
TOWN OF OCEAN CITY



WATER AND WASTEWATER

COMPREHENSIVE RATE STUDY

April 5, 2010

Town of Ocean City, Maryland



Water and Wastewater Comprehensive Rate Study

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WATER & WASTEWATER RATE STUDY SUMMARY

This report presents the background, conclusions and recommendations of a water and wastewater cost of service study. The study was completed by updating the cost of service financial model previously developed by Municipal Financial Services Group in 2005. The study is predicated on the use of a cash flow analysis to support the pricing of utility services using a planning period of 5 years (Fiscal Years 2011 - 2015).

1. Background

The water and wastewater financial model was updated/reviewed using the following data/documents:

- Actual revenue and expenses for Fiscal Years 2008 & 2009.
- The FY 2010 and proposed FY 2011 operating budgets for Water and Wastewater.
- The current capital improvement plan, reviewed by Whitman Requardt & Associates (WR&A).
- The current number of fixture counts and the amount of water sold over the past four fiscal years.
- The current cash balances within the Water and Wastewater Fund.

In addition to updating the model with the items listed above, the model took into account the use of impact fees to fund growth-related capital costs. This was accomplished by examining each individual capital improvement project to identify if the project or a portion of the project is attributable to growth. As a result of this analysis, the Town's water and wastewater user rates exclude growth related capital costs. All of the assumptions used in the model (i.e. growth in fixtures, inflation of the expenses, etc.) were also reviewed to ensure that they are still valid based upon review of historical data.

The following conclusions and recommendations were developed during the course of the review/update of the financial model.

2. Conclusions

- The current water usage rate does not produce sufficient revenue to cover the operating revenue requirements for Fiscal Year 2011 or the following years.
- The current water fixture rate produces more revenue than is required to cover the non-growth capital revenue requirements for Fiscal Year 2011. It is proposed that the rate be reduced in 2011 and 2012.
- The current wastewater fixture rate does not produce sufficient revenue to cover operating and non-growth capital revenue requirements for Fiscal Year 2011 or the following years.

- Rates were frozen the last two fiscal years in lieu of following previous rate study's recommendation. It is no longer feasible to freeze the rates as continuing the current rates will deplete reserves.

3. Recommendations

- It is recommended that the Town adopt the five-year water usage and fixture rate schedule shown below in order to cover the increased costs of providing water service to our customers over the next five years.

Recommended Water Rates

Fiscal Year	Current	2011	2012	2013	2014	2015
Water Fixture Rate	\$2.90	\$2.80	\$2.60	\$2.60	\$2.60	\$2.60
Water Usage Rate (per 1,000 gallons)	\$2.70	\$2.80	\$2.95	\$3.10	\$3.25	\$3.40

- It is recommended that the Town adopt a five-year wastewater fixture rate schedule shown below to cover the increased costs of providing wastewater service to our customers over the next five years.

Recommended Wastewater Rates

Fiscal Year	Current	2011	2012	2013	2014	2015
Wastewater Fixture Rate	\$7.05	\$7.60	\$7.95	\$8.20	\$8.45	\$8.45

4. Combined Rates

Fiscal Year	Current	2011	2012	2013	2014	2015
Water Fixture	\$2.90	\$2.80	\$2.60	\$2.60	\$2.60	\$2.60
Wastewater Fixture	\$7.05	\$7.60	\$7.95	\$8.20	\$8.45	\$8.45
Combined Fixture Rate Total	\$9.95	\$10.40	\$10.55	\$10.80	\$11.05	\$11.05
% Increase in Combined Rate	0.00%	4.52%	1.44%	2.37%	2.31%	0.00%
Water Usage Rate	\$2.70	\$2.80	\$2.95	\$3.10	\$3.25	\$3.40
% Increase Usage	0.00%	3.70%	5.36%	5.08%	4.84%	4.62%
Average Residential Customer Quarterly Charges	\$158.05	\$164.80	\$169.15	\$174.60	\$180.05	\$182.75
% Change to Total Bill	0.00%	4.27%	2.64%	3.22%	3.12%	1.50%

5. Maximum Number of Fixtures

When designing for plant capacities and land use, the Town determines the peak demand for a single-family home. Capacity charges are determined based on fixture counts. The Town has determined that 20 fixtures in a single residential unit place the maximum demand on system capacity and that the installation of fixtures above that amount places no additional burden on the systems. Therefore this rate study proposes to limit the number of fixtures charged for a single-family home or single condominium unit to 20. There are 143 homes with over 20 fixtures for a total of 468 excess fixtures. This change reduces revenues \$1,357 for water fixture fees and \$3,556 for wastewater fees.

6. Comparisons

In order to compare the proposed water and wastewater rates with similar communities the following table was developed. It demonstrates the quarterly water and wastewater bill for an average residential customer (someone using 6,000 gallons per month with 11 fixtures).

Municipality	Note	Water	Wastewater	Totals
Annapolis, MD (same since 2004)	(2)	\$37.95	\$54.85	\$92.80
Berlin, MD	(2)	\$45.00	\$137.40	\$182.40
County of Dare, NC	(2), (4), (5), (6)			
Summer Rates		\$142.90	-	
Winter Rates		\$114.28	-	
Newark, MD	(2), (3)	\$121.50	\$121.50	\$243.00
Ocean City, MD (current rates)	(1)	\$80.50	\$77.55	\$158.05
Ocean City, MD (proposed rates)	(1)	\$81.20	\$83.60	\$164.80
Ocean Pines, MD	(2), (3)	\$68.17	\$147.40	\$215.57
Salisbury, MD	(2)	\$78.99	\$143.56	\$222.55
Virginia Beach, VA	(2)	\$46.38	\$173.70	\$220.08
West Ocean City		N/A	\$107.25	

NOTES:

- (1) - Based on domestic fixture count of 11, and metered water consumption of 6,000 gal. per month
- (2) - Based on average metered water consumption of 6,000 Gal. per month for a 3 mo./90 day period
- (3) - Also includes EDU (Equivalent Dwelling Unit) of \$47.00 per quarter
- (4) - Also based on peak surcharge rate (\$0.50 per 1,000 gal.) for period from April thru September
- (5) - Also includes quarterly fixed charge of \$19.06
- (6) - Rates are for the following areas within the County: Avon, Buxton, Frisco, Hatteras, and Stumpy Point

Prepared by:
 Martha Bennett Lucey
 Finance Administrator
 04/05/2010



COMPREHENSIVE WATER SUPPLY STUDY

This 2010 review of the 2005 Comprehensive Water Supply Study by Whitman Requardt & Associates was prepared in order to update a plan for implementing improvements that will enable the Town's water system to meet the following primary objectives:

- Meeting the projected water system demands at least to the Year 2025
- Compliance with current and proposed regulatory requirements
- Continuing to provide a safe and affordable drinking water for its customers
- Extension of the useful life of the facilities
- Conceptual planning for possible future desalination

WATER DEMANDS

The Town's water system must have adequate capacity to serve the seasonal peak weekend population. The Year 2025 Peak Summer Seasonal Population, as projected by the Town's Department of Planning and Community Development is 381,114. Actual maximum day water demand on per capita basis between 1994 and 2004 ranged from 35.9 gallons per capita per day (gpcd) in 2004 to a high of 43.8 gpcd in 1997. Utilizing a proposed usage rate of 44 gpcd, the corresponding maximum day system demand for the Year 2025 was projected to be 16.8 million gallons per day (MGD).

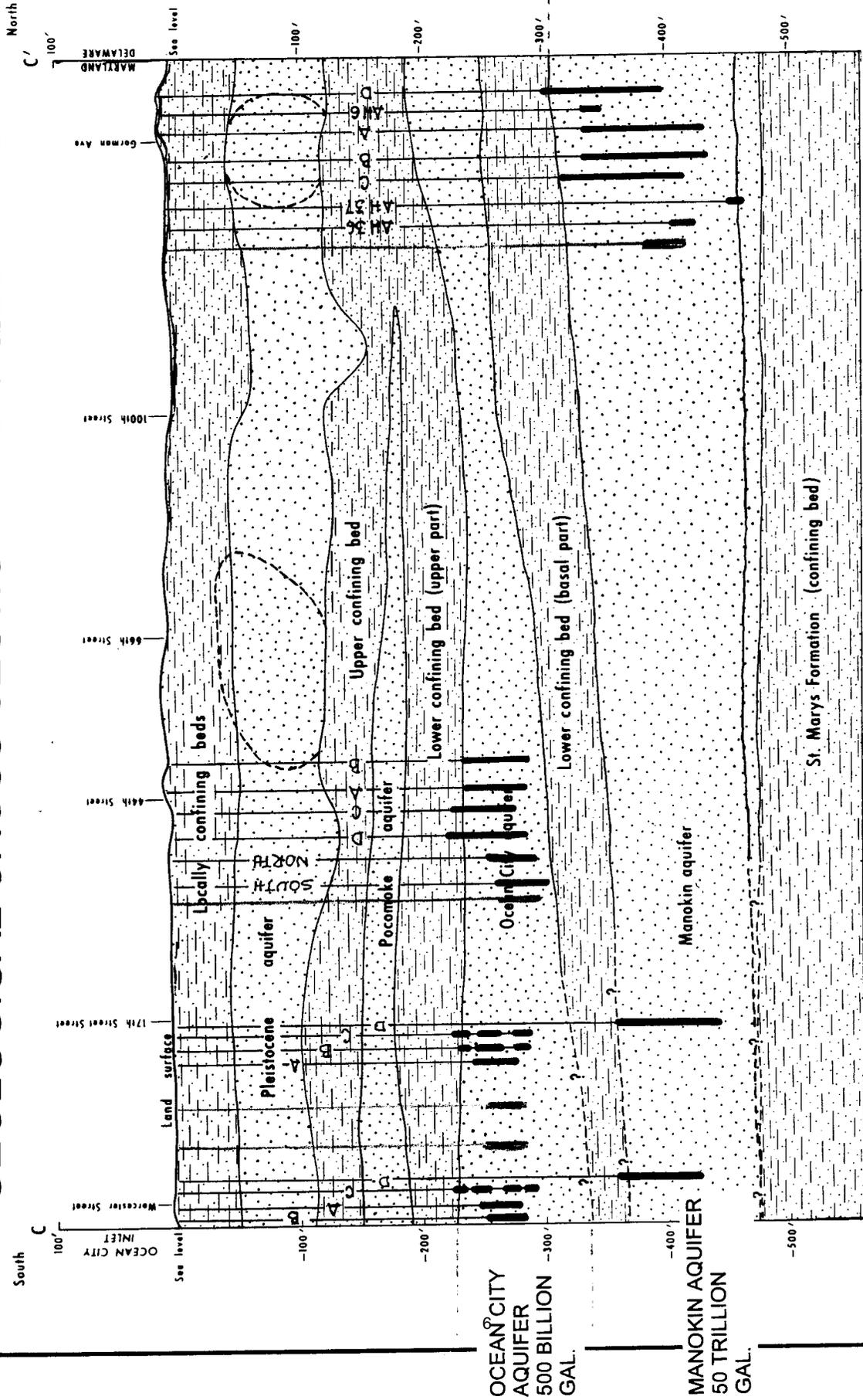
WELL SUPPLY

The existing raw water supply consists of 16 wells in the Ocean City Aquifer and 9 wells in the Manokin Aquifer. The location of the wells have been spread out to the extent possible to reduce the effects of seasonal draw down and to minimize the potential for increased salt water intrusion by upconing in specific areas. The current available raw water supply safely exceeds the treatment capacity of each associated treatment plant. The on going well testing and rehabilitation program should be maintained in order to ensure that the current well capacities will continue to be available. A new well is proposed in the future at 51st Street. The current permitted allocation (8 MGD annual average/17.6 MGD daily average in the month of maximum use) is more than adequate to meet the projected water demands to the Year 2025.

The Maryland Geological Survey (MGS) has updated their ground water computer model of salt-water intrusion in Ocean City. Estimates indicate the 250-mg/l concentration (value at which salinity becomes objectionable) isochlor to be approximately 2 miles offshore. Continued monitoring of chloride concentrations will assist in planning for the implementation of future desalination.

The recommended short-term solutions to minimizing the impact of saltwater intrusion are 1) to continue to spread the withdrawals to minimize the localized upconing of higher chlorides and 2) to place high-chloride wells on standby and utilize lower chloride wells and/or construct new

GEOLOGICAL CROSS SECTION AND WELL FIELDS



(Location of section shown on figure 3)

GENERALIZED SECTION TAKEN FROM THE MARYLAND GEOLOGICAL SURVEY, REPORT OF INVESTIGATION NO. 24.

GEOLOGICAL CROSS SECTION OF OCEAN CITY

WHITMAN, REQUARDT AND ASSOCIATED CONSULTING ENGINEERS

—Generalized section showing aquifers, confining beds, and vertical distribution of salty ground water beneath Ocean City.

OCEAN CITY
AQUIFER
500 BILLION
GAL.

MANOKIN AQUIFER
50 TRILLION
GAL.

Capacity of Operating Wells

Summary

Plant / Treatment Capacity	Total Wells	Total Capacity (mgd)	Safe Capacity (mgd)
15 th Street (6 mgd)	10	11.4	9.7
44 th Street (4 mgd)	8	7.4	6.9
Gorman Ave. (8 mgd)	7	11.3	9.1
TOTALS	24	30.1	25.7

Total Treatment Capacity = 18 mgd

production wells in areas of known lower chlorides. The most feasible cost effective long-term solution to salt water intrusion for the Town is to construct desalination facilities in a phased approach, initially blending the desalted water with non-desalted water so as to maintain the blended chloride level at far below 250mg/l.

An inspection of all the well houses found that they are generally in excellent condition. More than half of the existing wells have standby power capability with a total pumping capacity of 11.9 MGD. Since this capability is less than maximum day water demands, it is suggested that manual transfer switches and receptacles for portable generators be provided for those wells currently lacking standby power and that the Town arrange to have adequate portable generators on hand. Estimated cost for each portable generator is \$35,000. The installation of reduced voltage starters for all but the newest wells is also suggested for improved reliability and to minimize electrical surges.

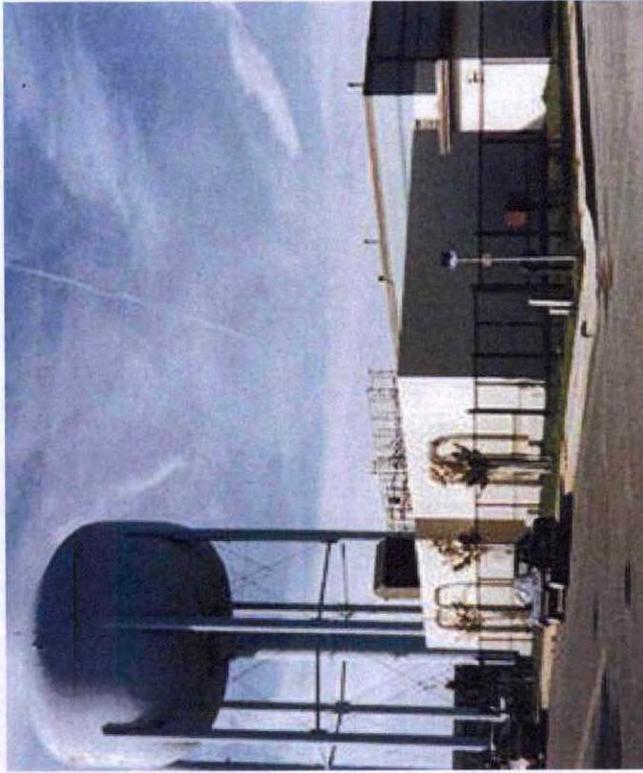
WATER TREATMENT

The existing water treatment facilities are producing an excellent quality potable water meeting all regulatory requirements. Improvements completed at the plants over the past several years have improved operations, improved reliability and extended the useful life of the facilities. Each of the facilities was inspected and no significant concerns or issues were observed. The Town's Capital Improvement Plan (CIP) continues to include allowances for planned infrastructure upgrades such as the replacement of aging and obsolete equipment in order to maintain its current high level of operational reliability. The current design treatment capacity of 18 MGD is based upon 6 MGD for the from the 15th Street WTP, 4 MGD from the 44th Street WTP and 8 MGD from the Gorman Avenue WTP. That capacity is more than adequate to meet the projected 2025 maximum day demand of 16.8 MGD.

Raw water iron concentration trends have shown no significant increases in recent years. The existing iron removal treatment processes are therefore projected to be adequate for the foreseeable future. The total available capacity of the production wells at 29.28 MGD is such that several high iron concentration wells (South-D and 15th- D) that would otherwise be used to supply to the 15th Street WTP are required. Placing those wells in inactive or emergency standby service has resulted in improved operation of the 15th Street WTP. The iron removal clarifiers originally considered as eventually to be required for the 15th Street WTP is no longer a consideration.

Disinfection alternatives to the current use of gaseous chlorine were evaluated at the request of the Town to address potential safety issues related to the handling and transportation of gaseous chlorine, even though each plant has chlorine leak scrubber systems. Alternatives that were considered included bulk delivery of sodium hypochlorite to new storage tanks, on-site generation of low concentration sodium hypochlorite and on-site generation of a proprietary mixed oxidant that is similar to sodium hypochlorite that may have other beneficial properties. It is suggested that the final decision as to potential selection of an alternate disinfectant be deferred until completion of the planned program of increased water quality monitoring (this program is discussed hereinafter) since the findings of that monitoring program may impact the alternate disinfectant decision.

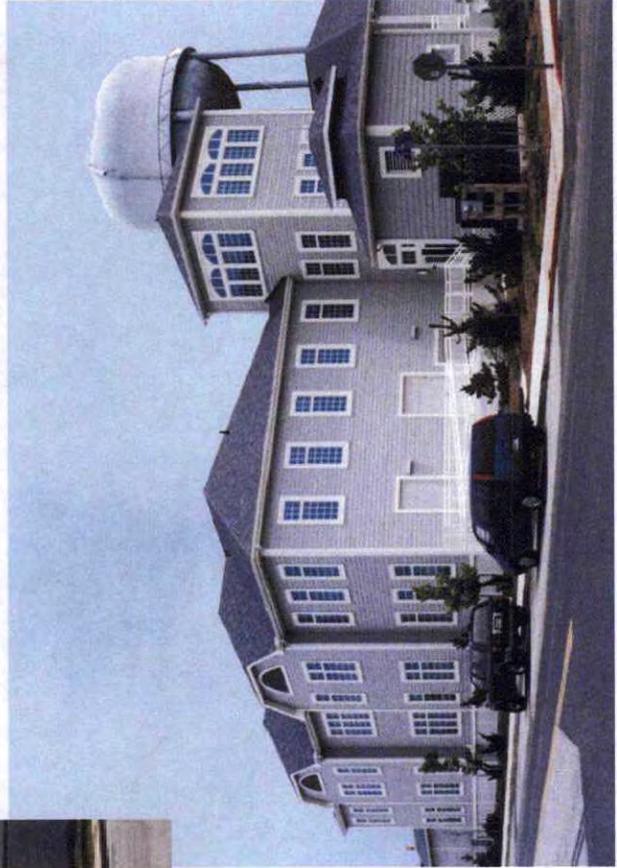
**WATER TREATMENT PLANTS
AND STORAGE FACILITIES**



Gorman Avenue Water Treatment Plant



44th Street Water Treatment Plant



15th Street Water Treatment Plant

Desalination technology alternatives with budgetary implementation costs were presented. A phased, expandable concept for each treatment plant is suggested. Since the highest chloride levels are currently occurring at the 44th Street WTP, it is at that plant where the initial desalination facility will likely be required. The proposed concept would be to initially treat only a portion of the effluent from the existing iron removal process and blending the desalinated water with the remaining portion such that the combined effluent is maintained below the non-enforceable USEPA Secondary Maximum Contaminant Level (SMCL) for chlorides (250 mg/l). The 250-mg/l concentration of chlorides is generally considered the limit for an aesthetically acceptable potable water. As the chloride levels continue to gradually increase, a greater proportion of the treated flow must be desalinated until such point that the entire volume must be desalinated. The estimated desalination system equipment cost for a 2 MGD desalination facility ranges from \$1.0M to \$3.0 M. Total implementation costs are estimated at \$1.00 to \$1.50 per gallon of treatment capacity for a total implementation cost ranging from \$17M to \$25M for the projected maximum day water demand of 16.8 MGD. Land suitable for desalination facilities is available adjacent to the 15th Street WTP (former library site) and Gorman Avenue WTP (current framed storage building site within yard fencing.). Although suitable land directly adjacent to the 44th Street is not currently available, any site with adequate space within several blocks of the plant would be suitable with interconnecting piping. It is recommended that the chloride concentrations continue to be monitored and that appropriate planning efforts discussed herein be scheduled as required for this eventual requirement.

WATER STORAGE AND DISTRIBUTION

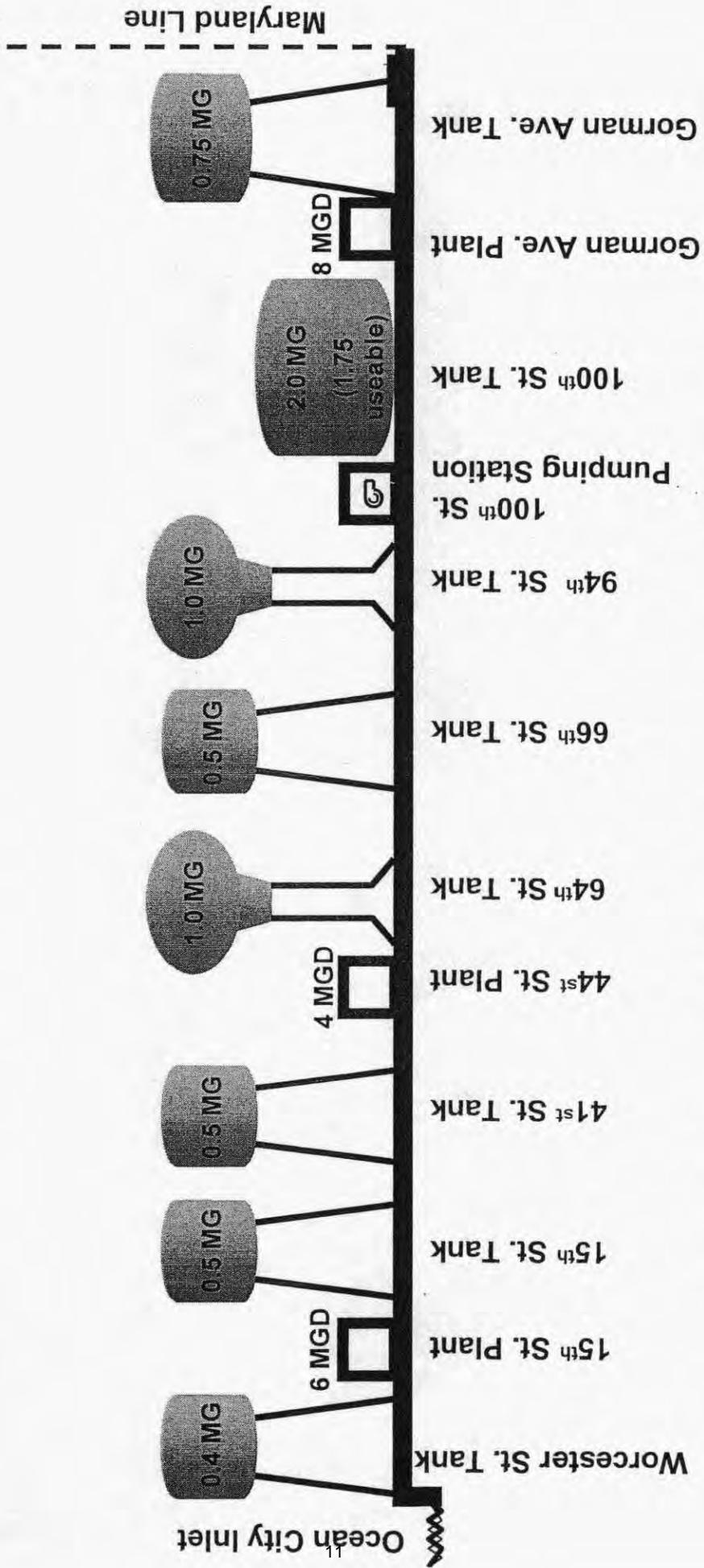
The Town’s water storage and distribution facilities have been expanded and upgraded over the years to meet maximum day water demands and fire flows. The water system has several unique physical and operational characteristics that include.

- Relatively long (10 miles) and narrow (0.2 to 1.0 miles wide) configuration
- Seven elevated water storage facilities spaced along its length at same overflow elevation of approximately 118’
- Dramatic seasonal water demand fluctuations due to differences in population served (7,000 full-time residents and over 250,000 visitors during a peak summer weekend)
- Three separate water treatment facilities that supply water to south, central and north portions of the system with only one facility typically operating during the low water demand months.

Tank Name	Capacity (gal)	Notes
South Division Street	0.40	Built in 1955
15 th Street	0.50	Built in 1959
41 st Street	0.50	Built in 1958
64 th Street	1.00	Built in 2000
66 th Street	0.40	Built in 1963
94 th Street	1.00	Built in 1987
100 th Street Ground	1.75	Usable Volume, Built in 1974
Gorman Avenue	0.75	Built in 1969
Total	6.30	

Ocean City Water System

Distribution System



Total Useable Storage = 6.30 MG

The seven elevated and one ground level water storage tanks currently provide a total usable storage of 6.3 millions gallons. The Town's current program of scheduled inspection, repairs and repainting has ensured that the tanks maintain their usability, reliability and aesthetic appearance.



94th Street Water Tower

The booster pump station associated with the 100th Street tank was improved and includes standby power capability. The water mains are reportedly in acceptable condition with little evidence of corrosion, scale or tuberculation.

A concurrent study entitled "Water Distribution System Water Quality assessment" was performed in 2005 to focus on water system conditions and operations as pertaining to microbial occurrence. Several recommendations were presented including conducting an "Enhanced Water Quality Monitoring Program", which was initiated in October 2005 to gain a better understanding of microbial conditions throughout the distribution system. Looping of dead-ends was done to promote circulation and two automatic flushing devices, north and south, were installed.

The Town's hydraulic water system model was updated to reflect new water main construction and new water demand information. The hydraulic modeling evaluations were performed to assess the capabilities and limitations of the existing storage and distribution system, as well as to plan a logical and cost effective program of system improvements to meet existing and future demands and fire protections requirements. The hydraulic modeling has therefore considered the current off-season low water demand conditions typically expected to be accompanied by greater hydraulic retention time as well as the normally modeled conditions of meeting projected maximum day water demands.

Current off-seasonal low flow conditions were modeled with an average day demand of 1.93 MGD. The demand was met by placing a single WTP in operation, which has the following implications:

- Hydraulic Retention Time (HRT): HRT is used as an indicator of water quality, and appears to be 10 days or greater in a large portion of the system due to the distance the water must travel to reach the farthest reaches of the system, the storage volume of the distribution system piping (approximately 2 MG) and the storage volume of the water tanks (6.55 MG).
- Fire Flow: the 6,000 gpm for 4 hour fire flow requirement along Coastal Highway does not appear to be met in the northern area of the system, whereas the central and southern areas appear to meet this fire flow requirement. Also, selected tanks cannot be taken out of service for the off-season without compromising the system's ability to meet fire flow demands.

Because of the concerns discussed above with fire flow requirements, the following operational scenarios were modeled:

- Additional storage in the vicinity of Gorman Avenue to meet the 1.44 MG fire volume requirement allowed the 6,000 gpm fire flow to be met for a duration of 4 hours, but increased HRT in the vicinity.
- Additional transmission capacity to move water north from the 100th Street tank / pump station and the 94th Street elevated tank. A 16-inch main was modeled from 100th Street north to 130th Street, which allowed the 6,000 gpm fire flow to be met for a 4-hour duration with no additional storage or pumping capacity added.
- Addition of high capacity fire pump at the 100th Street tank / pump station was modeled extensively, and appears to have little effect on the outcome because the water is not dedicated to the fire event, and flows to other demands in the system.
- Gorman WTP is modeled to supply base off-season flow, while maintaining the ability to accelerate production immediately to 8 MGD should an emergency fire flow demand occur. The model indicated that this operational scenario allows the fire flow to be met while maintaining proper pressures in the distribution system.

Projected seasonal maximum day water demands were modeled at 16.8 MGD. Under these demand conditions, all water treatment facilities were assumed to be producing at or near their rated capacity. Extended period simulation (EPA) models indicate that maximum day and peak hour residential demands can be met. In addition, a 6,000 gpm 4-hour fire flow can be met at the south, central and north locations, and HRT is typically 1 to 4 days (24 to 96 hours).

No.	Location	Available Fire Flow (gpm)		Cost
		Before	After	
1	17 th Street & Shad Row	975	2330	\$20,000
2	Kingfish to Tuna	1260	2600	\$20,000
3	Marlin to 22 nd Street	740	1700	\$55,000
4	25 th Street to 26 th Street	940	2140	\$30,000
5	Osprey to Bayshore	440	590	\$30,000
6	Bayshore to Penguin	560	1300	\$60,000
7	Bayshore to Gull Way	450	750	\$15,000
8	Hitchens to Canal to Trimper	1050	1850	\$30,000
9	Plover to Tern	675	905	\$45,000
10	Rusty Anchor to Bradley	450	700	\$40,000
11	Mooring to 94 th	450	670	\$30,000
12	Point Lookout to Pine Needle	370	1150	\$150,000
13	Shipwreck to South Heron Gull	500	1400	\$30,000
14	Seaward to Windward	580	850	\$30,000
15	Windward to Newport Bay	470	990	\$20,000
16	White Heron to Blue Heron	1340	1890	\$30,000
17	Sea Lane to Gulf Stream	530	910	\$30,000
18	Pine Tree Lane to Holly Lane	890	1620	\$50,000
19	South Surf to 139 th	925	1330	\$40,000
20	Channel Buoy to 112 th	480	2050	\$25,000

CAPITAL IMPROVEMENT PROGRAM (CIP)

The Town's Water Department continues to prepare an updated CIP each year for the consideration of the Mayor and City Council. The preparation of the Town's CIP for water system improvements is typically based upon a combination of the following:

- Scheduling of major capital improvements (such as new wells and major plant upgrades) as recommended by the Town's water consultant.
- Scheduling of repainting and maintenance of the water storage facilities as recommended by the Town's tank maintenance consultant.
- Scheduling of major well rehabilitation efforts based upon input from a well drilling/maintenance contractor and observations of production well problems by the water operations staff.
- Addressing miscellaneous water infrastructure needs as recognized by the Town's operation and management staff during the previous year.
- Scheduling of miscellaneous water main upgrades for improved fire protection and water circulation based upon input from the Town's fire department.

Town of Ocean City, Maryland

Capital Improvement Plan

2011 thru 2015

PROJECTS & FUNDING SOURCES BY DEPARTMENT

Department	Project#	Priority	2011	2012	2013	2014	2015	Total
Water								
Water Main Upgrades	08-WA-001	3	259,203	175,000	175,000	175,000	175,000	959,203
Gorman Ave Plant Improvements	08-WA-002	3	450,000		328,000			778,000
St Louis Ave Water Main Upgrade	11-WA-002	1			500,000	500,000	500,000	1,500,000
Well Rehabilitation	11-WA-003	3	100,000	100,000	100,000	100,000	100,000	500,000
Water Master Plan	11-WA-004	2	150,000					150,000
Capital Repairs	11-WA-005	3	112,650	110,000	110,000	110,000	110,000	552,650
Storage Towers and Tanks	11-WA-006	2	567,500	517,500	617,500	617,500	467,500	2,787,500
Raw Water Main	12-WA-001	3		355,000				355,000
51st Street Production Well	13-WA-001	3			100,000	395,000		495,000
Conversion To Automatic Water Meter Reading	15-WA-001	n/a					600,000	600,000
Water Total			1,639,353	1,257,500	1,930,500	1,897,500	1,952,500	8,677,353
<i>Water Fund</i>			<i>1,639,353</i>	<i>1,257,500</i>	<i>1,930,500</i>	<i>1,897,500</i>	<i>1,952,500</i>	<i>8,677,353</i>
<i>Water Total</i>			<i>1,639,353</i>	<i>1,257,500</i>	<i>1,930,500</i>	<i>1,897,500</i>	<i>1,952,500</i>	<i>8,677,353</i>
Grand Total			1,639,353	1,257,500	1,930,500	1,897,500	1,952,500	8,677,353

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Improvement
 Useful Life 50 Years
 Category Utilities
 Priority 3 Important

Project # 08-WA-001
 Project Name Water Main Upgrades

City Project Code WMAINS

Total Project Cost: \$959,203

Description
 Replace and increase size of water mains:
 Undesignated water main upgrades

Justification
 To increase fire fighting capabilities and to improve water quality

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	259,203	175,000	175,000	175,000	175,000	959,203
Total	259,203	175,000	175,000	175,000	175,000	959,203

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	259,203	175,000	175,000	175,000	175,000	959,203
Total	259,203	175,000	175,000	175,000	175,000	959,203

Budget Impact/Other
 Improve water flow and reduces dead end.

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Improvement
 Useful Life 30 Years
 Category Utilities
 Priority 3 Important

Project # 08-WA-002
 Project Name Gorman Ave Plant Improvements

City Project Code

Total Project Cost: \$778,000

Description

Architectual and building improvements to Gorman Ave water plant

Justification

To improve asthetics and maintain current structures including filter replacement
 Interior steel needs to be sand blasted and painted

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	450,000		328,000			778,000
Total	450,000		328,000			778,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	450,000		328,000			778,000
Total	450,000		328,000			778,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 *thru* 2015

Department Water
 Contact Howard Iman
 Type Improvement
 Useful Life 50 Years
 Category Utilities
 Priority I Critical

Project # 11-WA-002
 Project Name St Louis Ave Water Main Upgrade

City Project Code

Total Project Cost: \$1,500,000

Description
 St Louis Avenue Water Main Phase I of III - 10 Street to 17th Street
 St Louis Avenue Water Main Phase II of III - 4th Street to 10th Street
 St Louis Avenue Water Main Phase III of III - North Division to 4th Street

Justification
 To increase fire fighting capabilities and to improve water quality

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance			500,000	500,000	500,000	1,500,000
Total			500,000	500,000	500,000	1,500,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund			500,000	500,000	500,000	1,500,000
Total			500,000	500,000	500,000	1,500,000

Budget Impact/Other
 Cost is reduced by combining project with street improvements and upgrade of Wastewater mains.

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Maintenance
 Useful Life 10 Years
 Category Utilities
 Priority 3 Important

Project # 11-WA-003
 Project Name Well Rehabilitation

City Project Code

Description **Total Project Cost: \$500,000**
 Wells are monitored and one to two wells are extensively examined and repaired each year.

Justification
 Ocean City draws most of its water from the Ocean City aquifer (over 300') and the Manokin aquifer (over 400'). Wells are subject to corrosion and continual maintenance is required to preserve water quality and volume.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	100,000	100,000	100,000	100,000	100,000	500,000
Total	100,000	100,000	100,000	100,000	100,000	500,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	100,000	100,000	100,000	100,000	100,000	500,000
Total	100,000	100,000	100,000	100,000	100,000	500,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Unassigned
 Useful Life On Going
 Category Utilities
 Priority 2 Very Important

Project # 11-WA-004
 Project Name Water Master Plan

City Project Code

Description **Total Project Cost: \$150,000**
 5-Year update of Water Department Master Plan by certified engineers

Justification
 Critical for planning and prioritizing water capital projects and major repairs

Expenditures	2011	2012	2013	2014	2015	Total
Planning/Design	150,000					150,000
Total	150,000					150,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	150,000					150,000
Total	150,000					150,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 *thru* 2015

Department Water
 Contact Howard Iman
 Type Maintenance
 Useful Life 10 Years
 Category Utilities
 Priority 3 Important

Project # 11-WA-005
 Project Name Capital Repairs

City Project Code

Total Project Cost: \$552,650

Description

Major repairs to plant and equipment needed to maintain capital assets needed for high summer capacity flows including HVAC, electronic controls, and chemical supply systems,

Justification

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance		110,000	110,000	110,000	110,000	440,000
Equip/Vehicles/Furnishings	112,650					112,650
Total	112,650	110,000	110,000	110,000	110,000	552,650

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	112,650	110,000	110,000	110,000	110,000	552,650
Total	112,650	110,000	110,000	110,000	110,000	552,650

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Maintenance
 Useful Life 10 Years
 Category Utilities
 Priority 2 Very Important

Project # 11-WA-006
 Project Name Storage Towers and Tanks

City Project Code

Total Project Cost: \$2,787,500

Description
 Sandblasting, painting, and corrosion prevention of water storage towers and tanks. One tank or tower is painted each year.

Justification

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	567,500	517,500	617,500	617,500	467,500	2,787,500
Total	567,500	517,500	617,500	617,500	467,500	2,787,500

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund	567,500	517,500	617,500	617,500	467,500	2,787,500
Total	567,500	517,500	617,500	617,500	467,500	2,787,500

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Improvement
 Useful Life 50 Years
 Category Utilities
 Priority 3 Important

Project # 12-WA-001
 Project Name Raw Water Main

City Project Code

Total Project Cost: \$355,000

Description
 Raw water main design/construction 45th Street to 51st Street

Justification
 To meet future water demands

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance		355,000				355,000
Total		355,000				355,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund		355,000				355,000
Total		355,000				355,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Improvement
 Useful Life 50 Years
 Category Utilities
 Priority 3 Important

Project # 13-WA-001
 Project Name 51st Street Production Well

City Project Code

Total Project Cost: \$495,000

Description
 51st Street Production Well Design And Bidding
 51st Street production well/drilling instrumentation and well house construction

Justification
 To meet future water demands

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance			100,000	395,000		495,000
Total			100,000	395,000		495,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund			100,000	395,000		495,000
Total			100,000	395,000		495,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Water
 Contact Howard Iman
 Type Unassigned
 Useful Life
 Category Utilities
 Priority n/a

Project # 15-WA-001
 Project Name **Conversion To Automatic Water Meter Reading**

City Project Code

Description **Total Project Cost: \$600,000**
 Phase I of II - Conversion to automatic water meter reading

Justification
 To update/improve current system

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance					600,000	600,000
Total					600,000	600,000

Funding Sources	2011	2012	2013	2014	2015	Total
Water Fund					600,000	600,000
Total					600,000	600,000

Budget Impact/Other
 Reduce time and labor to read meters; improve accuracy.



WASTEWATER FACILITIES PLAN



Ocean City Wastewater Treatment Plant

The Ocean City Wastewater Treatment Plant (OCWWTP) currently has a rated capacity of 14 MGD based on average daily flow.

Because of the seasonal nature of the influent flows, the plant's treatment capacity is based on maximum monthly flows, which occur only during the summer months. The collection and conveyance system consists of sewer mains ranging in size from 8 inch to 48-inch diameter, which convey wastewater from the north and south along Coastal Highway to the wastewater treatment plant at 64th Street. The conveyance system includes nine pumping stations, which

lift wastewater flows into the interceptor in areas

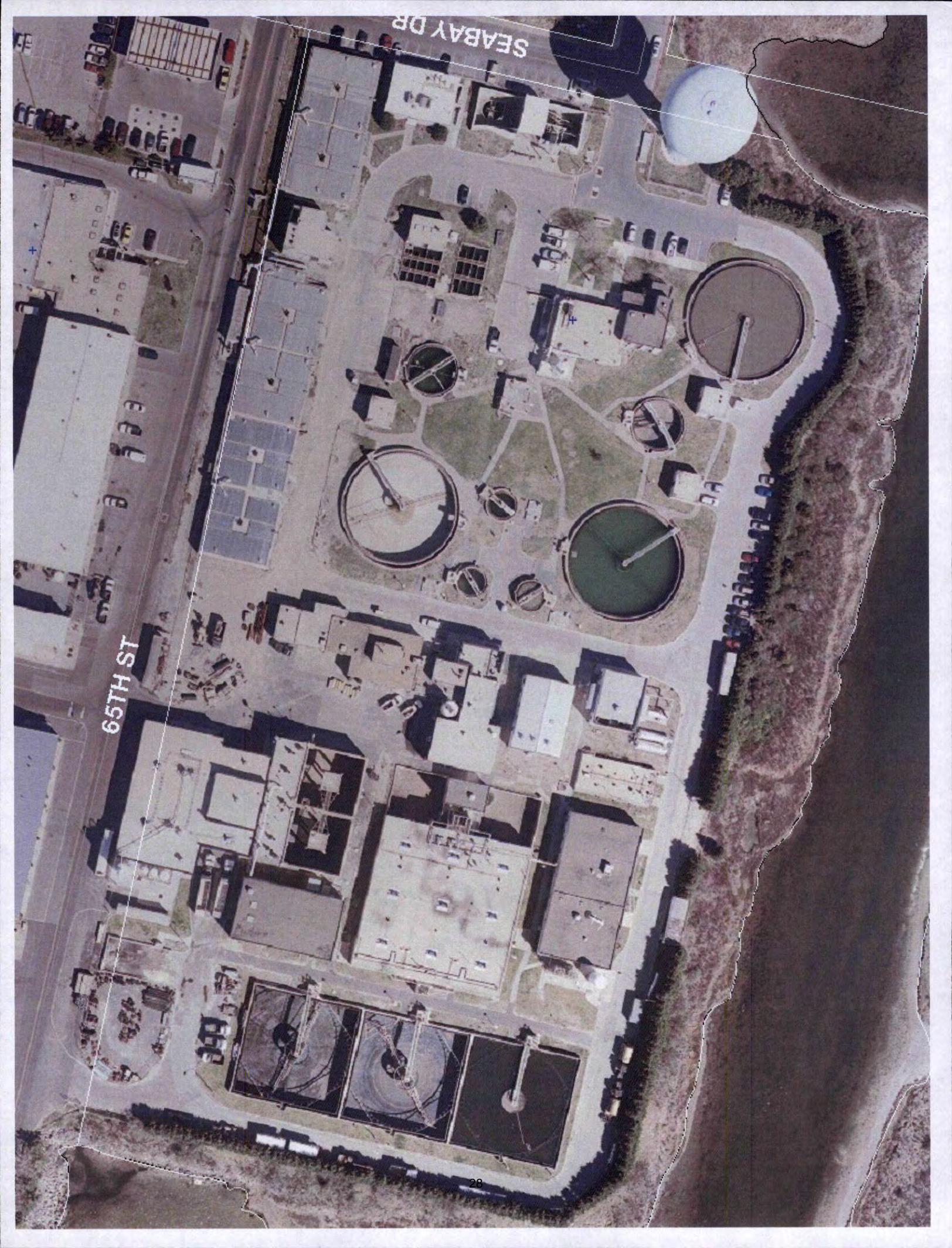
where gravity flow is not possible. The Town also receives flow from a Worcester County pump station located in West Ocean City, and from a pumping station built by the developer of Sunset Island. A summary of facility conditions and findings is described in the following sections:

WINTER AND SUMMER PRELIMINARY TREATMENT WORKS

The original headworks for the plant were brought online in March 1969 and include four manual bar screens and two grit settling chambers. The headworks include two comminutors, which were added in 1972. Both comminutors were replaced in 1988-1989 and one comminutor was recently in 2004. The Town plans to replace the other comminutor with a Dimminutor. The bar screens remain in adequate condition. The bar screens and grit settling chambers are manually cleaned during the winter operation; there is no grit removal during the summer, as the baffles are removed during this time of operation.

In 1993, new headworks facilities were constructed to treat the higher flow during the summer months. The new headworks, the "summer" headworks, consist of two mechanical bar screens and two vortex grit removal units. Both screens and grit units can be bypassed such that one unit can be operated while the second is out of service. The mechanical screens were modified in 2001 to include screen washing and a reduction in the screen opening from 15 mm to 6mm. The plant staff has observed sand and grit settling in the headworks channels at flows less than 7 MGD and blinding of the screens at higher flows. Some concrete deterioration has also occurred near the screenings dumpster hoist area.

Grit removal equipment consists of two Smith and Loveless Pista Grit units, two 15 HP grit pumps, and one grit classifier. The Pista Grit units are rated at 20 MGD and 12 MGD respectively and can be operated in parallel. It has been noted by the OCWWTP staff that solids settling occurs in the channel leading to the 12 MGD Pista Grit unit.



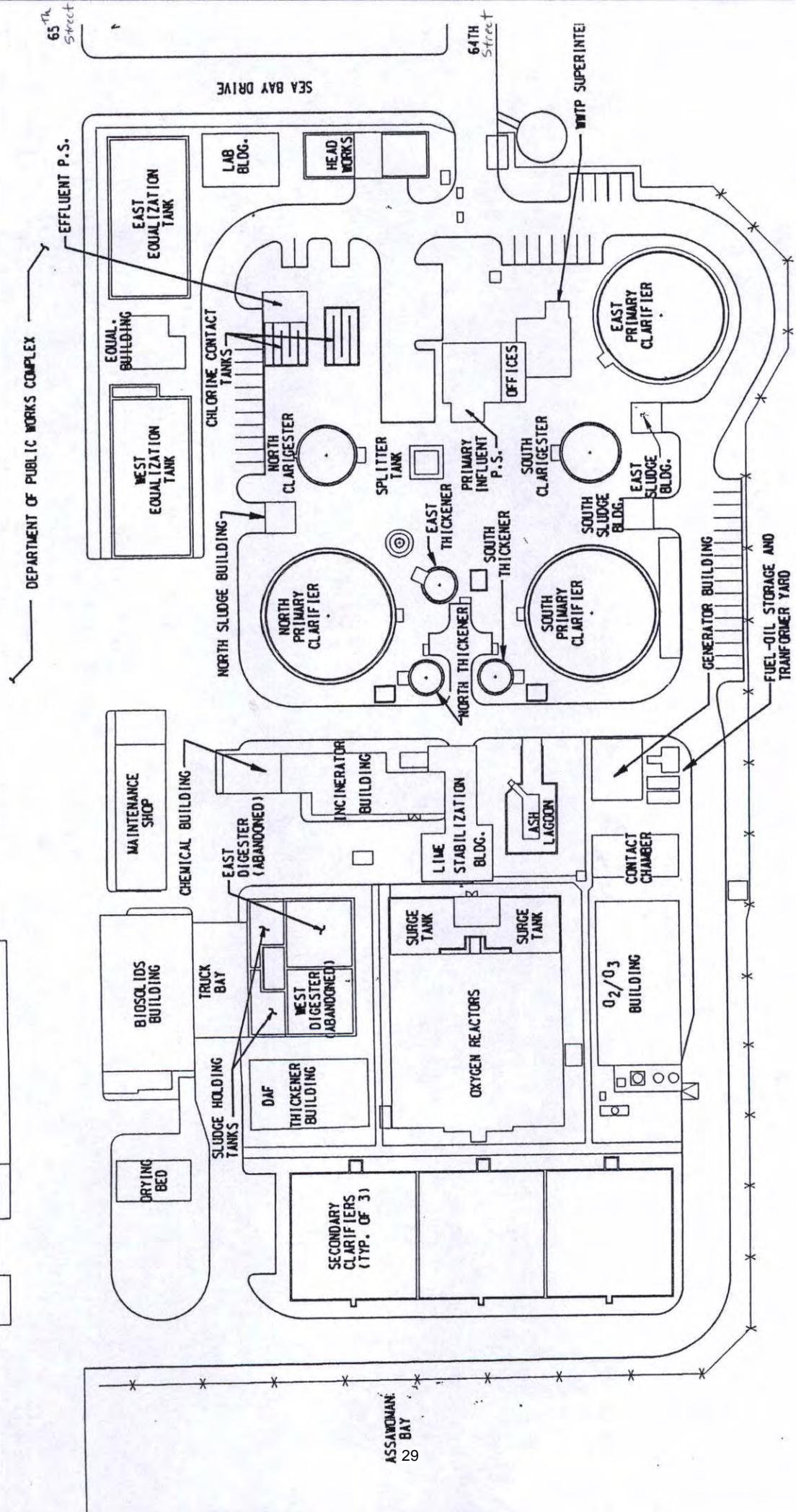
SEABAY DR

65TH ST

PUBLIC WORKS OFFICES

FENCED STORAGE AREA

SHOPS & STORAGE



OCEAN CITY WASTEWATER TREATMENT PLANT

PRIMARY INFLUENT PUMPING

The influent pumping station was part of the original treatment plant construction, which was brought online in March 1969. It is currently equipped with three “summer” pumps, one smaller HP variable speed “summer” pump, and three constant speed “winter” pumps. The are 200 HP units with original design points of 14 MGD for one pump operation and 23 MGD for two pump operation. The fourth summer pump is a 75 HP pump with a variable frequency drive (VFD) to reduce pump cycling during low flow periods. This pump was originally located at the Montego Bay Pump Station (located at 130th Street). The winter pumps are 15 HP units with an original design point of 1.30 MGD for one pump operation.

For the summer pumps, new rotating assemblies with three vane impellers and larger housings have been purchased and installed. Currently, the summer pumps are operated throughout the year and the winter pumps are only used when the summer pumps or summer wet well are being serviced. The primary influent pump station can pump to the equalization basins of to the primary influent splitter chamber.

EQUALIZATION BASINS AND EQUALIZATION PUMPS

The OCWWTP equalizes flow with six 55’ x 55’ concrete basins built in 1989. Each of the four basins has a 10 HP mixer and coarse bubble air diffusers. The maximum operating volume of the equalization basins is 2.7 million gallons (MG), determined using an operating depth range of 18.75 ft. (Elevation range of –0.5 to 19.25 feet). The basins are used to equalize diurnal peak flows and stormflow events and discharge an approximately steady flow to downstream process units. The discharge flow is manually set and the three variable speed equalization pumps adjust to maintain the selected flow rate. Construction of odor control facilities for the equalization basins was completed in 2006.

Wastewater is pumped from the equalization basins to the primary influent splitter chamber by three variable speed 100 HP Equalization Pumps. Each equalization pump has a rated capacity of 7.0 MGD at 300 RPM and the minimum static head. For two pump operation, the rated capacity is 22.0 MGD at the maximum static head conditions.

PRIMARY CLARIFIERS AND CLARIGESTERS

The OCWWTP has three primary clarifiers and two clarigesters for primary sedimentation. The north primary clarifier and clarigester were brought online in March 1969 and are concrete, circular tanks. The north primary clarifier and clarigester are both center-feed, peripheral overflow type. The south primary clarifier and clarigester of the same design were constructed in 1972. The clarigesters presently function as primary clarifiers. The east primary clarifier was constructed in 1988. All five structures have experienced varying degrees of concrete deterioration, which have been repaired. During periods of low flows, the facility is able to take one or more of the primary clarifiers or clarigesters off-line for maintenance.

SECONDARY INFLUENT PUMPING

The secondary influent pumping station was constructed in 1982 as part of the secondary plant expansion. This pump station lifts primary effluent and return activated sludge to the oxygenation tanks. It is equipped with three 150 HP pumps with Variable Speed Drives, with design points of 17 MGD for one pump operation and 22.7 MGD for two pump operations. In 2003, all three pumps were upgraded with VFD controls.

The secondary influent pumps discharge into a splitter box that distributes flow to the three oxygenation tanks. The combination of the small volume of the splitter box and the discharge velocity from the secondary influent pumps causes significant turbulence in the splitter box, as shown in the picture. The splitter box has adjustable weir gates to split the flow to the three reactors. As a result of the turbulence, there is uneven flow distribution to the three oxygenation tanks.

HIGH PURITY OXYGEN ACTIVATED SLUDGE

Secondary treatment at the OCWWTP is provided by a high purity oxygen activated sludge system. Three concrete oxygenation tanks were constructed in 1981 with a total operational volume of 0.34 MG each.

A cryogenic oxygen generation facility was included in the original 1982 plant construction. In 2001, the cryogenic system was replaced with a single-bed vacuum pressure swing adsorption (VPSA) system. The new system has a rated capacity of 15 tons/day. A 13,000 gallon high purity liquid oxygen storage tank and associated vaporizers serve as a backup to the VPSA system. The VPSA system works well for the OCWWTP staff. One operating issue identified was a potential noise issue associated with the VPSA blower and the adjacent control room.

The oxygen dissolution system consists of six 25 HP aerators, one installed in the first and second stage of each reactor, and three 20 HP aerators, one installed in the third stage of each reactor. These new aerators were installed in 2009. The facility also has two centrifugal blowers, which were added in 1982 and 1997, respectively. The blowers are located on top of the oxygenation tanks. The original blower was included in the design to provide purge air for the headspace in the oxygenation tanks in the event of an LEL condition. The purge blowers are also currently used to operate the secondary plant on air, instead of pure oxygen, during low flow and loading periods. The purge blowers do not operate when the plant is operating on oxygen, unless there is an LEL condition. The field inspection revealed all equipment in good condition. The plant has added D.O. probes in all three stages of each reactor, to improve control of the oxygen feed.

SECONDARY CLARIFIERS

The secondary clarifiers were constructed in 1982 and consist of three square, concrete tanks with center-feed, scraper blades and suction tubes. Each clarifier has a ½ HP drive and is equipped with surface skimming for scum removal, including a scum collection box and scum pump. For return activated sludge, each secondary clarifier has 8 suction tubes, 4 of which are normally open and 4 of which are partially open during typical operation. The onsite inspection noted cracks at

various locations on the tank exterior, the majority of which have been patched. The secondary clarifiers experience uneven flow distribution from the aeration basins as well as floating sludge in the tanks and in the clarifier center feedwells. A fourth secondary clarifier is projected to be constructed in 2016.

CHLORINATION/DECHLORINATION

Disinfection occurs via chlorination in four chlorine contact tanks operated in series. Chlorine contact tank no. 1 was brought online in 1969 and has a maximum operating volume of 50,200 gallons. In 1972, a second chlorine contact tank was constructed, with a maximum operating volume of 50,700 gallons. In 1982, an ozone contact tank was constructed and ozone disinfection replaced chlorination. The ozone tank has a maximum operating volume of 190,000 gallons. Disinfection with ozone has since been discontinued, and the ozone contact tank is currently used as a third and fourth chlorine contact tanks. Chlorine is injected at the head of the ozone contact tank. The ozone contact tank has some cracked concrete on the tank roof, which has been repaired.

The chlorine feed system was upgraded in 1982 and includes one chlorine cylinder scale with the capacity for a two ton chlorine cylinder scale with the capacity for a two ton chlorine cylinder. The chlorine evaporator has a capacity of 3,200 lbs/day. Chlorination for disinfection has a design feed rate of 2,000 lbs/day, while an additional 800 lbs/day is used for pre-chlorination and 400 lbs/day is used at the gravity thickeners for odor control. There are two pre-chlorination injectors, one located before the winter headworks and one located directly after. The chlorination storage cylinders and evaporator are located in the North Process Building. The sulfur dioxide storage and feed system are also housed in the North Process Building. Limited space is available in the sulfur dioxide room for additional cylinders. The sulfur dioxide feed system was constructed in 1989. Sulfur dioxide is injected in the final channel of chlorine contact tank No. 1, where two 3 HP Chlor-A-Vac chemical induction units are located. Each Chlor-A-Vac unit has a capacity of 1,500 lbs/day.

The OCWWTP currently uses a 10 HP blower, located on top of the ozonation tank, to increase the dissolved oxygen concentration in the effluent. The blower discharge has been connected to the original ozone diffusers in the ozone contact tank.

EFFLUENT PUMPING STATION

The effluent pumping station was brought online in 1969 and included three 50 HP pumps. In 2009, all of the pumps were replaced to pump higher flows. The upgraded constant speed pumps are each rated at 14 MGD.

PRIMARY SLUDGE PUMPS

The primary sludge pumps consist of six constant speed pumps installed in pairs in 1969, 1972, and 1988. The primary sludge pumps are housed in the North, East, and South Sludge Buildings, respectively. The north and south sludge pumping stations share the duty of pumping from both the north and south primary clarifiers and clarifiers to the respective thickeners, while the east sludge pumping station pumps from the east primary clarifier to the east thickener.

GRAVITY THICKENERS

There are currently three gravity thickener facilities, north, south, and east, which were built in 1969, 1972, and 1988 respectively. The gravity thickeners are used to thicken primary sludge. Sludge is pumped via the primary sludge pumps from the primary clarifiers and clarifiers to the gravity thickeners. Each thickener has a 22 foot diameter, a 10 foot side water depth, and a ½ HP drive. New thickened sludge pumping facilities were built in 1997, with each facility including a 20 HP thickened sludge pump.

DISSOLVED AIR FLOTATION THICKENERS

Waste activated sludge (WAS) thickening is provided by two dissolved air flotation (DAF) thickeners, constructed in 1982. The DAF units have a surface area of 352 ft² each with a 7.5 foot side water depth. WAS is pumped from the secondary clarifiers by three 10 HP WAS pumps. The piping and valve arrangements allow for any of the WAS pumps to pull sludge from any clarifier. Polymer is injected in-line to the feed to the DAF units. The surface skimmers and polymer feed systems are both in fair condition. Thickened WAS is pumped from the DAF to the sludge blending tank.

SLUDGE BLENDING AND HOLDING TANKS

The sludge blending and holding tanks were originally part of the aerobic digesters, which are no longer in use. The blending tank was an approximate volume of 47, 000 gallons and receives primary and secondary sludge from the thickened primary sludge pumps and the thickened WAS pumps. The blended primary and secondary sludge is drawn off by the blended sludge pumps. The blending tank contains a 20 HP mixer that keeps the thickened sludge mixed and aerated until it drains via gravity through manual operated sluice gates to the holding tanks or is pumped to the presses. Each holding tank has an approximate capacity of 160,000 gallons.

BLENDED SLUDGE PUMPS

The blended sludge pumps draw blended sludge from the blending tank or the holding tanks and transfers the sludge to the sludge flocculation tanks where it is mixed with polymer. The conditioned sludge is then fed in the dewatering equipment. The two blended sludge pumps have 30 HP motors and each has a capacity of 150 gpm.

DEWATERING

From the sludge flocculation tanks, the sludge enters the dewatering equipment. The sludge dewatering equipment consists of two Fournier rotary presses. Each press has three working channels with room to add a fourth channel. Each channel is capable of dewatering 38 gpm of flocculated blended sludge. The rotary presses were brought online in 2004.

BIOSOLIDS STABILIZATION

The dewatered sludge is transferred via a conveyor to the RDP EnVessel Pasteurization™ Process. The process is designed to produce a Class A biosolids end product. The process begins when the sludge enters the thermal blending tanks, whereupon it is preheated and mixed with lime. The thermal blenders have a maximum feed rate of 2.0 tons/hr/train. The heated sludge/lime mixture then enters the pasteurization vessel and is retained for approximately 30 minutes before being discharged for disposal as a Class A biosolids. The pasteurization vessel has a maximum feed rate of 3.4 tons/hr/train. The two EnVessel Pasteurization™ trains were brought online in 2004.

CAPITAL IMPROVEMENT PROGRAM (CIP)

The Town's Wastewater Department prepares an update the CIP each year for consideration of the Mayor and City Council. The CIP is based on the following:

- Scheduling of major capital improvements as recommended by the Town's Wastewater consultant and MDE requirements.
- Scheduling maintenance of tanks, pumps and clarifiers as recommended to improve operations and efficiencies.
- Scheduling repair and replacement of mains and pumping stations as recognized by the Town's operation and management staff during the previous year.
- Addressing safety and odor concerns throughout the process stream as recognized by the Town's operation and management staff.

Town of Ocean City, Maryland

Capital Improvement Plan

2011 thru 2015

PROJECTS & FUNDING SOURCES BY DEPARTMENT

Department	Project#	Priority	2011	2012	2013	2014	2015	Total
Wastewater								
Wastewater Mains	07-WW-004	2	500,000	500,000	500,000	500,000	500,000	2,500,000
32nd St Pumping Station	11-WW-002	3	600,000					600,000
Dissolved Air Floation Units/Electrical Motor	11-WW-003	1	1,300,000	1,000,000				2,300,000
West Ocean City Force Main	11-WW-007	2	2,500,000	1,200,000				3,700,000
Land Acquisition	11-WW-008	1	1,820,000					1,820,000
Caine Woods Pumping Station	12-WW-001	2			1,200,000			1,200,000
Disinfection System Upgrade	12-WW-002	3					500,000	500,000
St Louis Avenue Improvements	12-WW-003	n/a			434,000	434,000	434,000	1,302,000
Old Landing Road Pumping Station	13-WW-001	2			1,200,000			1,200,000
28th St Pumping Station	14-WW-001	2				1,200,000		1,200,000
Plant Improvements & Sludge Pump Replacements	14-WW-002	2	491,000			300,000		791,000
North & South Clarigester Upgrades	15-WW-002	1			350,000	1,000,000		1,350,000
Winter Influent Pumping Station	15-WW-003	n/a					450,000	450,000
15th Street Pumping Station	15-WW-004	n/a	400,000					400,000
Wastewater Total			7,611,000	2,700,000	3,684,000	3,434,000	1,884,000	19,313,000
<hr/>								
Grand Total			7,611,000	2,700,000	3,684,000	3,434,000	1,884,000	19,313,000

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact Charlie Felin
 Type Improvement
 Useful Life 40 Years
 Category Utilities
 Priority 2 Very Important

Project # 07-WW-004
 Project Name Wastewater Mains

City Project Code wwmains

Description Total Project Cost: \$4,730,700
 Replace or repair failing sewer lines and manholes per regulatory requirements.

Justification
 Sewer lines and manholes which are worn and failing require repair. The sewers must remain functional in order to prevent overflows and keep inflow and infiltration to a minimum.

Prior	Expenditures	2011	2012	2013	2014	2015	Total
2,230,700	Construction/Maintenance	500,000	500,000	500,000	500,000	500,000	2,500,000
Total	Total	500,000	500,000	500,000	500,000	500,000	2,500,000

Prior	Funding Sources	2011	2012	2013	2014	2015	Total
2,230,700	Wastewater Fund	500,000	500,000	500,000	500,000	500,000	2,500,000
Total	Total	500,000	500,000	500,000	500,000	500,000	2,500,000

Budget Impact/Other
 Continual upgrades reduce maintenance costs of failed lines.

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
Contact Charlie Felin
Type Maintenance
Useful Life 25 Years
Category Utilities
Priority 3 Important

Project # 11-WW-002
Project Name 32nd St Pumping Station

City Project Code

Total Project Cost: \$600,000

Description
 Replace centrifugal pumps (2) and controls and add stand-by pumping

Justification
 Equipment reaching the end of it's useful life due to wear and corrosion. Stand-by capability is an MDE requirement. Adding a stand-by pump will prevent sewage back-ups during power outages. System reliability must be improved upon. Centrifugal pumps will be replaced with submersible pumps.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	600,000					600,000
Total	600,000					600,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing	600,000					600,000
Total	600,000					600,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
Contact Charlie Felin
Type Maintenance
Useful Life 25 Years
Category Utilities
Priority 1 Critical

Project # 11-WW-003
Project Name Dissolved Air Floation Units/Electrical Motor

City Project Code

Total Project Cost: \$2,300,000

Description
 Replace (2) dissolved air flotation thickening units and the main electrical motor control center in the "DAF" building. Modify the biosolids holding/blending tank.

Justification
 Equipment reaching the end of it's useful life due to wear and corrosion. Holding tank modifications required to improve process efficiency. The building and equipment electrical controls require replacement to improve unit reliability and to meet current electrical codes.

Expenditures	2011	2012	2013	2014	2015	Total
Planning/Design	1,300,000					1,300,000
Construction/Maintenance		1,000,000				1,000,000
Total	1,300,000	1,000,000				2,300,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing	2,300,000					2,300,000
Total	2,300,000					2,300,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater

Contact Charlie Felin

Type Maintenance

Useful Life 35 Years

Category Utilities

Priority 2 Very Important

Project # 11-WW-007
Project Name WOC Force Main

City Project Code

Total Project Cost: \$3,700,000

Description

Extend West Ocean City force main from 15 Street to the treatment plant at 64th Street.

Justification

Force main extension would alleviate back-ups at the 15th Street junction box in Baltimore Avenue and prevent sanitary sewer overflows at that location. A portion of the pumped flow entering the junction box must be diverted elsewhere. This is the least expensive alternative.

Expenditures	2011	2012	2013	2014	2015	Total
Planning/Design	2,500,000					2,500,000
Construction/Maintenance		1,200,000				1,200,000
Total	2,500,000	1,200,000				3,700,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing	3,700,000					3,700,000
Total	3,700,000					3,700,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact Charlie Felin
 Type Improvement
 Useful Life On Going
 Category Land acquisition & improve
 Priority 1 Critical

Project # 11-WW-008
 Project Name Land Acquisition

City Project Code

Description **Total Project Cost: \$1,820,000**
 Land purchase for plant expansion

Justification
 Future upgrades required by MDE that require tertiary treatment.

Expenditures	2011	2012	2013	2014	2015	Total
Land Acquisition	1,820,000					1,820,000
Total	1,820,000					1,820,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing	1,820,000					1,820,000
Total	1,820,000					1,820,000

Budget Impact/Other
 Cost may increase due to additional level of treatment

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
Contact Charlie Felin
Type Maintenance
Useful Life 40 Years
Category Utilities
Priority 2 Very Important

Project # 12-WW-001
Project Name Caine Woods Pumping Station

City Project Code

Description **Total Project Cost: \$1,200,000**
 Replace entire underground pumping station and add stand-by power.

Justification
 Pumping station is reaching the end of it's useful life due to wear and corrosion. Stand-by power is MDE requirement. Adding an emergency generator will prevent sewage back-ups during power outages

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance			1,200,000			1,200,000
Total			1,200,000			1,200,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing			1,200,000			1,200,000
Total			1,200,000			1,200,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
Contact Charlie Felin
Type Maintenance
Useful Life 25 Years
Category Utilities
Priority 3 Important

Project # 12-WW-002
Project Name Disinfection System Upgrade

City Project Code

Total Project Cost: \$500,000

Description

Replace chloration / dechlorination systems with current safer technology. Decommission related air scrubbing systems.

Justification

Install a safer system for the disinfection process. Eliminate the storage of hazardous compressed gases. This will allow for improved employee safety and create a safer environment for those near the 64th Street Wastewater Treatment Plant. It will also reduce administrative function related to our regulatory agencies.

Expenditures	2011	2012	2013	2014	2015	Total	Future
Planning/Design					500,000	500,000	0
Total					500,000	500,000	Total

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing					500,000	500,000
Total					500,000	500,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 *thru* 2015

Department Wastewater
 Contact Charlie Felin
 Type Unassigned
 Useful Life
 Category Utilities
 Priority n/a

Project # 12-WW-003
 Project Name St Louis Avenue Improvements

City Project Code

Total Project Cost: \$1,302,000

Description

Replace sewer mains and manholes.

Justification

Replace worn sewer mains and manholes in St. Louis & side streets as required. This is part of the planned street improvement project for St. Louis Ave from N. Division Street to 17th Street.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance			434,000	434,000	434,000	1,302,000
Total			434,000	434,000	434,000	1,302,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing			1,302,000			1,302,000
Total			1,302,000			1,302,000

Budget Impact/Other

Reduces cost by coordinating project with street and water main upgrades

Capital Improvement Plan
Town of Ocean City, Maryland

2011 *thru* 2015

Department Wastewater
 Contact Charlie Felin
 Type Maintenance
 Useful Life 40 Years
 Category Utilities
 Priority 2 Very Important

Project # 13-WW-001
 Project Name Old Landing Road Pumping Station

City Project Code

Total Project Cost: \$1,200,000

Description

Replace entire underground pumping station and add stand-by power.

Justification

Pumping station is reaching the end of it's life due to wear and corrosion. Stand-by power is MDE requirement. Adding an emergency generator will prevent sewage back-ups during power outages.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance			1,200,000			1,200,000
Total			1,200,000			1,200,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing			1,200,000			1,200,000
Total			1,200,000			1,200,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact Charlie Felin
 Type Maintenance
 Useful Life 40 Years
 Category Utilities
 Priority 2 Very Important

Project # 14-WW-001
 Project Name 28th St Pumping Station

City Project Code

Description **Total Project Cost: \$1,200,000**
 Replace the entire underground pumping station and add stand-by power.

Justification
 Pumping station is reaching the end of it's useful life do to wear and corrosion. Stand-by power is MDE requirement. Adding an emergency generator will prevent sewage back-ups during power outages.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance				1,200,000		1,200,000
Total				1,200,000		1,200,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing				1,200,000		1,200,000
Total				1,200,000		1,200,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact Charlie Felin
 Type Maintenance
 Useful Life 30 Years
 Category Utilities
 Priority 2 Very Important

Project # 14-WW-002
 Project Name Plant Improvements & Sludge Pump Replacements

City Project Code

Total Project Cost: \$791,000

Description

Replace (4) sludge pumps and (1) electrical motor control center in the north primary sludge pump building.

Justification

Pumps are reaching the end of their useful life and there is difficulty in obtaining repair parts. Electrical components are worn and need to be brought up to current electrical code. The north building conduit system requires replacement to ensure reliable electric supply to the building.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	491,000			300,000		791,000
Total	491,000			300,000		791,000

Funding Sources	2011	2012	2013	2014	2015	Total
Wastewater Fund	491,000			300,000		791,000
Total	491,000			300,000		791,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact Charlie Felin
 Type Maintenance
 Useful Life 35 Years
 Category Utilities
 Priority 1 Critical

Project # 15-WW-002
 Project Name North & South Clarigester Upgrades

City Project Code

Total Project Cost: \$1,350,000

Description

Clarigester require upgrades and modifications to countinue functioning as required under current conditions.

Justification

Both north and south clarigesters are reaching the end of their useful lives. All carbon steel components and mechanisms require replacement due to wear and corrosion. The lower portions of these two stage tanks must be filled in as they no longer serve a useful purpose.

Expenditures	2011	2012	2013	2014	2015	Total
Planning/Design			350,000			350,000
Construction/Maintenance				1,000,000		1,000,000
Total			350,000	1,000,000		1,350,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing			1,350,000			1,350,000
Total			1,350,000			1,350,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
Contact Charlie Felin
Type Unassigned
Useful Life
Category Unassigned
Priority n/a

Project # 15-WW-003
Project Name Winter Influent Pumping Station

City Project Code

Total Project Cost: \$450,000

Description

Replace centrifugal pumps @ treatment plant winter influent pumping station (2 each)

Justification

Pumps will be 46 years old and have reached the end of their useful life due to wear and limited pumping capacity. The current winter sewage flows exceed their capacity. However, they are required in order to perform annual maintenance on the summer side of the pumping station.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance					450,000	450,000
Total					450,000	450,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing					450,000	450,000
Total					450,000	450,000

Budget Impact/Other

Capital Improvement Plan
Town of Ocean City, Maryland

2011 thru 2015

Department Wastewater
 Contact
 Type Unassigned
 Useful Life
 Category Unassigned
 Priority n/a

Project # 15-WW-004
 Project Name 15th Street Pumping Station

City Project Code

Total Project Cost: \$400,000

Description

Replace (3) centrifugal pumps and associated equipment. Replace building roof.

Justification

Existing pumps, shafting and one motor are reaching the end of their useful lives due to age, corrosion, and wear. Some repair parts are becoming difficult and expensive to obtain. Valving and pipe fittings also require replacement on one of the pumps in order to match the others. The building roof is in need of replacement.

Expenditures	2011	2012	2013	2014	2015	Total
Construction/Maintenance	400,000					400,000
Total	400,000					400,000

Funding Sources	2011	2012	2013	2014	2015	Total
Bond Financing	400,000					400,000
Total	400,000					400,000

Budget Impact/Other



Town of Ocean City, Maryland Water & Wastewater Rate Model

Company: Municipal & Financial Services Group 1996

Authors: Edward J. Donahue III and Jack Qutub

Updated: 03/01/2005

By: David Hyder, Municipal & Financial Services Group

Updated: 03/30/2010 2009 Actual 2010 Budget

By: Martha Bennett Lucey, Finance Administrator, Town of Ocean City

Capital Master Plan Update as of December 2009

Whitman, Requardt & Associates LLP

Department of Public Works

Hal Adkins, Director

Jim Parsons, Chief Deputy Director

Charles Felin, Wastewater Superintendent

Howard Iman, Water Superintendent

Engineering

Terry McGean, City Engineer

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Town of Ocean City
Water & Wastewater Rate Model

SCHEDULE 1 - BASE ASSUMPTIONS

Base Year	2008	2011	2012	2013	2014	2015
System Growth Rate	1.0%					
Inflation Rate	1.0%					
Inflation Rate- Salaries	0.0%	0.0%	1.5%	2.0%		
Inflation Rate - Health and benefits	5.0%	20.0%	8.0%	8.0%	5.0%	5.0%
Revenue Growth Rate - Water	0.5%					
Revenue Growth Rate - Wastewater	0.5%					
Revenue Growth Rate - Vacant Lots	-0.5%					
% of Water Operating Budget for Operating Contingency	2.0%					
% of Wastewater Operating Budget for Operating Contingency	2.0%					
% of Water System for Repair, Replacement & Rehabilitation	1.0%					
% of Wastewater System for Repair, Replacement & Rehabilitation	1.0%					
Total Capacity Reserved for West Ocean City (MGD)	1					
Operating Cost Allocation Factor for West Ocean City (% of Flows)	9.37%	4-year average				
Capital Cost Allocation Factor for West Ocean City (% of Flows)	7.14%					
West Ocean % allocation is permitted to increase with new capacity						
Total Available Capacity (MGD):						
Water System	18					
Wastewater System	14					

SCHEDULE 2 - FIXTURE COUNTS

Component	No. of Accounts	Fiscal Year									
		2008	2009	2010	2011	2012	2013	2014	2015		
Fixtures*		331,991	333,837	333,240	333,872	334,972	336,072	337,172	338,272		
Vacant Lots		489	489	489	485	481	477	473	469		
Pools		230	230	238	238	238	238	238	238		

*Assumes 100 new EDUs per year with 11 fixtures per EDU

* Sets limit of 20 fixtures per EDU as of 2011

Wastewater Only - Total Accts

SCHEDULE 4 - OPERATING AND MAINTENANCE EXPENSES

<u>Cost Category</u>	<u>Account No.</u>	2009 Actual	2010 Budget	2011 Budget	2012 Projected	2013 Projected	2014 Projected	2015 Projected
Water								
<i>Administration</i>								
Salaries & Wages	510.5201.601.10	148,585	147,446	107,137	108,744	110,919	113,137	113,137
Employee Benefits	510.5201.601.20	55,764	61,197	67,523	72,925	78,759	82,697	86,832
Professional Services	510.5201.611.30	18,299	63,000	53,000	54,665	54,665	54,606	55,152
Repair Services	510.5201.611.44	279	650	650	657	663	670	676
Equipment Rental	510.5201.611.46	21	-	-	-	-	-	-
Communications	510.5201.631.50	1,783	3,040	2,040	2,060	2,081	2,102	2,123
Other Purchased Services	510.5201.631.55	4,695	6,165	6,165	6,227	6,289	6,352	6,415
General Supplies	510.5201.631.60	1,295	1,200	1,250	1,263	1,275	1,288	1,301
Energy	510.5201.631.63	1,239	1,150	1,186	1,198	1,210	1,222	1,234
Vehicle Supplies/Repair	510.5201.661.65	1,324	2,545	2,148	2,169	2,191	2,213	2,235
Capital Outlay	510.5201.801.70	-	-	-	-	-	-	-
Other - Bad debt	510.5201.621.75	99,668	-	-	-	-	-	-
Radio / Equipment Lease	510.5201.611.82.20	3,310	0	-	-	-	-	-
Insurance	510.5201.611.82.70	122,516	99,568	92,408	93,332	94,265	95,208	96,160
MIS Services	510.5201.651.82.40	84,558	104,178	99,824	100,822	101,830	102,849	103,877
Vehicle Lease	510.5201.661.82.40	2,984	1,338	3,646	3,682	3,719	3,756	3,794
General Overhead	510.5201.781.82.60	563,988	600,585	613,858	619,997	626,197	632,459	638,783
Total Water Administration		\$ 1,110,308	\$ 1,092,062	\$ 1,050,835	\$ 1,064,999	\$ 1,081,289	\$ 1,096,340	\$ 1,111,720
<i>Distribution</i>								
Salaries & Wages	510.5264.601.10	345,267	395,666	396,723	402,674	410,727	418,942	418,942
Employee Benefits	510.5264.601.20	154,542	169,712	184,943	199,738	215,718	226,503	237,829
Professional Services	510.5264.611.30	50,273	48,000	49,850	50,349	50,852	51,361	51,874
Repair Services	510.5264.611.44	600,080	550,000	-	-	-	-	-
Rentals	510.5264.611.46	10	5,000	2,500	2,525	2,550	2,576	2,602
Communications	510.5264.611.50	415	1,000	500	505	510	515	520
Other Purchased Services	510.5264.611.55	54,522	86,000	56,000	56,560	57,126	57,697	58,274
General Supplies	510.5264.621.60	115,625	104,130	104,130	105,171	106,223	107,285	108,358
Energy	510.5264.631.63	-	-	-	-	-	-	-
Vehicle Supplies/Repair	510.5264.661.65	95,731	108,434	113,293	114,426	115,370	116,726	117,893
Capital Outlay	510.5264.801.70	-	-	-	-	-	-	-
Intragovernmental	510.5264.611.82	31,171	32,250	33,851	34,190	34,531	34,877	35,225
Total Distribution		\$ 1,447,636	\$ 1,500,192	\$ 941,790	\$ 960,187	\$ 985,754	\$ 1,008,267	\$ 1,031,517

SCHEDULE 4 - OPERATING AND MAINTENANCE EXPENSES

Cost Category	Account No.	2009 Actual	2010 Budget	2011 Budget	2012 Projected	2013 Projected	2014 Projected	2015 Projected
Plants								
Salaries & Wages	510.5265.601.10	674,932	703,058	586,373	586,373	595,169	607,072	619,213
Employee Benefits	510.5265.601.20	330,854	368,414	374,434	404,389	436,740	458,577	481,506
Professional Services	510.5265.611.30	-	100	30,100	30,401	30,705	31,012	31,322
Repair Services	510.5265.611.44	183,805	172,150	-	-	-	-	-
Rentals	510.5265.611.46	254	1,000	500	505	510	515	520
Communications	510.5265.611.46	9,471	9,850	9,300	9,393	9,487	9,582	9,678
Other Purchased Services	510.5265.611.55	38,950	39,250	40,460	40,865	41,273	41,686	42,103
General Supplies	510.5265.621.60	209,705	263,074	223,003	225,233	227,485	229,760	232,058
Energy	510.5265.631.63	466,239	506,000	428,250	432,533	436,858	441,226	445,639
Vehicle Supplies/Repair	510.5265.661.65	11,540	12,167	14,804	14,952	15,102	15,253	15,405
Capital Outlay	510.5265.801.70	-	-	-	-	-	-	-
Intragovernmental	510.5265.611.82	4,360	2,046	6,065	6,126	6,187	6,249	6,311
Total Plants		\$ 1,930,110	\$ 2,077,109	\$ 1,713,289	\$ 1,750,769	\$ 1,799,515	\$ 1,840,932	\$ 1,883,755
Meter Repair and Reading								
Salaries & Wages	510.5267.601.10	221,683	193,495	195,984	195,984	198,924	202,902	206,960
Employee Benefits	510.5267.601.20	103,616	94,111	101,203	109,299	118,043	123,945	130,143
Professional Services	510.5267.611.30	-	183	183	185	187	189	190
Repair / Maint Services	510.5267.621.44	625	1,000	1,000	1,010	1,020	1,030	1,041
Other Purchased Services	510.5267.611.55	221	500	500	505	510	515	520
General Supplies	510.5267.621.60	-	1,000	1,000	1,010	1,020	1,030	1,041
Vehicle Supplies	510.5267.661.65	135,401	235,058	236,658	239,025	241,415	243,829	246,267
Capital Outlay - Equipment	510.5267.801.70	14,392	14,759	15,166	15,318	15,471	15,626	15,782
Intragovernmental	510.5267.661.82	1,446	787	1,034	1,044	1,055	1,065	1,076
Total Meter Repair		\$ 477,384	\$ 540,893	\$ 552,728	\$ 563,380	\$ 577,644	\$ 590,132	\$ 603,020
Meter Installation								
Salaries & Wages	510.5268.601.10	56,009	75,000	75,000	75,000	76,125	77,648	79,200
Employee Benefits	510.5268.601.20	12,450	6,462	21,766	23,507	25,388	26,657	27,990
Other Purchased Services	510.5268.611.55	10,532	7,000	7,000	7,070	7,141	7,212	7,284
General Supplies	510.5268.621.60	1,475	2,500	2,500	2,525	2,550	2,576	2,602
Vehicle Supplies & Repair	510.5268.661.65	5,002	3,094	5,039	5,089	5,140	5,192	5,244
Purchases for Resale	510.5268.621.67	116,340	150,000	150,000	151,500	153,015	154,545	156,091
Capital Outlay - Equipment	510.5268.801.70	-	-	-	-	-	-	-
Intragovernmental	510.5268.661.82	2,984	1,459	520	525	530	536	541
Total Meter Installation		\$ 204,792	\$ 245,515	\$ 261,825	\$ 265,217	\$ 269,890	\$ 274,365	\$ 278,952
Total Water Department		\$ 5,170,230	\$ 5,455,771	\$ 4,520,467	\$ 4,604,550	\$ 4,714,092	\$ 4,810,035	\$ 4,908,963

SCHEDULE 4 - OPERATING AND MAINTENANCE EXPENSES

Cost Category	Account No.	2009	2010		2011	2012		2013		2014		2015	
		Actual	Budget	Budget	Budget	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Wastewater Administration													
Salaries & Wages	520.5301.601.10	273,920	272,456	241,955	241,955	241,955	245,584	250,496	255,506				
Employee Benefits	520.5301.601.20	132,515	138,146	160,850	173,718	187,615	196,996	196,996	206,846				
Professional Services	520.5301.611.30	1,408	4,116	1,596	1,612	1,628	1,644	1,644	1,661				
Repair / Maint Services	520.5301.611.44	299	1,344	1,094	1,105	1,116	1,127	1,127	1,138				
Rentals	520.5301.611.46	21	-	-	-	-	-	-	-				
Communications	520.5301.631.50	6,981	9,600	7,045	7,115	7,187	7,258	7,258	7,331				
Other Purchased Services	520.5301.611.55	4,322	5,287	5,065	5,116	5,167	5,218	5,218	5,271				
General Supplies	520.5301.621.60	6,282	6,055	6,630	6,696	6,763	6,831	6,831	6,899				
Vehicle Supplies	520.5301.661.65	1,187	3,490	2,102	2,123	2,144	2,166	2,166	2,187				
Capital Outlay	520.5301.801.70	-	-	-	-	-	-	-	-				
Other	520.5301.621.75	-	-	-	-	-	-	-	-				
Radio / Equipment Lease	520.5301.611.82.20	5,198	-	-	-	-	-	-	-				
Insurance	520.5301.611.82.70	119,560	116,285	113,136	114,267	115,410	116,564	116,564	117,730				
MIS Services	520.5301.651.82.40	135,695	135,888	116,792	117,960	119,140	120,331	120,331	121,534				
Vehicle Lease	520.5301.661.82.10	1,034	333	3,620	3,656	3,693	3,730	3,730	3,767				
General Overhead	520.5301.781.82.60	611,025	667,389	722,876	730,105	737,406	744,780	744,780	752,228				
Total Wastewater Administration		\$ 1,299,447	\$ 1,360,389	\$ 1,382,761	\$ 1,405,429	\$ 1,432,853	\$ 1,457,142	\$ 1,482,098					
Wastewater Treatment Plant													
Salaries & Wages	520.5365.601.10	1,801,655	1,818,642	1,721,704	1,721,704	1,747,530	1,782,480	1,818,130					
Employee Benefits	520.5365.601.20	918,702	1,002,248	1,026,120	1,108,210	1,196,866	1,256,710	1,319,545					
Professional Services	520.5365.601.30	94,078	66,000	92,500	93,425	94,359	95,303	96,256					
Repair / Maint Services	520.5365.601.44	434,259	338,150	649,600	656,096	662,657	669,284	675,976					
Rentals	520.5365.601.46	2,446	4,356	4,475	4,520	4,565	4,611	4,657					
Communications	520.5365.631.50	6,721	6,072	6,504	6,569	6,635	6,701	6,768					
Other Purchased Services	520.5365.611.55	259,475	109,789	111,040	112,150	113,272	114,405	115,549					
General Supplies	520.5365.621.60	595,562	494,000	488,513	493,398	498,332	503,315	508,349					
Energy	520.5365.631.63	573,283	607,000	530,000	535,300	540,653	546,060	551,520					
Vehicle Supplies & Repair	520.5365.631.65	96,453	84,172	86,563	87,429	88,303	89,186	90,078					
Capital Outlay	520.5365.801.70	-	-	-	-	-	-	-					
Other	520.5365.621.75	(3,021)	-	-	-	-	-	-					
Intragovernmental	520.5365.611.82	34,369	24,009	21,582	21,798	22,016	22,236	22,458					
Total Wastewater Treatment Plant		\$ 4,813,982	\$ 4,554,438	\$ 4,738,601	\$ 4,840,598	\$ 4,975,188	\$ 5,090,289	\$ 5,209,285					

SCHEDULE 4 - OPERATING AND MAINTENANCE EXPENSES

Cost Category	Account No.	2009 Actual	2010 Budget	2011 Budget	2012 Projected	2013 Projected	2014 Projected	2015 Projected
Collection System								
Salaries & Wages	520.5371.601.10	362,022	485,655	470,378	470,378	477,434	486,982	496,722
Employee Benefits	520.5371.601.20	195,873	232,771	255,482	275,921	297,994	312,894	328,539
Professional Services	520.5371.611.30	65,565	11,000	41,000	41,410	41,824	42,242	42,665
Repair / Maint Services	520.5371.611.44	22,904	30,500	28,000	28,280	28,563	28,848	29,137
Rentals	520.5371.611.46	116	178	178	180	182	183	185
Communications	520.5371.631.50	178	1,000	800	808	816	824	832
Other Purchased Services	520.5371.611.55	103,044	86,200	89,000	89,890	90,789	91,697	92,614
General Supplies	520.5371.621.60	32,525	35,155	33,350	33,684	34,020	34,361	34,704
Energy	520.5371.631.63	45,639	37,580	38,175	38,557	38,942	39,332	39,725
Vehicle Supplies & Repair	520.5371.661.65	60,754	58,382	72,745	73,472	74,207	74,949	75,699
Purchases for Resale	520.5371.621.67	11,093	12,000	12,000	12,120	12,241	12,364	12,487
Capital Outlay	520.5371.801.70	-	-	-	-	-	-	-
Intragovernmental	520.5365.611.82	30,940	42,333	44,857	45,306	45,759	46,216	46,678
Total Collection System		\$ 930,653	\$ 1,032,754	\$ 1,085,965	\$ 1,110,005	\$ 1,142,771	\$ 1,170,893	\$ 1,199,987
Laboratory Services								
Salaries & Wages	520.5374.601.10	171,017	153,749	163,840	163,840	166,298	169,624	173,016
Employee Benefits	520.5374.601.20	64,916	67,750	73,538	79,421	85,775	90,063	94,567
Professional Services	520.5374.611.30	35	60	40	40	41	41	42
Repair / Maint Services	520.5374.611.44	1,411	1,896	1,896	1,915	1,934	1,953	1,973
Other Purchased Services	520.5374.611.55	187	1,180	1,180	1,192	1,204	1,216	1,228
General Supplies	520.5374.621.60	34,789	25,430	28,840	29,128	29,420	29,714	30,011
Capital Outlay - Equipment		-	-	-	-	-	-	-
Total Laboratory Services		\$ 272,355	\$ 250,065	\$ 269,334	\$ 275,537	\$ 284,671	\$ 292,611	\$ 300,836
Total Wastewater Department		\$ 7,316,437	\$ 7,197,646	\$ 7,476,661	\$ 7,631,568	\$ 7,835,482	\$ 8,010,935	\$ 8,192,207

SCHEDULE 5 - OPERATING AND MAINTENANCE RESERVE FUND

<u>Water O&M Reserve</u>	<u>O&M Reserve</u>	<u>Percentage</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Water O&M Expenses			5,170,230	5,455,771	4,520,467	4,604,550	4,714,092	4,810,035	4,908,963
Water O&M Reserve	2.0%		103,405	109,115	90,409	92,091	94,282	96,201	98,179
Use of Reserves					0	0	190,000	100,000	10,000
Cumulative Operating Reserve			1,053,023	1,162,138	1,252,548	1,344,639	1,628,921	1,825,121	1,933,301

<u>Sewer O&M Reserve</u>	<u>O&M Reserve</u>	<u>Percentage</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Sewer O&M Expenses			7,316,437	7,197,646	7,476,661	7,631,568	7,835,482	8,010,935	8,192,207
Sewer O&M Reserve	2.0%		146,329	143,953	149,533	152,631	156,710	160,219	163,844
Use of Reserves					-245,000	0	0	-72,000	0
Cumulative Operating Reserve			1,206,057	1,350,010	1,254,543	1,407,175	1,563,884	1,652,103	1,815,947

Town of Ocean City, Maryland
Water & Wastewater Rate Model

SCHEDULE 6 - OTHER REVENUES

Water System

<u>Cost Category</u>	<u>Account No.</u>	<u>Budget 2009</u>	<u>Budget 2010</u>	<u>Budget 2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Operating Misc Revenues</u>								
Vacant Lot Charge	510.0000.345.33	34,518	34,034	34,034	33,864	33,695	33,526	33,358
Sales - Materials & Services	510.0000.345.38	41,349	18,000	18,000	18,090	18,180	18,271	18,363
Interest on Accounts	510.0000.362.10	30,636	20,000	20,000	20,100	20,201	20,302	20,403
Interest on Investments	510.0000.362.20	59,357	80,000	10,000	10,050	10,100	10,151	10,202
Capital Asset Sales	510.0000.364.20				-	-	-	-
Discounts Taken	510.0000.369.90	157	-	-	-	-	-	-
Hookup Fees	510.0000.345.36	228,285	244,369	256,215	257,496	258,784	260,077	261,378
Total Other Water Revenue		394,302	396,403	338,249	339,600	340,959	342,327	343,703

Wastewater System

<u>Cost Category</u>	<u>Account No.</u>	<u>Budget 2009</u>	<u>Budget 2010</u>	<u>Budget 2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Operating Misc Revenue</u>								
Licenses and Permits	520.0000.325.50	47,975	55,000	48,000	48,240	48,481	48,724	48,967
Lab Fees	520.0000.342.10	84,421	94,504	84,000	84,420	84,842	85,266	85,693
Vacant Lot Charge	520.0000.345.33	32,725	32,274	32,274	32,435	32,598	32,761	32,924
Pools					-	-	-	-
Sales - Materials & Services	520.0000.345.38	2,007	7,200	2,007	2,017	2,027	2,037	2,047
Interest on Accounts	520.0000.362.10	30,803	25,000	30,000	30,150	30,301	30,452	30,605
Interest on Investments	520.0000.362.20	90,028	125,000	10,000	10,050	10,100	10,151	10,202
Land Rent	520.0000.363.15		5,000	5,000	5,025	5,050	5,075	5,101
Capital Asset Sales	520.0000.364.20				-	-	-	-
Discounts Taken	520.0000.369.90	555	-	-	-	-	-	-
Hookup Fees	520.0000.345.36	23,178	10,500	10,500	10,553	10,605	10,658	10,712
Total Other Wastewater Revenue		311,692	354,478	221,781	222,890	224,004	225,124	226,250

Town of Ocean City, Maryland
 Water & Wastewater Rate Model
SCHEDULE 7 - CAPITAL IMPROVEMENTS PROGRAM

Project Description	Allocation (%)							Total
	2010	2011	2012	2013	2014	2015	2016	
<u>Water Capital Improvement Projects</u>								
Capital Repair Services 510-5265-611.44	150,000	112,650	110,000	110,000	110,000	110,000	110,000	552,650
Well Rehabilitation		100,000	100,000	100,000	100,000	100,000	100,000	500,000
Water Master Plan Update		150,000						150,000
								0
								0
								0
								0
								0
FACILITY IMPROVEMENTS								
<u>Water Main Upgrades (Design / Construction)</u>								
Water Main Upgrades	331,202	259,203	175,000	175,000	175,000	175,000	175,000	959,203
St Louis Ave Water Main Upgrade-design	44,500							0
St Louis Ave Water Main Upgrade-Construction			500,000	500,000	500,000	500,000	500,000	1,500,000
Raw Water Main			355,000					355,000
51st Street Production Well			100,000	100,000	395,000			495,000
								0
<u>Gorman Ave Plant</u>								
Improvements		450,000		328,000				778,000
<u>Storage Towers and Tanks</u>								
Inspection, & Painting	712,988	567,500	517,500	617,500	617,500	467,500		2,787,500
<u>System Enhancements</u>								
Conversion To Automatic Water Meter Reading						600,000		600,000
Total Water Capital Improvements	1,238,690	1,639,353	1,257,500	1,930,500	1,897,500	1,952,500	0	8,677,353

SCHEDULE 7 - CAPITAL IMPROVEMENTS PROGRAM

Project Description	Allocation (%)		2010	2011	2012	2013	2014	2015	2016	Total
	Growth:	Non Growth:								
<u>Wastewater Department</u>										
Wastewater Mains	0%	100%		500,000	500,000	500,000	500,000	500,000		2,500,000
4th Secondary Clarifier & Improvements	100%	0%								600,000
32nd St Pumping Station	0%	100%		600,000						2,300,000
Dissolved Air Floation Units/Electrical Motor	0%	100%		1,300,000	1,000,000					3,700,000
WOC Force Main & Pump Replacements	0%	100%		2,500,000	1,200,000					1,820,000
Land Acquisition	100%	0%		1,820,000						1,200,000
Caine Woods Pumping Station	0%	100%				1,200,000				2,300,000
Disinfection System Upgrade	0%	100%						500,000	1,800,000	0
St. Louis Avenue Improvements - design	0%	100%	36,000							1,302,000
St. Louis Avenue Improvements	0%	100%				434,000	434,000	434,000		1,200,000
28th St Pumping Station	0%	100%					1,200,000			791,000
Primary Plant Improvements & Sludge Pump Replacement	0%	100%		491,000			300,000			0
Chlorine Contact Tank Expansion	50%	50%								1,350,000
North & South Clarigester Upgrades	0%	100%					1,000,000			450,000
Winter Influent Pumping Station	0%	100%				350,000				0
Artic Ave Stand-by Power	0%	100%						450,000		0
Aeration Basin	0%	100%	55,153							0
Influent liner rehab- 64th St	0%	100%	75,765							0
Old Landing Road Pumping Station	0%	100%	600,000							1,200,000
15th Street Pumping Station	0%	100%				1,200,000				400,000
Total Sewer Capital Improvements	0%	100%	766,918	7,611,000	2,700,000	3,684,000	3,434,000	1,884,000	1,800,000	21,113,000

SCHEDULE 8 - TOTAL EXISTING AND NON-GROWTH RELATED PROJECTED DEBT SERVICE

Current Debt

Water Fund

Description	Fiscal Year						
	2009	2010	2011	2012	2013	2014	2015
2001 General Obligation Bond							
2001 General Obligation Bond - Principal	143,070	149,842	156,615				
2001 General Obligation Bond - Interest	116,951	109,798	6,656				
Total	260,021	259,640	163,271	0	0	0	0
Growth Portion	0	0	0	0	0	0	0
Non-Growth Portion	260,021	259,640	163,271	0	0	0	0
2004 Municipal Refunding Bond							
2004 Municipal Refunding Bond - Principal	743,493	773,404	809,724	843,908	504,208	523,436	235,012
2004 Municipal Refunding Bond - Interest	202,287	165,112	126,442	100,126	70,589	50,421	14,742
Total	945,780	938,516	936,166	944,034	574,797	573,857	249,754
Growth Portion to 2014 for 15th St Plant	271,912	269,823	269,148	271,410	165,254	164,984	0
Non-Growth Portion	673,868	668,693	667,018	672,624	409,543	408,873	249,754
2005 Municipal Purpose Bond							
2005 Municipal Purpose Bond - Principal	27,798	28,635	29,473	30,310	31,315	32,319	33,492
2005 Municipal Purpose Bond - Interest	25,496	24,592	23,590	22,559	21,498	20,323	18,707
Total	53,294	53,227	53,063	52,869	52,813	52,642	52,199
Growth Portion	0	0	0	0	0	0	0
Non-Growth Portion	53,294	53,227	53,063	52,869	52,813	52,642	52,199
2007 Municipal Bond							
2007 Municipal Refunding Bond - Principal	54,642	115,446	120,655	125,624	131,349	136,558	142,044
2007 Municipal Refunding Bond - Interest	65,664	62,262	57,691	53,230	48,733	44,045	38,814
Total	120,306	177,708	178,346	178,854	180,082	180,603	180,858
Growth Portion	0	0	0	0	0	0	0
Non-Growth Portion	120,306	177,708	178,346	178,854	180,082	180,603	180,858
2009 Municipal Refunding Bond (2001)							
2009 Municipal Refunding Bond - Principal			0	143,916	200,637	205,716	209,949
2009 Municipal Refunding Bond - Interest	16,208	66,307	66,307	66,307	60,551	56,538	52,424
Total	0	66,307	66,307	210,223	261,188	262,254	262,373
Growth Portion	0	0	0	0	0	0	0
Non-Growth Portion	0	66,307	66,307	210,223	261,188	262,254	262,373
Total Growth Existing Debt	\$ 271,912	\$ 269,823	\$ 269,148	\$ 271,410	\$ 165,254	\$ 164,984	\$ -
Total Non-Growth Existing Debt	\$ 1,107,489	\$ 1,225,575	\$ 1,128,005	\$ 1,114,570	\$ 903,626	\$ 904,372	\$ 745,184

SCHEDULE 9 - REPAIR, REPLACEMENT & REHABILITATION FUND

Water Department

FY	Fixed Assets - Est. Net Book Value	RR&R	Fiscal Year									
			2008	2009	2010	2011	2012	2013	2014	2015		
2008	19,193,105	1.0%	\$191,931									
2009	19,173,856	1.0%		\$191,739								
2010	19,173,856	1.0%			\$191,739							
2011	19,173,856	1.0%				\$191,739						
2012	19,173,856	1.0%					\$191,739					
2013	19,173,856	1.0%						\$191,739				
2014	19,173,856	1.0%							\$191,739			
2015	19,173,856	1.0%								\$191,739		
Amounts not funded by impact fees			191,931	191,739	191,739	191,739	191,739	191,739	191,739	191,739	191,739	191,739
Cumulative Capital Reserve			2,045,934	2,237,673	2,429,412	2,390,532	2,120,422	2,083,968	1,900,284	2,079,084		

Wastewater Department

FY	Fixed Assets - Est. Net Book Value	RR&R	Fiscal Year									
			2008	2009	2010	2011	2012	2013	2014	2015		
2008	45,561,698	1.0%	\$455,617									
2009	46,491,760	1.0%		464,918								
2010	46,491,760	1.0%			\$464,918							
2011	46,491,760	1.0%				\$464,918						
2012	46,491,760	1.0%					\$464,918					
2013	46,491,760	1.0%						\$464,918				
2014	46,491,760	1.0%							\$464,918			
2015	46,491,760	1.0%								\$464,918		
Amounts not funded by impact fees			455,617	464,918	464,918	464,918	464,918	464,918	464,918	464,918	464,918	464,918
Cumulative Capital Reserve			2,349,217	2,814,135	3,279,053	3,439,026	3,591,134	3,743,329	3,903,041	4,064,867		

SCHEDULE 10 - REVENUE REQUIREMENT

Water Department

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Operating Costs</u>							
Administration (less general overhead)	1,110,308	491,477	436,977	445,002	455,092	463,881	472,937
Distribution	1,447,636	1,500,192	941,790	960,187	985,754	1,008,267	1,031,517
Water Plants	1,930,110	2,077,109	1,713,289	1,750,769	1,799,515	1,840,932	1,883,755
Meter Installation	204,792	245,515	261,825	265,217	269,890	274,365	278,952
Meter Repair	477,384	540,893	552,728	563,380	577,644	590,132	603,020
Subtotal - Operating Costs	5,170,230	4,855,186	3,906,609	3,984,554	4,087,895	4,177,577	4,270,180
Plus:							
Operating Reserve	103,405	109,115	90,409	92,091	94,282	96,201	98,179
Total Operating Costs	5,273,635	4,964,301	3,997,018	4,076,645	4,182,177	4,273,777	4,368,360
<u>Non-Growth Capital Costs</u>							
Capital Expenditures (Cash Funded)	1,605,910	1,238,690	1,639,353	1,080,000	1,880,500	1,700,000	1,952,500
Debt Service - Current	271,912	1,225,575	1,128,005	1,114,570	903,626	904,372	745,184
Debt Service - Projected	-	-	-	-	-	-	-
Fixed General Overhead	563,988	600,585	613,858	619,997	626,197	632,459	638,783
Repair, Replacement & Rehabilitation Fund	191,739	191,739	191,739	191,739	191,739	191,739	191,739
Total Capital Costs	2,633,548	3,256,588	3,572,955	3,006,305	3,602,061	3,428,569	3,528,206
Total Water System Rev. Req.	7,907,183	8,220,890	7,569,973	7,082,950	7,784,238	7,702,347	7,896,565
			-7.9%	-6.4%	9.9%	-1.1%	2.5%

SCHEDULE 10 - REVENUE REQUIREMENT

Wastewater Department

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Operating Costs</u>							
Administration (less general overhead)	1,299,447	693,000	659,885	675,324	695,447	712,362	729,870
Collection System	930,653	1,032,754	1,085,965	1,110,005	1,142,771	1,170,893	1,199,987
Wastewater Treatment Plant	4,813,982	4,554,438	4,738,601	4,840,598	4,975,188	5,090,289	5,209,285
Wastewater Farm Operations	-	-	-	-	-	-	-
Laboratory Services	272,355	250,065	269,334	275,537	284,671	292,611	300,836
Subtotal - Operating Costs	7,316,437	6,530,257	6,753,785	6,901,463	7,098,076	7,266,155	7,439,979
Plus:							
Operating Reserve	146,329	143,953	149,533	152,631	156,710	160,219	163,844
Total Operating Costs	7,462,766	6,674,210	6,903,318	7,054,095	7,254,786	7,426,374	7,603,824
<u>Non-Growth Capital Costs</u>							
Capital Expenditures (Cash Funded)	139,012	766,918	1,391,000	500,000	500,000	800,000	500,000
Debt Service - Current	2,138,125	2,223,553	1,955,467	1,894,710	2,047,318	1,905,760	1,923,076
Debt Service - Projected	-	-	479,211	479,211	907,310	907,310	1,009,147
Fixed General Overhead	611,025	667,389	722,876	730,105	737,406	744,780	752,228
Repair, Replacement & Rehabilitation Fund	464,918	464,918	464,918	464,918	464,918	464,918	464,918
Total Capital Costs	3,353,079	4,122,777	5,013,472	4,068,943	4,656,951	4,822,767	4,649,368
Total Wastewater Rev. Req.	10,815,845	10,796,987	11,916,790	11,123,038	11,911,736	12,249,141	12,253,191
			10.4%	-6.7%	7.1%	2.8%	0.0%

SCHEDULE 11 - WEST OCEAN CITY ANALYSIS

Total Wastewater Revenue Requirements:

Description	2009 <i>Actual</i>	2010 <i>Actual</i>	2011	2012	2013	2014	2015
Operation Costs							
Treatment							
Plant	4,028,636	4,813,982	4,738,601	4,840,598	4,975,188	5,090,289	5,209,285
Lab	239,639	272,356	269,334	275,537	284,671	292,611	300,836
Bio-Solids			-	-	-	-	-
Liability Insurance	120,710	119,560	113,136	113,136	114,267	115,410	116,564
Less Income (Lab Fees)	(79,131)	(84,421)	(84,000)	(84,420)	(84,842)	(85,266)	(85,693)
Total	4,309,854	5,121,477	5,037,071	5,144,851	5,289,283	5,413,044	5,540,993
Percent of Flows from West Ocean City	9.68%	8.67%	9.37%	9.37%	9.37%	9.37%	9.37%
Total West Ocean City Treatment Charge	417,375	444,078	471,974	482,073	495,606	507,202	519,191
Conveyance							
Total Conveyance Cost	800,139	930,653	1,085,965	1,110,005	1,142,771	1,170,893	1,199,987
Less Cost for Northern Conveyance	(360,155)	(443,639)	(493,208)	(510,964)	(529,937)	(537,917)	(553,379)
Less Income (Connections)	(38,957)	(23,178)	(10,500)	(10,553)	(10,605)	(10,658)	(10,712)
Cost Southern Conveyance	401,027	463,836	582,257	588,488	602,229	622,318	635,896
Percent of 15th to 64th to Southern	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
Cost of 15 to 64	100,257	115,959	145,564	147,122	150,557	155,579	158,974
Percent of West OC to 15 to 64 Flows	19.37%	17.34%	18.80%	18.80%	18.80%	18.80%	18.80%
Total West Ocean City Conveyance Charge	19,420	20,107	27,366	27,659	28,305	29,249	29,887
Administration							
Total Treatment Cost	417,375	444,077	471,974	482,073	495,606	507,202	519,191
Total Conveyance Cost	19,420	20,107	27,366	27,659	28,305	29,249	29,887
Total	436,795	464,184	499,340	509,731	523,911	536,451	549,078
Total WOC Admin. Charge Based on 10% T&C	43,679	46,418	49,934	50,973	52,391	53,645	54,908
Operating Reserve							
Capital Costs							
Total Cash Funded Capital Purchases	3,839,477	3,528,598	1,391,000	500,000	500,000	3,434,000	1,884,000
Principal	1,440,419	1,402,790	537,712	549,276	560,648	574,154	-
Interest	1,054,992	1,092,785	1,417,755	1,345,434	1,486,670	1,331,606	1,923,076
Total Capital Costs	6,334,888	6,024,173	3,346,467	2,394,710	2,547,318	5,339,760	3,807,076
Less Debt Service for 1997, 2007, 2005 Bonds	(1,026,372)	(304,098)	(845,063)	(844,168)	(841,457)	(834,364)	-
Less Non Applicable Conveyance Purchases/ Pr.	(3,824,770)	(3,389,586)	(1,321,450)	(475,000)	(475,000)	(3,262,300)	(1,789,800)
Total Capital Cost Applicable to West Ocean City	1,483,746	2,330,489	1,179,954	1,075,542	1,230,861	1,243,096	2,017,276
West Ocean City Percent of Capacity 1/14	7.14%	7.14%	7.14%	7.14%	7.14%	7.14%	7.14%
Total West Ocean City Capital Charge	105,982	166,464	84,282	76,824	87,919	88,793	144,091
Total West Ocean City Charge	586,456	677,067	633,556	637,529	664,220	678,889	748,077

SCHEDULE 12 - RATE ANALYSIS

Water Department

Fiscal Year

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Non-Growth Capital Costs</u>						
Total Non-Growth Capital Costs	3,256,588	3,572,955	3,006,305	3,602,061	3,428,569	3,528,206
Net Non-Growth Capital Costs	3,256,588	3,572,955	3,006,305	3,602,061	3,428,569	3,528,206
Total Water Customers (Fixtures)	333,240	333,872	334,972	336,072	337,172	338,272
Quarterly Water Capital Charges (per Fixture)	\$ 2.44	\$ 2.68	\$ 2.24	\$ 2.68	\$ 2.54	\$ 2.61
Rounded to per model:	\$ 2.15	\$ 2.68	\$ 2.24	\$ 2.68	\$ 2.54	\$ 2.61
Rate per Staff	\$ 2.90	\$ 2.80	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60
		<i>-3%</i>	<i>-7%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
		<i>24%</i>	<i>-16%</i>	<i>19%</i>	<i>-5%</i>	<i>3%</i>
<i>% Change in Rates</i>						
<u>Operating Costs</u>						
Total Operating Costs	4,964,301	3,997,018	4,076,645	4,182,177	4,273,777	4,368,360
Less: Other Revenues	396,403	338,249	339,600	340,959	342,327	343,703
Less: Use of Cash Reserves				190,000	100,000	10,000
Net Operating Costs	4,567,898	3,658,769	3,737,045	3,651,218	3,831,450	4,014,656
Total Est. Billed Water Flows	1,190,355	1,180,174	1,180,174	1,180,174	1,180,174	1,180,174
Net Operating Charges (per 1,000 gal.)	\$ 3.84	\$ 3.10	\$ 3.17	\$ 3.09	\$ 3.25	\$ 3.40
Rounded to per model:	\$ 3.84	\$ 3.10	\$ 3.17	\$ 3.09	\$ 3.25	\$ 3.40
Rate per Staff	\$ 2.70	\$ 2.80	\$ 2.95	\$ 3.10	\$ 3.25	\$ 3.40
		<i>4%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>
<i>% Change in Rates</i>						
Revenue Generated per Model	7,433,762	7,231,724	6,743,350	7,253,279	7,260,019	7,542,862
Revenue Generated per Staff	7,079,543	7,043,852	6,965,221	7,153,687	7,342,153	7,530,619
Actual budgeted cost	7,824,487	7,231,724	6,743,350	7,253,279	7,260,019	7,542,862
						Surplus (shortfall)
						4,296

5 year
36,031,235
36,035,531
36,031,235
4,296

SCHEDULE 12 - RATE ANALYSIS

Wastewater Department

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Non-Growth Capital Costs						
Total Non-Growth Capital Costs	2,990,471	4,548,554	3,604,026	4,192,033	4,357,849	4,184,450
Plus: 3R Reserve	464,918	464,918	464,918	464,918	464,918	464,918
W. Ocean City Share of Capital Costs	(166,464)	(84,282)	(76,824)	(87,919)	(88,793)	(144,091)
Use of Debt Service Reserve	-	-	-	-	-	-
Use of Available Cash Balances	-	(245,000)	-	-	(72,000)	-
Net Non-Growth Capital Costs	3,288,925	4,684,190	3,992,119	4,569,032	4,661,974	4,505,277
Total Wastewater Customers (Fixtures)	333,240	333,872	334,972	336,072	337,172	338,272
Quarterly Fixed Wastewater Charges	\$ 2.47	\$ 3.51	\$ 2.98	\$ 3.40	\$ 3.46	\$ 3.33
Rounded to:	\$ 2.47	\$ 3.51	\$ 2.98	\$ 3.40	\$ 3.46	\$ 3.33
Rate per Staff	\$ 2.50	\$ 3.00	\$ 3.25	\$ 3.40	\$ 3.45	\$ 3.45
Operating Costs						
Budgeted Operating Costs	6,530,257	6,753,785	6,901,463	7,098,076	7,266,155	7,439,979
Plus: Operating Reserve	143,953	149,533	152,631	156,710	160,219	163,844
Less: Other Revenues	(354,478)	(221,781)	(222,890)	(224,004)	(225,124)	(226,250)
W. Ocean City Share of Operating Costs	(510,604)	(549,274)	(560,705)	(576,302)	(590,096)	(603,986)
Net Operating Costs	5,809,128	6,132,264	6,270,500	6,454,480	6,611,153	6,773,588
Total Wastewater Customers (Fixtures)	333,240	333,872	334,972	336,072	337,172	338,272
Quarterly Wastewater Operating Charges	\$ 4.36	\$ 4.59	\$ 4.68	\$ 4.80	\$ 4.90	\$ 5.01
Rounded to:	\$ 4.36	\$ 4.59	\$ 4.68	\$ 4.80	\$ 4.90	\$ 5.01
Rate per Staff	\$ 4.40	\$ 4.60	\$ 4.70	\$ 4.80	\$ 5.00	\$ 5.00
Total Wastewater Fixture Charges	\$ 6.83	\$ 8.10	\$ 7.66	\$ 8.20	\$ 8.36	\$ 5.10
<i>% Change in Rates</i>	-2.07%	18.66%	-5.43%	7.06%	1.93%	-38.98%
Rate per staff	\$7.05	\$7.60	\$7.95	\$8.20	\$8.45	\$8.45
<i>% Change in Rates</i>		<i>7.80%</i>	<i>4.61%</i>	<i>3.14%</i>	<i>3.05%</i>	<i>0.00%</i>
Revenue generated per model	9,098,053	10,816,453	10,262,619	11,023,512	11,273,128	11,278,864
Revenue generated per staff	9,397,368	10,149,709	10,652,110	11,023,162	11,396,414	11,433,594
Actual budgeted costs	9,098,053	10,816,453	10,262,619	11,023,512	11,273,128	11,278,864
						Surplus (shortfall)
						411

SCHEDULE 12 - RATE ANALYSIS

**Town of Ocean City, Maryland
 Water & Wastewater Rate Model**

SCHEDULE 12 - RATE ANALYSIS

Proposed Rates:

	2010	2011	2012	2013	2014	2015
Water Fixture	2.90	2.80	2.60	2.60	2.60	2.60
Wastewater Fixture	7.05	7.60	7.95	8.20	8.45	8.45
Water and Wastewater Fixture Rate - Combined	9.95	10.40	10.55	10.80	11.05	11.05
	0.00%	4.52%	1.44%	2.37%	2.31%	0.00%
Water Usage per 1000 gallons	2.70	2.80	2.95	3.10	3.25	3.40
	0.00%	3.70%	5.36%	5.08%	4.84%	4.62%

Town of Ocean City, Maryland
Water & Wastewater Rate Model

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SCHEDULE 12 - RATE ANALYSIS

	PROPOSED									
	2008	2009	2010	2011	2012	2013	2014	2015		
Water Department										
Fixture Rate	\$ 2.70	\$ 2.90	\$ 2.90	\$ 2.80	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60	\$ 2.60
	8.00%	7.41%	0.00%	-3.45%	-7.14%	0.00%	0.00%	0.00%	0.00%	0.00%
	<i>% Change in Rates</i>									
Usage Rate/1000 gallons	\$ 2.60	\$ 2.70	\$ 2.70	\$ 2.80	\$ 2.95	\$ 3.10	\$ 3.25	\$ 3.40	\$ 3.40	\$ 3.40
	4.00%	3.85%	0.00%	3.70%	5.36%	5.08%	4.84%	4.62%	4.62%	4.62%
	<i>% Change in Rates</i>									
Wastewater Department										
Fixture Rate	\$6.70	\$7.05	\$7.05	\$7.60	\$7.95	\$8.20	\$8.45	\$8.45	\$8.45	\$8.45
	3.88%	5.22%	0.00%	7.80%	4.61%	3.14%	3.05%	3.05%	3.05%	3.05%
	<i>% Change in Rates</i>									

SCHEDULE 12A - COMBINED RATE ANALYSIS

Proposed Rates:										
Water Fixture	2.70	2.90	2.90	2.80	2.60	2.60	2.60	2.60	2.60	2.60
Wastewater Fixture	6.70	7.05	7.05	7.60	7.95	8.20	8.45	8.45	8.45	8.45
Water and Wastewater Fixture Rate - Combined	9.40	9.95	9.95	10.40	10.55	10.80	11.05	11.05	11.05	11.05
	5.03%	5.85%	0.00%	4.52%	1.44%	2.37%	2.31%	2.31%	2.31%	0.00%
Water Usage per 1000 gallons	2.60	2.70	2.70	2.80	2.95	3.10	3.25	3.40	3.40	3.40
	4.00%	3.85%	0.00%	3.70%	5.36%	5.08%	4.84%	4.62%	4.62%	4.62%
	<i>% Change in Total Bill</i>									

Average Bill:										
11 fixtures & 6,000 gallon/month	\$ 150.20	\$ 158.05	\$ 158.05	\$ 164.80	\$ 169.15	\$ 174.60	\$ 180.05	\$ 180.05	\$ 180.05	\$ 182.75
	4.71%	5.23%	0.00%	4.27%	2.64%	3.22%	3.12%	3.12%	3.12%	1.50%
	<i>% Change in Total Bill</i>									

SCHEDULE 14 - RATE COMPARISON

Municipality		Estimated Quarterly Bills			Totals	Additional Usage
		Water	Wastewater	EDU		
<i>Ocean City, MD - Current Rates</i>		80.50	77.55		158.05	2.70 /1000 gal
<i>Ocean City, MD - Proposed Rates 2011</i>	(1)	\$ 81.20	\$ 83.60	\$	164.80	\$ 2.80 /1000 gal
<i>Ocean City, MD - Proposed Rates 2012</i>	(1)	\$ 81.70	\$ 87.45	\$	169.15	\$ 2.95 /1000 gal
Berlin, MD	(2)	45.00	137.40		182.40	3.40water/5.00wastewater/1000 gal
Ocean Pines, MD	(2) (3)	68.17	147.40		215.57	.80/1000 gal
Newark, MD	(2) (3)	121.50	121.50		243.00	3.50/1000 gal
West Ocean City		n/a	107.25			n/a
Salisbury, MD	(2)	78.99	143.56		222.55	3.20/1000 gal
Annapolis, MD (No change since 2004)	(2)	37.95	54.85		92.80	1.95 water/2.82 wastewater/1000 to 35,000 gal 2.28 water/3.29 wastewater/1000 above 35,000 gal
Virginia Beach, VA	(2)	46.38	173.70		220.08	2.52/CCF
County of Dare, NC	(2), (4), (5), (6)					
Summer Rates		142.90	-			6.88/1000 gal
Winter Rates		114.28	-			5.29/1000 gal
Fenwick Island, DE	(2)	81.37	-			5.893/1000 gal 1-5000; \$6.372/1000 above 5,000 gal

Notes:

- (1) - Based on Domestic Fixture Count of 11, and Metered Water Consumption of 6,000 Gal. per Month
- (2) - Based on Average Metered Water Consumption of 6,000 Gal. per Month for a 3 Mo./90 Day Period
- (3) - Also includes Equivalent Dwelling unit (EDU) of \$47.00 per quarter
- (4) Also based on peak surcharge rate (\$0.50 per 1,000 gal) from April through September
- (5) - Also includes Quarterly Fixed Charge of \$19.06
- (6) - Rates are for the following areas within the County: Avon, Buxton, Frisco, Hatteras, and Stumpy Point

SCHEDULE 16 - PROJECTED GROWTH DEBT SERVICE

Debt For Future Growth Capital Projects

Water

<u>Description</u>	<u>Principal</u>	<u>Interest Rate</u>	<u>Term (Years)</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Loans FY 2011	\$ -	5%	20	-	-	-	-	-
Loans FY 2012	\$ -	5%	20	-	-	-	-	-
Loans FY 2007	\$ -	5%	20	-	-	-	-	-
Loans FY 2013	\$ -	5%	20	-	-	-	-	-
Loans FY 2014	\$ -	5%	20	-	-	-	-	-
Loans FY 2015	\$ -	5%	20	-	-	-	-	-
Total - Water	\$ -	-	-	-	-	-	-	-

Wastewater

<u>Description</u>	<u>Principal</u>	<u>Interest Rate</u>	<u>Term (Years)</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Loans FY 2011	\$ 1,820,000	4.10%	20	\$37,310	\$144,939	\$144,939	\$144,939	\$144,939
Loans FY 2012	-	5%	20	-	-	\$0	\$0	\$0
Loans FY 2013	-	5%	20	-	-	-	-	-
Loans FY 2014	-	5%	20	-	-	-	-	-
Loans FY 2015	-	5%	20	-	-	-	-	-
Loans FY 2016	-	-	-	-	-	-	-	-
Total - Sewer	\$ 1,820,000	-	-	\$37,310	\$144,939	\$144,939	\$144,939	\$144,939

SCHEDULE 19 - CAPITAL CASH FLOW FROM IMPACT FEES

	Fiscal Year				
	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<u>Water System</u>					
Revenues:					
Impact Fees	120.00 per fixture	75,840	132,000	132,000	132,000
Developer Contributions					
Total Revenues		<u>75,840</u>	<u>132,000</u>	<u>132,000</u>	<u>132,000</u>
Growth Related Capital Expenses:					
Capital Expenditures (Cash Funded)		-	177,500	50,000	197,500
Projected Debt Service		37,310	144,939	144,939	144,939
Existing Debt Service		269,148	271,410	165,254	164,984
Total Expenses		<u>306,458</u>	<u>593,849</u>	<u>360,193</u>	<u>507,423</u>
Net Revenues (Expenses)		<u>\$ (230,618)</u>	<u>\$ (461,849)</u>	<u>\$ (228,193)</u>	<u>\$ (375,423)</u>
					<u>\$ (12,939)</u>
<u>Sewer System</u>					
Revenues:					
Impact Fees	210.00 per fixture	132,720	231,000	231,000	231,000
Developer Contributions					
Total Revenues		<u>132,720</u>	<u>231,000</u>	<u>231,000</u>	<u>231,000</u>
Growth Related Capital Expenses:					
Capital Expenditures (Cash Funded)		-	-	-	-
Projected Debt Service		37,310	144,939	144,939	144,939
Existing Debt Service		400,355	398,870	398,784	391,266
Total Expenses		<u>437,665</u>	<u>543,809</u>	<u>543,723</u>	<u>536,205</u>
Net Revenues (Expenses)		<u>\$ (304,945)</u>	<u>\$ (312,809)</u>	<u>\$ (312,723)</u>	<u>\$ (305,205)</u>
					<u>\$ (303,092)</u>