Project Summary

Project Number:	1041	**Budget Year:**	2012
Project Title:	Utility Equipment replacement	**Scenario:**	Main
Asset Type:	Other machinery and equipment; e.g. storage tanks	**Budget Status:**	Finance Review
Department:	Operations Utility Projects	**Regions:**	
Project Type:	Replacement New	**Active:**	Yes
Year Identified:	2009	**Manager:**	Ian Broome 729-2292
Start Date:	1/31/2012 12:00:00 AM	**Project Partner:**	
Est. Completion Date:	4/30/2012 12:00:00 AM		

Project Description:

The Utilities section is uses various pieces of equipment to support their day to day operations. Some of these pieces include, sewer cameras, safety trench cages, a storage shed for materials and a truck mounted valve operator.

Project Comments:

The 2012 request includes the expansion of the storage shed, a truck mounted valve operator and a large sewer camera. All three of these items are a carry over from 2011.

The truck mount valve operator would assist the water valves throughout the City on a yearly basis. The operator would help in assuring that the valves in the system are operable. It would also allow the Department to locate and map all the valves in the system. (GPS equipped)

The storage shed is in use but needs to be expanded to meet the departments needs. The storage shed is needed in the utility yard to store the plastic pipe, fittings and signage. The pipe needs to be kept out of the natural elements in preserving the highest level of performance of these items.

The large camera is used in the aid of televising the condition of the City's sewer mains and is used for lines that are 6" and over.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	153,000	153,000	0
2017	20,000	20,000	0
2020	63,500	63,500	0
2021	80,000	80,000	0
	316,500	**316,500**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0410	EQUIPMENT PURCHASES		153,000
		Total Expense:	**153,000**
Revenue			
23.1541	Water Distribution Reserve		53,000
23.1557	Wastewater Reserve		100,000
		Total Revenue:	**153,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Summary

Project Number:	1072	**Budget Year:**	2012
Project Title:	Master Plan Water Treatment Facility	**Scenario:**	
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Constructed	**Active:**	Yes
Year Identified:	2011	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

This budget allocation will allow for the development of a comprehensive plan which will define the long term needs of the Brandon Water Treatment Facility.

Project Comments:

The development of Maple Leaf Meats in 1999 esentially used all of the City's reserve water treatment capacity. This capacity is held for growth and the reserve capacity need to be replaced. A study was completed which recommended a new treatment facility be constructed at that time. The recommendation was rejected for a less costly alternative of utilizing the existing infrastructure and increase it's capacity for the next decade. The existing infrastructure was upgraded and the required capacity acquired. A decade has now passed and the original objectives have been achieved but with changing water regulation and aging infrastructure the need to plan for an expansion or replacement of the facility is now warranted.

In 2012 an expression of interest will be conducted and a consultant selected, the balance of the work will be completed in 2013.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	100,000	100,000	0
2013	300,000	300,000	0
	400,000	**400,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0019	CONSULTING FEES		100,000
		Total Expense:	**100,000**
Revenue			
22.3950	Water Revenue - Eng		100,000
		Total Revenue:	**100,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	13	**Budget Year:**	2012	
Project Title:	WTF Emergency Water Supply	**Scenario:**	Main	
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review	
Department:	Utility Engineering	**Regions:**		
Project Type:	Constructed	**Active:**	Yes	
Year Identified:	2009	**Manager:**	Ian Christiansen	729-2217
Start Date:		**Project Partner:**		
Est. Completion Date:				

Project Description:

Emergency Water Supply using alternate power.

Project Comments:

In the past several years emergency response planning and training has been moved into a more detailed and somewhat more sophisticated planing exercise. No longer are plans developed that simply rely on another utility's ability to provide their respective services. Plans have now advanced to the next level to where there is less reliance on the water utility to produce water or the power utility to produce power. The current level of planning that is being conducted by the City of Brandon and others is simply not to rely on Manitoba Hydro for power and Manitoba Hydro is responding by stating that we, as all customers, should plan beyond Manitoba Hydro's ability to provide electric power. In our past planning we had discounted the use of a generator set that would supply 100% of the Water Treatment Facility power needs as an expensive plan for very low risk. Now the risk formula has changed by our power supplier advising that we may wish to plan for our own power needs.

This budget allocation will allow for the installation of a generator set at the Water Treatment Facility that will provide 100% of the power demand and will also provide for a gen set to be installed at the 13th St Booster Station and a gen set installed at the 34th St Station as well. At one time no alternate power supply was proposed for the 34th St Booster Station as adequate fire flows can be provided in an emergency situation by adjusting the flow from the Ninth St reservoir, however this now not the case due to system growth. This budget allocation also includes adding alternate power supplies to the wells.

The Alternate Power supply is an integral portion of our over all emergency water supply plan. This budget allocation will bring to an end all of the Water Utilities alternate power and water supply demands.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	1,500,000	1,500,000	0
2017	900,000	900,000	0
2020	1,300,000	1,300,000	0
2022	1,000,000	1,000,000	0
	4,700,000	**4,700,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
200	CONTRACT SERVICES		1,500,000
		Total Expense:	**1,500,000**
Revenue			
23.1541	Water Distribution Reserve		1,500,000
		Total Revenue:	**1,500,000**

Related Projects

Operating Budget Impact

Project Summary

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	168	**Budget Year:**	2012
Project Title:	3rd Street Dam Replacement	**Scenario:**	Main
Asset Type:	Reservoirs (including dams)	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Replacement New	**Active:**	Yes
Year Identified:	2008	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

This project will replace the Third St dam with a rock weir. The existing dam failed in the spring of 2009.

The weir is required to ensure sufficient water is held in the Assiniboine River to feed the Water Treatment Facility.

Project Comments:

This project has been delayed pending approval from Oceans and Fisheries Canada. The detailed design is complete and has been presented to Fisheries, this project will be tendered early in 2012.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	1,000,000	1,000,000	0
	1,000,000	**1,000,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0019	CONSULTING FEES		50,000
200	CONTRACT SERVICES		950,000
		Total Expense:	**1,000,000**
Revenue			
23.1541	Water Distribution Reserve		1,000,000
		Total Revenue:	**1,000,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	206	**Budget Year:**	2012
Project Title:	College Ave Lift Station Alternate Power Supply	**Scenario:**	Main
Asset Type:	Sanitary and storm sewers, trunk and collection	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2010	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

Gen Set to be installed at College Lift Station.

Project Comments:

There is a single power supply service to this lift station with no redundancy in the supply. There is also no source of alternate power. In the event of a power failure there is not sufficient time to respond with a temporary pumping system. It is proposed to install an alternate power supply. The alternate power supply will consist of a diesel fired engine driving a generator.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2015	200,000	200,000	0
	200,000	**200,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	210	**Budget Year:**	2012
Project Title:	Commercial Water Meter Replacement	**Scenario:**	Main
Asset Type:	Unknown	**Budget Status:**	Finance Review
Department:	Operations Utility Projects	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2005	**Manager:**	Ian Broome 729-2292
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

The move to an Automated Water Meter Reading program in 2002 involved replacing all water meters with meters that were compatible with the automated read system. These meters are due to be replaced in 2024.

Project Comments:

Scenario Description:

Replacement of water meters 5/8 to 8".

Scenario Comments:

This will be necessary due to the age of the water meters and loss of accuracy for water billing purposes.

Project Forecast

Year	Total Expense	Total Revenue	Difference
2024	3,255,000	3,255,000	0
	3,255,000	**3,255,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	280	**Budget Year:**	2012	
Project Title:	Elevated Water Tower	**Scenario:**	Main	
Asset Type:	Water storage tanks	**Budget Status:**	Finance Review	
Department:	Utility Engineering	**Regions:**		
Project Type:	Maintenance	**Active:**	Yes	
Year Identified:	2008	**Manager:**	Ian Christiansen	729-2217
Start Date:		**Project Partner:**		
Est. Completion Date:				

Project Description:

This budget allocation will allow for the demolition and removal of the tower.

Project Comments:

This project was removed for 2012. Funding has been allocated in the Engineering operating account to undertake a condition assessment of the structure in 2012.

The elevated water tower located in the east end of Brandon was constructed in 1933 and serviced Brandon's water storage needs for many decades. In 1998 it became apparent that the tower had out lived it's useful life in terms of performance. The capacity of the tower is 625,000 imperial gallons which is small when compared to Brandon's current storage needs but more importantly the tower limited the increase in system pressure that is required. In order to meet today's demand for pressure the tower is too low and would be over filled. In 2001 the tower was taken out of service following distribution improvements at the Ninth St Reservoir and the addition of Booster Stations in the south, west and northern portions of the City.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
			0

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	282	**Budget Year:**	2012	
Project Title:	Watermain Replacement Program	**Scenario:**	Main	
Asset Type:	Waterworks trunk and distribution mains	**Budget Status:**	Finance Review	
Department:	Utility Engineering	**Regions:**		
Project Type:	Maintenance	**Active:**	Yes	
Year Identified:	2010	**Manager:**	Ian Christiansen	729-2217
Start Date:		**Project Partner:**		
Est. Completion Date:				

Project Description:

This budget allocation allows for the replacement of watermains.

Project Comments:

The funding for the replacement of watermains falls under one of two categories depending if the watermain replacement is associated with reconstruction of the over lying road. If the road is scheduled to be replaced then the watermain replacement is budgeted through the street reconstruction project (Project 12), if the street is not replaced but simply repaired then the funds are budgeted through this account.

Scenario Description:

The 2012 program includes Elmdale Blvd - Willowdale to Silver Birch

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	300,000	300,000	0
2013	300,000	300,000	0
2014	300,000	300,000	0
2015	300,000	300,000	0
2016	300,000	300,000	0
2017	300,000	300,000	0
2018	300,000	300,000	0
2019	300,000	300,000	0
2020	300,000	300,000	0
2021	300,000	300,000	0
2022	1,000,000	1,000,000	0
	4,000,000	**4,000,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
200	CONTRACT SERVICES		300,000
		Total Expense:	**300,000**
Revenue			
22.3950	Water Revenue - Eng		300,000
		Total Revenue:	**300,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	518	**Budget Year:**	2012
Project Title:	Central WWTF	**Scenario:**	Main
Asset Type:	Sewage treatment and disposal plants	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Constructed	**Active:**	Yes
Year Identified:	2009	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

The treatment efforts of the Municipal Wastewater Treatment Facility (MWWTF) and the Industrial Wastewater Treatment Facility (IWWTF) will be combined in one single treatment process. The new WWTF will be located at the IWWTF and will be known as the Central WWTF.

Project Comments:

The project will be completed over a number of years and phases. Details concerning the phases and cost estimates are appended to this account and are shown under the documents section.

Scenario Description:

Phase ll was commissioned in 2009 and the funding grant for Phase lll was announced in the fall of 2009. Engineering will start immediately with construction beginning in 2010. The construction is proposed to be completed by the mid 2013. The 2010 through 2013 capital budgets reflect the City contribution to Phase lll, the attached file "Budget Estimate 2010" details the funding contributions.

Project Summary

	Maple Leaf City	Wyeth		
Gross Cost	$81,315,000	$21,726,462	$41,791,312	$17,797,226
Grants	$40,800,000	$10,901,305	$20,968,893	$8,929,802
Net Cost	$40,515,000	$10,825,157	$20,822,419	$8,867,424
Proportionate Share	27%	51%	22%	

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	9,260,000	9,260,000	0
2013	6,016,000	6,016,000	0
2014	1,560,579	1,560,579	0
2017	806,400	806,400	0
	17,642,979	**17,642,979**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0410	EQUIPMENT PURCHASES		5,700,000
200	CONTRACT SERVICES		3,560,000
		Total Expense:	**9,260,000**
Revenue			
21.2608	Debentures - Utility Capital Projects		3,560,000
23.1557	Wastewater Reserve		5,700,000
		Total Revenue:	**9,260,000**

Related Projects

Project Summary

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	587	**Budget Year:**	2012
Project Title:	New Watermains	**Scenario:**	Main
Asset Type:	Waterworks trunk and distribution mains	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2014	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

This budget allocation includes the installation of new watermains.

Project Comments:

New water mains are required to strengthen the existing water distribution system in reaction to changing water demand due to growth or change in land use or sometimes both.

2014 - Clare Ave, 18th St to 1st St N
2017 - Victoria East to 65th St East
2019 - Richmond Ave - 34th to Wankling Blvd
2021 - Patricia Ave - 18th to 26th St

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2014	650,000	650,000	0
2018	2,000,000	2,000,000	0
2019	900,000	900,000	0
2021	300,000	300,000	0
	3,850,000	**3,850,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	854	**Budget Year:**	2012
Project Title:	New Wastewater Sewers	**Scenario:**	Main
Asset Type:	Waterworks trunk and distribution mains	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2015	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

This budget allocation is designed to cover the expense of the installation of new wastewater sewer mains.

Project Comments:

New wastewater sewer mains are required to strengthen the existing wastewater collection system in reaction to changing wastewater collection demand due to growth or change in land use or sometimes both.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2016	5,000,000	5,000,000	0
2017	3,250,000	3,250,000	0
2018	3,250,000	3,250,000	0
	11,500,000	**11,500,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	969	**Budget Year:**	2012
Project Title:	WTF Upgrade Chemical Storage	**Scenario:**	Main
Asset Type:	Unknown	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2011	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

Replacement and reconfiguration of chemical storage at the Water Treatment Facility.

Project Comments:

The chemicals that are used in the Water Treatment Facility are purchased in bulk and include liquids, solids and gases. Each of the chemicals has a receiving, storage and internal distribution system dependant upon their form and point of application. This budget allocation will allow for the updating and upgrading of the various systems.

Lime and Soda Ash are received in dry powdered form and are stored in silos. The system in place was constructed in 1958 and is obsolete. The existing silos will be retained, however the receiving equipment, dust collection and internal piping to deliver the chemicals to their point of application will be changed. The trucks used to deliver the chemicals will be changed to the more modern pressurized tankers and the off loading will be performed at the rear the facility which will allow for removing truck traffic off of McDonald Ave.

Powdered activated Carbon and Potassium permanganate will be received, stored and dispensed form a separate building located at the water intake. This is precipitated by the need to remove carbon from the Water Treatment Facility for safety reasons.

Alum and Ferric Storage tanks will be constructed within the foot print of the existing Water Treatment Facility once the details have been completed on the disinfection implementation project.
The replacement of the chlorine receiving, storage and distribution systems will be included in the disinfection implementation project and therefore no expenses are budgeted.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	100,000	100,000	0
2015	2,200,000	2,200,000	0
2016	850,000	850,000	0
	3,150,000	**3,150,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
200	CONTRACT SERVICES		100,000
		Total Expense:	**100,000**
Revenue			
23.1541	Water Distribution Reserve		100,000
		Total Revenue:	**100,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	982	**Budget Year:**	2012	
Project Title:	WTF Boiler / Ventilation	**Scenario:**	Main	
Asset Type:	Unknown	**Budget Status:**	Finance Review	
Department:	Utility Engineering	**Regions:**		
Project Type:	Maintenance	**Active:**	Yes	
Year Identified:	2007	**Manager:**	Ian Christiansen	729-2217
Start Date:		**Project Partner:**		
Est. Completion Date:				

Project Description:

Replace Water Treatment Facility Boilers and install a ventilation system.

Project Comments:

The existing boilers are 1960's vintage and although they provide a high level of service they are not efficient by today's standards. The replacement of both boilers with current efficient boilers has a payback period of less than three years and an anticipated boiler life of 15 years. The work will also include the installation of a ventilation system. The boilers will be replaced in one year and the ventilation system installed in a subsequent year.

The ventilation system will include three roof top mounted air makeup units and the corresponding exhaust system. The roof top units will be gas fired and provide heated air as makeup to the air that will be exhausted. The air will not be cooled during the summer months.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2013	650,000	650,000	0
2015	400,000	400,000	0
	1,050,000	**1,050,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	983	**Budget Year:**	2012
Project Title:	WTF Capacity Upgrade	**Scenario:**	Main
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2007	**Manager:**	
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

The two issues that all Water Treatment facilities face are water quality and water quantity. This budget allocation will address the capacity issue over a number of years and provide for the necessary planning and capital expenditures required to meet the future water demand.

Project Comments:

The Brandon Water Treatment facility currently meets the city's demand for water and meets current water quality requirements with the exception of seasonal variation in disinfection byproduct generation. The plant has been maintained and upgraded over the years but the main components range in age from 35 to 60 years old. The treatment technology is still current but advances in water treatment have been made in the past few decades. The water demand of Maple Leaf essentially used the plant's reserve capacity and in 1998 a decision was made to utilize the existing infrastructure with some capacity enhancements to restore the reserve capacity as opposed to constructing a new plant or adding on to the current plant. More than a decade has passed and it is now the time to conduct a study for the long term needs for Brandon's water supply. There are essentially two options for the future; construct a new facility or enhance the existing facility. The most probable result will be a hybrid of both options. In 2013 it is proposed to formulate the terms of reference to conduct an expression of interest from various consultant's which will be used to select a consultant in 2013 to conduct a Master Plan for the Brandon Water Treatment facility. The following discussion and schedule of improvements are provided simply for budget purposes and will be refined during the Master Plan Study.

The Water Treatment Facility is constructed of three separate water treatment plants or trains under one roof. Each of these plants can operate independently or in any combination which allows for a robust operation with a high level of redundancy. Each of these three plants contain the same process technology which includes a solids contact reactor, followed by filtration and disinfection. The solids contact units are referred to as the reactors and perform the function of removing particles from the water as well as soften the water.

All of the reactors operate on the same principle of mixing a variety of chemicals into the water which allows for mechanical water purification through the development of a sludge blanket and chemical precipitation for softening. The physical appearance of each reactor is different based on the manufacturer's design, however they all contain a large concrete tank with mechanical devices mounted inside the tanks.

Each plant or process train each contain their own reactor for a total of three reactors. All of the reactors can be refurbished using current technology to increase their water treatment capacity. The reactors are fed a supply of raw water through a system of pumps referred to as low lift pumps. These pumps and their resulting piping network feed the water treatment facility with its untreated water supply by lifting the water and allowing the water to flow through the facility by gravity.

Reactor 2 was upgraded in 2007, reactor 1 was ugraded in 2009 which resulted in an increase of water productivity of 13 MLD or 24% of total plant capacity. There is the opportunity to upgrade Reactor 3 to increase it's capacity by an additional 13 MLD. The long term plan calls to add a 40 MLD plant in 2020 and decommission plants 1 and 2 and add an additional 40 MLD plant in 2035 and decommission plant 3. Additional storage, 18 ML, will be added in 2025 at the Ninth St Reservoir.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2021	2,200,000	2,200,000	0
2025	40,000,000	40,000,000	0
	42,200,000	**42,200,000**	**0**

GL Account	Description	Total Amount

Project Summary

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	986	**Budget Year:**	2012
Project Title:	WTF Disinfection Implementation	**Scenario:**	Main
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2008	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

The Water Treatment Facility relies on chlorine and ultra violet light for disinfection. The chlorine disinfection system is dated and does not meet current provincial regulations. This budget allocation will exist for a number of years and will address the disinfection issues at the Water Treatment Facility.

Project Comments:

The two main chlorine disinfection issues facing the Water Treatment Facility is the chlorine contact time and the generation of disinfection byproducts. The amount of time that the chlorine remains in contact with the water can be corrected by adding baffles in the storage reservoir that feeds the high lift pumps. The second issue of disinfection byproducts is more difficult and potentially more costly to overcome. Currently two alternatives are being explored namely the replacement of chlorine disinfection with the use of chlorinamination and secondly blending ground water with river water to reduce the organic matter in the raw water which in turn will reduce disinfection byproducts. A study will need to be completed which will determine if the blended water will result in lowered byproducts and if the water is suitable for disinfection by employing chloramination. Another alternative is to use a liquid form of chlorine as opposed to gaseous chlorine. Once the disinfection method is determined a chemical storage building will need to be constructed.

In 2012 engineering work needs to continue to define a solution to the disinfection byproduct issue. Previous bench scale studies for chloramination have shown that chloramination is a viable option. In 2012 preliminary engineering design needs to be completed on the chemical storage as well as implementation in order to obtain Provincial approval.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	150,000	150,000	0
2015	3,500,000	3,500,000	0
2018	3,500,000	3,500,000	0
	7,150,000	**7,150,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0019	CONSULTING FEES		150,000
		Total Expense:	**150,000**
Revenue			
22.3950	Water Revenue - Eng		150,000
		Total Revenue:	**150,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	991	**Budget Year:**	2012
Project Title:	WTF Filters Under Drain and Media Replacement	**Scenario:**	Main
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Replacement Used	**Active:**	Yes
Year Identified:	2008	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

This budget allocation will allow for the upgrading of the filters located at the Water Treatment Facility.

Project Comments:

The Water Treatment Facility has a total of 16 sand filters used for water purification. These filters are arranged in banks and each bank works independent of the others. The bank arrangement consists of filters 1-4, 5-8 and 9-16 and range in age from 1946, 1958 and 1975 respectively. Each of the filters operate on the same principle and approximately the same filter rate. Since these filters have been installed the technology has advanced and these filters can produce a greater quantity of water at a better quality with some upgrading. The upgrading will include the replacement of the sand media, the under drains system as well as the filter cleaning equipment. The media supplied today has the ability to pass more water per unit volume with increased water quality therefore an improved under drain system is required. The improved filter cleaning devices are required to keep the filters operating efficiently.

The budget allocation for 2015 includes developing a detailed design for all the filters. Budgets in 2017, 2018 & 2019 will be the actual filter upgrades.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2015	30,000	30,000	0
2017	1,600,000	1,600,000	0
2018	1,600,000	1,600,000	0
2019	1,800,000	1,800,000	0
	5,030,000	**5,030,000**	**0**

GL Account	Description	Total Amount

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact

Project Summary

Project Number:	996	**Budget Year:**	2012
Project Title:	WTF Intake Structure	**Scenario:**	Main
Asset Type:	Water treatment plants and pumping stations	**Budget Status:**	Finance Review
Department:	Utility Engineering	**Regions:**	
Project Type:	Maintenance	**Active:**	Yes
Year Identified:	2008	**Manager:**	Ian Christiansen 729-2217
Start Date:		**Project Partner:**	
Est. Completion Date:			

Project Description:

Construct new intake structure and retain the old structure as a redundant intake and replace carbon and potassium feeders.

Project Comments:

River water enters the Water Treatment Facility via the Intake Structure which includes a series of screens designed to prevent unwanted items from entering the Water Treatment Facility. The Intake Structure was constructed in 1904 and at the time the screen was designed to protect the equipment in the Facility by preventing large floating objects and fish from entering. The intention was to protect the facility and the quality of finished water. These purposes are still valid today, however protection of aquatic life holds much more value today then it did in 1904. Modern intake structures now contain fish exclusion screens which prevent fish, and other forms of aquatic life, from being drawn into the intake. In order to accomplish this the screens are much larger in area but have much smaller openings.

This funding allocation will allow for a review of the existing intake works and a recommendation on upgrade and/or replacement.

Scenario Description:

Scenario Comments:

Project Forecast

Year	Total Expense	Total Revenue	Difference
2012	350,000	350,000	0
2013	100,000	100,000	0
2016	2,500,000	2,500,000	0
2017	3,250,000	3,250,000	0
	6,200,000	**6,200,000**	**0**

Project Details 2012

GL Account	Description		Total Amount
Expense			
0019	CONSULTING FEES		250,000
200	CONTRACT SERVICES		100,000
		Total Expense:	**350,000**
Revenue			
22.3950	Water Revenue - Eng		250,000
23.1541	Water Distribution Reserve		100,000
		Total Revenue:	**350,000**

Related Projects

Operating Budget Impact

Budget Year	Exp (Rev)	FTE Impact