151,303	156,373	160,236	164,974	171,402	177,401
Less: System Facility Charges	8,870	9,131	9,405	9,686	9,978	10,277	10,586	10,902	11,229	11,566
Net Revenues ⁽⁷⁾	\$188,387	\$205,062	\$214,945	\$225,493	\$239,763	\$258,573	\$288,406	\$328,631	\$362,153	\$399,218
Annual Revenue Bond Debt Service:										
Senior Lien ⁽⁸⁾	\$49,644	\$73,878	\$92,286	\$113,433	\$134,366	\$151,118	\$171,031	\$195,249	\$222,369	\$243,357
Subordinate Lien ⁽⁹⁾	30,008	34,444	36,019	36,022	36,024	36,024	36,021	36,025	36,034	36,033
Total Revenue Bonds	\$79,652	\$108,322	\$128,305	\$149,456	\$170,390	\$187,142	\$207,053	\$231,274	\$258,403	\$279,389
Total Obligations ⁽¹⁰⁾	\$105,107	\$131,625	\$150,649	\$170,254	\$189,258	\$206,291	\$226,872	\$251,428	\$278,141	\$298,222
Debt Service Coverage ⁽¹¹⁾										
Senior Lien	3.79	2.78	2.33	1.99	1.78	1.71	1.69	1.68	1.63	1.64
All Revenue Bonds	2.37	1.89	1.68	1.51	1.41	1.38	1.39	1.42	1.40	1.43
Total Obligations ⁽¹²⁾	1.88	1.63	1.49	1.38	1.32	1.30	1.32	1.35	1.34	1.38
Note:										
(1) Dollars presented are in thousands of inflated dollars.										
(2) Numbers may not add up exactly, due to rounding.										
(3) Sewer service charges are anticipated to be increased to generate projected revenues.										
(4) Based on monthly usage of 10,000 gallons for residential customers.										
(5) Equal to the net revenue available from the Build America Bond and Recovery Zone Economic Development subsidies for the 2009 Issue.										
(6) Operating expense projections reflect anticipated operational changes beyond FY 2011 and are inflated at 3% per year for expenses and 6% per year for personnel costs. Operating expenses do not include debt service, depreciation, or cash expenditures on capital improvements.										
(7) Per the Bond Resolution, WSFC revenues are excluded from net revenues.										
(8) Includes actual debt service for Senior Series 2001, 2005, 2006, 2007, 2009, estimated debt service for Senior Series 2010, and assumes a 5.75% interest rate for issues through FY 2014, 5.5% for issues from FY 2015 through FY 2019, and 5.25% for all future issues.										
(9) Includes actual debt service for Junior Series 1998, 2003, 2008, 2009. Excludes debt service for optional Junior Series 2010.										
(10) Includes reimbursable General Obligation Bonds, Commercial Paper, and State Revolving Fund Loans.										
(11) Legal debt service coverage requirements are: Sr. Lien Bonds -1.2x; Sr. and Jr. Lien Bonds-1.1x; Total Obligations-1.0x.										
(12) Debt service coverage ratio based on revenues including system facility charges.										
<i>Source: City and County of Honolulu, Department of Environmental Services</i>										

Table 5.10 Wastewater Bill Comparisons 2010 Consulting Engineers Report City and County of Honolulu		
Service Provider ⁽¹⁾	Monthly Bill, Residential ⁽²⁾	Monthly Bill, Non-Residential ⁽³⁾
<i>Comparison within Hawaii</i>		
Honolulu	\$87.28	\$317.21
Maui	58.45	150.30
Kauai	45.00	90.81
Hawaii	27.00	90.85
<i>Comparison with Other Communities Nationally</i>		
Atlanta, GA	166.57	438.68
Austin, TX	81.37	195.95
Detroit, MI ⁽⁴⁾	62.95	174.37
New York City, NY	62.70	156.75
Portland, OR	86.90	221.59
Salem, OR	63.80	176.20
San Diego, CA ⁽⁴⁾	75.52	218.90
San Francisco, CA ⁽⁴⁾	116.23	310.84
Seattle, WA	120.05	300.13
Notes:		
(1) Monthly wastewater bill figures are current for calendar year 2010 or FYE 2011. Amounts shown do not reflect any revenue from ad velorum taxes.		
(2) Comparison of residential wastewater bills is based on minimum meter size and average billable flows of 10,000 gallons per month or 13 hundred cubic feet (CCF).		
(3) Comparison of non-residential wastewater bills is based on a 2-inch meter size and average billable flows of 25,000 gallons per month or 33.42 CCF.		
(4) Non-residential rates are based on based on medium strength wastewater flows with 400 mg/L BOD, 400 mg/L TSS, and 0 mg/L fats, oils and grease.		

Table 5.11 Wastewater System Facility Charge Comparison 2010 Consulting Engineers Report City and County of Honolulu	
Service Provider	System Facility Charge ⁽¹⁾
<i>Comparison within Hawaii</i>	
Honolulu	\$5,541
Maui ⁽²⁾	2,106
Kauai	3,950
Hawaii	50
<i>Comparison with Other Communities Nationally</i>	
Atlanta, GA	600
Austin, TX	1,852
Detroit, MI	500
New York City, NY	200
Portland, OR	4,089
Salem, OR	4,000
San Diego, CA	4,124
San Francisco, CA	3,228
Seattle, WA ⁽²⁾	8,833
Notes:	
(1) Wastewater System Facility Charges are current for calendar year 2010 or FYE 2011. Amounts shown do not reflect any revenue from ad velorum taxes.	
(2) Capacity Charge for Metropolitan King County Wastewater Services. Charged as a monthly fee over a 15 year billing period.	

5.6 PRINCIPAL ASSUMPTIONS

The financial forecast presented in this report represents a preliminary assessment by the Department of projected operating results for the period FY 2011 to FY 2020. Carollo Engineers has reviewed the forecast, its underlying analysis and assumptions, and finds it to be sound and feasible. The Department's revision of its financial forecast in future years could result in changes to its projected operating results.

In developing the financial forecast, the Department relied on certain assumptions related to future System conditions. There will usually be differences between assumed and actual conditions because events and circumstances frequently do not occur as expected, and those differences may be significant.

The principal assumptions used in the forecast are:

- Growth in ESDUs is assumed to occur at 1,600 per year through FY 2020, resulting in an average annual rate of growth of 0.55 percent.
- Metered water usage and wastewater discharges per account will remain at current levels.
- Capital expenditures are assumed to be required and incurred as reflected in Table 5.7 in order to meet consent decree and regulatory requirements, and accommodate modest population growth. The capital expenditures reflect an average inflation factor of 1.5 percent through FY 2014 and 3.0 percent thereafter, and a 5-year spend-down schedule provided by the Department. Per the City's adopted financial policies, the City Council will revise rates as needed in the future to accommodate any additional needs.
- Planned rate increases through FY 2020 (identified in Table 5.6) are expected to be implemented on schedule and revised as necessary in the future to accommodate any additional capital improvement requirements.
- Interest earnings on cash balances are assumed at 3 percent through 2020. Interest earnings on debt service reserves are assumed at 1.0 percent in FY 2011, 2.0 percent in FY 2012 and FY 2013, and 3.0 percent thereafter.
- The net cash available from the BABs/RZEDBs subsidies for the 2009 Issue has been included as a source of revenue one-year after receipt. Cash flow from the 2010 BABs/RZEDBs has been excluded as a source of revenue.
- All future debt service reserve requirements will be funded from revenue bond proceeds. The senior and junior lien common reserves will be 100 percent cash funded.
- A separate reserve fund will be created for the Senior Series 2010 bonds and the reserve requirement will be 50 percent of maximum annual debt service. The Junior Series 2010 bonds will remain in the junior common reserve. It is assumed that future bond reserve requirements will be funded from proceeds generated by the future bond issues.
- Debt service on the Series 2010 issue is estimated to be 5.75 percent. Future revenue bond issues through FY 2014 are based on an interest rate of 5.75 percent. Issues from FY 2015 through FY 2019 are based on an interest rate of 5.5 percent. Any issues beyond FY 2019 assume an interest rate of 5.25 percent. All revenue bonds assume a 30-year debt service term and interest only payments for two years. All future revenue bonds issued to fund the CIP are assumed to be issued on parity with the Series 2010 Senior Bonds.
- Bond issuance costs for the 2010 Bonds are estimated at 1.2 percent of the total par amount (issuance costs include Underwriter's discount, bond insurance and other costs of issuance.)

- Any future rate structure changes will conform to established system-wide revenue requirements.
- Operating expenditures are projected to total \$132.9 million and \$137.7 million in FY 2011 and FY 2012, respectively. Operation and maintenance costs will increase on average 3.0 percent per year, beginning in FY 2012. Non-salary expenses are estimated to increase at 6.0 percent per year from FY 2012 through FY 2019 and at 3.0 percent per year thereafter. This forecast captures projected increases in treatment and disposal costs.
- Discharge characteristics from existing customers will not vary significantly from the values identified in the various wastewater facilities plans.
- No catastrophic events resulting from natural or human causes will occur that will have a substantial adverse impact on the integrity of the Department's facilities or the activities of customers served.

6.1 CONCLUSIONS

Carollo Engineers has completed a review of the Department's organization and management, and capital improvement and financial planning processes and programs. Discussions with staff and managers, as well as review of existing studies and reports cited in Appendix A of this report, were used to conduct this review.

Based on the studies and investigations as summarized in this report, the financial statements provided by the City's independent public accountant, and the considerations and assumptions set forth herein, Carollo offers the following conclusions:

- Department management has qualifications and experience commensurate with its responsibilities, and demonstrated commitment to the Department's vision and mission.
- The FY 2011 to FY 2015 CIP projects implement collection system and treatment facility modifications required to improve operations, accommodate planned growth, and comply with current federal and state regulatory requirements.
- The Draft 2010 Consent Decree adds certainty to the Department's short and long-term CIP and operational needs. Many of the projects mandated in the Draft 2010 Consent Decree are a continuation of previous consent decree work and were already included, and budgeted for, in the Department's CIP and financial plans. The new, longer term projects provide some flexibility with regards to project schedule and may potentially benefit from future technological advancement.
- The CIP includes improvements to the System collection and pumping facilities to assure compliance with current federal and state regulatory requirements. These collection and pumping facilities constitute much of the need for capital facility improvements.
- Projects included in the Department's FY 2011 to FY 2020 CIP appropriations have been estimated based on known regulatory requirements and to conform to industry standard engineering practices. Project cost estimation procedures appear to be reasonable, and the construction schedules are achievable given implementation of effective construction management and program management.
- The projects to be financed by proceeds of the Series 2010 Bonds are the highest priority projects required to meet consent decree requirements and protect public health and keep the system in a state of good repair. They are included in facility plans and updates thereto, which identify the need for projects through the year 2020.
- The Department's financial planning and rate practices are both comprehensive and conform to established industry standard approaches.

- The Department and City Council have demonstrated through historical financial planning, adopted rate increases, and System performance, a commitment to conforming to established financial policies, as well as effectiveness in balancing rate increases with the financial requirements of the System (including debt service coverage requirements).
- The principal assumptions used in the financial forecast are reasonable given recent experience and current economic conditions. Variations in actual inflationary or interest rates may cause subsequent adjustments to future financial plans.
- Projected operating results are consistent with the Department's established financial policies and debt service requirements, and will provide funding necessary to implement the CIP as currently envisioned. Specifically, the projected sewer service charges will provide revenue sufficient to:
 - Meet currently projected costs of operation, maintenance, and routine replacement of sewer system facilities.
 - Meet the existing debt service obligations and the projected requirements for the Series 2010 Bonds and future bond issues.
 - Provide sufficient revenue to pay the costs of the Department's CIP through the end of the forecast period using system service charges, wastewater system facility charges (WSFCs), and other capital-related funding sources.
 - Meet reserve requirements of the Bond Resolution and the Department's policies.
- Monthly residential bills for wastewater service, billed for 10,000 gallons of wastewater volume, are forecasted to increase from \$90.96 to \$107.44 between FY 2011 and FY 2015¹.
- The Department's debt and financial policies target debt service coverage in excess of 1.60x on senior revenue bonds and 1.25x on all revenue bonds. Based on the forecast rate increases, net revenues of the Department are projected to be sufficient to meet these targets and on existing and projected future debt service obligations, including a 1.20x parity coverage requirement on senior lien debt and 1.10x parity coverage on junior lien debt, in accordance with the First Bond Resolution.

This report has been prepared at the request of Bank of America Merrill Lynch, the lead underwriter for the Series 2010 Bonds, on behalf of the Department, to be included in the Official Statements relating to the issuance of the Series 2010 Bonds. The conclusions, observations, and recommendations contained herein constitute only the opinions of Carollo Engineers. The various background documents, statements, and other information supplied by the Department have been relied upon as being accurate in the performance of these analyses. However, no assurances are given nor warranties implied by Carollo to the

¹ A rate ordinance establishing rate increases from FY 2012 is expected to be implemented in the third quarter of FY 2011.

accuracy of such information. Carollo Engineers makes no certification and gives no assurances except as explicitly set forth in this report.

APPENDIX A – REFERENCES

REFERENCES

The following documents were used in the development of the Consulting Engineer's Study. The various background documents, statements, and other information supplied by the Department have been relied upon as being accurate in the performance of these analyses.

- Draft 2010 Consent Decree, U.S. Department of Justice (Civil No. 94-00765 DAE-KSC)
- Draft ENV Fiscal Year 2010 Annual Report, City and County of Honolulu, Department of Environmental Services
- City and County of Honolulu Debt and Financial Policies of the Wastewater System Enterprise
- ENV News, Volume 3, Issue 3 (July 2010), City and County of Honolulu, Department of Environmental Services
- Executive Summary, Proposed Draft Consent Decree Terms, City and County of Honolulu, Department of Environmental Services
- Five Wastewater Treatment Plants Receive Peak Performance Awards (August 16, 2010), City and County of Honolulu, Department of Environmental Services
- FY 2001 to FY 2020 Capital Improvement Plan, City and County of Honolulu, Department of Environmental Services
- FY 2011 Capital Program and Budget (Ord 10-12), City and County of Honolulu
- FY 2011 Operating Budget (Ord 10-11), City and County of Honolulu
- Infrastructure Assets, City and County of Honolulu, Department of Environmental Services
- Interviews/teleconferences with Department staff
- Preliminary Official Statements for Series 2010 Bonds, August 2010
- Presentation to the Investors (Draft), City and County of Honolulu
- Program Management Scope of Services, City and County of Honolulu, Department of Environmental Services
- Sewer Service Charge Schedules, Ordinance 05-018, City and County of Honolulu
- Wastewater Pump Station and Treatment Plant Flows, City and County of Honolulu, Department of Environmental Services
- Wastewater System Facility Charges, Article 10 Sections 14-10.1-6, City and County of Honolulu

City and County of Honolulu

**APPENDIX B – CAPITAL IMPROVEMENT
PROJECTS SUMMARY**

Project Name	Appropriations								Description
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future	
Ahuimanu Wastewater Preliminary Treatment Facility Force Main	0	2,001	41,200	1,000	0	0	44,201	43,400	Conduct condition assessment of existing force main and develop alternatives for backup and spill contingency plans. The project may include modifications to the existing force main, or alternative force main system.
Airport Sewer Rehabilitation/Reconstruction	802	16,002	0	0	0	0	16,804	0	To rehabilitate manholes and sewer lines on Aolele Street, and upstream sewers. Phase 1 includes approximately 1830 lf of 42" diameter reinforced concrete pipe and 13 manholes which need to be rehabilitated. Phase 2 of the project will include additional rehabilitation work on the sewer mains upstream of the phase 1 work area.
Ala Moana Wastewater Pump Station Force Main No. 2 Rehabilitation	2,201	2,500	0	41,201	0	0	45,902	0	Improvements and rehabilitation work needed for the existing Ala Moana WWPS Force Main No. 2, per recommendations from condition assessment work conducted in 2007 to 2008. Additional condition assessment is required by the 2007 Force Main Stipulated Order.
Ala Moana Wastewater Pump Station Force Mains No. 3 And 4	139,501	1,503	0	0	0	0	141,004	0	Work includes planning and design for new force mains no. 3 and no. 4, to provide backup capacity, and to convey the projected peak wet weather flows from the Ala Moana WWPS to the Sand Island WWTP.
Ala Moana Wastewater Pump Station Upgrade To 2020 Peak Flow	0	1,501	0	26,001	0	0	27,502	0	This project is intended to upgrade the WWPS capacity from 167 MGD to 189 MGD, the projected peak wet weather flow for the year 2020, based on hydraulic flow modeling. Updating of the flow model projection is ongoing, which may adjust the design flow number for this project.
Ala Wai Trunk Sewer Relief	0	0	4,002	0	0	0	4,002	0	Project consists of relieving approximately 900 feet of 48 inch pipe in Lewers Avenue between Ala Wai Boulevard and Kuhio Avenue, or reconstruction of this sewer line to provide the additional capacity needed.
Aliamanu No. 1 And No. 2 Wastewater Pump Station Force Mains	0	8,601	0	0	0	0	8,601	0	Perform condition assessment of force mains to determine any deficiencies and recommended alternatives. The project may include construction of replacement force mains, or rehabilitation improvements.
Aliamanu No. 1 And No. 2 Wastewater Pump Stations Upgrade And Sewer Relief	0	0	3,400	0	0	0	3,400	0	This project will address the need to upgrade two wastewater pump stations (WWPS) for the projected peak wet weather design flow described in the Final Sewer I/I Plan, 1999. This project combines two projects, identified in the Plan as #SIPS16 and #SIPS17. The project will also provide mitigation against potential area flooding, and provide other miscellaneous improvements. The project may include sewer relief to about 2,250 ft of sewer line downstream of these pump stations, either by a parallel relief line or a replacement line, to address the requirements of the I/I Plan project previously identified as the Airport Relief Sewer, #SICS01. The project is also evaluating possible elimination of one or two of the pump stations by constructing a deeper gravity sewer.
Awa Street Wastewater Pump Station Improvements	401	501	0	0	0	0	902	0	This project is to provide for miscellaneous structural, mechanical and electrical improvements as determined in the planning phase. The project also includes evaluating the need to upgrade the pump station capacity based on the collection sewer hydraulic analysis recommendation in the Sewer I/I Plan.
Beachwalk Wastewater Pump Station	252	0	0	0	0	0	252	0	Future work may include expanding the capacity of the WWPS to address projected wet weather peak flow identified in the Final Sewer I/I Plan, 1999. Project may include provision for lowering the wet well to accommodate a new lower trunk line in Lewers St, either by an addition to the existing wet well, or by constructing an entirely new wet well. Other alternatives may include eliminating or relocating the WWPS. Initial phase of the project includes interim reliability

Project Name	Appropriations								Description	
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future		
										improvements, pending the recommendation for elimination of the pump station.
Beachwalk Wastewater Pump Station Force Main	102	0	0	0	0	0	102	0		New and/or modifications/upgrades to the existing pump station and force main system to improve reliability and increase wet weather hydraulic capacity. Other alternatives, including a new gravity trunk sewer along the force main route to replace the existing WWPS and force main system, will be evaluated and may be included in the project.
Chinatown Sewer Rehabilitation	1,002	47,201	1,200	0	0	0	49,403	0		Project consists of the rehabilitation or replacement of existing sewer lines in Chinatown. The project will remedy structural defects, address hydraulic capacity issues, prevent excessive pipe cracking and root damage, and address problems due to unstable soil conditions. The project includes sewer rehabilitation, lateral reconnections, surface repaving, and restoration work.
Dowsett Highlands Relief Sewer	401	0	5,001	0	0	0	5,402	0		Plan, design and construct a relief sewer in the Dowsett Highlands and Nuuanu area, or alternative project solution, to address the need identified in the EPA approved "Final Sewer I/I Plan, 1999", under project #SICS42. The preliminary recommendation is for approximately 9,200 ft. of new 10inch and 12inch diameter relief sewers, to follow an alignment that would extend primarily through easements beginning at Nuuanu Road, cross to the Ewa side of Pali Highway, and end below the intersection of Wylie St. and Liliha St.
Environmental Services Administration And Laboratory Building	0	801	15401	0	0	0	16,202	0		This project will provide a new office building and facilities to house the administration, engineering and central SCADA functions, and possibly the central laboratory functions of the Department of Environmental Services. The initial planning phase will provide recommendations on the size and scope of the building, and possible locations.
Heeia Wastewater Pump Station Improvements	0	2,801	500	0	0	0	3,301	0		Plan, design and construct improvements to the Heeia Wastewater Pump Station in Kaneohe, Oahu. The work may include, but not limited to, replacing pumps, piping, mechanical and electrical equipment, installing a new generator for emergency power, a replacement structure, upgraded ventilation system, misc. upgrades to meet current building codes, and misc. site improvements.
Hele Street Sewer Relief/Rehabilitation, Kailua	402	3,301	0	0	0	0	3,703	0		The project includes evaluation of existing sewers, and is anticipated to provide rehabilitation/relief of sewer lines in the area of Hele St., Kailua.
Honouliuli Wastewater Basin Odor Control	0	1,001	16,001	0	0	0	17,002	0		Improvements required in the Honouliuli wastewater basin to address odor and corrosion issues.
Honouliuli Wastewater Treatment Plant And Sewer Basin Facilities	1	3	0	0	0	0	4	0		Planning to include updating the West Mamala Bay Wastewater Facilities Plan, including evaluating alternatives for construction of new facilities to meet Federal and State requirements and for long-term improvements. Work will include the required EA and/or EIS. Work will address control of wet weather flow from the Waipahu, Pearl City, Waimalu, and Halawa Wastewater Pump Stations and from other tributary basins to the Honouliuli WWTP. Deep sewer tunnel and storage alternatives will be considered, including associated new Influent Pump Station facilities. Design funds may be used for geotechnical engineering, survey work, and similar preliminary work, and for design work that may be needed on an expedited basis to meet mandated schedules. It is anticipated that design and construction of the recommended major improvements will be done under separately identified projects. Land acquisition of adjacent property may be required to provide for expansion and upgrade of the WWTP.
Honouliuli Wastewater Treatment Plant Outfall	0	301	0	2,001	0	0	2,302	0		Conduct an assessment of the existing outfall, and provide recommendations for future improvements or rehabilitation work.

Project Name	Appropriations								Description	
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future		
Improvements/Rehabilitation										
Houghtailing Street Area Sewer Rehabilitation	502	0	0	0	0	0	502	0	The project will include structural and/or hydraulic rehabilitation of existing gravity sewers in the collection basin area that feeds to the Houghtailing St. sewer, roughly bounded by N. School St. and Makanani Dr. There is approximately 38,000 lf of sewer lines, sized from 6inch to 30inch diameter, in this area. A majority of the lines are 6inch terra cotta sewers.	
Iwilei/Kalihi Kai Sewer Rehabilitation/Reconstruction	1,503	37,202	0	0	0	0	38,705	0	This project includes projects in Iwilei and Kalihi Kai areas. Republican St Nimitz Hwy Awa Structural Rehabilitation Phase 2, SICS51B, will rehabilitate manholes along Auiki Street, Republican Street and Nimitz Highway Awa pipelines. Approximately 43 manholes will be rehabilitated and 3 manhole frame and covers will be replaced. Dillingham Blvd Iwilei Structural Rehabilitation, SICS52, will rehabilitate manholes and sewers on Dillingham Boulevard, Iwilei Road, and Waiakamilo Road. Approximately 1,560 linear feet (lf) of 24inch diameter and 360 lf of 36inch diameter pipe and 30 manholes will be rehabilitated. Other sewers in this area in the vicinity of these identified deficiencies will be included, based on recommendations in the planning phase.	
Kahanahou Wastewater Pump Station Upgrade	400	0	2,801	0	0	0	3,201	0	Plan, design and construct upgrade improvements to the Kahanahou Wastewater Pump Station in Kaneohe, Oahu. The work may include, but not be limited to, replacing or modifications to pumps, piping, mechanical and electrical equipment, emergency power system, structures, ventilation system, and misc. site improvements.	
Kahanu Street, School Street, And Umi Street Relief Sewers	0	0	0	0	0	0	0	0	The project includes relief sewers to be located in Dillingham Boulevard, Kalihi Street, Kahanu Street, Stanley Street, along Kalihi Stream, and School Street. The total length of the proposed sewers is about 9,700 lf, and range in size from 8inch to 21inch diameter. This project combines three projects required by the Final Sewer I/I Plan, identified as projects #SICS09, #SICS37, and #SICS38.	
Kahawai Stream Wastewater Pump Station Modification	0	151	201	0	1,650	0	2,002	0	This project will provide new replacement mechanical and electrical facilities to upgrade and modernize the pump station, including new variable frequency drives.	
Kailua Wastewater Treatment Plant And Sewer Basin Facilities	0	3	0	0	0	0	3	0	Planning to include updating the Kailua Kaneohe Kahaluu Wastewater Facilities Plan, including evaluating alternatives for construction of new facilities to meet Federal and State requirements and for long-term improvements. Work will include the required EA and/or EIS. Work will address control of wet weather flow from the Kaneohe WWPTF and from Kailua town to the Kailua Regional WWTP. Deep sewer tunnel and storage alternatives will be considered, including associated new Influent Pump Station facilities. Design funds may be used for geotechnical engineering, survey work, and similar preliminary work, and for design work that may be needed on an expedited basis to meet mandated schedules. It is anticipated that design and construction of the recommended major improvements will be done under separately identified projects.	
Kailua Wastewater Treatment Plant Improvements	23,600	3	0	0	0	0	23,603	0	Improvements required at Kailua Wastewater Treatment Plant to address reliability issues, verify adequacy of plant capacity for peak design flows, and address odor and noise issues. Project will consider the requirements of Sewer I/I Plan required projects for this WWTP, including project nos. KKTP01 and KKTP02. Construction funding in FY2011 for phase 1 and 2 odor control improvements, and miscellaneous reliability improvements. The odor control improvements include upgrades to the foul air system fans to increase airflow and increase negative pressure at process tanks, upgrade three odor treatment systems at the plant with improved use of biofilters and the existing biotowers, upgrade seals on process tanks and buildings, chemical dosing stations in the	

Project Name	Appropriations								Description
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future	
									collection system and at the plant headworks, redirect in plant sewer to reduce odors entering the headworks, replace gas flare, improve/replace covers for the dissolved air/sludge tanks, improve septage receiving facility, dewatering building truck bay enclosure and improvements, centrifuge drain improvements, and miscellaneous improvements.
Kailua Wastewater Treatment Plant Outfall Improvements/Rehabilitation	0	301	0	2,001	0	0	2,302	0	Conduct an assessment of the existing outfall, and provide recommendations for future improvements or rehabilitation work.
Kailua Wastewater Treatment Plant Solids Dewatering System	0	5,700	0	0	0	0	5,700	0	Replacement of and/or modifications to the existing sludge dewatering system at the Kailua Wastewater Treatment Plant to improve and simplify its operations and increase the reliability. Planning phase will evaluate options for constructing a new dewatering building. Project includes odor control systems to adequately treat foul air from the dewatering operations.
Kalaheo Avenue Relief Sewer	101	801	10,801	0	0	0	11,703	0	Plan, design and construct a relief sewer on Kalaheo Avenue between Mokapu Road and Kainui Drive, or alternative project solution, to address the need identified in the EPA approved "Final Sewer I/I Plan, 1999", under project #KKCS01. The preliminary recommendation is for a new 48inch diameter relief sewer, to be installed parallel to the existing 54inch diameter trunk sewer.
Kalihi/Nuuanu Area Sewer Rehabilitation	303	3,002	0	0	0	0	3,305	0	The project will include structural and/or hydraulic rehabilitation of existing gravity sewers in the collection basin areas of Lower Kalihi, Pacific Heights, Punchbowl, and Liliha. These project areas are identified as SCIP 12, 15, 19, and 13 respectively. The construction phase of the work is being done under multiple construction contracts, and portions of the work are phased.
Kalihi Valley Reconstructed Sewer	0	0	0	0	0	0	0	0	Project consists of the rehabilitation or replacement of approximately 14,400 linear feet of existing sewer mainline in Kalihi Valley mauka of School Street. The project will also allow for new development and sewer connections in portions of upper Kalihi Valley. Plan, design and construct the sewer mains, lateral reconnections, surface repaving, and restoration work.
Kamehameha Highway Wastewater Pump Station Upgrade, Mapunapuna	0	801	0	6,701	0	0	7,502	0	This project provides for required capacity of the wastewater pump station to address anticipated wet weather storm flows, and provides for other needed improvements which will be evaluated in the planning phase. Analysis of the required capacity in the tributary and downstream areas will be included in the planning phase.
Kaneohe Bay #2 Wastewater Pump Station Force Main	0	602	0	0	0	0	602	0	Plan, design and construct a replacement force main system for the Kaneohe #2 Wastewater Pump Station in Kaneohe, Oahu. The existing force main is approximately 131 feet long, and consists mostly of 14inch diameter pipe, built in the mid1960' s. The new force main system will be constructed in approximately the same alignment, or alongside the existing alignment, and could include retaining portions of the existing system if determined to be appropriate based on an assessment of the existing conditions. The project may include work at the pump station needed to provide compatibility with the new force main system.
Kaneohe/Kailua Force Main No. 1 Rehabilitation	0	1,002	41,201	1,000	0	0	43,203	0	Improvements and rehabilitation work needed for the existing Kaneohe/Kailua Force Main No. 1, per recommendations from condition assessment work conducted in 2008.
Kaneohe/Kailua Force Main No. 2	90,701	1,200	0	0	0	0	91,901	0	Project will provide a new wastewater force main from the Kaneohe Wastewater PreTreatment Facility (WWPTF) to the Kailua Wastewater Treatment Plant (WWTP). This new force main plus the existing force main will provide a dual main system which will allow one of the pipes to be used as a backup. Several alternative alignments for the new force main are examined in the planning

Project Name	Appropriations								Description	
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future		
										phase, including alignments that traverse underneath portions of Kaneohe Bay. Total length of the force main will be approximately 15,000 to 16,000 linear feet.
Kaneohe Sewer Relief/Rehabilitation, C2 Projects	101	1,001	0	13,001	0	0	14,103	0		This project will evaluate and address potential hydraulic deficiencies of sewers in Alii Shores, Kaha St., Kahuhipa St., Namoku St., Puohala, and Makahio St, based upon conveying the projected peak wet weather design flow, and will also evaluate structural condition of the sewers.
Kaneohe Wastewater Pretreatment Facility Improvements And Equalization Facility	0	2,501	3,001	86,201	1,202	0	92,905	0		This project will address hydraulic deficiencies at the Kaneohe Wastewater Pre Treatment Facility, to provide adequate capacity for projected peak wet weather design flows. The planning phase will develop and evaluate alternatives, including the proposed 6 million gallon wet weather storage basin, along with diversion pumping facilities, odor control, and other appurtenances.
Makaha Beach Trunk Sewer, Tmk 8401, 02, 08 To 10 And 18	0	0	0	201	201	2,601	3,003	0		Recommendations from previous facilities plans included construction of 3600 feet of 12 to 24 inch pipe on Farrington Highway along Makaha Beach. Land acquisition for easements estimated at 10,000 square feet. Project scope will be subject to evaluation and revision in the 2010/2012 update to the Waianae Wastewater Facilities Plan.
Makau Street Wastewater Pump Station And Force Main Tmk: 8-4-10:54	0	0	0	0	101	381	482	3,436		Recommendations from previous facilities plans included construction of a wastewater pump station and force main in the vicinity of Makau Street. This pump station will enable the Makaha Sewers Section 5, I.D. project to be serviced. Project scope will be subject to evaluation and revision in the 2010/2012 update to the Waianae Wastewater Facilities Plan.
Manoa Sewer Relief/Rehabilitation	0	7,701	0	0	0	0	7,701	0		This project will address projected hydraulic deficiencies in the Manoa Pipeline and in the Manoa collection sewers, and address structural deficiencies as determined in the planning phase. Project scope includes sewers located in the vicinity of East Manoa Road, Lowrey Avenue, Kahaloa Drive, Woodlawn Drive, and the University of Hawaii at Manoa Campus.
Moiilikapahu Sewer Rehabilitation/Reconstruction	8,002	0	0	0	0	0	8,002	0		Rehabilitate sewer lines in Moiliili and Kapahulu areas. This project includes addressing the recommendation in the 1999 Final Sewer I/I Plan, project #SICS58 and project#SICS30, to address structural and hydraulic deficiencies in the existing sewers. The project will also address hydraulic deficiencies in the sewers in the vicinity of project SICS58, as determined in the planning phase for the project.
Old Sewer Tunnel Rehabilitation	0	2,001	0	0	0	0	2,001	0		This project will rehabilitate manholes and the sewer line as determined in the planning phase. The location of the Old Sewer Tunnel pipeline is from the vicinity of UH Manoa to Ward Ave, and continuing along School Street towards Kalihi.
Pacific Palisades Diversion Sewer Line	0	701	0	6,601	0	0	7,302	0		The project consists of construction of 10,000 lf of 18 and 21inch gravity sewer line from the existing Pacific Palisades WWPS to the existing Waiawa WWPS and the demolition of the Pacific Palisades WWPS.
Palolo Valley Sewer Rehabilitation	1,002	41,201	0	0	0	0	42,203	0		This project is to address possible hydraulic and structural deficiencies in the collection sewers in Palolo Valley. This project will be based upon conveying the projected peak wet weather design flow.
Project Management For Wastewater Projects	6,622	7,135	7,135	7,135	7,135	7,135	42,297	0		Project provides planning, design and construction management for wastewater projects, including related expenses associated with these services.
Saint Louis Heights Sewer Rehabilitation	503	8,002	0	0	0	0	8,505	0		Project consists of the repair/rehabilitation/replacement of the lines in the St. Louis Heights area.
Sand Island Wastewater	1,002	0	16,001	0	0	0	17,003	0		Improvements required in the Sand Island wastewater basin to address odor and

Project Name	Appropriations								Description
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future	
Basin Odor Control									corrosion issues.
Sand Island Wastewater Treatment Plant And Sewer Basin Facilities	0	3	0	0	0	0	3	0	Planning to include updating the East Mamala Bay Wastewater Facilities Plan, including evaluating alternatives for construction of new facilities to meet Federal and State requirements and for long-term improvements. Work will include the required EA and/or EIS. Work will address control of wet weather flow from the Beachwalk, Ala Moana, and Hart St. Wastewater Pump Stations and from other tributary basins to the Sand Is. WWTP. Deep sewer tunnel and storage alternatives will be considered, including associated new Influent Pump Station facilities. Design funds may be used for geotechnical engineering, survey work, and similar preliminary work, and for design work that may be needed on an expedited basis to meet mandated schedules. It is anticipated that design and construction of the recommended major improvements will be done under separately identified projects.
Sand Island Wastewater Treatment Plant Expansion, Primary Treatment	2,002	20,002	0	0	0	0	22,004	0	Upgrade, refurbish and/or expand treatment units at the treatment plant, which are not already included in the Sand Island WWTP, Unit 1, Phase 2A (Headworks) Project, #89071, to bring overall plant capacity from 82 to 90 mgd average daily flow. Included is conversion of 6 flocculator/clarifier tanks to gravity settling tanks, reconstruction and rehabilitation work, odor control facilities, solids handling facilities, modifications to gravity thickeners, electrical system upgrade, emergency generators, and ancillary systems.
Sand Island Wastewater Treatment Plant Outfall Improvements/Rehabilitation	0	301	2,001	0	0	0	2,302	0	Conduct an assessment of the existing outfall, and provide recommendations for future improvements or rehabilitation work.
Sewer Condition Assessment Program	8,800	8,800	2,600	2,600	2,600	2,600	28,000	2,600	This program will monitor the structural condition of sewers. The approach of the program is to track the structural condition of elements of the collection system by performing field inspections and condition assessments of gravity sewers and force mains.
Sewer Mainline And Lateral Projects	10,302	5,802	5,802	5,802	5,802	5,802	39,312	5,802	Project will provide a vehicle for completing planning, design, and construction work for high priority sewer mainline and lateral projects. Funding is for island wide rehabilitation and reconstruction work. This project provides funding for the "Small Diameter Sewer Rehabilitation Program", which is one of five required supplemental programs in the EPA approved Final Sewer I/I Plan, 1999. This project also provides funding for rehabilitation of any sewer line identified as high priority for reducing and preventing wastewater spills.
Sewer Manhole And Pipe Rehabilitation At Various Locations	203	1,101	0	0	0	0	1,304	0	Repair and rehabilitate sewer manholes and pipes in areas identified in the Final Sewer Inflow/Infiltration Plan. Areas may include but are not limited to, Pearl City, Kaneohe, Nimitz Highway Awa Street, Wahiawa and Waianae. Work to be accomplished in phases through several construction contracts. Additional phase to be funded with FY2011 to FY2012 funds.
Sewer Relief Project At Amelia Street	0	0	0	0	0	0	0	0	The project includes a relief sewer in the vicinity of Amelia St. in Kalihi. The project consists of approximately 1130 LF of relief sewer.
Uwalu Wastewater Pump Station Upgrade	0	1,701	0	0	0	0	1,701	0	This project is to address possible hydraulic deficiencies at the Uwalu WWPS, and provide for miscellaneous structural, mechanical and electrical improvements as determined in the planning phase. Project includes evaluating the need to upgrade the pump station capacity based on the collection sewer hydraulic analysis recommendation in the Sewer I/I Plan.
Waiiau Area Sewer	9,801	0	0	0	0	0	9,801	0	This project will rehabilitate and/or reconstruct sewers to reduce infiltration and

Project Name	Appropriations								Description	
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future		
Rehabilitation/Reconstruction										inflow (I/I) and address structural deficiencies as determined in the planning phase. The project area is located by Kamehameha Highway near Pearl Harbor's East Loch. The project will include I/I source detection to determine recommendations for rehabilitation of sewer mains, manholes, and lower laterals. The project may also include reconstructing pipelines where sewers are determined to be inadequate.
Waikalua Wastewater Pump Station Upgrade	0	1,701	0	0	0	0	1,701	0		This project is to address possible hydraulic deficiencies at the Waikalua WWPS, and provide for miscellaneous structural, mechanical and electrical improvements as determined in the planning phase. Project includes evaluating the need to upgrade the pump station capacity based on the collection sewer hydraulic analysis recommendation in the Sewer I/I Plan.
Waikapoki Wastewater Pump Station Upgrade	0	5,501	0	0	0	0	5,501	0		This project is to address possible hydraulic deficiencies at the Waikapoki WWPS, and provide for miscellaneous structural, mechanical and electrical improvements as determined in the planning phase. Project includes evaluating the need to upgrade the pump station capacity based on the collection sewer hydraulic analysis recommendation in the Sewer I/I Plan.
Waikiki Sewer Rehabilitation/Reconstruction	8,802	0	0	0	0	0	8,802	0		Project will rehabilitate/replace sewers and manholes in Waikiki, with priority given to structural rehabilitation needed for sewers in the vicinity of Kuhio Avenue, Lewers Street and nearby streets, as identified in the EPA approved Final Sewer I/I Plan, 1999, under project #SICSS9. Hydraulic deficiencies will also be investigated, and alternative improvements considered for those sewers that are found to be needing rehabilitation.
Waipahu, Pearl City, Waimalu, Halawa Area Wastewater System Improvements	0	4,253	122,001	2,002	0	0	128,256	0		This project will address hydraulic and structural deficiencies at Pearl City (PC) Wastewater Pump Station (WWPS) and downstream facilities, in Waimalu trunk sewer along Kamehameha Hwy, at Waimalu WWPS and force main, and in the trunk sewer leading into PC WWPS. The project will consider upgrading the capacity of PC WWPS to 46 mgd, with capability for future expansion to 54 mgd, and the possible relocation of the PC WWPS due to flooding issues, including the associated gravity sewer and force main modifications. The project will consider a possible relief sewer, 17,000 lf, parallel to H1 to intercept wastewater flows from mauka side of H1 between Halawa Heights and Newtown for discharge into PC trunk sewer. The PC Trunk Sewer may need expansion to 34 mgd, possibly involving 3,240 lf of 27 and 36 inch diam. trunk sewer. The project will accommodate future peak wet weather design flows, and will also evaluate alternatives/recommendations in the West Mamala Bay Facilities Plan, Dec. 2001.
Waipahu Sewer Replacement/Relief	0	8,801	0	0	0	0	8,801	0		The project will address possible hydraulic deficiencies based on the projected peak wet weather design flows. The need for relief sewer lines, or rehabilitation of existing sewer lines, in the Awamoku St. area will be evaluated.
Waipio Wastewater Pump Station Upgrade	0	4,501	0	0	0	0	4,501	0		This project is to address possible hydraulic deficiencies at the Waipio WWPS, and provide for miscellaneous structural, mechanical and electrical improvements as determined in the planning phase. Project includes evaluating the need to upgrade the pump station capacity based on the collection sewer hydraulic analysis recommendation in the Sewer I/I Plan.
Wastewater Equipment	5,677	5,000	5,000	5,000	5,000	5,000	30,677	5,000		Procurement of major equipment needed for the wastewater function of the Department of Environmental Services.
Wastewater Facilities Replacement Reserve	5,000	5,000	5,000	5,000	5,000	5,000	30,000	5,000		Funds for unanticipated breakdowns at wastewater facilities, and emergency repairs of sewer collection systems. Federal law administered by the U.S. Environmental Protection Agency requires that reserve funds for facility replacement be established and available.

Project Name	Appropriations								Description
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	6 Year Total	Future	
Wastewater Planning And Programming	220	259	259	259	259	259	1,515	259	This project provides long range planning, facility planning, and programming for wastewater projects.
Wastewater Program Management	3,002	3,002	0	0	0	0	6,004	0	Wastewater program management services for wastewater projects.
Wastewater Treatment Plant, Pump Station, And Force Main Projects	11,101	7,701	7,701	7,701	7,701	7,701	49,606	7,701	Project will provide a vehicle for constructing high priority projects required at treatment plants and pump stations, including the associated force main pipes, to make needed repairs, replacements or efficiency improvements. Funds for force main assessments, rehabilitation and improvements are needed to meet federal and state requirements. Funding is for island wide problems.

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APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION

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APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION

The Bond Resolution contains terms and conditions relating to the issuance of Bonds, including various covenants and security provisions, certain of which are summarized below. This summary does not purport to be comprehensive or definitive and is subject to all of the provisions of the Bond Resolution, to which reference is hereby made. Copies of the Bond Resolution are available from the City and County.

Certain Definitions

Certain definitions contained in the Bond Resolution are summarized below. This summary does not purport to be comprehensive or definitive, and is subject to all provisions of the Bond Resolution, to which reference is hereby made. Copies of the Bond Resolution are available from the Department of Budget and Fiscal Services or the Department of Environmental Services of the City and County.

“Accrued Debt Service” means as of any date of computation and with respect to the Bonds of any Series, an amount equal to the sum of: (i) interest on such Bonds accrued and unpaid and to accrue to the end of the then current calendar month, and (ii) principal, Sinking Fund Installment and redemption premium which are due and unpaid for such Bonds and that portion of the principal, unsatisfied balance of any Sinking Fund Installment (as determined in accordance with the Bond Resolution) and redemption premium for such Bonds next due which would have accrued to the end of such calendar month if deemed to accrue monthly from a date one year prior to its due date.

“Act” means Chapter 49, Hawaii Revised Statutes, and all laws amendatory or supplemental thereto.

“Aggregate Debt Service” means, for any period and as of any date of computation, the sum of the amounts of Debt Service for such period with respect to all Series of Bonds.

“Assumed Long-Term Fixed Rate” means, with respect to Variable Rate Bonds, (i) a numerical rate of interest that such Bonds would have borne if issued as Fixed Rate Bonds with the same maturity and taking into account Sinking Fund Installments; or (ii) if the City and County has in connection with such Variable Rate Bonds entered into an Interest Rate Exchange Agreement which provides that the City and County is to pay to another person an amount determined based upon a fixed rate of interest on a notional amount and which requires the Counterparty to pay to the City and County an amount equal to the amount by which interest on the notional amount stated therein at the rate borne by such Variable Rate Bonds exceeds the interest payable on such notional amount at a rate stated therein, the fixed rate or other rate of interest set forth in or determined in accordance with such agreement. With respect to the Bonds described in clause (i) of the preceding sentence, an Authorized Officer is to certify or cause the Remarketing Agent for such Series of Variable Rate Bonds or other qualified person to certify such Assumed Long-Term Fixed Rate on the issue date of such Bonds, taking into account such market factors as such Authorized Officer or such Remarketing Agent or such qualified person deems necessary or appropriate.

“Authorized Officer” means the Director of Budget and Fiscal Services, any Deputy Director of Budget and Fiscal Services, the Director of Environmental Services or any other officer of the City and County designated by resolution of the City Council.

“Bond Anticipation Notes” means bond anticipation notes which the City and County may issue for purposes of the Wastewater System if the requirements set forth in the Bond Resolution for such issuance are satisfied.

“Bond Counsel” means an attorney or a firm of attorneys of nationally recognized standing in the field of law relating to municipal bonds selected by the City and County.

“Bondholder” or *“holder of a Bond”* or *“Holder”* means the registered owner of any Bond which at the time is registered other than to bearer, or such holders’ duly authorized attorney in fact, representative or assigns.

“Capital Appreciation Bond” means any Bond as to which interest is compounded on each Valuation Date therefor and is payable only at the maturity or prior redemption thereof.

“City Charter” means the 1973 Revised Charter of the City and County of Honolulu (1994 Edition), as the same may be amended from time to time.

“City Code” means the Revised Ordinances of Honolulu 1990, as the same may be amended from time to time.

“City Council” mean the City Council of the City and County.

“Code” means the Internal Revenue Code of 1986, as amended, and any successor statutes thereto, and any applicable regulations thereunder.

“Common Reserve Subaccount Requirement” means as of any date of computation, an amount equal to the greatest amount of Aggregate Debt Service for the then current or any future Fiscal Year on all Outstanding Bonds entitled to the benefit of the Common Reserve Subaccount; provided however, that if upon issuance of a Series of Bonds entitled to the benefit of the Common Reserve Subaccount, such amount would require moneys to be credited to the Common Reserve Subaccount from such Bond proceeds in an amount in excess of the maximum amount permitted under the Code, the Common Reserve Subaccount Requirement will mean an amount equal to the sum of the Common Reserve Subaccount Requirement immediately preceding issuance of such Bonds and the maximum amount permitted under the Code to be deposited therein from the proceeds of such Bonds, as certified by an Authorized Officer; provided further, however, that for purposes of this definition, Aggregate Debt Service is to be computed with respect to each Variable Rate Bond entitled to the benefit of the Common Reserve Subaccount by using the Assumed Long-Term Fixed Rate applicable thereto.

“Consulting Engineer” means the engineer or engineering firm or corporation retained from time to time pursuant to the Bond Resolution to perform the acts and carry out the duties provided for such Consulting Engineer in the Bond Resolution.

“Costs” means all costs of any Improvement and include, but are not be limited to, all costs and estimated costs of the issuance of the Bonds, all architectural, engineering, inspection, financial and legal expenses, the cost of causing the payment of the principal or interest or both of the Bonds to be insured or guaranteed, the initial cost of any Support Facility or Interest Rate Exchange Agreement obtained or permitted by the Act, and interest which it is estimated will accrue during the construction of any Improvements and for six (6) months thereafter.

“Debt Service” means, as of any particular date of computation, with respect to any Bonds and with respect to any period, the aggregate of the amounts to be paid or set aside in such period for the payment (or retirement) of the principal and Redemption Price (if any) of, and interest on, such Bonds; provided, however, that the term “Debt Service” does not include interest on Bonds to the extent it is to be paid from amounts on credit to a Series Improvement Interest Subaccount, amounts on credit to the Debt Service Subaccount or any other provisions made for the payment of interest.

“Department” means the Department of Environmental Services of the City and County as established by the City Charter, or the successor thereto.

“Depository” means any bank, national banking association or trust company selected and appointed by an Authorized Officer in accordance with the Bond Resolution as a depository of moneys and Investment Securities held under the provisions of the Bond Resolution.

“Depository” means The Depository Trust Company, New York, New York, or its nominee, or any other person, firm, association or corporation designated in the Series Resolution authorizing a Series of Bonds or a Series Certificate relating to such Series of Bonds to serve as securities depository for the Bonds of such Series.

“Director of Budget and Fiscal Services” means the Director of Budget and Fiscal Services of the City and County appointed pursuant to and having the powers as set forth in the Act and the City Charter, or any successor.

“Director of Environmental Services” means the Director of the Department of Environmental Services of the City and County appointed pursuant to and having the powers as set forth in the Act and the City Charter, or any successor.

“Exempt Obligation” means an obligation of any state or territory of the United States of America, any political subdivision of any state or territory of the United States of America, or any agency, authority, public benefit corporation or instrumentality of such state, territory or political subdivision, the interest on which is excludable from gross income under Section 103 of the Code, and which at the time an investment therein is made or such obligation is deposited in any fund or account under the Bond Resolution, is rated, without regard to qualification of such rating by symbols such as “+” or “-” or numerical notation, “Aa” or better by Moody’s and “AA” or better by S&P, or, if such obligation is not rated by Moody’s or S&P, or, if such obligation is rated by neither Moody’s nor S&P, has been assigned a comparable rating by another nationally recognized rating service, but in no event rated lower than the lowest rating on Outstanding Bonds assigned by Moody’s or S&P.

“First Resolution Obligations” means bonds, notes and other evidence of indebtedness issued under and pursuant to the First Bond Resolution.

“Fiscal Year” means the 12 month period established by the City and County or provided by law from time to time as its fiscal year, and which, as of the date of adoption of the Bond Resolution, is the 12-month period commencing on July 1 of any year and ending on June 30 of the following year.

“Government Obligation” means a direct obligation of the United States of America, an obligation the principal of, and interest on, which are guaranteed by the United States of America, provided, that the full faith and credit of the United States of America is pledged to any such direct obligation or guarantee.

“Improvements” means the acquisition, purchase, construction, reconstruction, improvement, betterment or extension of the Wastewater System.

“Interest Rate Exchange Agreement” means an agreement entered into by the City and County relating to Bonds of one or more Series which provides that during the term of such agreement the City and County is to pay to the Counterparty an amount based on the interest accruing at a fixed or variable rate per annum on a notional amount and that the Counterparty is to pay to the City and County either (i) an amount based on the interest accruing on such notional amount at a fixed, capped or variable rate per annum, in each case computed according to a formula set forth in such agreement, or that one will pay to the other any net amount due under such agreement, or (ii) an amount based on the amount by which the rate per annum at which such Bonds bear interest exceeds a rate per annum stated in such agreement.

“Investment Agreement” means an agreement for the investment of moneys with a Qualified Financial Institution.

“Investment Securities” means any of the following, if and to the extent that the same are legal for the investment of funds of the Department:

- (i) Government Obligations;
- (ii) Investment Agreements;
- (iii) Direct obligations and fully guaranteed certificates of beneficial interest of the Export-Import Bank of the United States; consolidated debt obligations and letter of credit-backed issues of the Federal Home Loan Banks; participation certificates and senior debt obligations of the Federal Home Loan Mortgage Corporation (“FHLMCs”); debentures of the Federal Housing Administration; mortgage-backed securities (except stripped mortgage securities which are valued

greater than par on the portion of unpaid principal) and senior debt obligations of Fannie Mae (“FNMA’s”); participation certificates of the General Services Administration; guaranteed mortgage-backed securities and guaranteed participation certificates of the Government National Mortgage Association (“GNMA’s”); guaranteed participation certificates and guaranteed pool certificates of the Small Business Administration; debt obligations and letter of credit-backed issues of the Student Loan Marketing Association; local authority bonds of the U.S. Department of Housing & Urban Development; guaranteed Title XI financings of the U.S. Maritime Administration; guaranteed transit bonds of the Washington Metropolitan Area Transit Authority; Resolution Funding Corporation securities.

(iv) direct obligations of any state or territory of the United States of America or any subdivision or agency thereof whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, “Aa” or better by Moody’s and “AA” or better by S&P, or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, “Aa” or better by Moody’s and “AA” or better by S&P;

(v) commercial paper (having original maturities of not more than 270 days) rated, at the time of purchase, “P-1” by Moody’s and “A-1” or better by S&P;

(vi) Federal funds, unsecured certificates of deposit, time deposits or bankers acceptances (in each case having maturities of not more than 365 days) of any domestic bank including a branch office of a foreign bank which branch office is located in the United States, provided legal opinions are received to the effect that full and timely payment of such deposit or similar obligation is enforceable against the principal office or any branch of such bank, which, at the time of purchase, has a short-term “Bank Deposit” rating of “P-1” by Moody’s and a “Short-Term CD” rating of “A-1” or better by S&P.

(vii) deposits of any bank or savings and loan association which has combined capital, surplus and undivided profits of not less than \$3 million, provided such deposits are continuously and fully insured by the Bank Insurance Fund or the Savings Association Insurance Fund of the Federal Deposit Insurance Corporation (“FDIC”);

(viii) investments in money-market funds rated “Aaa” by Moody’s, and “AAAm” or “AAAm-G” by S&P;

(ix) repurchase agreements collateralized by Government Obligations, GNMA’s, FNMA’s or FHLMA’s with any registered broker/dealer subject to the Securities Investors’ Protection Corporation jurisdiction or any commercial bank insured by the FDIC, if such broker/dealer or bank has an uninsured, unsecured and unguaranteed obligation rated in the top two rating tiers by Moody’s, and “AA-1” or “AA-” or better by S&P, provided:

(a) a master repurchase agreement or specific written repurchase agreement governs the transaction; and

(b) the securities are held free and clear of any lien by the Depository or an independent third party acting solely as agent (“Agent”) for the Depository, and such third party is (i) a Federal Reserve Bank, or (ii) a bank which is a member of the Federal Deposit Insurance Corporation and which has combined capital, surplus and undivided profits of not less than \$50 million, and the Depository has received written confirmation from such third party that it holds such securities, free and clear of any lien, as agent for the Depository; and

(c) a perfected first security interest under the Uniform Commercial Code, or book entry procedures **prescribed** at 31 C.F.R. 306.1 et seq. or 31 C.F.R. 350.0 et seq. in such securities is created for the benefit of the Depository; and

(d) the repurchase agreement has a term of 3 years or less, and the Depository or the Agent will value the collateral securities no less frequently than weekly and will liquidate the collateral securities if any deficiency in the required collateral percentage is not restored within two business days of such valuation; and

(e) the fair market value of the securities in relation to the amount of the repurchase obligation, including principal and interest, is equal to at least 100%;

(x) investments in any mutual fund whose portfolio is limited to Government Obligations and the investments described in clause (ii) of Investment Securities; and

(xi) student loan resource securities including student loan auction rate securities, student loan asset-backed notes, student loan program revenue notes and bonds, and securities issued pursuant to Rule 144A of the Securities Act of 1933, including any private placement issues, issued with either bond insurance or overcollateralization guaranteed by the United States Department of Education, provided all insurers maintain an “Aaa” by Moody’s, “AAA” by S&P or equivalent rating by other rating agencies.

“*Moody’s*” means Moody’s Investors Service, Inc., its successors and their assigns, and, if such corporation for any reason no longer performs the functions of a securities rating agency, “Moody’s” is deemed to refer to any other nationally recognized rating agency, if any, designated by the Director of Budget and Fiscal Services.

“*Net Revenue Requirement*” means, with respect to any Fiscal Year or any period, an amount equal to the greater of: (i) the sum of (a) the Aggregate Debt Service under the First Bond Resolution and the Aggregate Debt Service in such Fiscal Year or such period, and (b) the Required Deposits for such Fiscal Year or such period; or (ii) 1.10 times the Aggregate Debt Service (as defined in the First Bond Resolution) under the First Bond Resolution and 1.10 times the Aggregate Debt Service in such Fiscal Year or such period, plus 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding as of the end of such Fiscal Year or such period.

“*Net Revenues*” means, with respect to any period, the Revenues during such period less amounts required to pay Operation and Maintenance Expenses.

“*Operation and Maintenance Expenses*” means the costs and expenses of operating and maintaining the Wastewater System, including, without limiting the generality of the foregoing, (i) all expenses includable in the operation and maintenance expense accounts of the Department relating to the Wastewater System according to generally accepted accounting principles, exclusive of depreciation and amortization of property values or losses, (ii) to the extent not included in the preceding clause (i) or paid from Bond proceeds or otherwise, the Department’s share of the costs and expenses of operating and maintaining any plants and properties jointly owned with others, and (iii) the amounts, if any, payable to the United States Treasury Department pursuant to Section 148 of the Code.

“*Opinion of Counsel*” means with respect to the City and County a written opinion of counsel selected by the Director of Budget and Fiscal Services who is not an employee of the City and County, and which, with respect to Federal income tax law and securities law relating to obligations issued by state and local governmental units, is Bond Counsel. Any Opinion of Counsel may be based (insofar as it relates to factual matters or information which is in the possession of the City and County) upon a written certificate of the City and County unless such counsel knows, or in the exercise of reasonable care should have known, that such written certificate is erroneous.

“*Outstanding*” or “*outstanding*” when used with reference to Bonds means, as of any date, Bonds theretofore or thereupon issued pursuant to the Bond Resolution, except: (a) any Bonds canceled by a Paying Agent or paid at or prior to such date; (b) Bonds in lieu of or in substitution for which other Bonds have been delivered

pursuant to the Bond Resolution; (c) Bonds deemed to be no longer outstanding under the Bond Resolution as provided in the Bond Resolution and (d) Option Bonds tendered or deemed tendered in accordance with the provisions of the Series Resolution or the Series Certificate relating to such Bonds.

“Parity Support Facility Reimbursement Obligation” means the obligation of the City and County described in the Bond Resolution to directly reimburse the Support Facility Provider of any Support Facility for amounts paid by such Support Facility Provider under such Support Facility or a Counterparty under an Interest Rate Exchange Agreement for amounts paid thereunder, on a parity with the obligation of the City and County to pay the Bonds, whether or not such obligation to reimburse is evidenced by a promissory note or other similar instrument.

“Paying Agent” means, as to Bonds of any particular Series, the Director of Budget and Fiscal Services or the bank or trust company designated for the payment of the principal and Redemption Price, if any of, and interest on, the Bonds of such Series in the Series Resolution authorizing the issuance of such Series or the Series Certificate relating to such Series.

“Record Date” means, with respect to any Series of Bonds, (i) with respect to the payment of interest, the 15th day (whether or not a Business Day) of the month preceding an interest payment date; (ii) with respect to notice of redemption, the 45th day (whether or not a Business Day) preceding the date of redemption; or (iii) such other day as may be provided in the Series Resolution authorizing the issuance of such Series or the Series Certificate relating to such Series.

“Refunded Municipal Obligations” means Exempt Obligations which are rated in the highest rating category by Moody’s and S&P and provision for the payment of the principal of and interest on which has been made by an irrevocable deposit with a trustee or escrow agent of Governmental Obligations, which are held by a bank or trust company organized and existing under the laws of the United States of America or any state, the District of Columbia or possession thereof in the capacity as custodian, the maturing principal of and interest on which Government Obligations will be sufficient to pay, when due, the principal of and interest on such Exempt Obligations.

“Reimbursable Obligations” means reimbursable general obligation bonds issued and delivered or to be issued and delivered by the City and County to finance certain costs related to the Wastewater System, the debt service on which the Department is required by State law to reimburse the City and County’s General Fund.

“Reimbursable Obligation Requirement” means, with respect to any period of time, the amount required to be credited to the Reimbursable Obligation Account pursuant to the ordinances and resolutions of the City Council authorizing the issuance and delivery of Reimbursable Obligations.

“Required Deposits” means, for any period, (i) the Required Deposits under the First Bond Resolution exclusive of transfers from the Sewer Fund to the Subordinate Obligation Account; and (ii) the amounts, if any, required: (a) to be paid into the Rebate Subaccount, the Common Reserve Subaccount, each Separate Series Reserve Subaccount, and the Third Lien Obligation Subaccount, and (b) to pay Support Facility Reimbursement Obligations.

“Required Deposits under the First Bond Resolution” means, for any period, amounts required, if any, to be paid into the Common Reserve Subaccount, each Separate Reserve Subaccount, the Third Lien Obligation Account and Reimbursable Obligation Account under the First Bond Resolution; and to pay Support Facility Reimbursement Obligations under the First Bond Resolution.

“Revenue Bond Index” means the 30 year Revenue Bond Index of *The Bond Buyer*, a publication in New York, New York, or any successor publication maintaining such Index or in the event *The Bond Buyer* or any successor publication does not maintain such Index, an equivalent index with the same or similar components as the Revenue Bond Index.

“Revenues” means (i) the Revenues under the First Bond Resolution; (ii) all income from investments of moneys held under the Resolution including investment income on the Improvement Second Account created by the

Resolution but not including any earnings on the Rebate Subaccount or Third Lien Obligation Subaccount; and (iii) all payments made by Counterparties pursuant to Interest Rate Exchange Agreements.

“Revenues under the First Bond Resolution” means the moneys, including any moneys collected from the City and County or any department thereof other than the Department, derived by the Department from the rates, rentals, fees and charges prescribed for the use and services of, and the facilities and commodities furnished by, the Wastewater System, including, without limiting the generality of the foregoing, (i) all income, receipts, profits, and other moneys derived from the furnishing or supplying of the services, facilities and commodities through the Wastewater System; (ii) all income from investments of moneys held under the First Bond Resolution including investment income on the Improvement Second Account but not including any earnings on the Rebate Account, the Subordinate Obligation Account or the Reimbursable Obligation Account; (iii) all payments made by Counterparties pursuant to Interest Rate Exchange Agreements; and (iv) moneys and Investment Securities transferred from the Rate Stabilization Account to the Sewer Fund within 90 days following the end of a Fiscal Year. *“Revenues under the First Bond Resolution”* will not include, (i) deposits subject to refund until such deposits have become the property of the City and County; (ii) contributions in-aid-of construction and assessment, impact and other similar fees imposed and collected by the City and County which are targeted to pay the Costs of specific Improvements; (iii) income, fees, charges, receipts, profits or other moneys derived by the Department from the ownership or operation of any separate utility system; (iv) any gifts, grants, donations or other moneys received by the City and County for purposes of the Wastewater System from any State or Federal agency or other person if such gifts, grants, donations or other moneys are the subject of any limitation or reservation: (a) imposed by the donor or grantor; or (b) imposed by law or administrative regulation to which the donor or grantor is subject, limiting the application of such funds; (v) amounts retained in the Sewer Fund for working capital and operating reserves pursuant to the First Bond Resolution; (vi) moneys and Investment Securities transferred from the Sewer Fund to the Rate Stabilization Account within 90 days following the end of a Fiscal Year; or (vii) Wastewater System Facility Charges.

“S&P” means Standard & Poor’s Ratings Group, a division of The McGraw-Hill and Companies, Inc., its successors and their assigns, and, if such corporation for any reason no longer performs the functions of a securities rating agency, S&P is deemed to refer to any other nationally recognized rating agency designated by the Director of Budget and Fiscal Services.

“Serial Bonds” means Bonds which mature serially and which are not Term Bonds.

“Series,” “Series of Bonds” or *“Bonds of a Series”* means all Bonds designated as being of the same series issued and delivered on original issuance in a simultaneous transaction, and any Bonds thereafter delivered in lieu thereof or in substitution therefor pursuant to the Bond Resolution.

“Sinking Fund Installment” means an amount so designated which is established pursuant to the Bond Resolution. The portion of any such Sinking Fund Installment remaining after the deduction of any such amounts credited pursuant to the Bond Resolution toward the same (or the original amount of any such Sinking Fund Installment if no such amounts have been credited toward the same) will constitute the unsatisfied balance of such Sinking Fund Installment for the purpose of calculation of Sinking Fund Installments due on a future date.

“Subordinate Obligations” means the Bonds and any other bonds, notes or other evidences of indebtedness issued in compliance with the provisions of the First Bond Resolution as obligations subordinate to the First Resolution Obligations, other than Reimbursable Obligations.

“Subordinate Obligation Requirement” means with respect to any period of time, the amount required to be deposited in the Subordinate Obligation Account pursuant to the First Bond Resolution, indenture or other instruments of the City and County adopted by or entered into by the City and County in accordance with the Bond Resolution and providing for all payments with respect to Subordinate Obligations.

“Supplemental Resolution” means any resolution adopted by the City Council and becoming effective pursuant to and in compliance with the provisions of the Bond Resolution which amends or supplements the provisions of the Bond Resolution, any Series Resolution or any other Supplemental Resolution.

“Support Facility” means an irrevocable letter of credit, surety bond, loan agreement, standby purchase agreement or other agreement, facility or insurance or guaranty arrangement issued or extended by one or more Support Facility Providers, pursuant to which the City and County is entitled to obtain moneys to pay the principal or Redemption Price of Bonds due in accordance with their terms or tendered for purchase or redemption, plus accrued interest thereon to the date of payment, purchase or redemption thereof in accordance with the Bond Resolution and with the Series Resolution authorizing such Bonds or a Series Certificate relating to such Bonds, whether or not the City and County is in default.

“Support Facility Provider” means a bank, a trust company, a national banking association, an organization subject to registration with the Board of Governors of the Federal Reserve System under the Bank Holding Company Act of 1956 or any successor provisions of law, a federal branch pursuant to the International Banking Act of 1978 or any successor provisions of law, a savings bank, a savings and loan association, an insurance company or association chartered or organized under the laws of any state of the United States of America, the Government National Mortgage Association or any successor thereto, the Federal National Mortgage Association or any successor thereto, or any other federal agency or instrumentality approved by the City and County or a Counterparty.

“Support Facility Reimbursement Obligation” means the obligation of the City and County described in the Bond Resolution to directly reimburse the Support Facility Provider of a Support Facility for amounts paid thereunder or a Counterparty under an Interest Rate Exchange Agreement for amounts paid thereunder, whether or not such obligation to reimburse is evidenced by a promissory note or other similar instrument.

“Tax-exempt Bonds” means Bonds the interest on which is intended by the City and County to be excluded from gross income of the holders of such Bonds for federal income taxation purposes pursuant to the Code.

“Term Bonds” means Bonds the retirement or the redemption of which is to be provided for from moneys credited to the Debt Service Subaccount pursuant to the Bond Resolution.

“Third Lien Obligations” means any bonds, notes or other evidences of indebtedness of the City and County payable from the Revenues, other than the First Resolution Obligations, the Bonds and the Reimbursable Obligations, issued in accordance with and complying with the provisions of the Bond Resolution.

“Variable Rate Bonds” means any Bonds issued bearing interest at a rate per annum subject to adjustment from time to time based on the terms thereof, based upon an index, or otherwise calculated in a manner which precludes the actual rate for the entire term of such Bonds from being ascertainable in advance as provided for in the Bond Resolution.

“Wastewater System” means all plants and properties, both real and personal and tangible and intangible, now or hereafter existing, under the management, control or jurisdiction of the Department, used for, useful in, or pertaining to the collection, pretreatment, advanced primary treatment, primary treatment, secondary treatment, tertiary treatment, purification, conveyance, storage, drainage, discharge and disposal of sewage, water, wastewater, stormwater, influent, effluent, or other liquids or suspended solids, or incidental or necessary to the preservation of the City and County’s or the Department’s wastewater conveyance facilities, wastewater treatment plants, wastewater disposal facilities, storm drains and sewers, sewage pump stations, sewage treatment plants, sewers, interceptors, outfall and other related facilities and plants, and the integrity thereof. The terms used in the preceding sentence have the meanings as ascribed to them in the City Code. Without limiting the generality of the foregoing, the Wastewater System includes: (1) the existing plants and properties comprising the Wastewater System under the management, control or jurisdiction of the Department, as of the date of adoption of the Bond Resolution; and (2) all Improvements thereafter constructed or otherwise acquired, purchased or annexed.

“Wastewater System Facility Charge” has the meaning specified in the City Code.

Pledge Made in the Bond Resolution

The Bonds are payable solely from and secured by the funds pledged therefor under the Bond Resolution. The City and County has pledged as security for the payment of the principal of, Redemption Price, if any, and interest on the Bonds in accordance with their terms and the provisions of the Bond Resolution, subject only to the provisions of the Bond Resolution permitting the application thereof for the purposes and on the terms and conditions set forth in the Bond Resolution: (i) the proceeds of sale of the Bonds pending application thereof in accordance with the provisions of the Bond Resolution or of a Series Resolution or a Series Certificate; (ii) the Net Revenues; and (iii) the Subordinate Obligation Account but excluding all Subaccounts therein unless specifically pledged by the Bond Resolution, a Series Resolution or a Series Certificate, (iv) the Debt Service Subaccount, (v) with respect to any Series of Bonds entitled to the benefit of a Separate Series Reserve Subaccount, such Separate Series Reserve Subaccount, and (vi) with respect to any Series of Bonds entitled to the benefit of the Common Reserve Subaccount, the Common Reserve Subaccount, including the investments, if any, in such Account and Subaccounts; and the Bondholders shall have to the extent permitted by law, a lien on, and a security interest in, such proceeds, Net Revenues, and Subaccounts for such purpose and subject to such provisions of the Resolution. The Rebate Subaccount and the Third Lien Subaccount are not pledged to the payment of the principal and redemption price (if any) of, and interest on, the Bonds.

So long as First Resolution Obligations are outstanding for purposes of the First Bond Resolution, the pledge of the Net Revenues made by the Bond Resolution is subordinate and junior in all respects to the pledge of the Net Revenues made by the First Bond Resolution. The pledge of the Net Revenues made by the Bond Resolution is also prior and superior to the pledge which may be made by any resolution, indenture or other instrument authorizing and securing Third Lien Obligations and Reimbursable Obligations. On and after such date, if any, that First Resolution Obligations are no longer outstanding for purposes of the First Bond Resolution, the pledge of the Net Revenues made by the Bond Resolution will be prior and superior in all respects to any pledge of the Net Revenues made by any resolution, indenture or other instruments, including the pledge which may be made by any resolution, indenture or other instrument authorizing and securing Third Lien Obligations and Reimbursable Obligations. There will be additionally pledged on and after such date as security for the payment of the principal and Redemption Price (if any) of, and interest on, the Bonds in accordance with their terms and the provisions of the Bond Resolution, subject only to the provisions of the Bond Resolution permitting the application thereof for the purposes and on the terms and conditions set forth in the Bond Resolution, (i) the Sewer Fund but excluding all Accounts and Subaccounts therein unless specifically pledged by the Bond Resolution, a Series Resolution or a Series Certificate, (ii) the Renewal and Replacement Account, (iii) the Rate Stabilization Account and (iv) the Wastewater General Account.

The Bond Resolution provides that each of the obligations, duties, limitations and restraints imposed upon the City and County by the Bond Resolution is deemed to be a covenant between the City and County and every Holder of the Bonds, and the Bond Resolution and every provision and covenant set forth in the Bond Resolution is deemed to be and constitute a continuing contract and agreement between the City and County and the Holders from time to time of the Bonds issued under the Bond Resolution, to secure the full and final payment of the principal and redemption price of and interest on all Bonds which may from time to time be issued, executed, and delivered under the Bond Resolution. The covenants and agreements set forth in the Bond Resolution to be performed by the City and County are for the equal and proportionate benefit, security and protection of all Holders of the Bonds without preference, priority or distinction as to payment or security or otherwise of any of the Bonds over any of the others for any reason or cause whatsoever except as expressly provided in the Bond Resolution, in a Series Resolution, a Series Certificate or a Supplemental Resolution, or in the Bonds.

Additional Bonds

Basic Test. One or more Series of Bonds (exclusive of Refunding Bonds) may be issued at any time and from time to time for any lawful use or purpose relating to the Wastewater System, including, without limitation, payment of all or a portion of the Costs of Improvements, but only upon compliance as to each such Series with the provisions set forth in the Bond Resolution, including, among other things, delivery to the Director of Budget and Fiscal Services of the following documents or moneys or securities:

1. A written certificate of the City and County stating the amount required to be in the Common Reserve Subaccount after issuance of the Bonds then to be issued, and that after deposit in the Common Reserve Subaccount of the amount, if any, to be deposited therein in connection with the issuance of such Bonds, the amounts on deposit in the Common Reserve Subaccount will not be less than the Common Reserve Subaccount Requirement.

2. A written certificate of the City and County stating the amount required to be in the Separate Series Reserve Subaccount created, if any, to provide additional security for the Bonds of such Series after issuance of the Bonds then to be issued, and that after deposit in such Separate Series Reserve Subaccount of the amount to be deposited therein in connection with the issuance of such Bonds, the amounts on deposit in such Separate Series Reserve Subaccount will not be less than the Separate Series Reserve Subaccount Requirement for such Separate Series Reserve Subaccount.

3. Either (I) a Written Certificate of the City and County based: (i) on audited figures or (ii) to the extent audited figures are not available, on figures taken by an independent certified public accountant from the Department's books and records, showing that the Net Revenues for: (a) the most recent Fiscal Year, or (b) any consecutive twelve (12) months' period out of twenty four (24) months immediately preceding the month in which such Bonds are issued were not less than the sum of (1) 1.10 times the maximum Aggregate Debt Service (as defined in the First Bond Resolution) on all First Resolution Obligations issued and outstanding under and pursuant to the terms of the First Bond Resolution and the Aggregate Debt Service on all Bonds then Outstanding and on the proposed Series of Bonds in any Fiscal Year and (2) 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding under the First Bond Resolution and this Resolution as of the date of the Written Certificate of the City and County; or (II) a Written Certificate of the City and County or Certificate of the Consulting Engineer that the Net Revenues to be derived in each of the five (5) Fiscal Years following the earlier of: (i) the end of the period during which interest is capitalized or, if no interest is to be capitalized, the Fiscal Year in which the proposed Series of Bonds are issued, and (ii) the date on which substantially all Improvements to be financed with the proceeds of the proposed Series of Bonds are expected to commence operations, or, if the proceeds of such Series of Bonds will not be used to fund the Costs of Improvements, the Fiscal Year in which the proposed Series of Bonds are issued, are estimated to be not less than the sum of (1) 1.10 times the maximum of the sum of the Aggregate Debt Service (as defined in the First Bond Resolution) on all First Resolution Obligations issued and outstanding under and pursuant to the First Bond Resolution and the Aggregate Debt Service on all Bonds then Outstanding and on the proposed Series of Bonds in any such Fiscal Year, and (2) 1.00 times the aggregate Support Facility Reimbursement Obligations outstanding under the First Bond Resolution and this Resolution as of the date of such Written Certificate of the City and County or certificate of the Consulting Engineer, as the case may.

Certain Adjustments. The Bond Resolution permits and requires certain adjustments to be made in determining whether the Basic Test described above for the issuance of Bonds other than Refunding Bonds is met.

1. In determining Debt Service on Variable Rate Bonds then Outstanding and Variable Rate Bonds then proposed to be issued for purposes of the Additional Bonds Requirement, the interest rate shall be calculated as: (i) if any Variable Rate Bonds are then Outstanding and have been Outstanding for at least twenty-four (24) months, the average interest rate borne by such Variable Rate Bonds over the preceding twelve (12) month period, or (ii) if no such Variable Rate Bonds are then Outstanding, (a) for the proposed Variable Rate Bonds that are Tax-exempt Bonds, the average interest rate of the Revenue Bond Index over the preceding twelve (12) month period at the time of calculation, and (b) for the proposed Variable Rate Bonds that are not Tax-exempt Bonds, the average interest rate of LIBOR over the preceding twelve (12) month period at the time of calculation.

2. Bond Anticipation Notes then Outstanding are to be treated as Bonds. In determining Debt Service on such Bond Anticipation Notes, such Bond Anticipation Notes are assumed to mature in 30 years and bear interest equal to the Revenue Bond Index at the time of calculation.

3. Third Lien Obligations and Reimbursable Obligations originally issued with a maturity of five (5) years or less are assumed to mature in 30 years and bear interest equal to the Revenue Bond Index at the time of calculation.

4. In preparing the certificate required by the Basic Test described above, the Authorized Officer or the Consulting Engineer, as applicable, may make adjustments to the Net Revenues as follows:

a. If any changes have been made in the schedule of rates and charges imposed by the City and County for commodities and services furnished by the Wastewater System which are in effect at the time of adoption of the Series Resolution authorizing the issuance of the Bonds then being issued and were placed into effect subsequent to the start of the Fiscal Year or the 12-month period selected pursuant to item 3 of the *Basic Test* described above, the Authorized Officer, may, if such changes result in increases in such rates and charges, and must, if such changes result in reductions in such rates and charges, adjust the Net Revenues for such period to reflect any change in such Net Revenues which would have occurred if the schedule of rates and charges in effect at the time of the adoption of the Series Resolution providing for the issuance of such Bonds had been in effect during the portion of such period in which such schedule was not in effect.

b. If customers are being served by the Department at the time of adoption of the Series Resolution authorizing the issuance of the Bonds then being issued and who were added to the Wastewater System subsequent to the start of the Fiscal Year or the 12-month period selected pursuant to item 3 of the *Basic Test* described above, the Authorized Officer may adjust the Net Revenues for such period to reflect any change in such Net Revenues which would have occurred if the additional customers had been served during the portion of the period in which such customers were not served.

c. If residential, commercial, industrial or institutional customers which are in existence are not then served by the Wastewater System at the time of adoption of the Series Resolution authorizing the issuance of the Bonds then being issued, but are then expected to be served during the five (5) Fiscal Years covered by such certificate, the Authorized Officer or the Consulting Engineer, as applicable, must estimate the effect which such new customers would have had on the Net Revenues for the period selected pursuant to item 3 of the *Basic Test* described above, if such new customers had been served during the entire period and may adjust the Net Revenues for such period to give effect to such new customers. Any such estimate will be based upon the operating experience and records of the Department with respect to the Wastewater System and upon any available financial and quarterly statistics deemed pertinent by the Authorized Officer or the Consulting Engineer, as applicable.

d. If any long-term, guaranteed contracts with customers of the Wastewater System are in effect at the time of adoption of the Series Resolution authorizing the issuance of the Bonds then being issued and which were entered into subsequent to the start of the Fiscal Year or 12-month period selected pursuant to item 3 of the *Basic Test* described above, the Authorized Officer may adjust the Net Revenues for such period to reflect any change in such Net Revenues which would have occurred if such contracts had been in effect for the entire period.

e. In rendering the certificate required pursuant to item 3 of the Basic Test, the Authorized Officer or the Consulting Engineer, as applicable, must deem the Operation and Maintenance Expenses for the Wastewater System for the first Fiscal Year of the five (5) year period to be equal to such Operation and Maintenance Expenses for the Fiscal Year immediately preceding the Fiscal Year in which the proposed Series of Bonds is to be delivered, and thereafter the Authorized Officer or the Consulting Engineer, as applicable, must adjust, if deemed necessary, for any increased Operation and Maintenance Expenses which are estimated to occur during any subsequent Fiscal Year during the five (5) year period and are, in the judgment of the Authorized Officer or the Consulting Engineer, as applicable, essential to maintaining and operating the Wastewater System.

f. In rendering any certificate pursuant to the Bond Resolution, the Authorized Officer or the Consulting Engineer, as applicable, may rely upon estimates from other sources which the Authorized Officer or the Consulting Engineer, considers reliable, making such adjustments and provisions for contingencies based on similar projects and other considerations as deemed appropriate by such Authorized Officer or the Consulting Engineer.

Refunding Bonds

The City and County may issue a Series of refunding Bonds at any time for the purpose of refunding (including by purchase) all or any portion of Bonds Outstanding, including amounts to pay principal, redemption premium and interest to the date of maturity or redemption (or purchase) and the expense of issuing the refunding Bonds and of effecting such refunding if the conditions set forth in the Bond Resolution are complied with, including all of the conditions of the *Basic Test* described above, except that condition 3 need not be complied with if the maximum annual Debt Service in any Fiscal Year on the refunding Bonds proposed to be issued does not exceed maximum annual Debt Service in any Fiscal Year on the refunded Bonds by more than 10%. All adjustments described above in *Certain Adjustments* are applicable to the issuance of refunding Bonds.

The City and County may also issue a Series of refunding Bonds at any time for the purpose of refunding (including by purchase) all or any portion of outstanding Third Lien Obligations or Reimbursable Obligations, including amounts to pay principal, redemption premium and interest to the date of maturity or redemption (or purchase) and the expense of issuing the refunding Bonds and of effecting such refunding if the conditions set forth in the Bond Resolution are complied with, including all of the conditions of the *Basic Test* described above.

Bond Anticipation Notes

Bond Anticipation Notes may be issued by the City and County at such time as the City and County shall have by a Series Resolution duly adopted authorized the issuance of Bonds under the Bond Resolution. No Bond Anticipation Notes may be issued unless there has been filed with the Director of Budget and Fiscal Services on or prior to the date of issuance of such Bond Anticipation Notes, a written certificate of the City and County to the effect that, based on market conditions expected to be prevailing at the time of issuance of the Series of Bonds in anticipation of which such Bond Anticipation Notes are issued and on other reasonable assumptions set forth in such written certificate, the provisions of the Bond Resolution for the issuance of additional Bonds other than refunding Bonds are expected to be complied with at the time of issuance of such Series of Bonds. The maximum maturity of any Bond Anticipation Notes, including the renewals thereof, must not exceed five (5) years from the date of the original Bond Anticipation Note. The principal of Bond Anticipation Notes may be paid from the proceeds of such Bond Anticipation Notes (or any renewal thereof) or from the proceeds of the Bonds in anticipation of which such Bond Anticipation Notes were issued. The interest on such Bond Anticipation Notes may be secured by a lien on and pledge of, and be paid from, the Net Revenues on a parity with the lien on and pledge of the Net Revenues created in the Bond Resolution for the payment and security of the Bonds. The principal of Bond Anticipation Notes will be secured by a lien on and pledge of the proceeds of the Bonds in anticipation of which such Bond Anticipation Notes were issued and any such pledge will have priority over any other pledge of such proceeds created by the Bond Resolution. Bond Anticipation Notes issued under the Bond Resolution are to be treated as Bonds for all purposes of the Bond Resolution, and are to be payable from the Debt Service Subaccount, except to the extent that the principal of any such Bond Anticipation Note is paid from the proceeds of other Bond Anticipation Note or from the proceeds of Bonds.

Third Lien Obligations

The City and County may issue Third Lien Obligations which are payable out of, and which may be secured by a pledge of, such amounts in the Third Lien Obligation Subaccount as may from time to time be available for the purpose of payment. The City and County may, by resolution, provide for various priorities in the liens and pledges securing Third Lien Obligations, and nothing in the Bond Resolution shall be construed so as to require that the payment of, or pledges securing, Third Lien Obligations be on a parity *inter se*.

The City and County may also issue Third Lien Obligations: (i) to refund any Third Lien Obligations issued as provided in the Bond Resolution; (ii) to refund Outstanding Bonds; or (iii) to refund any Reimbursable

Obligations. Such Third Lien Obligations issued for refunding purposes may be payable out of, and may be secured by a pledge of, such amounts in the Third Lien Obligation Subaccount or Wastewater General Account as may from time to time be available therefor.

The Bond Resolution requires that any resolution, indenture or other instrument securing or evidencing each issue of Third Lien Obligations must contain provisions (which shall be binding on all holders of such Third Lien Obligations) not more favorable to the holders of such Third Lien Obligations than as described below:

(1) In the event of any insolvency or bankruptcy proceedings, and any receivership, liquidation, reorganization or other similar proceedings in connection therewith, relative to the City and County or the Department, or to the property of the City and County or property operated by the Department, and in the event of any proceedings for voluntary liquidation, dissolution or other winding up of the City and County or the Department, the Holders of all Bonds then Outstanding will be entitled to receive payment in full of all principal and interest on all such Bonds before the holders of the Third Lien Obligations are entitled to receive any payment from the trust estate under the Bond Resolution consisting of the Net Revenues and funds held under the Bond Resolution (the "Trust Estate" for these purposes) on account of principal (and premium, if any) or interest on the Third Lien Obligations.

(2) In the event that any issue of Third Lien Obligations is declared due and payable before its expressed maturity because of the occurrence of an event of default (under circumstances when the provisions of (1) above are not applicable), the Holders of all Bonds Outstanding at the time such Third Lien Obligations so become due and payable because of such occurrence of such an event of default will be entitled to receive payment in full of all principal and interest on all such Bonds before the holders of the Third Lien Obligations are entitled to receive any accelerated payment from the Trust Estate of principal (and premium, if any) or interest on the Third Lien Obligations.

(3) If any Event of Default with respect to the Bonds has occurred and be continuing (under circumstances when the provisions of (1) above are not applicable), the Holders of all Bonds then Outstanding will be entitled to receive payment in full of all principal and interest on all such Bonds before the holders of the Third Lien Obligations are entitled to receive any accelerated payment from the Trust Estate of principal (and premium, if any) or interest on the Third Lien Obligations.

(4) No Bondholder shall be prejudiced in his right to enforce subordination of the Third Lien Obligations by any act or failure to act on the part of the City and County.

(5) The Third Lien Obligations may provide that the provisions of (1), (2), (3) and (4) above are solely for the purpose of defining the relative rights of the Bondholders on the one hand, and the holders of Third Lien Obligations on the other hand, and nothing therein shall impair, as between the City and County and the owners of the Third Lien Obligations, the obligation of the City and County to pay to the owners thereof the principal thereof and premium, if any, and interest thereon in accordance with its terms, nor shall anything therein prevent the holders of the Third Lien Obligations from exercising all remedies otherwise permitted by applicable law or thereunder upon default thereunder, subject to the rights under (1), (2), (3) and (4) above of the Holders of Bonds to receive cash, property or securities otherwise payable or deliverable to the holders of the Third Lien Obligations; and the Third Lien Obligations may provide that, insofar as a trustee or paying agent for such Third Lien Obligations is concerned, the foregoing provisions shall not prevent the application by such trustee or paying agent of any moneys deposited with such trustee or paying agent for the purpose of the payment of or on account of the principal (and premium, if any) and interest on such Third Lien Obligations if such trustee or paying agent did not have knowledge at the time of such application that such payment was prohibited by the foregoing provisions.

Any issue of Third Lien Obligations may have such rank or priority with respect to any other issue of Third Lien Obligations as may be provided in the resolution, indenture or other instrument securing such issue of Third Lien Obligations and may contain such other provisions as are not in conflict with the provisions of the Bond Resolution.

Reimbursable Obligations

The obligation for the payment of Reimbursable Obligations shall be: (i) after and inferior to the lien and security interest for the payment of Bonds and those Third Lien Obligations which are payable from the Third Lien Obligation Subaccount; and (ii) prior and superior to the lien and security interest for the payment of those Third Lien Obligations which are payable from the Wastewater General Account. Reimbursable Obligations are payable from the Reimbursable Obligation Account.

Support Facilities and Interest Rate Exchange Agreements

In connection with the issuance of any Series of Bonds and to the extent permitted by law, the City and County may obtain or cause to be obtained from one or more Support Facility Providers one or more Support Facilities providing for payment of all or a portion of the purchase price or principal, premium, if any, or interest due or to become due on specified Bonds of such Series, or providing for the purchase of such Bonds or a portion of such Bonds by such Support Facility Providers, or providing, in whole or in part, for the funding of the Common Reserve Subaccount or a Separate Series Reserve Subaccount pursuant to the Bond Resolution.

In connection with the issuance of any Series of Bonds or to better manage its assets and liabilities and, to the extent permitted by law, the City and County may enter into with one or more Counterparties one or more Interest Rate Exchange Agreements; *provided* that no such Interest Rate Exchange Agreement shall adversely affect the exclusion from gross income for purposes of federal income taxation of interest on the Tax-exempt Bonds of any Series.

The City and County may enter into agreements with one or more Support Facility Providers or Counterparties to provide for, among other things: (i) the payment of fees and expenses to such Support Facility Providers or Counterparties; (ii) the terms and conditions of such Support Facility or Interest Rate Exchange Agreement and the Series of Bonds affected thereby; and (iii) the security, if any, to be provided to such Support Facility Providers or Counterparties. The City and County may secure the Support Facility or Interest Rate Exchange Agreement by an agreement providing for the purchase of the Bonds secured thereby with such adjustments to the rate of interest, method of determining interest, maturity, or redemption provisions as specified in the Series Resolution or the Series Certificate. Debt Service with respect to any Bonds so secured is to be calculated for purposes of the definition of Common Reserve Subaccount Requirement by using the Assumed Long-Term Fixed Rate.

The City and County may also agree in any agreement with the Support Facility Provider of such Support Facility or the Counterparty under an Interest Rate Exchange Agreement to reimburse directly such Support Facility Provider or Counterparty for any amounts paid under the terms of such Support Facility or Interest Rate Exchange Agreement, together with interest thereon (the "Support Facility Reimbursement Obligation"); *provided, however*, that no Support Facility Reimbursement Obligation is to be created, for purposes of the Bond Resolution, until amounts are paid under such Support Facility or Interest Rate Exchange Agreement, as the case may be. Any such Support Facility Reimbursement Obligation may be secured by a lien on and pledge of the Net Revenues on a parity with the lien on and pledge of the Net Revenues created by the Bond Resolution with respect to the Bonds (a "Parity Support Facility Reimbursement Obligation"). Any such Parity Support Facility Reimbursement Obligation will be deemed to be a part of the Series of Bonds to which the Support Facility which gave rise to such Parity Support Facility Reimbursement Obligation relates. Payment of Support Facility Reimbursement Obligation may be made out of the Sewer Fund as provided in the Bond Resolution.

Any Support Facility deposited in the Common Reserve Subaccount or the long-term debt of the Support Facility Provider of such Support Facility must, in each case, be in the highest rating category each Rating Agency, and if rated by A.M. Best & Company, also be rated in the highest rating category by A.M. Best & Company or its successors. In the event any Support Facility deposited in the Common Reserve Subaccount or the long-term debt of the issuer of any Support Facility deposited in the Common Reserve Subaccount falls below the highest rating category of each Rating Agency, and A.M. Best & Company, if rated by A.M. Best & Company, the City and County must, within 120 days, obtain a new Support Facility which is rated in the highest category of each Rating Agency or for which the long-term debt of the issuer of such new Support Facility is rated in the highest rating category of each Rating Agency and A.M. Best & Company, if rated by A.M. Best & Company; *provided, however*,

that if the new Support Facility is not obtained within 120 days, the City and County must deposit in the Common Reserve Subaccount Net Revenues in the amount provided in the Bond Resolution. If a disbursement is made pursuant to a Support Facility deposited in the Common Reserve Subaccount, the City and County must: first, reinstate the full amount of such Support Facility; and second, if necessary deposit Net Revenues in the Common Reserve Subaccount in the amount of the disbursement made under such Support Facility, in either case such that the amount in the Common Reserve Subaccount is equal to the Common Reserve Subaccount Requirement within a period of time not longer than would be required to restore the Common Reserve Subaccount by application of moneys in the Sewer Fund. The City and County may at any time deposit cash or Investment Securities as replacement for one or more Support Facilities.

The City and County must obtain and maintain in effect one or more Support Facilities for Option Bonds. The City and County must obtain a replacement Support Facility to replace any Support Facility for Option Bonds that is expiring, not renewed or terminated. Procedures for such replacement, maintenance and notices to Bondholders, rating agencies or other persons are to be provided in the Series Resolution authorizing the Series of Bonds or the Series Certificate relating to such Bonds.

Funds and Accounts

The City and County has established by ordinances the Sewer Fund and the Sewer Revenue Bond Improvement Fund (the "Improvement Fund"). The First Bond Resolution establishes the following accounts in the Sewer Fund:

- Wastewater System Facility Charge Account,
- Debt Service Account,
- Common Reserve Account,
- Rebate Account,
- Rate Stabilization Account,
- Subordinate Obligation Account,
- Reimbursable Obligation Account,
- Renewal and Replacement Account, and
- Wastewater General Account.

None of the accounts in the Sewer Fund except the Subordinate Obligation Account is pledged as security for the payment of debt service on the Bonds. Such pledge of the Subordinate Obligation Account is subject to the terms and provisions of and the exceptions provided in the First Bond Resolution and the Bond Resolution.

The Bond Resolution establishes the following subaccounts in the Subordinate Obligation Account:

- Debt Service Subaccount,
- Common Reserve Subaccount,
- Rebate Subaccount, and
- Third Lien Obligation Subaccount.

The Bond Resolution permits the establishment of one or more Separate Series Reserve Subaccounts in the Subordinate Obligation Account. The Bond Resolution also permits the establishment of one or more Series Improvement Subaccounts in the Improvement Second Account and requires the establishment of one or more Series Improvement Interest Subaccounts in the Improvement Second Account if interest on the Bonds of a Series is to be paid from the proceeds of such Bonds during the period of construction of any Improvements and for six months thereafter.

Sewer Fund

Revenues and Wastewater System Facility Charges are to be collected by the Department and are to be deposited into the Sewer Fund. Under the First Bond Resolution, the Department will, in each month, (i) after making the transfer, if any, to the Wastewater System Facility Charge Account of all moneys received as Wastewater System Facility Charges, (ii) after paying or setting aside a sufficient amount to pay the Operating and

Maintenance Expenses, (iii) after making the transfer to the Rebate Account under the First Bond Resolution, (iv) after transferring a sufficient amount to the Debt Service Account under the First Bond Resolution to equal debt service on First Resolution Obligations, (v) after transferring a sufficient amount to the Common Reserve Account and each Separate Series Reserve Account under the First Bond Resolution to eliminate any deficiency therein, and (vi) after maintaining in the Sewer Fund a reasonable and necessary amount for working capital and operating reserves, transfer from the Sewer Fund to the Subordinate Obligation Account a sufficient amount required by the Bond Resolution to pay all accrued and unpaid amounts and amounts to accrue and become payable during the succeeding calendar month which are payable from the Subordinate Obligation Account.

Subordinate Obligation Account

Moneys transferred from the Sewer Fund to the Subordinate Obligation Account are to be applied on the 5th day prior to the end of each month, unless otherwise provided below, in the following order of priority:

(1) To the Rebate Subaccount such amount as is necessary to pay the rebate amount due the United States Treasury Department under Section 148 of the Code or to set aside as a reserve for such payment;

(2) To the Debt Service Subaccount, if and to the extent required so that the balance in the Debt Service Subaccount shall equal the Accrued Debt Service for all Bonds Outstanding and the interest accrued on all Bond Anticipation Notes outstanding on said date;

(3) (a) To the Common Reserve Subaccount, if and to the extent required either (i) an amount such that the balance in the Common Reserve Subaccount will equal the Common Reserve Subaccount Requirement on said date, or (ii) an amount such that if the same amount were deposited in each month the amount of any deficiency in the Common Reserve Subaccount would be eliminated at the end of the sixth (6th) month following the first credit; and (b) to each Separate Series Reserve Subaccount, if and to the extent required either (i) an amount such that the balance in each Separate Series Reserve Subaccount shall equal the Separate Series Reserve Subaccount Requirement for each Separate Series Reserve Subaccount on said date, or (ii) an amount such that if the same amount were deposited in each month the amount of any deficiency in each Separate Series Common Reserve Subaccount shall be eliminated at the end of the sixth (6th) month following the first credit; provided, however, that such transfers shall be pro rata, based on the proportion of the Common Reserve Subaccount Requirement and each Separate Series Reserve Subaccount Requirement to the sum of the Common Reserve Subaccount Requirement and all Separate Series Reserve Subaccount Requirements;

(4) To the Third Lieu Obligation Subaccount, the amount, if any, equal to all Third Lien Obligation Requirements theretofore accrued and unpaid and not met from any other source and to accrue and become payable during the succeeding calendar month and not met from any other source.

The Bond Resolution permits the City and County to pay directly out of the Third Lien Obligation Subaccount reimbursements to providers of Support Facilities whose Support Facilities have been drawn upon in the same priority and order as payments from the Third Lien Obligation Subaccount to the Debt Service Subaccount, the Common Reserve Subaccount, each Separate Series Reserve Subaccount or other Funds, Accounts and Subaccounts as provided in a Series Resolution as if such payments were part of such Funds, Accounts and Subaccounts.

Purposes of the Various Subaccounts in Subordinate Obligation Account

Debt Service Subaccount. The principal and Redemption Price of and interest on the Bonds and interest on Bond Anticipation Notes are to be paid out of the Debt Service Subaccount in the Sewer Fund to each Paying Agent on or before the respective due dates.

Amounts accumulated in the Debt Service Subaccount by reason of the payment of any Sinking Fund Installment may be applied by the City and County, on or prior to the 60th day preceding the due date of such Sinking Fund Installment, to: (i) the purchase of Bonds of the maturity for which such Sinking Fund Installment was established, or (ii) the redemption of such Bonds at the applicable Redemption Price, if then redeemable by

their terms. All such purchases of Bonds are to: (i) be made at prices not exceeding the applicable Redemption Price of such Bonds plus accrued interest; (ii) be made as arranged by the City and County in such manner and from such sellers or brokers at such prices as the City and County may determine; and (iii) be made to insure that delivery of the Bonds so purchased will not occur later than the 60th day next preceding the redemption date to which the Sinking Fund Installment is to be applied. The applicable Redemption Price of any Bonds (or principal amount of maturing Bonds) so purchased or redeemed is deemed to constitute part of the Debt Service Subaccount until such Sinking Fund Installment date, for the purpose of calculating the amount of such Subaccount. As soon as practicable after the 60th day preceding the due date of any such Sinking Fund Installment, the City and County must proceed to call for redemption on such due date Bonds of the maturity for which such Sinking Fund Installment was established (except in the case of Bonds maturing on a Sinking Fund Installment date) in such amount as is necessary to complete the retirement of the unsatisfied balance of such Sinking Fund Installment after making allowance for any Bonds purchased or redeemed pursuant to the Bond Resolution which the City and County has applied as a credit against such Sinking Fund Installment as provided in the Bond Resolution.

Upon any purchase or redemption pursuant to the Bond Resolution of Bonds of any Series and maturity for which Sinking Fund Installments shall have been established: (i) if the principal amount of the Bonds so purchased is less than or equal to the next succeeding Sinking Fund Installment for such Series there is to be credited to the next such Sinking Fund Installment an amount equal to the principal amount of the Bonds of such Series so purchased; and (ii) if the principal amount of the Bonds so purchased is greater than the next succeeding Sinking Fund Installment, there is to be credited toward each such Sinking Fund Installment thereafter to become due an amount bearing the same ratio to such Sinking Fund Installment as the total principal amount of such Bonds so purchased or redeemed bears to the total principal amount of all such Sinking Fund Installments to be so credited or, at the option of the City and County, an amount equal to the next succeeding Sinking Fund Installment. The portion of any such Sinking Fund Installment remaining after the deduction of any such amounts credited toward the same (or the original amount of any such Sinking Fund Installment if no such amounts have been credited toward the same) will constitute the unsatisfied balance of such Sinking Fund Installment for the purpose of calculation of Sinking Fund Installments due on a future date.

The amount, if any, credited to the Debt Service Subaccount from a Series Improvement Interest Subaccount is to be applied to the payment of interest on the Bonds as the same becomes due and payable as provided in the Bond Resolution.

Common Reserve Subaccount. If on the day preceding any principal or interest payment date, the amount in the Debt Service Subaccount is less than the Accrued Debt Service for all Bonds then Outstanding which are entitled to the benefit of the Common Reserve Subaccount, the City and County will pay out of the Common Reserve Subaccount to each Paying Agent for such Bonds the amount necessary to satisfy the deficiency for payment to the holders of such Bonds. Amounts so applied are to be derived first, from cash or Investments Securities on credit to the Common Reserve Subaccount and second, from draws or demands on Support Facilities held as a part of the Common Reserve Subaccount, such draws or demands to be made *pro rata* among all such Support Facilities based on the respective available amounts under such Support Facilities and upon the terms and conditions set forth in such Support Facilities.

Whenever the amounts on deposit in the Common Reserve Subaccount exceed the Common Reserve Subaccount Requirement, the City and County will withdraw the amount of such excess and deposit such excess to the credit of the Debt Service Subaccount or the Sewer Fund, as the City and County may determine.

Whenever the amount (exclusive of Support Facilities) in the Common Reserve Subaccount, together with the amount in the Debt Service Subaccount attributable to Bonds entitled to the benefit of the Common Reserve Subaccount, is sufficient to pay in full the principal or Redemption Price, if any, of and interest on all such Outstanding Bonds in accordance with their terms, the funds on credit to the Common Reserve Subaccount are to be transferred to the Debt Service Subaccount and applied to make such payment. Prior to such transfer, all Investment Securities held in the Common Reserve Subaccount will be liquidated by the City and County to the extent necessary to provide for timely payment of the principal or Redemption Price, if any, of and interest on such Bonds.

When a Series of Bonds entitled to the benefit of the Common Reserve Subaccount is refunded in whole or in part or is otherwise deemed paid within the meaning of the Bond Resolution, moneys may be withdrawn from the

Common Reserve Subaccount to pay or provide for the payment of such Bonds or refunded Bonds, as the case may be; provided that immediately after such withdrawal or transfer there must be on credit to the Common Reserve Subaccount for those Bonds of the Series of Bonds not refunded an amount equal to the Common Reserve Subaccount Requirement for the Bonds entitled to the benefit of the Common Reserve Subaccount then Outstanding after taking into account such refunding or payment.

The City and County may determine in the Series Resolution authorizing a Series of Bonds or a Series Certificate related to a Series of Bonds that such Series of Bonds will not be entitled to the benefit of the Common Reserve Subaccount, in which case no amount will be required from the proceeds of such Series of Bonds for credit to the Common Reserve Subaccount and no amount will be payable from the Common Reserve Subaccount to pay amounts due or payable with respect to such Series of Bonds.

The Common Reserve Subaccount Requirement is to be calculated or recalculated: (i) at the time of issuance of a Series of Bonds (or Bond Anticipation Notes); (ii) at the time a Series of Bonds is retired in its entirety; (iii) at such other time as in the Opinion of Counsel is required to maintain the exclusion of interest on the Tax-exempt Bonds from gross income for federal income taxation purposes.

Separate Series Reserve Subaccounts. If on the day preceding any principal or interest payment date, the amount in the Debt Service Subaccount is less than Accrued Debt Service for the Bonds of a Series then Outstanding which are entitled to the benefit of a Separate Series Reserve Subaccount, the City and County will pay out of such Separate Series Reserve Subaccount to the Paying Agent for such Bonds the amount necessary to satisfy the deficiency for payment to the holders of such Bonds. Amounts so applied shall be derived first, from cash or Investments Securities on credit to such Separate Series Reserve Subaccount and second, from draws or demands on Support Facilities held as a part thereof, such draws or demands to be made *pro rata* among all such Support Facilities based on the respective available amounts under such Support Facilities and upon the terms and conditions set forth in such Support Facilities.

Whenever the amounts on deposit in any Separate Series Reserve Subaccount exceed the applicable Separate Series Reserve Subaccount Requirement, the City and County will withdraw the amount of such excess and deposit such excess to the credit of the Debt Service Subaccount or the Sewer Fund, as the City and County may determine.

Whenever the amount (exclusive of Support Facilities) in any Separate Series Reserve Subaccount, together with the amount in the Debt Service Subaccount attributable to Bonds entitled to the benefit of such Separate Series Reserve Subaccount, is sufficient to pay in full the principal or Redemption Price, if any, of and interest on all such Outstanding Bonds in accordance with their terms, the funds on credit to such Separate Series Reserve Subaccount are to be transferred to the Debt Service Subaccount and applied to make such payment. Prior to such transfer, all Investment Securities held in such Separate Series Reserve Subaccount will be liquidated by the City and County to the extent necessary to provide for timely payment of the principal or Redemption Price of and interest on such Bonds.

When a Series of Bonds entitled to the benefit of the Separate Series Reserve Subaccount is refunded in whole or in part or are otherwise deemed paid within the meaning of the Bond Resolution, moneys may be withdrawn from such Separate Series Reserve Subaccount to pay or provide for the payment of such Bonds or refunded Bonds, as the case may be; *provided* that immediately after such withdrawal or transfer there must be on credit to such Separate Series Reserve Subaccount an amount equal to the Separate Series Reserve Subaccount Requirement for the Bonds then Outstanding which are entitled to the benefit of such Separate Series Reserve Subaccount after taking into account such refunding or payment.

Each Separate Series Reserve Subaccount Requirement is to be calculated or recalculated: (i) at the time of issuance of a Series of Bonds (or Bond Anticipation Notes); (ii) at the time a Series of Bonds is retired in its entirety; (iii) at such other time as in the Opinion of Counsel is required to maintain the exclusion of interest on the Tax-exempt Bonds from gross income for federal income taxation purposes.

Certain provisions of the Bond Resolution relating to Separate Series Reserve Subaccount may be modified in whole or in part with respect to any Series of Bonds entitled to the benefits of a Separate Series Reserve Subaccount.

Rebate Subaccount. If and to the extent required by the Code, an Authorized Officer must periodically, at such times as may be required to comply with the Code, determine the amount required to be rebated or otherwise paid to the Department of the Treasury of the United States of America with respect to each Series of Tax-exempt Bonds and thereafter (i) transfer from any of the Funds, Accounts and Subaccounts pledged or held under the Bond Resolution, other than the Debt Service Subaccount, the Third Lien Obligation Subaccount and the Reimbursable Obligation Account and credit to the Rebate Subaccount an amount equal to all or a portion of such amount to be rebated with respect to such Series of Bonds and (ii) pay out of the Rebate Subaccount to the Department of the Treasury of the United States of America the amount, if any, required by the Code to be rebated or otherwise paid. Moneys in the Rebate Subaccount and the Subaccounts therein are not available for the benefit of the Holders of the Bonds and are not pledged to the payment of the Bonds or the interest thereon.

If and to the extent necessary to comply with any covenant established in a Series Resolution authorizing a Series of Bonds or in a Series Certificate relating to such Series of Bonds regarding maintaining the exclusion of interest on Tax-exempt Bonds from gross income for Federal income taxation purposes, the City and County may establish a Subaccount in the Rebate Subaccount with respect to such Series of Bonds or provide for the establishment such Subaccount in such Series Resolution or in such Series Certificate.

Third Lien Obligation Subaccount. The City and County must at all times maintain in the Third Lien Obligation Subaccount an amount equal to the Third Lien Obligation Requirement. Moneys on deposit in the Third Lien Obligation Subaccount will be applied by the City and County solely in accordance with the provisions of, and subject to the priorities and limitations and restrictions provided in the Bond Resolution, indenture or other instrument of the City and County securing or evidencing such Third Lien Obligations. Any moneys credited to the Third Lien Obligation Subaccount are immediately free and clear of the lien and pledge created by the Bond Resolution.

Purposes of the Various Subaccounts Outside Subordinate Obligation Account

Sewer Fund - Rate Stabilization Account. The amount of moneys and Investment Securities to be maintained from time to time in the Rate Stabilization Account is to be provided for in the Annual Budget. Moneys and Investment Securities may be transferred to the Rate Stabilization Account as provided in the Annual Budget from (i) the Sewer Fund in the order of priority provided in the Bond Resolution, or (ii) the Wastewater General Account as provided in the Bond Resolution. Moneys and Investment Securities credited to the Rate Stabilization Account are to be transferred to the Sewer Fund at the times and in the amounts as may be provided in the Annual Budget for the purposes of stabilizing the rates and charges of the Wastewater System.

Sewer Fund - Renewal and Replacement Account. Moneys on credit to the Renewal and Replacement Account may be applied to the cost of the construction of improvements to or reconstruction of the Wastewater System, emergency repairs of the Wastewater System, and major or extraordinary repairs, renewals or replacements of the Wastewater System, in each case to be set forth in the Annual Budget; (i) to restore or prevent physical damage to the Wastewater System or any part thereof; (ii) for the safe and efficient operation of the Wastewater System; or (iii) to prevent loss of Revenues.

If on the day preceding any interest payment date the moneys in the Debt Service Subaccount after making the transfer from the Common Reserve Subaccount as provided for in the Bond Resolution and from the Wastewater General Account as provided for in the First Bond Resolution, are insufficient to pay the interest, principal and redemption price becoming due on the Bonds, the City and County, after making all transfer required by the First Bond Resolution, must transfer from the Renewal and Replacement Account for credit to the Debt Service Subaccount the amount necessary (or all the moneys in such Account if less than the amount necessary) to satisfy such deficiency.

If on each January 1 and July 1 the moneys, Investment Securities and the amount of Support Facilities in the Common Reserve Subaccount are less than the Common Reserve Subaccount Requirement, and the transfer

referred to in the preceding paragraph has been made, the City and County, after making all transfers required by the First Bond Resolution, must transfer from the Renewal and Replacement Account for credit to the Common Reserve Subaccount the amount necessary (or all the moneys in such Account if less than the amount necessary) to satisfy such deficiency.

Sewer Fund - Reimbursable Obligation Account. The City and County must at all times maintain in the Reimbursable Obligation Account an amount equal to the Reimbursable Obligation Requirement. Moneys on deposit in the Reimbursable Obligation Account will be applied by the City and County solely to reimburse the General Fund of the City and County for payment of debt service due on Reimbursable Obligations issued or to be issued by the City and County with respect to the Wastewater System. Any moneys deposited in the Reimbursable Obligation Account are immediately free and clear of the lien and pledge created by the Bond Resolution.

Sewer Fund - Wastewater General Account. The City and County, after making all transfers required by the First Bond Resolution, must transfer from the Wastewater General Account to the Debt Service Subaccount, the Common Reserve Subaccount and each Separate Series Reserve Subaccount the amount necessary (or all the moneys in the Wastewater General Account if less than the amount necessary) to satisfy any deficiencies in such subaccounts required by the Bond Resolution.

Amounts in the Wastewater General Account not required to meet a deficiency referred to in the preceding paragraph or other deficiency as provided in the First Bond Resolution may be applied to the following purposes in the following order of priority:

- (1) the Costs of Improvements, or the provision of one or more reserves therefor;
- (2) for transfer to the Rate Stabilization Account in the Sewer Fund such amounts as may be provided in the Annual Budget for the purpose of stabilizing rates and charges;
- (3) the purchase at such price or prices as the City and County may deem advisable or redemption of any Bonds and expenses of such purchase or redemption at any time; and
- (4) for any other lawful purpose of the City and County.

Sewer Revenue Bond Improvement Fund - Improvement Second Account. As soon as practicable on the date of delivery of the Bonds of a Series, the amount required pursuant to the Series Resolution or Series Certificate will be deposited in the Improvement Fund for credit to the Improvement Second Account. In addition, the City and County will deposit in the Improvement Fund for credit to the Improvement Second Account such moneys other than proceeds of the Bonds as the City and County may determine to be proper or appropriate to pay the Costs of Improvements.

The Series Resolution authorizing the issuance of any Series of Bonds (exclusive of Refunding Bonds) may create and establish one or more separate special series improvement subaccounts (a “Series Improvement Second Subaccount”) in the Improvement Second Account, with such designation as may be appropriate. In the event any interest on such Bonds is to be capitalized from the proceeds of such Bonds, a special series subaccount must be created in the Improvement Second Account (a “Series Improvement Interest Subaccount”) with such designation as may be appropriate.

Moneys, including proceeds of the Bonds of a Series, which are credited to a Series Improvement Subaccount are to be applied to the payment of the Costs as are specified in the applicable Series Resolution or Series Certificate. Any balance remaining in such Series Improvement Second Subaccount upon completion of payment of such Costs may be used for any lawful purpose of the City and County; *provided* that the City and County has obtained an Opinion of Counsel that any such application will not impair the exemption from Federal income taxation of interest on any of the Tax-exempt Bonds.

Moneys credited to a Series Improvement Second Interest Subaccount are to be used for the purpose of paying interest on the Bonds of designated Series. On or before the 5th day preceding the end of the month next preceding the maturity of an installment of interest on the Bonds for the payment of which moneys have been

credited to such Series Improvement Second Interest Subaccount, the City and County must transfer from a Series Improvement Second Interest Subaccount to the Debt Service Subaccount an amount which, together with any moneys theretofore held in the Debt Service Subaccount, are sufficient to pay such next maturing installment of interest on such Bonds.

Payments from the Improvement Second Account are to be made as specified in the Series Resolution authorizing the issuance of a Series of Bonds or a Series Certificate related to a Series of Bonds.

Moneys, including proceeds of the Bonds, in the Improvement Second Account, pending their application as provided in the Bond Resolution and Series Resolution and Series Certificate, are subject to a prior and paramount lien and charge in favor of the Holders of the Bonds, and the Holders of the Bonds have a valid claim on such moneys for the further security of the Bonds until paid out or transferred as provided in the Bond Resolution. In the event that there is an insufficiency in the Debt Service Subaccount to pay Debt Service after all transfers, other than a transfer from the Wastewater System Facility Charge Account, have been made pursuant to and in accordance with the Bond Resolution, the City and County must transfer from the Improvement Second Account such amount (or all remaining amounts in such Improvement Second Account) as is deemed necessary by the Director of Budget and Fiscal Services for deposit in the Debt Service Subaccount, which, together with the amounts then on credit to the Debt Service Subaccount, is sufficient to pay Debt Service.

Sewer Fund - Wastewater System Facility Charge Account. In the event that there is an insufficiency in the Debt Service Subaccount to pay Debt Service after all transfers have been made pursuant to and in accordance with the First Bond Resolution and the Bond Resolution, the City and County must transfer from the Wastewater System Facility Charge Account such amount (or all remaining amounts in the Wastewater System Facility Charge Account) as is deemed necessary by the Director of Budget and Fiscal Services for deposit in the Debt Service Subaccount, which, together with the amounts then on deposit in the Debt Service Subaccount, is sufficient to pay Debt Service. The amount of any such transfer must at the earliest practicable date be reimbursed to the Wastewater System Facility Charge Account as provided in the Bond Resolution.

Amounts held in the Wastewater System Facility Charge Account are to be expended for the purposes specified in Section 6-47.1 of the City Code.

Investment of Funds

Moneys in the Debt Service Subaccount may, to the fullest extent practicable and reasonable, be invested and reinvested solely in noncallable Investment Securities which are Government Obligations, FNMA's or FHLMA's (as such terms are defined in the definition of Investment Securities) and which mature or are subject to redemption at the option of the holder thereof on or prior to the respective dates when the moneys in Debt Service Subaccount will be required for the purposes intended. Moneys in the Common Reserve Subaccount or any Separate Series Reserve Subaccount not required for immediate disbursement for the purpose for which the Common Reserve Subaccount or such Separate Series Reserve Subaccount is created may, to the fullest extent practicable and reasonable, be invested and reinvested solely in, and obligations credited to the Common Reserve Subaccount or such Separate Series Reserve Subaccount must be, investments specified in items (i) to (vi), inclusive, of the definition of Investment Securities and which mature or are available at par at or prior to five (5) years from the date of investment thereof.

Moneys in the Sewer Fund not required for immediate disbursement for the purpose for which such Fund is created may, to the fullest extent practicable and reasonable, be invested and reinvested, to the extent allowed by law, solely in, and obligations deposited in such Fund will be, Investment Securities which mature or are subject to redemption or payment at par at the option of the holder thereof, not later than such times as will be necessary to provide moneys when needed to provide payments from such Fund.

Moneys in the Improvement Second Account, other than a Series Improvement Second Interest Subaccount therein, not required for immediate disbursement for the purposes for which such Account is created may, to the fullest extent practicable and reasonable, be invested and reinvested to the extent allowed by law, solely in, and obligations deposited in such Account will be, Investment Securities which mature or are subject to redemption or

payment at par at the option of the holder thereof not later than such times as shall be necessary to provide moneys when needed to provide payments from such Account.

Moneys in a Series Improvement Second Interest Subaccount in the Improvement Second Account not required for immediate disbursement for the purposes for which such Account is created may, to the fullest extent practicable and reasonable, be invested and reinvested to the extent allowed by law, solely in, and obligations deposited in such Account shall be, noncallable Investment Securities which are Government Obligations, FNMAs or FHLMCs (as such terms are defined in the definition of Investment Securities) that mature or are subject to redemption at the option of the holder thereof not later than such times as shall be necessary to provide moneys when needed to provide payments from such Account.

To the extent permitted in the Bond Resolution, all income received from the investment or reinvestment of moneys in the Funds, Accounts and Subaccounts established under the Bond Resolution will be deposited in the respective Fund, Account and Subaccount from which such investments are made and applied as a credit against the next succeeding deposit or credit required to be made pursuant to the Bond Resolution; provided however, that except as to the Third Lien Obligation Subaccount and the Reimbursable Obligation Account, all or a portion of the income received from the investment or reinvestment of moneys in any such Fund, Account and Subaccount may be deposited in the Sewer Fund or the Improvement Second Account, including a Series Improvement Second Interest Subaccount therein; and *provided, further, however*, that all income received from the investment or reinvestment of moneys in any Series Improvement Second Interest Subaccount must be deposited in the Debt Service Subaccount.

Neither the Director of Budget and Fiscal Services nor any Paying Agent shall be liable for any depreciation in value of any investments made by the City and County.

Valuation of Investment Securities

In computing the amount in any Fund, Account or Subaccount, Investment Securities therein are to be valued at cost or accreted value, whichever is lower, exclusive of accrued interest. The City and County is to determine the value of Investment Securities held in any Fund, Account or Subaccount as frequently as it deems necessary, but not less often than annually.

Depositaries

All moneys held by the City and County or any Depositary under the provisions of the Bond Resolution are to be held in trust and applied only in accordance with the provisions of the Bond Resolution, and each of the Funds, Accounts and Subaccounts established by the Bond Resolution shall be a trust fund.

Each Depositary must be a bank or trust company organized under the laws of any state of the United States or a national banking association having capital stock, surplus and undivided earnings of \$5,000,000 or more and willing and able to accept such office on reasonable and customary terms and authorized by law to act in accordance with the provisions of the Bond Resolution.

Concerning Depositaries and Paying Agents

Qualifications and Appointment. The Director of Budget and Fiscal Services may appoint one or more Paying Agents and Depositaries as of the date of issuance and delivery of the first Series of Bonds and may at any time or from time to time appoint one or more other Paying Agents or other Depositaries having the qualifications of a depositary, as described in the Bond Resolution; provided however, the Director of Budget and Fiscal Services may be designated Paying Agent and/or Depositary. Each Paying Agent, other than the Director of Budget and Fiscal Services, and each Depositary, other than the Director of Budget and Fiscal Services, shall signify its acceptance of the duties and obligations imposed upon it by the Bond Resolution by executing and delivering to the City and County and the Director of Budget and Fiscal Services a written acceptance thereof.

Paying Agents and Depositaries May Buy, Hold, Sell or Deal in Bonds and Other Indebtedness of the City and County. Each Paying Agent and each Depositary and its respective directors, officers, employees or agents, may in good faith buy, sell, own, hold and deal in any of the Bonds issued under the provisions of the Bond

Resolution and may join any action which any Holder of a Bond may be entitled to take, with like effect as if such Paying Agent or Depositary were not a Paying Agent or any Depositary, as the case may be, under the Bond Resolution. Any Paying Agent or any Depositary may in good faith hold any other form of indebtedness of the City and County; own, accept or negotiate any drafts, bills of exchange, acceptances or obligations of the City and County, and make disbursements for the City and County and enter into any commercial or business arrangement therewith.

Reimbursement of Paying Agents and Depositaries for Fees, Expenses and Charges. Each Paying Agent and each Depositary shall be entitled to reasonable fees and to reimbursement by the City and County for all expenses and charges reasonably incurred by it in the performance of its duties under the Bond Resolution. No Paying Agent nor Depositary shall have a lien for such fees and reimbursement on the moneys pledged to secure the Bonds under the Bond Resolution at any time held by it, prior to the lien or claim of the Holders of the Bonds on all such moneys.

Covenants

The City and County has covenanted and agreed in the Bond Resolution with the Holders of all Bonds issued pursuant to the Bond Resolution as follows:

Maintenance of the Properties of the Wastewater System; Keeping the System in Good Repair. The Department will: (i) maintain, preserve and keep, or cause to be maintained, preserved and kept, the properties of the Wastewater System and all additions and betterments thereto and extensions thereof, and every part and parcel thereof in good repair, working order and condition, (ii) from time to time make, or cause to be made, all necessary and proper repairs, renewals, replacements, additions, extensions and betterments thereto, so that at all times the business carried on in connection therewith shall properly and advantageously be conducted, and (iii) comply, or cause to be complied with the terms and conditions of any permit or license for the Wastewater System or any part thereof issued by any federal or state governmental agency or body and with any federal or state law or regulation applicable to the construction, operation, maintenance and repair of the Wastewater System or requiring a license, permit or approval therefor.

Rates and Charges. The City and County will at all times fix, charge and collect such rates and other charges as shall be required in order that in each Fiscal Year the Net Revenues will be not less than the Net Revenue Requirement for such Fiscal Year ("Rate Covenant"). The failure in any Fiscal Year to comply with the foregoing Rate Covenant does not constitute an Event of Default if the City and County complies with requirements described in the next paragraph.

Prior to the end of each Fiscal Year the Director of Environmental Services or the Director of Budget and Fiscal Services if requested by the Director of Environmental Services must complete a review of the financial condition of the Department for the purpose of estimating whether the Net Revenues for such Fiscal Year and for the next succeeding Fiscal Year will be sufficient to comply with the Rate Covenant and must by a written certificate make a determination with respect to such compliance. Such review may take into consideration the completion of any uncompleted Improvement and the issuance of future Series of Bonds if necessary to finance the completion of such Improvements. Such written certificate must set forth a reasonably detailed statement of the actual and estimated Revenues, Operation and Maintenance Expenses, Aggregate Debt Service, and any other estimates or assumptions upon which such determination was based, and must be filed with the City Clerk on or before July 1 in each year. If it is determined in such written certificate that the Revenues may not be so sufficient, the Director of Environmental Services or the Director of Budget and Fiscal Services if requested by the Director of Environmental Services must forthwith make a study for the purpose of determining a schedule of fees, rates and charges which, in the opinion of the Director of Environmental Services or the Director of Budget and Fiscal Services, will cause sufficient Revenues to be collected in the following Fiscal Year to comply with the Rate Covenant and will cause additional Revenues to be collected in such following and later Fiscal Years sufficient to eliminate the amount of any deficiency at the earliest practicable time, or the Director of Environmental Services or the Director of Budget and Fiscal Services may elect to cause the Consulting Engineer to make such a study and render such opinion. The City Council shall as promptly as practicable but no later than the 120 days following such determination by the Director of Environmental Services or the Director of Budget and Fiscal Services, or receipt of the Consulting

Engineer's recommendation, adopt and place in effect a schedule of fees, rates and charges as so determined or recommended pursuant to the Bond Resolution.

Sale, Lease or Other Disposition of Properties of the Wastewater System. The properties of the Wastewater System may not be sold, mortgaged, leased or otherwise disposed of except as described below.

The properties of the Wastewater System may be sold, leased, or otherwise disposed of in their entirety if simultaneously with such sale, lease or other disposition thereof provision is made for the payment of all Bonds then Outstanding and such Bonds are no longer deemed Outstanding within the meaning of the Bond Resolution.

Any portion of the properties of the Wastewater System may be sold, leased, or otherwise disposed of on such terms and conditions as may be determined by the City and County if the value of such portion of the properties as of the date of such sale, lease or disposition does not exceed five percent (5%) of the net book assets of the Wastewater System as of the last day of the preceding Fiscal Year as shown in the most recent audited financial statements of the Department. Any part of the properties of the Wastewater System having a value as of the date of the sale, lease or disposition which exceeds 5% of the net book assets of the Wastewater System as of the last day of the preceding Fiscal Year as shown in the most recent audited financial statements of the Department may be sold, leased, or otherwise disposed of if the Consulting Engineer certifies to the City and County in writing that the terms and conditions of the proposed sale, lease or other disposition of any such properties are fair and reasonable, and that the estimated Revenues to be derived from the remaining properties of the Wastewater System, after taking into consideration the use by the Department of the proceeds of such proposed sale, lease or other disposition of such properties, will be sufficient to enable the City and County to comply with all covenants and conditions of the Bond Resolution. Proceeds of any sale, lease or other disposition of any portion of the properties of the Wastewater System pursuant to this provision are to be paid first into the Debt Service Account created by the First Bond Resolution and applied to the purchase or redemption of bonds thereunder, second into the Debt Service Subaccount and applied to the purchase or redemption of Bonds, and third into the Sewer Fund and applied by the City and County for the purpose of constructing extensions, betterments or improvements to the Wastewater System as the City and County may determine.

Surplus lands, crops, timber, buildings and any other portion of the works, plant and facilities of the Wastewater System and real and personal property comprising a part thereof, which, in the opinion of the Director of Environmental Services, have become unserviceable, inadequate, obsolete, worn out, or unfit to be used in the operation of the Wastewater System, or no longer necessary, material to, or useful in such operation may be sold, leased, or otherwise disposed of. Proceeds of any such sale, lease or other disposition of any portion of the properties of the Wastewater System pursuant to this provision are to be paid into the Sewer Fund.

If permitted by the laws of the State, the City and County may transfer without consideration the properties comprising the Wastewater System to a public corporation or political subdivision of the State, provided such corporation or subdivision assumes all of the City and County's or the Department's obligations and duties under the Bond Resolution.

In the event that any part of the properties of the Wastewater System is transferred from the City and County through the operation of law (including condemnation), any moneys received by the City and County as a result of such transfer are to be paid: (i) if such proceeds are not in excess of \$250,000, into the Sewer Fund; or (ii) if such proceeds are in excess of \$250,000: (a) into the Debt Service Account created by the First Bond Resolution and applied to the purchase or redemption of bonds issued thereunder; (b) in the Debt Service Subaccount and applied to the purchase or redemption of Bonds; or (c) into the Renewal and Replacement Account and applied by the City and County for the purpose of constructing replacements, extensions, betterments or improvements to the Wastewater System, as the City and County shall determine.

Insurance. Except as provided for in the next paragraph, the Department must keep, or cause to be kept, the works, plants and facilities comprising the properties of the Wastewater System and the operations thereof insured to the extent available at reasonable at reasonable cost with responsible insurers, with policies payable to the City and County or the Department, against risks of direct physical loss, damage to or destruction of the above-ground structures, and the equipment and contents therein, of the Wastewater System arising from accidents, casualties or negligence, and other causes customarily insured against, at least to the extent that similar insurance is

usually carried by utilities operating like properties, including liability insurance and workman's compensation insurance; provided, however, that any time while any contractor engaged in constructing any part of the Wastewater System is fully responsible for such insurance, the Department is not required to keep such part of the Wastewater System insured. All policies of insurance shall be for the benefit of the Holders of the Bonds and the City and County or the Department as their respective interests may appear.

In the event of any loss or damage to the properties of the Wastewater System covered by insurance, the Department will: (i) with respect to each such loss, promptly repair and reconstruct to the extent necessary to the proper conduct of the operations of the Wastewater System the lost or damaged portion thereof and shall apply the proceeds of any insurance policy or policies covering such loss or damage for that purpose to the extent required therefor, unless, in case of loss or damage involving \$250,000 or more, the Department determines that such repair and reconstruction will not be undertaken; and (ii) if the Department does not use the entire proceeds of such insurance to repair or reconstruct such lost or damaged property, the proceeds of such insurance policy or policies or any portion thereof not used for such repair or reconstruction, as the case may be, are to be paid into the Sewer Fund. If the Department does not obtain insurance from responsible insurers as provided for in the Bond Resolution, the City and County or the Department must self-insure; provided, however, that if the Department fails to carry insurance against any of the risks normally insured against by operators of facilities similar to the Wastewater System, it must secure the concurrence of an independent insurance consultant. In making its decision whether to concur in such self-insurance, the independent insurance consultant must (i) make an estimate of the added financial risks, if any, assumed by the Department as a result of the self-insurance; (ii) consider the availability of commercial insurance, the terms upon which such insurance is available and the costs of such available insurance, and the effect of such terms and costs upon the Department's costs and charges for its services; and (iii) determine whether the added financial risk, if any, being assumed by the Department is prudent in light of the savings to be realized from such self-insurance or in light of the general availability of insurance.

The Department may include insurance required by the Bond Resolution as part of a blanket insurance policy of the City and County.

Consulting Engineer. The City Council, the Director of Environmental Services or the Director of Budget and Fiscal Services may from time to time retain and appoint, as Consulting Engineer, an independent consulting engineer or engineering firm or corporation having special skill, knowledge and experience in analyzing the operations of wastewater systems, preparing rate analyses, forecasting the loads and revenues of wastewater systems, preparing feasibility reports respecting the financing of wastewater systems and advising on the operation of wastewater facilities, who shall be available to advise the Department, upon request, and to make such investigations and determinations as may be necessary from time to time under the provisions of the Bond Resolution.

Books of Account; Annual Audit. The Department will maintain and keep proper books of account relating to the Wastewater System and in accordance with generally accepted accounting principles. Within 180 days after the end of each Fiscal Year commencing with the Fiscal Year ending June 30, 2000, the Department will cause such books of account to be audited by an independent certified public accountant. The audit required by the Bond Resolution may be part of a comprehensive audit of the City and County, *provided* that the Wastewater System in such audit is treated as an "enterprise fund" and the revenues and expenses of the Wastewater System are stated in a manner which permits identification by category of the sources and uses of the Revenues. A copy of each audit report prepared in conformity with generally accepted accounting principles must be filed promptly with the City and County and sent to any Bondholder filing with the Director of Environmental Services a written request for a copy thereof. and to any Rating Agency which has rated any Bonds.

To Pay Bonds Punctually. The City and County will duly and punctually pay, or cause to be paid, but only from the Revenues, income and other funds specified in the Bond Resolution, the principal and Redemption Price (if any) of, and interest on, each and every Bond on the dates and at the places, and in the manner provided in the Bonds according to the true intent and meaning thereof, and the City and County will faithfully do and perform and at all times fully observe and keep any and all of its covenants, undertakings, stipulations and provisions contained in the Bonds and in the Bond Resolution.

Payment of Taxes and Other Claims. The Department must from time to time duly pay and discharge, or cause to be paid and discharged, all taxes, assessments and other governmental charges, or payments in lieu thereof, lawfully imposed upon the properties of the Wastewater System (or any part thereof) or upon the Net Revenues or income received therefrom when the same become due, as well as all lawful claims for labor, material and supplies, which, if not paid, might become a lien or charge upon said properties or any part thereof, or upon the Revenues derived from the ownership or operation of the Wastewater System, or which might in any way impair the security of the Bonds, except any such assessments, charges or claims which the Department in good faith contests as to validity.

Extension of Payment of Bonds. The City and County will not, directly or indirectly, extend or assent to the extension of the maturity of any of the Bonds or the time of payment of any claims for interest by the purchase of such Bonds, coupons, if any, or claims for interest or by any other arrangement and in case the maturity of any of the Bonds or the time for payment of any such claims for interest is extended, such Bonds or claims for interest will not be entitled, in case of any default under the Bond Resolution, to the benefit of the Bond Resolution or to any payment out of any assets of the City and County or the funds (except funds held in trust for the payment of particular Bonds or claims for interest pursuant to the Bond Resolution) held by the Paying Agents, except subject to the prior payment of the principal of all Bonds issued and Outstanding the maturity of which has not been extended and of such portion of the accrued interest on the Bonds as shall not be represented by such extended claims for interest.

Sound Improvements and Extensions. The Department will not expend any of the income, revenues, receipts, profits and other moneys derived by it from the ownership or operation of the Wastewater System for any renewals, replacements, additions, betterments and improvements to, or extensions of, the Wastewater System which, in the sole opinion of the Director of Environmental Services, will not properly and advantageously contribute to the conduct of the business of the Wastewater System in an efficient and economical manner unless required to do so to permit the continued operation of the Wastewater System or to preserve or protect the Wastewater System.

Annual Budget. Not later than May 31 before the beginning of any Fiscal Year the City and County or the Department will prepare a preliminary budget of Operation and Maintenance Expenses of the Wastewater System and reserves therefor for the ensuing Fiscal Year. Each such budget and each Annual Budget will include, in addition to provisions for all anticipated Operation and Maintenance Expenses, provision for the payments required to be made to the Renewal and Replacement Account, provided that such payments shall in the aggregate at least equal the amount described below. Such preliminary budget and any Annual Budget may set forth such additional material as the City and County or the Department may determine.

Except as described below, on or before the 15th day of each such Fiscal Year, the City and County must finally adopt the Annual Budget for such year. The City and County may at any time adopt an amended Annual Budget for the remainder of the then current Fiscal Year. Copies of the Annual Budget and of any amended Annual Budget are to be made available for inspection by the Bondholders and are to be sent to each Rating Agency.

If for any reason the City and County does not adopt the Annual Budget before the 15th day of any Fiscal Year, the budget for the preceding Fiscal Year is deemed to be in effect for such Fiscal Year until the Annual Budget for such Fiscal Year is adopted. For any purpose of computation under the provisions of the Bond Resolution, the budget for the preceding year is deemed to have been adopted for any Fiscal Year until the Annual Budget for such year is adopted.

Every preliminary budget, Annual Budget and amended Annual Budget must: (i) set forth in reasonable detail amounts required for repair, replacement or reconstruction of the Wastewater System and major or extraordinary repairs, renewals or replacements of the Wastewater System, if any, for the period to be covered by such budget; (ii) specify the amounts to be deposited in the Renewal and Replacement Account, the Subordinate Obligation Account (including the Third Lien Obligation Subaccount therein), the Reimbursable Obligation Account and the Wastewater General Account, and the amounts to be maintained in the Sewer Fund for working capital and operating reserves and in the Rate Stabilization Account for rate stabilization purposes, if any, for such purposes for such period, (iii) specify the amounts to be transferred from the Wastewater General Account to the Rate Stabilization Account and to other Funds and Accounts; and (iv) project the amounts required for such purposes for

the next five Fiscal Years in such format as the Director of Environmental Services may determine. A copy of each such report is to be filed and maintained in the records of the City and County.

Events of Default

Each of the following events constitutes an Event of Default under the Bond Resolution:

- (a) if payment of the principal and Redemption Price, if any, of any Bond, is not punctually made when due and payable, whether at the stated maturity thereof or upon proceedings for the redemption thereof (whether by voluntary redemption or a mandatory sinking fund redemption or otherwise);
- (b) if payment of the interest on any Bond is not punctually made when due;
- (c) if the provisions of any Series Resolution with respect to mandatory Sinking Fund Installment payments or the redemption of Term Bonds therefrom, as the case may be, are not punctually complied with at the time and in the manner specified in such Series Resolution;
- (d) if the City and County or the Department fails to duly and punctually perform or observe any other of the covenants, agreements or conditions contained in the Bond Resolution or in the Bonds, on the part of the City and County or the Department to be performed, and such failure continues for 90 days after written notice thereof from the Holders of not less than 20% of the Bonds then Outstanding; provided that, if such failure is such that it cannot be corrected within such 90-day period, it will not constitute an Event of Default if corrective action is instituted within such period and diligently pursued until the failure is corrected;
- (e) if the City and County: (i) admits in writing its inability to pay its debts generally as they become due; or (ii) files a petition in bankruptcy or seeking a composition of indebtedness under the provisions of any Federal or state bankruptcy or similar law; or (iii) makes an assignment for the benefit of its creditors; or (iv) files a petition or any answer seeking relief under the provisions of any Federal or state bankruptcy or similar law; or (v) consents to the appointment of a receiver of the whole or any substantial part of the Wastewater System; or (vi) consents to the assumption by any court of competent jurisdiction under the provisions of any other law for the relief or aid of debtors of custody or control of the City and County or the Department, or of the whole or any substantial part of the Wastewater System; and
- (f) if a default occurs under the First Bond Resolution.

Notice to Bondholders of Event of Default

Immediately after the occurrence of an Event of Default or within 30 days after any Paying Agent knows of any other Event of Default, the Paying Agent or Paying Agents shall give notice of all such Events of Default to the Bondholders, all other Paying Agents and Support Facility Providers, and each Rating Agency, in the manner as provided for in the Bond Resolution, unless such Events of Default shall have been cured before the giving of such notice.

Acceleration of Bonds; Rights of Insurers

If an Event of Default shall happen and shall not have been remedied, then and in every such case the Holders of not less than 25% in principal amount of the Bonds then Outstanding, by notice in writing to the City and County and the Director of Budget and Fiscal Services, may declare the principal of all the Bonds then Outstanding, and the interest accrued thereon, to be due and payable immediately, and upon any such declaration the same shall become and be immediately due and payable. The right of the Holders of not less than 25% in principal amount of the Bonds then Outstanding to make any such declaration, however, shall be subject to the condition that if, at any time after such declaration, but before the Bonds shall have matured by their terms, all overdue installments of

interest upon the Bonds, together with interest on such overdue installments of interest to the extent permitted by law and all other sums then payable by the City and County under the Bond Resolution (except the principal of, and interest accrued since the next preceding interest date on, the Bonds due and payable solely by virtue of such declaration) shall either be paid by or for the account of the City and County or provision satisfactory to the Holders of a majority in principal amount of the Bonds then Outstanding shall be made for such payment, and all defaults under the Bonds or under the Bond Resolution (other than the payment of principal and interest due and payable solely by reason of such declaration) shall be cured or be secured to the satisfaction of the Holders of a majority in principal amount of the Bonds then Outstanding or provision deemed by such Holders of the Bonds to be adequate shall be made therefor, then and in every such case the Holders of at least a majority in principal amount of the Bonds then Outstanding, by written notice to the City and County, may rescind such declaration and annul such default in its entirety, but no such rescission shall extend to or affect any subsequent default or impair or exhaust any resulting right or power.

The bond insurers for all Outstanding Bonds have certain consent rights in connection with any default which may constrain the rights of the Holders described above.

Inspection of Books and Records; the City and County to Account as Trustee for Express Trust

The City and County covenants that if an Event of Default shall have happened and shall not have been remedied, the books of record and account of the Department relating to the Wastewater System and all other records relating thereto shall at all times be subject to the inspection and use of the Holders of at least 25% in principal amount of the Bonds then Outstanding and of their respective agents and attorneys or of any committee therefor.

The City and County covenants that if an Event of Default shall have happened and shall not have been remedied, the City and County will continue to account, as a trustee of an express trust, for all Revenues and other moneys, securities and funds pledged under the Bond Resolution.

Application of Revenues in an Event of Default

During the continuance of an Event of Default as described in items (a) through (c) of the Events of Default described above or of any other Event of Default resulting in an Event of Default described in items (a) through (c) of the Events of Default described above, the Revenues received by a receiver appointed pursuant to the Bond Resolution as the result of the taking of possession of the business and properties of the Wastewater System, are to be applied by the receiver: first, to the payment of all necessary and proper Operation and Maintenance Expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the receiver; second, to the then due and overdue payments into the Debt Service Subaccount, including the making up of deficiencies therein; and last, for any lawful purpose in connection with the Wastewater System.

In the event that at any time the funds held by the receiver are insufficient for the payment of the principal and Redemption Price (if any) of, and interest then due on, the Bonds, such funds (other than funds held for the payment or redemption of particular Bonds or coupons) and all Revenues of the Department and other of its moneys received or collected for the benefit or for the account of Holders of the Bonds by the receiver are to be applied as follows:

- (1) Unless the principal of all of the Bonds shall have become due and payable,

First, to the payment of all necessary and proper Operation and Maintenance Expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the receiver;

Second, to the payment to the persons entitled thereto of all installments of interest then due (including any interest on overdue principal) in the order of the maturity of such installments, earliest maturities first, and if the amounts available shall not be sufficient to pay in full any installment or installments of interest maturing on the same date, then to the payment thereof

ratably, according to the amount due thereon, to the persons entitled thereto, without any discrimination or preference; and

Third, to the payment to the persons entitled thereto of the principal and premium, if any, due and unpaid upon the Bonds at the time of such payment without preference or priority of any Bond over any other Bonds, ratably, according to the amounts due respectively for principal and redemption premium, without any discrimination or preference.

(2) If the principal of all of the Bonds shall have become due and payable,

First, to the payment of all necessary and proper Operation and Maintenance Expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the receiver;

Second, to the payment of the principal and interest then due and unpaid upon the Bonds without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Bond over any other Bonds, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto without any discrimination or preference.

Whenever moneys are to be applied as described in the foregoing paragraphs, such moneys shall be applied by the receiver at such times, and from time to time, as it in its sole discretion shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future.

If and whenever all overdue installments of interest on all Bonds, together with the reasonable and proper charges, expenses, and liabilities of the Holders of the Bonds, their respective agents and attorneys, and all other sums payable by the City and County under the Bond Resolution including the principal and Redemption Price (if any) of all Bonds which shall then be payable, shall either be paid in full by or for the account of the City and County or provision satisfactory to the receiver shall be made for such payment, and all defaults under the Bond Resolution or the Bonds shall be made good and secured to the satisfaction of the receiver or provision deemed by the receiver to be adequate therefor, the receiver shall pay over to the Department all of its moneys, securities, funds and Revenues then remaining unexpended in the hands of the Bondholders' Committee (except moneys, securities, funds or Revenues deposited or pledged, or required by the terms of the Bond Resolution to be deposited or pledged, with the Director of Budget and Fiscal Services), control of the business and possession of the property of the Department shall be restored to the Department, and thereupon the City and County shall be restored to its former positions and rights under the Bond Resolution, and all Revenues shall thereafter be applied as provided for in the Bond Resolution. No such payment over to the Department by the receiver or resumption of this application of Revenues as provided in the Bond Resolution, shall extend to or affect any subsequent default under the Bond Resolution or impair any right consequent thereon.

Suits at Law or Equity and Mandamus and Appointment of a Receiver

If an Event of Default shall happen and shall not have been remedied, then and in every such case, but subject to the provisions, limitations and conditions as set forth in the Bond Resolution, the Holder of any Bond at the time Outstanding shall be entitled, for the equal benefit and protection of all Holders of the Bonds similarly situated to proceed, protect and enforce the rights vested in such Holder by the Bond Resolution by such appropriate judicial proceeding as such Holder shall deem most effectual to protect and enforce any such right, either by suit in equity or by action of law, whether for the specific performance of any covenant or agreement contained in the Bond Resolution, or in aid of the exercise of any power granted in the Bond Resolution, or to enforce any other legal or equitable right vested in the Holders of Bonds by the Bond Resolution or by law; provided, however, that no judicial proceeding shall be brought seeking the appointment of a receiver to take possession of the Wastewater System or to manage, receive and apply the Revenues unless the Holders of not less than a majority in principal amount of the Bonds then Outstanding or a Bondholders' Committee representing the Holders of not less than a majority in principal amount of the Bonds then Outstanding shall have joined in or consented to such proceeding.

Bondholders' Committee

If an Event of Default shall happen and shall not have been remedied, the Holders of not less than 25% in principal amount of the Bonds then Outstanding may call a meeting of the Holders of Bonds for the purpose of electing a Bondholders' Committee. Such meeting shall be called and proceedings thereat shall be conducted as provided for other meetings of Bondholders pursuant to the Bond Resolution. At such meeting the Holders of not less than a majority of the principal amount of the Bonds then Outstanding must be present in person or by proxy in order to constitute a quorum for the transaction of business, less than a quorum, however, having power to adjourn from time to time without any notice other than that required by the Bond Resolution. A quorum being present at such meeting, the Bondholders present in person or by proxy may, by the votes cast by the Holders of a majority in principal amount of the Bonds so present in person or by proxy, elect one or more persons who may or may not be Bondholders to the Bondholders' Committee which shall act as trustee for all Bondholders. The Bondholders present in person or by proxy at said meeting, or at any adjourned meeting thereof, shall prescribe the manner in which the successors of the persons elected to the Bondholders' Committee at such Bondholders' meeting shall be elected or appointed, and may prescribe rules and regulations governing the exercise by the Bondholders' Committee of the power conferred upon it, and may provide for the termination of the existence of the Bondholders' Committee.

Bondholders May Direct Proceedings; Rights of Insurers

The Holders of not less than a majority in principal amount of the Bonds at the time outstanding are authorized and empowered: (1) to direct the time, method, and place of conducting any proceeding for any remedy available to the holders of the Bonds; or (2) on behalf of the holders of the Bonds then outstanding, to consent to the waiver of any Event of Default or its consequences. No waiver or rescission shall extend to any subsequent or other default, or impair any right consequent thereon.

The bond insurers for all Outstanding Bonds have certain consent rights in connection with any default which may constrain the rights of the Holders described above.

Abandonment of Proceedings; Adverse Determination

No delay or omission of any Holder of Bonds to exercise any right or power arising upon the occurrence of a default under the Bond Resolution, including an Event of Default, shall impair any right or power or shall be construed to be a waiver of any such default or to be an acquiescence therein. Every power and remedy given by the Bond Resolution to the Holders of Bonds may be exercised from time to time and as often as may be deemed expedient by such Holders.

In case the Holders of the Bonds or a Bondholders' Committee formed pursuant to the Bond Resolution shall have proceeded to enforce any right under the Bond Resolution and such proceedings shall have been discontinued or abandoned for any reason, or shall have been determined adversely to the Holders of the Bonds or such Bondholders' Committee, then and in every such case the City and County, and the Holders of the Bonds shall be restored to their former positions and rights under the Bond Resolution, and all rights, remedies and powers of the Holders of the Bonds shall continue as if no such proceedings had been taken.

Remedies Subject to Rights of Holders of First Resolution Obligations

The Bond Resolution expressly limits the right of holders of the Bonds as described below.

(A) In the event of any insolvency or bankruptcy proceedings, and any receivership, liquidation, reorganization or other similar proceedings in connection therewith, relative to the City and County or the Department, or to property of the City and County or the Department, and in the event of any proceedings for voluntary liquidation, dissolution or other winding up of the City and County or the department, the Holders of all First Resolution Obligations then outstanding shall be entitled to receive payment in full of all principal and interest on all such First Resolution Obligations before the holders of the Bonds are entitled to receive any payment from the trust estate under the First Bond Resolution consisting of the Net Revenues and funds held under the First Bond

Resolution (hereinafter referred to as the “Trust Estate”) on account of principal (and premium, if any) or interest on the Bonds.

(B) In the event that any issue of Bonds is declared due and payable before its expressed maturity because of the occurrence of an event of default (under circumstances when the provisions of (A) above shall not be applicable), the Holders of all First Resolution Obligations outstanding at the time such Bonds so become due and payable because of such occurrence of such an event of default shall be entitled to receive payment in full of all principal and interest on all such First Resolution Obligations before the holders of the Bonds are entitled to receive any accelerated payment from the Trust Estate of principal (and premium, if any) or interest on the Bonds.

(C) If any event of default with respect to the First Resolution Obligations shall have occurred and be continuing (under circumstances when the provisions of (A) above shall not be applicable), the Holders of all First Resolution Obligations then outstanding shall be entitled to receive payment in full of all principal and interest on all such First Resolution Obligations before the holders of the Bonds are entitled to receive any accelerated payment from the Trust Estate of principal (and premium, if any) or interest on the Bonds.

(D) No First Resolution Obligation holder shall be prejudiced in his right to enforce subordination of the Bonds by any act or failure to act on the part of the City and County.

(E) The provisions of (A), (B), (C) and (D) above are solely for the purpose of defining the relative rights of the First Resolution Obligation holders on the one hand, and the holders of Bonds on the other hand, and nothing in the Bond Resolution shall impair, as between the City and County and the owners of the Bonds, the obligation of the City and County to pay to the owners thereof the principal thereof and premium, if any, and interest thereon in accordance with its terms, nor shall anything therein prevent the holders of the Bonds from exercising all remedies otherwise permitted by applicable law or under the Bond Resolution upon default thereunder, subject to the rights under (A), (B), (C) and (D) above of the Holders of First Resolution Obligations to receive cash, property or securities otherwise payable or deliverable to the holders of the Bonds. Insofar as a trustee or paying agent for the Bonds is concerned, the foregoing provisions shall not prevent the application by such trustee or paying agent of any moneys deposited with such trustee or paying agent for the purpose of the payment of or on account of the principal (and premium, if any) and interest on such Bonds if such trustee or paying agent did not have knowledge at the time of such application that such payment was prohibited by the foregoing provisions.

Amending and Supplementing of Resolution; Rights of Insurers

Amending and Supplementing of Resolution Without Consent of Holders of Bonds. The City and County, from time to time and at any time and without the consent or concurrence of any Holder of any Bond, may adopt a Series Resolution (i) for the purpose of providing for the issuance of Bonds pursuant to the provisions as set forth in the Bond Resolution; (ii) to make any changes, modifications, amendments or deletions to the Bond Resolution which may be required to permit the Bond Resolution to be qualified under the Trust Indenture Act of 1939 of the United States of America; or (iii) if the rights of the Holders of the Bonds then Outstanding shall not be materially adversely affected thereby, a Supplemental Resolution (herein defined and referred to as a “Supplemental Resolution”) for any one or more of the following purposes:

1. to make any changes or corrections in the Bond Resolution as to which the City and County shall have been advised by counsel that the same are verbal corrections or changes or are required for the purpose of curing or correcting any ambiguity or defective or inconsistent provision or omission or mistake or manifest error contained in the Bond Resolution, or to insert in the Bond Resolution such provisions clarifying matters or questions arising under the Bond Resolution as are necessary or desirable;

2. to add additional covenants and agreements of the City and County for the purpose of further securing the payment of the Bonds;

3. to surrender any right, power or privilege reserved to or conferred upon the City and County by the terms of the Bond Resolution;

4. to confirm as further assurance any lien, pledge or charge, or the subjection to any lien, pledge, or charge, created or to be created by the provisions of the Bond Resolution;
5. to grant to or to confer upon the Holders of the Bonds any additional rights, remedies, powers, authority or security that lawfully may be granted to or conferred upon them; and
6. to modify in any other respect any of the provisions of the Bond Resolution.

Except for Series Resolutions authorizing the issuance of Bonds pursuant to the Bond Resolution, the City and County shall not adopt any Supplemental Resolution authorized by the foregoing provisions of the Bond Resolution unless in the Opinion of Counsel the adoption of such Supplemental Resolution is permitted by the Bond Resolution and the provisions of such Supplemental Resolution do not materially adversely affect the rights of the Holders of the Bonds then Outstanding.

Amendment of Resolution With Consent of Holders of the Bonds. With the consent of the Holders of not less than a majority of the Bonds then Outstanding and with written consent of each Support Facility Provider, the City and County from time to time and at any time may adopt a resolution amendatory of or supplemental to the Bond Resolution for the purpose of adding any provisions to, or changing in any manner or eliminating any of the provisions of, the Bond Resolution, or modifying or amending the rights and obligations of the City and County thereunder, or modifying or amending in any manner the rights of the Holders of the Bonds then Outstanding. For purposes of the preceding sentence, the written consent of each Support Facility Provider providing a Support Facility for any Bonds shall constitute consent of the Holders of such Bonds.

Without the specific consent of the Holder of each such Bond which would be affected thereby, no Supplemental Resolution amending or supplementing the provisions of the Bond Resolution shall: (1) change the fixed maturity date for the payment of the principal of any Bond or the dates for the payment of interest thereon or the terms of the redemption thereof, or reduce the principal amount of any Bond or the rate of interest thereon or the Redemption Price (or the redemption premium) payable upon the redemption or prepayment thereof; or (2) reduce the aforesaid percentage of Bonds, the Holders of which are required to consent to any Supplemental Resolution amending or supplementing the provisions of the Bond Resolution; or (3) give to any Bond or Bonds any preference over any other Bond or Bonds secured by the Bond Resolution; or (4) authorize the creation of any pledge of the Revenues and other moneys pledged under the Bond Resolution, prior, superior or equal to the pledge of and lien and charge thereon created in the Bond Resolution for the payment of the Bonds except to the extent provided in the Bond Resolution; or (5) deprive any Holder of the Bonds in any material respect of the security afforded by the Bond Resolution; provided further, however, that without the specific consents of the Holders of not less than a majority in principal amount of the Term Bonds then Outstanding and affected thereby, no Supplemental Resolution amending or supplementing the provisions of the Bond Resolution shall (a) change the amount of any Sinking Fund Installments for the retirement of Term Bonds or the due dates of such installments or the terms for the purchase or redemption thereof from such installments, or (b) reduce the aforesaid percentage of Term Bonds, the Holders of which are required to consent to any such Supplemental Resolution. (Nothing in this paragraph contained, however, shall be construed as making necessary the approval of the Holders of the Bonds of the adoption of any Supplemental Resolution). A modification or amendment with respect to the Sewer Fund or the Debt Service Subaccount or Common Reserve Subaccount or any Separate Series Reserve Subaccount therein shall not be deemed a change in the terms of payments; provided that no such modification or amendment shall, except upon the consent of the Holders of all Bonds then outstanding affected thereby, reduce the amount or amounts required to be credited to the Debt Service Subaccount or Common Reserve Subaccount or any Separate Series Reserve Subaccount or their respective successor.

The proof of the giving of any consent of any Holder required and of the holding of Bonds for the purpose of giving consents shall be made in accordance with the Bond Resolution. It shall not be necessary that the consents of the Holders of the Bonds approve the particular form of wording of the proposed amendment or supplement or of the Supplemental Resolution affecting such amendment or supplement, but it shall be sufficient if such consents approve the substance of the proposed amendment or supplement. A record, consisting of the papers required by the Bond Resolution, shall be proof of the matters therein stated until the contrary is proved. No action or proceeding to set aside or invalidate such Supplemental Resolution or any of the proceedings for its adoption shall be instituted or

maintained unless such action or proceeding is commenced within 60 days after the publication and mailing of the notice required by the Bond Resolution.

The City and County shall furnish a notice of each amendment or supplement and a copy of the Supplemental Resolution effecting such amendment or supplement to each rating agency which has rated the Bonds at least 15 days prior to the effective day of the Supplemental Resolution.

Discharge of Liens and Pledges; Bonds No Longer Outstanding and Deemed to be Paid

Except as otherwise provided in the Bond Resolution with regard to Option Bonds, the obligations of the City and County under the Bond Resolution and the liens, pledges, charges, trusts, covenants and agreements of the City and County made or provided for in the Bond Resolution, shall be fully discharged and satisfied as to any Bond and such Bond shall no longer be deemed to be Outstanding under the Bond Resolution:

(i) when such Bond shall have been canceled, or shall have been surrendered for cancellation or is subject to cancellation, or shall have been purchased by or behalf of the City and County from moneys held under the Bond Resolution; or

(ii) as to any Bond not canceled or surrendered for cancellation or subject to cancellation or so purchased, when payment of the principal and redemption price (if any) of such Bond, plus interest on such principal to the due date thereof (whether such due date be by reason of maturity or upon redemption or prepayment, or otherwise) either (a) shall have been made or caused to be made in accordance with the terms thereof, or (b) shall have been provided for by irrevocably depositing with the Paying Agent for such Bond, in trust, and irrevocably appropriating and setting aside exclusively for such payment, either (1) moneys sufficient to make such payment or (2) noncallable Refunded Municipal Obligations or noncallable Investment Securities described in item (i) of the definition of Investment Securities as set forth in the Bond Resolution, maturing as to principal and interest in such amount and at such times as will insure, together with any cash deposit, the availability of sufficient moneys to make such payment, whichever the City and County deems to be in its best interest and as verified by an independent nationally recognized firm of certified public accountants in a report delivered to the City and County and the Director of Budget and Fiscal Services, and all necessary and proper fees, compensation and expenses of the Director of Budget and Fiscal Services and the Paying Agents pertaining to the Bond with respect to which such deposit is made shall have been paid or the payment thereof provided for to the satisfaction of the Director of Budget and Fiscal Services and said Paying Agents.

At such time as a Bond shall be deemed to be no longer Outstanding under the Bond Resolution, as aforesaid, such Bond, except for the purposes of any payment from such moneys, Refunded Municipal Obligations or Investment Securities, shall no longer be secured by or entitled to the benefits of the Bond Resolution.

Notwithstanding the foregoing, in the case of a Bond which is to be redeemed or otherwise prepaid prior to its stated maturity, no deposit under clause (b) of subparagraph (ii) of the second preceding paragraph above shall constitute such payment, discharge and satisfaction as aforesaid until such Bond shall have been irrevocably designated for redemption or prepayment and proper notice of such redemption or prepayment shall have been previously given in accordance with the Bond Resolution or provision shall have been irrevocably made for the giving of such notice.

Any such moneys so deposited with the Paying Agents for the Bonds as provided in the Bond Resolution may at the direction of the City and County also be invested and reinvested in Investment Securities, maturing in the amounts and times as set forth in the Bond Resolution. All income from all Refunded Municipal Obligations and Investment Securities in the hands of the Paying Agents which is not required for the payment of the Bonds and interest and premium thereon with respect to which such moneys shall have been so deposited, shall be paid to the City and County for deposit in the Sewer Fund free and clear of any trust, lien, security interest, pledge or assignment securing any Bonds or otherwise existing under the Bond Resolution.

All moneys, Refunded Municipal Obligations or Investment Securities set aside and held in trust pursuant to the provisions of the Bond Resolution for the payment of Bonds (including interest and premium thereof, if any)

shall be applied to and used solely for the payment of the particular Bond (including interest and premium thereof, if any) with respect to which such moneys and Investment Securities have been so set aside in trust.

If moneys, Refunded Municipal Obligations or Investment Securities have been deposited or set aside with a Paying Agent pursuant to the Bond Resolution for the payment of a specific Bond and such Bond is deemed to have been paid and to be no longer Outstanding under the Bond Resolution as provided in the defeasance provisions of the Bond Resolution, but such Bond has not in fact been actually paid in full, no amendment to the defeasance provisions of the Bond Resolution may be made without the consent of the Holder of each Bond affected thereby.

The City and County may at any time surrender to a Paying Agent for a Series of Bonds for cancellation by it any Bonds of such Series previously executed and delivered, which the City and County may have acquired in any manner whatever, and such Bonds upon such surrender for cancellation shall be deemed to be paid and no longer Outstanding under the Bond Resolution.

APPENDIX D

PROPOSED FORM OF CONTINUING DISCLOSURE CERTIFICATE

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APPENDIX D

PROPOSED FORM OF CONTINUING DISCLOSURE CERTIFICATE

This Continuing Disclosure Certificate (the “Disclosure Certificate”) is executed and delivered by the City and County of Honolulu, Hawaii (the “City and County”) in connection with the issuance of \$100,755,000 Wastewater System Revenue Bonds (Second Bond Resolution), Junior Series 2010A (the “Bonds”). The Bonds are being issued pursuant to Chapter 49, Hawaii Revised Statutes, and the Revised Charter of the City and County of Honolulu, as amended (collectively, the “Act”), and the proceedings of the City Council, including Resolutions No. 98-195 and the applicable Series Resolutions relating to the Bonds, and a Certificate of the Director of Budget and Fiscal Services of the City and County, acknowledged and agreed to by the Director of Environmental Services of the City and County dated October 26, 2010 (the “Certificate”). The City and County covenants and agrees as follows:

Section 1. ***Purpose of the Disclosure Certificate.*** This Disclosure Certificate is being executed and delivered by the City and County for the benefit of the holders and Beneficial Owners of the Bonds and in order to assist the Participating Underwriters in complying with Securities and Exchange Commission Rule 15c2-12(b)(5) (the “Rule”).

Section 2. ***Definitions.*** In addition to the definitions set forth in the Certificate, which apply to any capitalized term used in this Disclosure Certificate unless otherwise defined in this Section, the following capitalized terms shall have the following meanings:

“*Annual Report*” means any Annual Report provided by the City and County pursuant to, and as described in, Sections 3 and 4 of this Disclosure Certificate.

“*Beneficial Owner*” means any person which (a) has or shares the power, directly or indirectly, to vote or consent with respect to, to make investment decisions concerning the ownership of, or to dispose of ownership of, any Bonds (including persons holding Bonds through nominees, depositories or other intermediaries), or (b) is treated as the owner of any Bonds for federal income tax purposes.

“*Department*” means the Department of Environmental Services of the City and County.

“*Dissemination Agent*” means the City and County, or any successor Dissemination Agent designated in writing by the City and County and which has filed with the City and County a written acceptance of such designation.

“*Listed Events*” means any of the events listed in Section 5(a) of this Disclosure Certificate.

“*MSRB*” means the Municipal Securities Rulemaking Board or any other entity designated or authorized by the Securities and Exchange Commission to receive reports pursuant to the Rule. Effective July 1, 2009 and until otherwise designated by the MSRB or the Securities and Exchange Commission, filings with the MSRB are to be made through the Electronic Municipal Market Access (EMMA) website of the MSRB, currently located at <http://emma.msrb.org>.

“*Official Statement*” shall mean the Official Statement, dated October 26, 2010, prepared and distributed in connection with the initial sale of the Bonds.

“*Participating Underwriters*” means any of the original underwriters of the Bonds required to comply with the Rule in connection with the offering of the Bonds.

“*Rule*” means Rule 15c2-12(b)(5) adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.

Section 3. ***Provision of Annual Reports.***

(a) The City and County shall, or shall cause the Dissemination Agent to, not later than 270 days after the end of each fiscal year of the City and County (presently June 30), commencing with the report for the fiscal year ending June 30, 2010, provide to the MSRB an Annual Report that is consistent with the requirements of Section 4 of this Disclosure Certificate. The Annual Report must be submitted in electronic format, accompanied by such identifying information as is prescribed by the MSRB, and may cross-reference other information as provided in Section 4 of this Disclosure Certificate. If the City and County's fiscal year changes, the City and County, upon becoming aware of such change, shall give notice of such change in the same manner as for a Listed Event under Section 5(c).

(b) In a timely manner prior to the date set forth in subsection (a) above, the City and County shall provide the Annual Report to the Dissemination Agent (if other than the City and County). If the City and County is unable to provide to the MSRB an Annual Report by the date required in subsection (a), the City and County shall send a notice to the MSRB in substantially the form attached as Exhibit A. The audited financial statements of the Department may be submitted separately from the balance of the Annual Report and later than the date required above for the filing of the Annual Report if they are not available by that date.

(c) The Dissemination Agent shall (if the Dissemination Agent is other than the City and County) file a report with the City and County certifying that the Annual Report has been provided pursuant to this Disclosure Certificate, stating the date it was provided to the MSRB.

Section 4. ***Content of Annual Reports.***

(a) The Annual Report shall contain or incorporate by reference the following information:

(i) Audited financial statements of the Department for the prior fiscal year, prepared in accordance with generally accepted accounting principles as promulgated to apply to governmental entities from time to time by the Governmental Accounting Standards Board. If the Department's audited financial statements are not available by the time the Annual Report is required to be provided to the MSRB pursuant to Section 3(a), the Annual Report shall contain unaudited financial statements in a format similar to the financial statements contained in the Official Statement relating to the Bonds, and the audited financial statements shall be provided to the MSRB in the same manner as the Annual Report when they become available;

(ii) Budgeted revenues and expenditures of the Department for the current fiscal year;

(iii) To the extent not provided in the audited financial statements, historical information of the type shown in Tables 24 and 25 of the Official Statement, entitled "Department of Environmental Services Sewer Fund Enterprise Fund Statement of Revenues, Expenses and Charges in Retained Earnings (Deficit)" and "Department of Environmental Services Sewer Fund Enterprise Fund Balance Sheet," respectively; and

(iv) To the extent not provided in the audited financial statements, historical information of the type shown in Tables 22 and 23 of the Official Statement, entitled "Outstanding Wastewater Revenue Bonds" and "Revenue Bond Debt Service Requirements," respectively.

(b) Information contained in an Annual Report for any fiscal year containing any modified operating data or financial information for such fiscal year shall explain, in narrative form, the reasons for such modification and the effect of such modification on the Annual Report being provided for such fiscal year. If a change in accounting principles is included in any such modification, such Annual Report shall present a comparison between the financial statements or information prepared on the basis of modified accounting principles and those prepared on the basis of former accounting principles.

Any or all of the items above may be included by specific reference to other documents, including official statements of debt issues of the City and County or related public entities, which have been made available to the

public on the MSRB's website. The City and County shall clearly identify each such other document so included by reference.

Section 5. ***Reporting of Significant Events.***

(a) Pursuant to the provisions of this Section 5, the City and County shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Bonds, if material:

- (i) principal and interest payment delinquencies;
- (ii) nonpayment related defaults;
- (iii) modifications to rights of bondholders;
- (iv) optional, contingent or unscheduled bond calls;
- (v) defeasances;
- (vi) rating changes;
- (vii) adverse tax opinions or events affecting the tax-exempt status of the Bonds;
- (viii) unscheduled draws on the debt service reserves reflecting financial difficulties;
- (ix) unscheduled draws on credit enhancements reflecting financial difficulties;
- (x) substitution of the credit or liquidity providers or their failure to perform; and
- (xi) release, substitution or sale of property securing repayment of the Bonds.

(b) Whenever a Listed Event occurs with respect to the Bonds, the City and County shall as soon as possible, but in no event more than ten (10) days following such event, determine if such event would be material under applicable federal securities laws.

(c) If the City and County determines that a Listed Event would be material under applicable federal securities laws, the City and County shall promptly file a notice of such occurrence with the MSRB in electronic format, accompanied by such identifying information as is prescribed by the MSRB. Notwithstanding the foregoing, notice of Listed Events described in subsections (a)(iv) and (a)(v) need not be given under this subsection any earlier than the notice (if any) of the underlying event is given to Holders of affected Bonds pursuant to the Certificate.

Section 6. ***Termination of Reporting Obligation.*** The City and County's obligations under this Disclosure Certificate shall terminate upon the legal defeasance, prior redemption or payment of amounts fully sufficient to pay and discharge the Bonds, or upon delivery to the City and County or the Dissemination Agent (if other than the City and County) of an opinion of nationally recognized bond counsel to the effect that continuing disclosure is no longer required. If such termination occurs prior to the final maturity of the Bonds, the City and County shall give notice of such termination in the same manner as for a Listed Event under Section 5(c).

Section 7. ***Dissemination Agent.*** From time to time, the City and County may appoint or engage a Dissemination Agent to assist it in carrying out its obligations under this Disclosure Certificate, and may discharge any such Agent, with or without appointing a successor Dissemination Agent. If at any time there is not any other designated Dissemination Agent, the City and County shall be the Dissemination Agent. The initial Dissemination Agent shall be the City and County. The sole remedy of any party against the Dissemination Agent shall be nonmonetary and specific performance. The Dissemination Agent shall not be responsible for the form or content of any Annual Report, notice of Listed Event, or other document furnished to the Dissemination Agent by the City and

County. The Dissemination Agent shall receive reasonable compensation for its services provided hereunder. The Dissemination Agent may resign at any time by providing at least 60 days' notice to the City and County.

Section 8. **Amendment Waiver.** Notwithstanding any other provision of this Disclosure Certificate, the City and County may amend this Disclosure Certificate, and any provision of this Disclosure Certificate may be waived, provided that all of the following conditions are satisfied:

(a) If the amendment or waiver relates to the provisions of Sections 3(a), 4, or 5(a), it may only be made in connection with a change in circumstances that arises from a change in legal (including regulatory) requirements, change in law (including rules or regulations) or in interpretations thereof, or change in the identity, nature or status of an obligated person with respect to the Bonds, or the type of business conducted;

(b) The undertaking, as amended or taking into account such waiver, would, in the opinion of nationally recognized bond counsel, have complied with the requirements of the Rule at the time of the original issuance of the Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(c) The amendment or waiver either (i) is approved by the Holders of the Bonds in the same manner as provided in the Certificate for amendments to the Certificate with the consent of Holders, or (ii) does not, in the opinion of the City and County, materially impair the interests of the Holders or Beneficial Owners of the Bonds.

In the event of any amendment or waiver of a provision of this Disclosure Certificate, the City and County shall describe such amendment in the next Annual Report, and shall include, as applicable, a narrative explanation of the reason for the amendment or waiver and its impact on the type (or in the case of a change of accounting principles, on the presentation) of financial information or operating data being presented by the City and County. In addition, if the amendment relates to the accounting principles to be followed in preparing financial statements, (i) notice of such change shall be given in the same manner as for a Listed Event under Section 5(c), and (ii) the Annual Report for the year in which the change is made should present a comparison (in narrative form and also, if feasible, in quantitative form) between the financial statements as prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles.

Section 9. **Additional Information.** Nothing in this Disclosure Certificate shall be deemed to prevent the City and County from disseminating any other information, using the means of dissemination set forth in this Disclosure Certificate or any other means of communication, or including any other information in any Annual Report or notice of occurrence of a Listed Event, in addition to that which is required by this Disclosure Certificate. If the City and County chooses to include any information in any Annual Report or notice of occurrence of a Listed Event in addition to that which is specifically required by this Disclosure Certificate, the City and County shall have no obligation under this Disclosure Certificate to update such information or include it in any future Annual Report or notice of occurrence of a Listed Event.

Section 10. **Default.** In the event of a failure of the City and County to comply with any provision of this Disclosure Certificate, any Holder or Beneficial Owner of the Bonds may take such actions as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the City and County or the Dissemination Agent (if other than the City and County), as the case may be, to comply with its obligations under this Disclosure Certificate. A default under this Disclosure Certificate shall not be deemed an Event of Default under the Certificate, and the sole remedy under this Disclosure Certificate in the event of any failure of the City and County or the Dissemination Agent to comply with this Disclosure Certificate shall be an action to compel performance.

Section 11. **Duties, Immunities and Liabilities of Dissemination Agent.** The Dissemination Agent shall have only such duties as are specifically set forth in this Disclosure Agreement, and the City and County agrees to indemnify and save the Dissemination Agent, its officers, directors, employees and agents, harmless against any loss, expense and liabilities which it may incur arising out of or in the exercise or performance of its powers and duties hereunder, including the costs and expenses (including attorneys fees) of defending against any claim of liability, but excluding liabilities due to the Dissemination Agent's gross negligence or willful misconduct. The

obligations of the City and County under this Section shall survive resignation or removal of the Dissemination Agent and payment of the Bonds.

Section 12. ***Beneficiaries.*** This Disclosure Certificate shall inure solely to the benefit of the City and County, the Dissemination Agent, the Participating Underwriters and holders and beneficial owners from time to time of the Bonds, and shall create no rights in any other person or entity.

Date: November __, 2010

Michael R. Hansen
Acting Director of Budget and Fiscal Services
City and County of Honolulu

The above and foregoing certificate is hereby approved as to form and legality this ___ day of November, 2010.

Carrie K.S. Okinaga
Acting Corporation Counsel
City and County of Honolulu

EXHIBIT A

**FORM OF NOTICE TO THE MUNICIPAL SECURITIES RULEMAKING BOARD OF FAILURE
TO FILE ANNUAL REPORT**

Name of Issuer: City and County of Honolulu, Hawaii
Name of Bond Issue: Wastewater System Revenue Bonds (Second Bond Resolution),
Junior Series 2010A
Date of Issuance: November 17, 2010

NOTICE IS HEREBY GIVEN that the City and County of Honolulu, Hawaii (the "City and County") has not provided an Annual Report with respect to the above-named Bonds as required by Section 3 of the Continuing Disclosure Certificate, dated November 17, 2010, executed by the City and County for the benefit of the holders and beneficial owners of the above-referenced Bonds. The City and County anticipates that the Annual Report will be filed by _____.

Dated: _____

CITY AND COUNTY OF HONOLULU, HAWAII

By: _____
Authorized Signatory

APPENDIX E

PROPOSED FORM OF OPINION OF BOND COUNSEL

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APPENDIX E

PROPOSED FORM OF OPINION OF BOND COUNSEL

[Date of Delivery]

City and County of Honolulu
Honolulu, Hawaii

Re: City and County of Honolulu
Wastewater System Revenue Bonds
(Second Bond Resolution), Junior Series 2010A
(Final Opinion)

Ladies and Gentlemen:

We have acted as bond counsel to the City and County of Honolulu (the “City and County”) in connection with the issuance of \$100,755,000 aggregate principal amount of its Wastewater System Revenue Bonds (Second Bond Resolution), Junior Series 2010A (the “Bonds”), pursuant to the a Second Bond Resolution and a Series Resolution of the City and County (collectively, the “Resolution”), and a Series Certificate of the Director of Budget and Fiscal Services of the City and County (the “Certificate”). Terms not otherwise defined herein shall have the meanings assigned to them in the Certificate.

In such connection, we have reviewed the Resolution, the Certificate, the Tax Certificate of the City and County, dated the date hereof (the “Tax Certificate”), an opinion of the Corporation Counsel of the City and County, certificates of the City and County and others, and such other documents, opinions and matters to the extent we deemed necessary to render the opinions set forth herein.

The opinions expressed herein are based on an analysis of existing laws, regulations, rulings and court decisions and cover certain matters not directly addressed by such authorities. Such opinions may be affected by actions taken or omitted or events occurring after the date hereof. We have not undertaken to determine, or to inform any person, whether any such actions are taken or omitted or events do occur or any other matters come to our attention after the date hereof. Accordingly, this opinion speaks only as of its date and is not intended to, and may not, be relied upon in connection with any such actions, events or matters. We disclaim any obligation to update this letter. We have assumed the genuineness of all documents and signatures presented to us (whether as originals or as copies) and the due and legal execution and delivery thereof by, and validity against, any parties other than the City and County. We have assumed, without undertaking to verify, the accuracy of the factual matters represented, warranted or certified in the documents, and of the legal conclusions contained in the opinions, referred to in the second paragraph hereof. Furthermore, we have assumed compliance with all covenants and agreements contained in the Resolution, the Certificate and the Tax Certificate, including (without limitation) covenants and agreements compliance with which is necessary to assure that future actions, omissions or events will not cause interest on the Bonds to be included in gross income for federal income tax purposes. We call attention to the fact that the rights and obligations under the Bonds, the Resolution, the Certificate and the Tax Certificate and their enforceability may be subject to bankruptcy, insolvency, reorganization, arrangement, fraudulent conveyance, moratorium and other laws relating to or affecting creditors’ rights, to the application of equitable principles, to the exercise of judicial discretion in appropriate cases, and to the limitations on legal remedies against counties in the State of Hawaii. We express no opinion with respect to any indemnification, contribution, penalty, choice of law, choice of forum, choice of venue, waiver or severability provisions contained in the foregoing documents, nor do we express any opinion with respect to the state or quality of title to or interest in any assets described in or as subject to the lien of the Resolution or the accuracy or sufficiency of the description contained therein of, or the remedies available to enforce liens on, any such assets. Finally, we undertake no responsibility for the accuracy, completeness or fairness of the Official Statement or other offering material relating to the Bonds and express no opinion with respect thereto.

Based on and subject to the foregoing, and in reliance thereon, as of the date hereof, we are of the following opinions:

1. The Bonds constitute valid and binding special obligations of the City and County.
2. The Bonds are payable solely from and are secured by the Net Revenues and other funds pledged to the payment thereof pursuant to the Resolution, subject to the provisions of the Resolution permitting the application thereof for the purposes and on the terms and conditions set forth in the Resolution.
3. The Resolution has been duly adopted and constitutes the valid and binding obligation of the City and County, and the Certificate has been duly executed and delivered and constitutes the valid and binding obligation of the City and County.
4. Interest on the Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, and the Bonds and the income therefrom are exempt from all taxation by the State of Hawaii or any county or other political subdivision thereof, except inheritance, transfer, estate and certain franchise taxes. Interest on the Bonds is not a specific preference item for purposes of the federal individual or corporate alternative minimum taxes, although we observe that it is included in adjusted current earnings when calculating corporate alternative minimum taxable income. We express no opinion regarding other tax consequences related to the ownership or disposition of, or the accrual or receipt of interest on, the Bonds.

Faithfully yours,

ORRICK, HERRINGTON & SUTCLIFFE LLP

per

