

# WEEKLY MEMO

**Date:** December 16, 2011

**To:** Mayor Lynn Stauss, Council President Craig Buckalew, Vice President Wayne Gregoire, Council Members Marc Demers, Ron Vonasek, Henry Tweten, Greg Leigh, and Mike Pokrzywinski.

**From:** Scott Huizenga

**RE:** Weekly Update

## **UPCOMING MEETINGS:**

*December 20, 2011 – 5:00 pm – Council Meeting – Council Chambers*

*December 27, 2011 – 5:00 pm – Work Session – Training Room*

*January 3, 2011 – 5:00 pm – Council Meeting – Council Chambers*

## **WEEKLY UPDATE:**

### **Water Rate Study**

The Water and Light Commission heard a presentation Thursday evening from Progressive Consulting on a proposed revision to its water rates. The Commission initially procured the study as a reaction to state law that mandates water conservation rates by 2013. Generally, state law requires water utilities to eliminate rate structures that provide price breaks for high water users. Therefore, the study investigated a rate structure that complied with state law while maintaining overall revenues and providing for an adequate fund balance.

The summary recommendation is to increase the base meter charge from \$7.00 per month to \$8.82 effective 2012. The meter charge would increase eight percent each year thereafter at least through 2016. The first 4000 gallons of water use would increase from \$4.95 to \$5.40 per 1000 gallons. The use rates would also increase eight percent per year through at least 2016. The net effect for the average residential water user would be an increase of \$3.61 per month for a user of 4000 gallons (the average in East Grand Forks is about 4400 gallons per month) in the first year.

I have attached the Water Rate Study to this memo. The study includes, among other items, information on the rate study manual from the American Water Works Association (AWWA), historic East Grand Forks sales and rates, capital project planning, fund balance information, and rate comparisons with neighboring cities.

### **CERT energy grant**

Staff from the state Clean Energy Resource Teams (CERT) notified me that the City is on the short list to receive grant funds to study energy efficiency alternatives at the City arenas. The Council approved the request in November to apply for the grant. I have not yet received an official award letter with the final grant amount and conditions

### **League Legislative Priorities**

The League of Minnesota Cities issued its 2012 Legislative priorities. The priorities for the next legislative session include statements on increased water and waste water funding, state bonding

for infrastructure, street improvement district legislation, mandate reform, and budget stability. The priorities can be found on the League web site at <http://www.lmc.org/page/1/lmcpriorities.jsp>.

### **Greenway Survey**

The City of East Grand Forks is considering opportunities to enhance an area of the Greenway called LaFave Park, the area between the Sorlie and Louie Murray Bridges, to improve the visual beauty of the area and increase public use. The City seeks your input on what events, activities or facilities you would like us to consider for future planning efforts within this Greenway area.

The City of East Grand Forks has posted a survey on its website for you to provide your answers or input. Please click on the survey weblink below and answer the survey questions. Deadline for submission is January 13, 2012. A link is also available at [www.greenwayggf.com](http://www.greenwayggf.com). The external link is: <http://www.surveymonkey.com/s/W692T8P>

## **DEPARTMENT REPORTS:**

### **Fire Department, Chief Randy Gust**

Fire Department has staff committee working on finding Aerial Platform. At this time we are using USA Fire Safety to assist in finding used trucks, but are also doing our own search. We will try to find an assortment of trucks and prices to forward on to City Administrator and council.

We have had 3 responses to Douglas Place on HWY #2 for automatic alarms this past week. All of the responses were for religious ceremonies that include the burning of sage in a smudge pot that set off the fire alarms. I did inform their staff that they are very close to violating our City Ordinance regarding false alarms. They will try to relocate the ceremonies to an area that will have little effect on alarm system.

### **Library, Charlotte Helgeson**

The Library received a \$500 donation from the VFW for Large Print books.

Braun Intertec and McFarlane continued their investigation of the library's roof issue by doing a pressurized test of the air able to pass through the library's exterior and doing four roof openings. The soffit area, center of the meeting room roof, closet and the north end radius walls show air leakage along with window frames and the brick cavity above the windows.

Problems were confirmed or discovered concerning the vapor and moisture barriers, insulation and venting. A list of possible options, cost and timelines will be delivered by Kraus-Anderson in mid-January for review.

## **AGENDA ITEMS:**

The consent agenda includes the purchase of mobile computers for the Police Department, an increase in winter burial fees at the cemetery, and the filing of plans and specifications for the 2011 Assessment Jobs No 2 and 3 – Industrial Park Improvements.

Item 3 will be the second public hearing regarding a proposed revised development ordinance. The ordinance as proposed would require full infrastructure, including paving, to be installed on new developments within three years of the final plat. The ordinance allows for the phasing of plat development.

Items 7-8 approve the promotions of Dillon Nelson and Dale Gulbranson to the positions of Waste Water Operator and Parks Foreman, respectively, both effective January 2, 2012.

Item 10 adjusts waste water rates effective April 1, 2012 with the intent to build a reserve fund for a future Phase II treatment project. The base meter charge would increase by \$2 per month; and use rates per 1000 gallons also would increase. The net effect to the average residence would be approximately \$5 per month.

Item 11 rescinds Transportation Enhancement funding for 2012. The project as proposed was to construct a multi-use trail along 10<sup>th</sup> Street NW and 8<sup>th</sup> Avenue NW connecting with the trail along the River Heights area. Changes to the configuration of 5<sup>th</sup> Street Northwest along with increased project costs make the project infeasible as previously planned.

Item 12 requests Transportation Enhancement funding to construct sidewalks on 5<sup>th</sup> Avenue NW for the 2014-2015 funding round.

Item 13 designates appropriated Transit capital funds to construct a trail on the east side of Central Avenue from 14<sup>th</sup> Street to 20<sup>th</sup> Street.

Item 14 is the first reading of the revised development ordinance as described above.

Item 15 is a liquor license transfer from Applebee's to Thai Orchid, LLC dba Drunken Noodle.

# Water Rate Study

## East Grand Forks Water and Light Department City of East Grand Forks, MN



East Grand Forks  
Water & Light Department

Your Hometown Utility Since 1909



December 2011



Progressive Consulting Engineers, Inc.



FS Engineering



# Progressive Consulting Engineers, Inc.

6120 Earle Brown Drive, Suite 629, Minneapolis, MN 55430-2581 (763) 560-9133 FAX (763) 560-0333

December 9, 2011

Dan Boyce  
General Manager  
Water and Light Department  
600 DeMers Ave NW, PO Box 322  
East Grand Forks, MN 56721-0322

Dear Mr. Boyce:

Progressive Consulting Engineers, Inc. (PCE) in conjunction with FS Engineering is pleased to submit herein the final report for the Water Rate Study for the East Grand Forks Water and Light Department. The report develops inclining block water rates as required by the Department of Natural Resources (DNR) using the cost of service analysis.

Two analyses were done for the test year 2010: using the actual (higher) CIP of \$1,105,852 and the lower CIP of \$500,000 as requested by the department staff. Since the rates calculated using the actual CIP are much higher than the department's current rate, it might not be feasible to implement such a higher increase to the customers. The department might need to phase the rate increase in a 2-3 year period. It is recommended that the department implement the rates (both commodity rates and fixed charges) calculated using the lower CIP number starting from 2012 and increase the rates by 8% every year thereafter until 2016 to generate the cash balance of \$750,000 as required by the department staff. The rates should be re-evaluated each year with a full rate study to be completed in 2016. The recommended rates for 2012 are as shown below:

Fixed Charge (5/8" meter size)      \$8.82 per month

### Commodity Rate

#### Residential

Block 1: 0 - 4,000 gallons      \$5.40 per 1,000 gallons  
Block 2: Above 4,000 gallons      \$6.75 per 1,000 gallons

#### Apartment

Block 1: 0 - 50,000 gallons      \$5.40 per 1,000 gallons  
Block 2: Above 50,000 gallons      \$6.75 per 1,000 gallons

**Commercial**

Block 1: 0 - 36,000 gallons            \$5.40 per 1,000 gallons  
Block 2: Above 36,000 gallons        \$6.75 per 1,000 gallons

This report is the product of a cooperative effort between the East Grand Forks Water and Light Department, FS Engineering, and PCE staff. The cooperation and assistance of the department staff is greatly appreciated, especially the assistance of Bonnie Abel and yourself.

We will be available to discuss the report or any aspects of the study at your convenience.

Sincerely,



Naem Qureshi  
NQ/js

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# WATER RATE STUDY

Prepared for

City of East Grand Forks

Water, Light, Power & Building Commission

December 2011

By



Progressive Consulting Engineers, Inc.



FS Engineering

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Appendix A Water Rate Structure

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## DEFINITIONS

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**Capital Investment Project (CIP)** – A plan for capital expenditures to be incurred each year over a fixed period of years to meet capital needs arising from the long-term work program or otherwise. It sets forth each project or other contemplated expenditures in which the entity is to have a part and specifies the full resources estimated to be available to finance the projected expenditures.

**Commodity Costs (Variable Costs)** – The costs that tend to vary with the quantity of water produced, including the costs of chemicals, a large part of the power costs, and other elements that follow, or change almost directly with, the amount of water produced.

**Cost of Service** – The operating and capital costs incurred in meeting various aspects of providing water service, such as customer billing costs, demand related costs, and variable costs.

**Customer Costs** – The costs directly associated with serving customers, irrespective of the amount of water used. Such costs generally include: administration; meter reading; billing; accounting; bill collecting expenses; and, maintenance and capital costs related to meters and associated services.

**Depreciation** – The loss in service value not restored by current maintenance as applied to depreciable plant facilities.

**Debt Services** – The amount of money necessary to pay interest and principal requirements for a given year or a series of years.

**Meter Equivalent and Service Ratio** – The ratio of the cost of investment in larger meters and services to those of a base meter size, such as the 5/8” meter are typically used for residential customers.

**Test Year** – The annualized period for which costs are to be analyzed and rates established.

**Unit Cost** - The cost of producing a unit of a product or service. An example would be the cost of treating a thousand gallons of potable water for use by the water utility's customers.

**Unit of Service** – An element of service for which a cost can be ascertained, such as thousand gallons, hundred cubic feet, million gallons per day, monthly bill, etc.

# 1 INTRODUCTION TO STUDY

East Grand Forks Water and Light had supplied water and electricity services to their customers since 1909. Recently, the Department of Natural Resources (DNR) sent a letter requiring Cities serving more than 1,000 customers to implement rates that promote water conservation. East Grand Forks Water and Light Department (referred to as “Department” from now on in the report) currently has a water rate structure that includes a fixed charge based on the size of the meter and a flat rate commodity charge based on consumption. The department is interested in a water rate study that establishes new rates that meet the DNR requirements for water conservation.

The current water rates are not generating sufficient revenue to pay for the operating and maintenance (O&M) expenses and the water fund had to borrow \$400,000 from the electric fund in 2010 to pay for their other expenses such as capital improvements (CIP). The department has budgeted very high expenses for the CIP in 2011 and 2012 and the water sales revenues are not sufficient to pay for these expenses.

In August 2011, the department directed FS Engineering and Progressive Consulting Engineers, Inc. to complete a rate study for the purpose of developing new water rates. A study of an inclining block rate structure, which will meet the requirements of the Department of Natural Resources (DNR) as well as generate sufficient revenues to pay for the expenses was requested by the utility.

The inclining block water rate is developed using the cost of service method. The rate developed has a fixed charge and a volume-based charge known as a commodity charge. The fixed charge covers the fixed costs such as administrative costs, meter, billing and collection costs, etc. that are not affected by the amount of water used by the customers. The commodity charge funds operation and maintenance costs, capital improvement plans, and other utility expenses.

The new rate was developed according to the methodology described in the American Water Works Association (AWWA) “Water Rates” Manual (M1). Revenue requirements were determined for the test year 2010 using the “Cash-Needs” approach. Under the cash-needs approach, revenue requirements include: operations and maintenance (O&M) costs; debt service payments; and, the cost of capital expenditures that are not debt-financed. The objective of the cash-needs approach for projecting revenue requirements is to ensure that utility reserves are sufficient to recover the total cash needs for a given projection period. The revenue requirements

were divided into commodity costs (water consumption) and fixed (or service) costs, which were then allocated to the customer categories.

The new water rates developed will insure that the department will generate sufficient revenue and a cash balance to pay for their expenses, capital improvement plans (CIP), and any unexpected expenses that come in the future.

This report is the result of the cooperative efforts of the of East Grand Forks Water and Light department, FS Engineering, and Progressive Consulting Engineers, Inc. staff. The cooperation and assistance of the department staff is gratefully acknowledged. The water rate structures proposed herein will not only meet the revenue requirements of the utility over the next six years, but also allot these costs on to customers equitably.

## 2 EXISTING RATES AND SITUATION

### 2.1 *Current Water Rates*

At present, the department has a flat monthly water rate that includes a minimum fixed charge based on the customer meter size. The 2010 water rates for the department customers are \$4.85 per 1,000 gallons plus the monthly fixed charge based on the meter size. The 2011 water rates are \$4.95 per 1,000 gallons. The monthly fixed charge for the 5/8" meter size is \$7.00 both for the year 2010 and 2011.

The detailed water rate structure is attached in Appendix A of this report.

### 2.2 *Water Sales*

Historic water sales are shown in Table 1 and Graph 1. The graph shows the trend of water use by the department customers. The department sold approximately 317,835,000 gallons of water to their customers in the test year 2010.

At present, the customers are divided into four customer categories – residential, apartments, sprinkling, and commercial. However, the sprinkling customers are mostly residential customers and a few commercial customers who receive a sanitary sewer discount i.e. there is no sanitary sewer volume charge on the summer season water use above each individual customer's winter average water use. Sprinkling water is any water use above the winter average consumption. Since there is no reduction in the water charge to this customer, the sprinkling customer category is not used in this study. All of the water used that was reported under this category was added to the residential water use category.

Tables 2 and 3 show the current and projected number of meters (for each meter size) in each of the customer categories. In the year 2010, there were 2,845 total customers. Out of the total 2,845 customers: 2,472 were residential; 77 apartment; and 291 commercial. Note that there are 33 sprinkling customers who are commercial customers with separate sprinkling meters (who are charged a sprinkling rate). These customers were added to the commercial customer category.

## **2.3 Costs and Revenues**

The historic and projected expenses of providing water service to the customers are summarized in Table 4a. The costs in the table include: customer accounting and administrative costs; principal and interest payments for bonds or debt service; CIP; and, operations and maintenance costs, which includes treatment and distribution costs. The data in the table was provided by the department staff. Table 4b shows the historical and projected water system expenses using a lower CIP for 2010 (See Section 4.1.3 for detail discussion).

## **2.4 Capital Improvement and Depreciation**

The five-year capital improvement plan (CIP) and the depreciation schedule for water is shown in Table 5a and Graph 2a. The graph shows the current and projected capital improvement and depreciation costs in thousand dollar units. Table 5b shows the same data with a lower CIP (See Section 4.1.3 for detail discussion).

To provide a perpetual system, the yearly depreciation cost should be less than the yearly capital improvement plan cost. Table 5a and Graph 2a show that the total yearly-depreciation is less than the capital improvements and replacement costs for the water system. This indicates that the department is spending adequate money on improving the water system. This is true even with lower CIP expenditure.

The department is planning to spend approximately \$3,850,000 on the water system in the next five years, an average of about \$770,000 per year. This shows that the water fund will require sufficient revenues to pay for these capital improvement plans.

## **2.5 Adequacy of Existing Rates**

The department will need to generate sufficient revenue to provide an adequate cash balance to pay for: operating and maintenance costs; capital improvement projects; and, any unexpected expenses due to revenue fluctuations from wet/dry years and unanticipated regulations. It is typical that the utility maintain at least one year of operating and maintenance costs as their year-end cash balance in the water fund. However, since the Water and Light Commission has a large reserve in the electric fund and since the department considers a combined reserve, the department does not see a need of a high cash balance for the water fund. The department wants

to consider the cash balance of \$750,000 by 2016 and that is what was used for this study. See the email attached in Appendix B of this report for the detailed discussion with the department staff regarding the targeted year-end cash balance.

Table 6 and Graph 3 show the cash balance from 2010 through 2016 when the existing 2011 water rates are increased by 11% every year. The data shows that the department will be losing money every year until 2013 after which they will start recovering the cash balance. By the year 2016, the water fund will have a cash balance of around \$850,000. This is assuming that the water fund will receive \$2,000,000 from the electric fund in the year 2012 to pay for the lime sludge pond relocation project.

It might not be feasible for the department to increase the rate by 11% every year. Also, the current rate is a flat rate structure, which is not considered a conservation rate structure by the DNR. Therefore, to satisfy the DNR requirement of implementing a conservation rate structure, to develop a rate structure that complies with the industry standard (as suggested by the AWWA), and to generate sufficient cash balance to pay for the expenses, the current rate structure needs to be revised.

### 3 RATE ANALYSIS

In this chapter, the projected water costs will be discussed together with population, meters and water use data for different customer types. The data will be used to develop the new water rates. Most of the discussion involving rate methodology in this section will relate primarily to the water rate development presented in Chapter 4.

#### **3.1 Length of Projection**

Revenue projections for each of the five years are considered adequate to provide a reasonable forecast of anticipated future revenue needs. These projections will assist management, policy makers, and the public in foreseeing potential concerns, and will assist in avoiding surprises when future changes in rates are requested or announced.

The projected period for this study is assumed to be the utility's next six fiscal years from 2011 to 2016.

The test year of 2010 was used for all of the projections in this study.

#### **3.2 Water Sales Projections**

In any distribution system there is always a certain amount of water lost to leakage and unbilled use (such as hydrant flushing, fire department use, etc.), therefore, in a given year the amount of water sold will be less than the water pumped. The water treatment plant in its production process also uses some water. Therefore, the proposed water rates and future revenues were based on water consumption (sales) rather than pumpage.

The current and projected water consumption data is shown in Table 1. The years 2006-2010 represents the actual data and years 2011 to 2016 were projected. The water consumption and the number of connections for each customer category were provided by the department staff. For both historic and projected years, the average connection use was calculated as water sold divided by the number of connections.

**3.3 Revenue Requirements Projections**

There are two widely used and accepted methods, or approaches, for determining the total revenue requirements of a water utility. These are the "cash-needs" approach and the "utility" approach. These approaches are described in the American Water Works Association (AWWA) "Water Rates" Manual (M1).

The cash-needs approach is typically used to determine revenue requirements when a utility serves only customers from its own City. This approach assumes that the utility revenues should cover all cash needs, including debt obligations (bond principal and interest), as they come due. Cash needs include: operations and maintenance (O&M) costs; debt service; and, capital expenditures that are not debt-financed. Depreciation expenses are not included in the rate when this approach is used. Major capital projects are usually debt financed with the costs of repayment distributed over the useful life of an improvement and so, as much as is possible, to the customers benefiting from the improvement.

The utility approach is typically used when a utility is providing services to customers outside the city limits or when a state commission or other regulatory body operates a government-owned (municipal) utility. Under this approach, O&M costs are the same as for the cash-needs approach. Other costs include the capital-related costs of return on rate base and depreciation. The utility approach assumes that the utility should receive a return on its invested capital from non-owner customers. In turn, those customers do not share in financing the utility's capital improvements except through the cost of depreciation.

The East Grand Forks Water and Light department serves only inside city customers and therefore, the cash-needs approach was used to determine the revenue requirements. Actual cash needs were used to ensure that the revenues generated by the new water rates over the next six years will be adequate to meet the projected costs over that period.

**3.4 Revenue Requirement Components Under Cash-Needs Approach**

The revenue-requirement components of the cash needs approach include: O&M expenses; debt-service payments; and, capital expenditures that are not debt-financed or contributed. Depreciation expenses are not included.

### **3.4.1 Operating and Maintenance (O&M) Expenses**

The current and projected water O&M expenses are shown in Table 4a. The O&M costs include: costs such as salaries and wages; fringe benefits; purchased power and other services; rent; chemicals; other materials and supplies; small equipment that does not extend the useful life of major facilities; and, general overhead. The costs of minor capital improvements are included as O&M costs relating to equipment, supplies, vehicle expenses, and engineering, etc.

The O&M expenses data shown in Table 4a are: the actual data for the years 2006-2010; the proposed budget for 2011; and, projected expenses for 2012 through 2016. The process used for projecting the expenses is noted at the end of the tables. For the years 2012-2015, the expenses were projected to increase by 1.5% of the 2011 amount every year.

### **3.4.2 Debt Service Payments**

The debt service component of the cash-needs approach usually consists of a principal and interest payment on bonds and other debt instruments. It also may include debt service requirements as established by the bond indenture authorizing the debt. Table 4a shows the debt service expenses, which include the principle and interest amount. The department paid off their last bond in 2010 and therefore, there are no payments in the future years unless they float another bond or borrow additional money.

### **3.4.3 Capital Expenditures**

The capital expenditures include: normal (routine) annual replacement of existing facilities; and, improvements or major capital replacements and improvements.

Table 5a shows the capital improvement plan and replacement expenses for the water utility. The department is planning to spend an average of approximately \$700,000 per year over the next six years on their water system. Since these expenses should be covered by the rates, the rates will need to be sufficient to generate adequate revenue to fund the capital improvement projects.

**3.5 Commodity Costs and Fixed Costs for Customer Services**

The new rates developed for the department customers include: a fixed cost to cover the fixed operational costs of the utilities; and, a commodity cost to fund the utility’s operation and maintenance costs, capital improvement costs, and other expected expenses.

Fixed costs, or customer service costs, are those O&M costs that do not generally vary with individual customer water use. The commodity costs are those, which vary with the amount of water used by a customer and will be based on volume of water used.

The fixed costs include the cost for administrative, collection, and billing expenses for water meters and associated costs such as maintenance, installation and replacement. These costs are allotted to the customers in the form of service charges, which are typically based on the number of billings and, in the case of water, on meter size. Larger meters will have larger charges since they are more expensive and more costly to install, maintain, and replace, etc. For water fixed costs, meter equivalents will be determined as outlined in the following subsections.

Commodity costs or collection costs are passed on to customers in the form of commodity billing rates. The inclining block method was used to allocate the 2010 test year water commodity costs according to water use blocks and customer types.

**3.6 Meters and Meter Equivalents**

The fixed cost was based on the size and number of meters. The department is estimating a minimal growth in the next few years. It is projected that there will be four new residential customers every year from 2012 to 2016. No new apartments or commercial customers are projected. All projections were done by the department staff.

Customer related costs of meters and services (fixed cost) should be properly distributed among customer classes by recognizing factors that are generally responsible for those costs being incurred. One method of distributing meter and meter service costs to customer classes is to establish a cost that is in proportion to the investment in meters and services installed for each customer class, which is based on the number of equivalent meters. Distribution of customer costs by equivalent meter and services ratios recognizes that meter and service costs vary depending on: size of the service pipe; material used; locations of meters; and, other local characteristics for various sized meters as compared to 5/8” meters and services. The meter

equivalent ratios applied to different water meter sizes are recommended by the AWWA in the M1 manual and are shown in Table 3.

Table 3 shows the total number of water meters and meter equivalents from 2010 to 2016. By the means of the meter equivalent ratios, customers with larger meters will pay larger service charges because the fixed charge is based on the standard meter size.

## 4 WATER AND SEWER RATE STRUCTURE

It is important for a utility to select an appropriate rate structure because the majority of the utility's revenues are collected through water rates and because pricing policies may support a community's social, economic, political, and environment concerns. For this study, an inclining block rate structure was designed for water customers to meet the Department of Natural Resources (DNR) requirements.

### 4.1 Water Rates

The water rate structure developed in this report includes the cost of service rate structure containing a fixed charge; a commodity charge based on the water usage; and, an inclining (increasing) block rate structure, wherein the per unit cost increases beyond a certain level.

The following sections discuss the method in detail.

#### 4.1.1 Unit Cost of Service and Cost Distribution

In Table 7a, the test year 2010 water O&M costs were allocated into fixed costs and the commodity costs depending on whether they are related to billing and customer service or to water usage and treatment. The fixed cost was provided by the department staff and is shown in the City's Comprehensive Annual Financial Report 2010.

In Table 8a, the fixed costs were divided by the number of equivalent meters in order to calculate the fixed customer charge. The fixed customer charge was based on the 5/8" meter size. Meter equivalent ratios as shown in Table 3 were used to calculate the fixed charge for other meter sizes i.e. the fixed charge for 5/8" meter times the meter equivalent ratio for each meter size. The commodity costs were divided by the total water sold to calculate the rate per 1,000 gallons.

#### 4.1.2 Water Rates and Cash Balance

The rates derived for all customers using the cost of service method for the test year 2010 are summarized below and are shown in Table 8a.

|                  |                          |
|------------------|--------------------------|
| Fixed Charge     | \$8.82 per month         |
| Commodity Charge | \$7.30 per 1,000 gallons |

**4.1.2.1 Inclining Block Rate**

Inclining block rates (also known as increasing or inverted or ascending block rates) is considered to be a conservation-oriented rate structure. An inclining block rate structure charges higher volumetric rates for increasing consumption. The structure requires metering and definition of the consumption blocks over which the rates increase. Inclining block rate structures tend to result in more revenue volatility than any other rate structure since the rate recovers a proportionally greater percentage of the customer class revenue requirement at a higher level of consumption.

There is no statistically defined method to develop the blocks or steps for inclining block rates. The most justifiable method, however, is to charge a higher rate for the water usage above the average water consumption of each customer category. For example, the average water consumption for the residential customers based on the water usage data provided by the department is 4,000 gallons per month. Therefore, Block 1 is defined as water usage between 0-4,000 gallons. Anything above 4,000 gallons is considered Block 2 usage and will be charged a higher rate. A 25% higher rate than Block 1 is used as a Block 2 rate to implement water conservation. The Block 1 rate is the rate that was calculated using the cost of service method discussed above. The same methodology was used for the other customer categories including apartments and commercial customers.

Table 9a shows the inclining block rate for the year 2010 and is summarized below.

|                               |                          |
|-------------------------------|--------------------------|
| Fixed Rate (5/8" meter size)  | \$8.82 per month         |
| Commodity Rate                |                          |
| Residential                   |                          |
| Block 1: 0 - 4,000 gallons    | \$7.30 per 1,000 gallons |
| Block 2: Above 4,000 gallons  | \$9.13 per 1,000 gallons |
| Apartment                     |                          |
| Block 1: 0 - 50,000 gallons   | \$7.30 per 1,000 gallons |
| Block 2: Above 50,000 gallons | \$9.13 per 1,000 gallons |

## Commercial

|                               |                          |
|-------------------------------|--------------------------|
| Block 1: 0 - 36,000 gallons   | \$7.30 per 1,000 gallons |
| Block 2: Above 36,000 gallons | \$9.13 per 1,000 gallons |

The rates discussed above were used to calculate the cash inflow and cash balances through the year 2016. Table 10a show the rates and cash balances from 2010 to 2016. The cash balance for 2010 is the actual cash balance as provided by the department staff. The cash balance from 2011 onwards was projected from the cash inflow and cash outflow calculation.

The 2010 and 2011 rates are the actual rates as charged by the department to their customers. The rates calculated by the study were used for the year 2012 and the rates were not increased until 2016. The table shows that the department will have a total cash balance of approximately \$2.0 million dollars (one year of O&M cost) by 2016 if they implement the calculated rates for 2012 and then not increase that rate at all until 2016. This is assuming that the department will transfer \$2,000,000 from the electric fund to pay for the lime sludge pond relocation project in the year 2012.

Graph 4a shows in a graphical format the projected cash inflow, outflow and cash balance generated using the new calculated and proposed rates.

The rates calculated using the cost of service study were almost 50% higher than the current rates therefore, it may not be feasible to implement such a higher rate to the customers in one year. The department can implement the required rates by phasing them in over a 2 or 3 year period. However, based on a suggestion by the department staff, another option was calculated and is discussed below.

### **4.1.3 Water Rates - Option 2**

Since the rates calculated using the cost of service study for the year 2010 were 50% higher than the existing rate, it was decided to use a CIP of \$500,000 for the test year 2010 instead of \$1,105,852 (see email attached in Appendix B of this report for discussion with the department staff). This was done because the capital improvements in 2010 were far over what the department normally spends on their CIP. In 2010 the department took advantage of some city street improvements being done to replace extra water main; which they normally wouldn't do.

Tables 4 to 10 were recalculated using the lower CIP for the year 2010 and the results are discussed below.

Tables 4b and 5b show the revised CIP number. Table 6 remains the same. Table 7b and 8b show the 2010 rates calculated using the cost of service study with the revised lower CIP number. The tables show that the commodity rates for the year 2010 would be \$5.40 per 1,000 gallons instead of \$7.30 per 1,000 gallons if the lower CIP number is used. The fixed charge remains the same i.e. \$8.82 per month for 5/8” meter size.

Based on the inclining block method as shown in Table 9b, the rates for each customer category are shown below:

|                                |                          |
|--------------------------------|--------------------------|
| Fixed Charge (5/8” meter size) | \$8.82 per month         |
| Commodity Charge               |                          |
| Residential                    |                          |
| Block 1: 0 - 4,000 gallons     | \$5.40 per 1,000 gallons |
| Block 2: Above 4,000 gallons   | \$6.75 per 1,000 gallons |
| Apartment                      |                          |
| Block 1: 0 - 50,000 gallons    | \$5.40 per 1,000 gallons |
| Block 2: Above 50,000 gallons  | \$6.75 per 1,000 gallons |
| Commercial                     |                          |
| Block 1: 0 - 36,000 gallons    | \$5.40 per 1,000 gallons |
| Block 2: Above 36,000 gallons  | \$6.75 per 1,000 gallons |

The cash flow was calculated for each year using the new rates. It was assumed that the recommended rates will be implemented in 2012 and then increased by 8% every year thereafter to achieve a cash balance of \$750,000 by the end of year 2016 as required by the department. All of the assumptions made for the Table 10a are valid for Table 10b.

## **4.2 Billing Comparison Using Current and Proposed Rates**

Table 11a shows the billing comparison for different customers using the current 2011 rates and the proposed 2012 rates calculated using the CIP of \$1,105,852 for the year 2010. Table 11b shows the same, but the proposed rates of 2012 are calculated using the lower CIP values of \$500,000 for the year 2010. The tables show the current total bill for individual customers and the total bill in 2012 with the rate increase. The table show the dollar and percent increase in the bills every month starting from 2012.

## **4.3 Rate Comparison With the Neighboring Cities**

Graphs 5a and 5b show the East Grand Forks current and proposed water rates (calculated using higher and lower CIP values for 2010 respectively) compared with the neighboring cities 2011 rates.

## 5 PROPOSED RATES AND RECOMMENDATIONS

According to the 2008 amendment of Minnesota Statutes, Section 103G.291, all of the public water suppliers serving more than 1,000 people shall adopt a conservation rate structure. Since the East Grand Forks Water and Light Department is serving more than 1,000 people, an inclining block rate for water was developed in this report. The rates were developed using the cash needs approach as discussed in the AWWA M1 manual.

Since the rates calculated for the year 2010 using the higher cost CIP were not feasible to implement, it is recommended that the department implement the proposed rates calculated using the lower cost CIP for 2010. It is recommended that the new rates be implemented starting from 2012. The proposed rates for water are as follows:

|                                |                          |
|--------------------------------|--------------------------|
| Fixed Charge (5/8" meter size) | \$8.82 per month         |
| Commodity Rate                 |                          |
| Residential                    |                          |
| Block 1: 0 - 4,000 gallons     | \$5.40 per 1,000 gallons |
| Block 2: Above 4,000 gallons   | \$6.75 per 1,000 gallons |
| Apartment                      |                          |
| Block 1: 0 - 50,000 gallons    | \$5.40 per 1,000 gallons |
| Block 2: Above 50,000 gallons  | \$6.75 per 1,000 gallons |
| Commercial                     |                          |
| Block 1: 0 - 36,000 gallons    | \$5.40 per 1,000 gallons |
| Block 2: Above 36,000 gallons  | \$6.75 per 1,000 gallons |

It is required that the fixed charge as well as the commodity charge be increased by 8% every year starting from 2013 until 2016 to generate the cash balance of \$750,000 requested by the department. It is recommended that the water fund receive \$2,000,000 from the electric fund in 2012 to pay for the lime sludge pond relocation project in addition to implementing the above recommended rates.

# Tables

**Table 1  
East Grand Forks  
Water Utility  
Water Rate Study  
Historic and Projected Water Sales**

| Customer Classification                  | Actual         |                |                |                |                | 2011           | Projected      |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|  | 2006           | 2007           | 2008           | 2009           | 2010           |                | 2012           | 2013           | 2014           | 2015           | 2016           |
| <b>Residential</b>                       |                |                |                |                |                |                |                |                |                |                |                |
| Water Sold (1000 gallons)*               | 149,142        | 135,045        | 133,410        | 129,929        | 128,782        | 128,100        | 127,600        | 127,350        | 127,100        | 126,825        | 126,600        |
| Percent of Total Use                     | 39             | 36             | 37             | 39             | 41             | 40             | 40             | 41             | 41             | 41             | 41             |
| No. Of Connections**                     | 2,347          | 2,388          | 2,420          | 2,451          | 2,472          | 2,477          | 2,481          | 2,485          | 2,489          | 2,493          | 2,497          |
| Average Connection Use (1000 gallons)*** | 64             | 57             | 55             | 53             | 52             | 52             | 51             | 51             | 51             | 51             | 51             |
| <b>Apartments</b>                        |                |                |                |                |                |                |                |                |                |                |                |
| Water Sold (1000 gallons)*               | 41,860         | 41,626         | 46,562         | 46,581         | 46,844         | 46,850         | 46,850         | 46,850         | 46,850         | 46,850         | 46,850         |
| Percent of Total Use                     | 10.92          | 11.03          | 12.99          | 14.04          | 14.74          | 14.78          | 14.85          | 14.91          | 14.97          | 15.03          | 15.09          |
| No. Of Connections**                     | 67             | 69             | 74             | 76             | 77             | 77             | 77             | 77             | 77             | 77             | 77             |
| Average Connection Use (1000 gallons)*** | 625            | 603            | 629            | 613            | 608            | 608            | 608            | 608            | 608            | 608            | 608            |
| <b>Commercial</b>                        |                |                |                |                |                |                |                |                |                |                |                |
| Water Sold (1000 gallons)*               | 192,482        | 200,691        | 178,468        | 155,180        | 142,209        | 142,000        | 141,000        | 140,000        | 139,000        | 138,000        | 137,000        |
| Percent of Total Use                     | 50             | 53             | 50             | 47             | 45             | 45             | 45             | 45             | 44             | 44             | 44             |
| No. Of Connections**                     | 278            | 277            | 269            | 266            | 262            | 258            | 258            | 258            | 258            | 258            | 258            |
| Average Connection Use (1000 gallons)*** | 692            | 725            | 663            | 583            | 543            | 550            | 547            | 543            | 539            | 535            | 531            |
| <b>Total Water Sold (1000 gallons)</b>   | <b>383,484</b> | <b>377,362</b> | <b>358,440</b> | <b>331,690</b> | <b>317,835</b> | <b>316,950</b> | <b>315,450</b> | <b>314,200</b> | <b>312,950</b> | <b>311,675</b> | <b>310,450</b> |
| <b>Percent Increase</b>                  | <b>-</b>       | <b>-1.60%</b>  | <b>-5.01%</b>  | <b>-7.46%</b>  | <b>-4.18%</b>  | <b>-0.28%</b>  | <b>-0.47%</b>  | <b>-0.40%</b>  | <b>-0.40%</b>  | <b>-0.41%</b>  | <b>-0.39%</b>  |

**Note:**

- \* Water sold data is from the 2010 water and light annual report - water fund statistics page 35.
- \*\* Historic and projected no. of connections was provided by the department staff. The 2011 data is as of 6-2-11.
- \*\*\* Average connection use was calculated as water sold divided by no. of connections both for historic and projected years.

**Table 2  
East Grand Forks  
Water Utility  
Water Rate Study  
Projected Number of Meters**

| Customer Type /<br>Meter Size | No. of Meters |              |              |              |              |              |              |
|-------------------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                               | Actual        | Projected    |              |              |              |              |              |
|                               | 2010          | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         |
| <b>Residential</b>            |               |              |              |              |              |              |              |
| 5/8"                          | 1,283         | 1,286        | 1,288        | 1,290        | 1,292        | 1,294        | 1,296        |
| 3/4"                          | 1,134         | 1,136        | 1,138        | 1,140        | 1,142        | 1,144        | 1,145        |
| 1"                            | 59            | 59           | 59           | 59           | 59           | 60           | 60           |
| 1-1/2"                        | 1             | 1            | 1            | 1            | 1            | 1            | 1            |
| 2"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 2-+compound"                  | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 3"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 4"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 5"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 6"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| <b>Total</b>                  | <b>2,472</b>  | <b>2,477</b> | <b>2,481</b> | <b>2,485</b> | <b>2,489</b> | <b>2,493</b> | <b>2,497</b> |
| <b>Apartment</b>              |               |              |              |              |              |              |              |
| 5/8"                          | 6             | 6            | 6            | 6            | 6            | 6            | 6            |
| 3/4"                          | 13            | 13           | 13           | 13           | 13           | 13           | 13           |
| 1"                            | 20            | 20           | 20           | 20           | 20           | 20           | 20           |
| 1-1/2"                        | 29            | 29           | 29           | 29           | 29           | 29           | 29           |
| 2"                            | 4             | 4            | 4            | 4            | 4            | 4            | 4            |
| 2-+compound"                  | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 3"                            | 5             | 5            | 5            | 5            | 5            | 5            | 5            |
| 4"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 5"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 6"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| <b>Total</b>                  | <b>77</b>     | <b>77</b>    | <b>77</b>    | <b>77</b>    | <b>77</b>    | <b>77</b>    | <b>77</b>    |
| <b>Commercial</b>             |               |              |              |              |              |              |              |
| 5/8"                          | 42            | 42           | 42           | 42           | 42           | 42           | 42           |
| 3/4"                          | 93            | 93           | 93           | 93           | 93           | 93           | 93           |
| 1"                            | 44            | 44           | 44           | 44           | 44           | 44           | 44           |
| 1-1/2"                        | 52            | 52           | 52           | 52           | 52           | 52           | 52           |
| 2"                            | 34            | 34           | 34           | 34           | 34           | 34           | 34           |
| 2-+compound"                  | 3             | 3            | 3            | 3            | 3            | 3            | 3            |
| 3"                            | 12            | 12           | 12           | 12           | 12           | 12           | 12           |
| 4"                            | 7             | 7            | 7            | 7            | 7            | 7            | 7            |
| 5"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 6"                            | 4             | 4            | 4            | 4            | 4            | 4            | 4            |
| <b>Total</b>                  | <b>291</b>    | <b>291</b>   | <b>291</b>   | <b>291</b>   | <b>291</b>   | <b>291</b>   | <b>291</b>   |
| <b>Totals Per Meter Size</b>  |               |              |              |              |              |              |              |
| 5/8"                          | 1,331         | 1,334        | 1,336        | 1,338        | 1,340        | 1,342        | 1,344        |
| 3/4"                          | 1,240         | 1,242        | 1,244        | 1,246        | 1,248        | 1,250        | 1,251        |
| 1"                            | 123           | 123          | 123          | 123          | 123          | 124          | 124          |
| 1-1/2"                        | 82            | 82           | 82           | 82           | 82           | 82           | 82           |
| 2"                            | 38            | 38           | 38           | 38           | 38           | 38           | 38           |
| 2-+compound"                  | 3             | 3            | 3            | 3            | 3            | 3            | 3            |
| 3"                            | 17            | 17           | 17           | 17           | 17           | 17           | 17           |
| 4"                            | 7             | 7            | 7            | 7            | 7            | 7            | 7            |
| 5"                            | 0             | 0            | 0            | 0            | 0            | 0            | 0            |
| 6"                            | 4             | 4            | 4            | 4            | 4            | 4            | 4            |
| <b>Overall Totals</b>         | <b>2,845</b>  | <b>2,850</b> | <b>2,854</b> | <b>2,858</b> | <b>2,862</b> | <b>2,866</b> | <b>2,870</b> |

**Note:**

\* Sprinkling meter does not include the sewer customers. Therefore it does not match with the number in Table 1.  
2011 total is as of 6-2-11.

**Table 3  
East Grand Forks  
Water Utility  
Water Rate Study  
Meter and Meter Equivalents**

| Meter Size   | Meter Equivalent and Service Ratio | Projected Number of Meters and Meter Equivalents |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------|------------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|              |                                    | Actual 2010                                      |        | 2011   |        | 2012   |        | 2013   |        | 2014   |        | 2015   |        | 2016   |        |
|              |                                    | Meters   | Equiv. | Meters | Equiv. | Meters | Equiv. | Meters | Equiv. | Meters | Equiv. | Meters | Equiv. | Meters | Equiv. |
| 5/8"         | 1.0                                | 1331   | 1331   | 1334   | 1334   | 1336   | 1336   | 1338   | 1338   | 1340   | 1340   | 1342   | 1342   | 1344   | 1344   |
| 3/4"         | 1.1                                | 1240   | 1364   | 1242   | 1367   | 1244   | 1369   | 1246   | 1371   | 1248   | 1373   | 1250   | 1375   | 1251   | 1377   |
| 1"           | 1.4                                | 123  | 172    | 123    | 172    | 123    | 173    | 123    | 173    | 123    | 173    | 124    | 173    | 124    | 173    |
| 1-1/2"       | 1.8                                | 82   | 148    | 82     | 148    | 82     | 148    | 82     | 148    | 82     | 148    | 82     | 148    | 82     | 148    |
| 2"           | 2.9                                | 38   | 110    | 38     | 110    | 38     | 110    | 38     | 110    | 38     | 110    | 38     | 110    | 38     | 110    |
| 2-+compound" | 2.9                                | 3  | 9      | 3      | 9      | 3      | 9      | 3      | 9      | 3      | 9      | 3      | 9      | 3      | 9      |
| 3"           | 11.0                               | 17   | 187    | 17     | 187    | 17     | 187    | 17     | 187    | 17     | 187    | 17     | 187    | 17     | 187    |
| 4"           | 14.0                               | 7  | 98     | 7      | 98     | 7      | 98     | 7      | 98     | 7      | 98     | 7      | 98     | 7      | 98     |
| 5" *         | 19.0                               | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 6"           | 24.0                               | 4  | 96     | 4      | 96     | 4      | 96     | 4      | 96     | 4      | 96     | 4      | 96     | 4      | 96     |
|              | Total                              | 2,845  | 3,515  | 2,850  | 3,520  | 2,854  | 3,524  | 2,858  | 3,528  | 2,862  | 3,533  | 2,866  | 3,537  | 2,870  | 3,541  |

Note:

Meter equivalent is from the AWWA M1 manual.

\* The meter equivalent for 5" meter size is not given in the AWWA M1 manual. The meter equivalent for this meter size is extrapolated from other numbers.

**Table 4a**  
**East Grand Forks**  
**Water Utility**  
**Water Rate Study**  
**Historic and Projected Water System Expenses - Using Higher CIP for 2010**

| Description                             | Actual                 |                        |                        |                        |                        | Budget                 |                        | Proposed               |                        |                        |                        |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|   | 2006                   | 2007                   | 2008                   | 2009                   | 2010                   | 2011                   | 2012                   | 2013                   | 2014                   | 2015                   | 2016                   |
| O&M Expenses                            |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
| Raw Water Pumping                       | \$ 6,143.00            | \$ 7,834.01            | \$ 5,374.80            | \$ 4,247.09            | \$ 4,529.03            | \$ 10,760.66           | \$ 11,018.85           | \$ 11,184.13           | \$ 11,351.89           | \$ 11,522.17           | \$ 11,695.01           |
| Treatment - Plant                       | \$ 809,056.00          | \$ 831,583.80          | \$ 917,579.60          | \$ 850,848.32          | \$ 886,553.60          | \$ 892,309.12          | \$ 909,500.97          | \$ 923,143.48          | \$ 936,990.64          | \$ 951,045.50          | \$ 965,311.18          |
| Treatment - M & E                       | \$ 137,049.00          | \$ 123,788.60          | \$ 110,493.56          | \$ 103,050.62          | \$ 107,076.54          | \$ 144,720.13          | \$ 152,382.45          | \$ 154,668.19          | \$ 156,988.21          | \$ 159,343.03          | \$ 161,733.18          |
| Treatment - B & G                       | \$ 25,585.00           | \$ 31,192.03           | \$ 37,094.60           | \$ 32,598.60           | \$ 32,175.70           | \$ 50,267.57           | \$ 51,281.15           | \$ 52,050.37           | \$ 52,831.12           | \$ 53,623.59           | \$ 54,427.94           |
| Distribution - Pumping                  | \$ 15,096.00           | \$ 9,823.27            | \$ 13,124.93           | \$ 10,950.45           | \$ 14,029.72           | \$ 34,023.86           | \$ 34,574.12           | \$ 35,092.73           | \$ 35,619.12           | \$ 36,153.41           | \$ 36,695.71           |
| Distribution - Lines                    | \$ 80,002.00           | \$ 42,670.92           | \$ 67,942.68           | \$ 54,603.22           | \$ 79,736.60           | \$ 98,839.71           | \$ 103,390.57          | \$ 104,941.43          | \$ 106,515.55          | \$ 108,113.28          | \$ 109,734.98          |
| Distribution - Storage                  | \$ 15,741.00           | \$ 11,462.67           | \$ 26,515.47           | \$ 19,393.23           | \$ 14,323.42           | \$ 29,921.22           | \$ 30,452.12           | \$ 30,908.90           | \$ 31,372.54           | \$ 31,843.12           | \$ 32,320.77           |
| Distribution - Meters                   | \$ 13,048.00           | \$ 14,655.00           | \$ 11,687.17           | \$ 21,898.00           | \$ 14,304.31           | \$ 20,256.99           | \$ 21,198.34           | \$ 21,516.32           | \$ 21,839.06           | \$ 22,166.65           | \$ 22,499.15           |
| Distribution - Hydrants                 | \$ 16,176.00           | \$ 31,365.00           | \$ 24,691.97           | \$ 20,234.04           | \$ 32,549.19           | \$ 23,936.50           | \$ 24,848.89           | \$ 25,221.62           | \$ 25,599.95           | \$ 25,983.95           | \$ 26,373.71           |
| Distribution - Vehicles                 | \$ 12,128.00           | \$ 7,087.00            | \$ 12,038.99           | \$ 10,294.61           | \$ 10,914.72           | \$ 16,838.95           | \$ 17,137.52           | \$ 17,394.58           | \$ 17,655.50           | \$ 17,920.33           | \$ 18,189.14           |
| Distribution - DSC                      | \$ 48,656.00           | \$ 48,261.00           | \$ 49,813.23           | \$ 40,972.82           | \$ 43,229.12           | \$ 13,675.30           | \$ 2,166.81            | \$ 2,199.31            | \$ 2,232.30            | \$ 2,265.78            | \$ 2,299.77            |
| Distribution - Others                   | \$ 304,190.00          | \$ 304,255.00          | \$ 334,402.27          | \$ 343,038.93          | \$ 358,120.53          | \$ 45,164.23           | \$ 49,544.76           | \$ 50,287.93           | \$ 51,042.25           | \$ 51,807.88           | \$ 52,585.00           |
| Operation - Supervisions                | \$ 86,659.00           | \$ 89,028.00           | \$ 100,912.67          | \$ 102,802.48          | \$ 123,711.87          | \$ 82,052.62           | \$ 92,699.85           | \$ 94,090.35           | \$ 95,501.70           | \$ 96,934.23           | \$ 98,388.24           |
| G. & A. - General                       | \$ 98,266.00           | \$ 104,326.00          | \$ 119,721.10          | \$ 97,741.59           | \$ 140,224.84          | \$ 148,295.99          | \$ 143,444.70          | \$ 145,596.37          | \$ 147,780.32          | \$ 149,997.02          | \$ 152,246.98          |
| Meter Readings Reimbursed               | \$ 15,337.00           | \$ 15,361.00           | \$ 15,240.00           | \$ 3,517.00            | \$ 1,579.00            | \$ 5,020.00            | \$ 1,842.33            | \$ 1,869.96            | \$ 1,898.01            | \$ 1,926.48            | \$ 1,955.38            |
| G. & A. - Reimbursed                    | \$ 224,111.00          | \$ 220,125.00          | \$ 252,078.64          | \$ 231,127.72          | \$ 230,246.21          | \$ 266,011.01          | \$ 270,441.01          | \$ 274,497.63          | \$ 278,615.09          | \$ 282,794.32          | \$ 287,036.23          |
| Minus Depreciation *                    | \$ (507,825.00)        | \$ (500,672.00)        | \$ (515,147.00)        | \$ (514,101.00)        | \$ (527,108.00)        | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   |
| Total O&M Expenses                      | \$ 1,399,418.00        | \$ 1,392,146.30        | \$ 1,583,564.68        | \$ 1,433,217.72        | \$ 1,566,196.40        | \$ 1,882,093.87        | \$ 1,915,924.44        | \$ 1,944,663.31        | \$ 1,973,833.26        | \$ 2,003,440.76        | \$ 2,033,492.37        |
| Debt Services                           |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
| Interest and Fiscal Charges on Bonds ** | \$ 71,801.00           | \$ 68,600.00           | \$ 65,641.51           | \$ 61,741.99           | \$ 21,540.75           | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   |
| Bond Retirement                         |                        |                        |                        |                        | \$ 1,200,000.00        |                        |                        |                        |                        |                        |                        |
| Total Capital Improvements              |                        |                        |                        |                        | \$ 1,105,852.00        | \$ 390,000.00          | \$ 2,450,000.00        | \$ 350,000.00          | \$ 350,000.00          | \$ 350,000.00          | \$ 350,000.00          |
| <b>Total Expenses</b>                   | <b>\$ 1,471,219.00</b> | <b>\$ 1,460,746.30</b> | <b>\$ 1,649,206.19</b> | <b>\$ 1,494,959.71</b> | <b>\$ 2,693,589.15</b> | <b>\$ 2,272,093.87</b> | <b>\$ 4,365,924.44</b> | <b>\$ 2,294,663.31</b> | <b>\$ 2,323,833.26</b> | <b>\$ 2,353,440.76</b> | <b>\$ 2,383,492.37</b> |

**Note:**

- \* The O&M expenses from 2006-2010 includes depreciation data in it. The depreciation is not part of the cost of service study and therefore, it is subtracted from the total expenses. The depreciation number is already subtracted from the individual category from 2011 onwards.
- \*\* The department paid off one of their bonds in 2010. The amount shown here is for the payment. This is not included in the rate study calculation. All the data until 2012 is from the water fund expense sheet provided by the department staff. The data from 2013 to 2016 is projected as a 1.5% increase per year except for the capital improvements. The capital improvements are as provided by the department staff and is as shown in Table 5.

**Table 4b**  
**East Grand Forks**  
**Water Utility**  
**Water Rate Study**  
**Historic and Projected Water System Expenses - Using Lower CIP for 2010**

| Description                             | Actual                 |                        |                        |                        |                        | Budget                 |                        | Proposed               |                        |                        |                        |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|   | 2006                   | 2007                   | 2008                   | 2009                   | 2010                   | 2011                   | 2012                   | 2013                   | 2014                   | 2015                   | 2016                   |
| O&M Expenses                            |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
| Raw Water Pumping                       | \$ 6,143.00            | \$ 7,834.01            | \$ 5,374.80            | \$ 4,247.09            | \$ 4,529.03            | \$ 10,760.66           | \$ 11,018.85           | \$ 11,184.13           | \$ 11,351.89           | \$ 11,522.17           | \$ 11,695.01           |
| Treatment - Plant                       | \$ 809,056.00          | \$ 831,583.80          | \$ 917,579.60          | \$ 850,848.32          | \$ 886,553.60          | \$ 892,309.12          | \$ 909,500.97          | \$ 923,143.48          | \$ 936,990.64          | \$ 951,045.50          | \$ 965,311.18          |
| Treatment - M & E                       | \$ 137,049.00          | \$ 123,788.60          | \$ 110,493.56          | \$ 103,050.62          | \$ 107,076.54          | \$ 144,720.13          | \$ 152,382.45          | \$ 154,668.19          | \$ 156,988.21          | \$ 159,343.03          | \$ 161,733.18          |
| Treatment - B & G                       | \$ 25,585.00           | \$ 31,192.03           | \$ 37,094.60           | \$ 32,598.60           | \$ 32,175.70           | \$ 50,267.57           | \$ 51,281.15           | \$ 52,050.37           | \$ 52,831.12           | \$ 53,623.59           | \$ 54,427.94           |
| Distribution - Pumping                  | \$ 15,096.00           | \$ 9,823.27            | \$ 13,124.93           | \$ 10,950.45           | \$ 14,029.72           | \$ 34,023.86           | \$ 34,574.12           | \$ 35,092.73           | \$ 35,619.12           | \$ 36,153.41           | \$ 36,695.71           |
| Distribution - Lines                    | \$ 80,002.00           | \$ 42,670.92           | \$ 67,942.68           | \$ 54,603.22           | \$ 79,736.60           | \$ 98,839.71           | \$ 103,390.57          | \$ 104,941.43          | \$ 106,515.55          | \$ 108,113.28          | \$ 109,734.98          |
| Distribution - Storage                  | \$ 15,741.00           | \$ 11,462.67           | \$ 26,515.47           | \$ 19,393.23           | \$ 14,323.42           | \$ 29,921.22           | \$ 30,452.12           | \$ 30,908.90           | \$ 31,372.54           | \$ 31,843.12           | \$ 32,320.77           |
| Distribution - Meters                   | \$ 13,048.00           | \$ 14,655.00           | \$ 11,687.17           | \$ 21,898.00           | \$ 14,304.31           | \$ 20,256.99           | \$ 21,198.34           | \$ 21,516.32           | \$ 21,839.06           | \$ 22,166.65           | \$ 22,499.15           |
| Distribution - Hydrants                 | \$ 16,176.00           | \$ 31,365.00           | \$ 24,691.97           | \$ 20,234.04           | \$ 32,549.19           | \$ 23,936.50           | \$ 24,848.89           | \$ 25,221.62           | \$ 25,599.95           | \$ 25,983.95           | \$ 26,373.71           |
| Distribution - Vehicles                 | \$ 12,128.00           | \$ 7,087.00            | \$ 12,038.99           | \$ 10,294.61           | \$ 10,914.72           | \$ 16,838.95           | \$ 17,137.52           | \$ 17,394.58           | \$ 17,655.50           | \$ 17,920.33           | \$ 18,189.14           |
| Distribution - DSC                      | \$ 48,656.00           | \$ 48,261.00           | \$ 49,813.23           | \$ 40,972.82           | \$ 43,229.12           | \$ 13,675.30           | \$ 2,166.81            | \$ 2,199.31            | \$ 2,232.30            | \$ 2,265.78            | \$ 2,299.77            |
| Distribution - Others                   | \$ 304,190.00          | \$ 304,255.00          | \$ 334,402.27          | \$ 343,038.93          | \$ 358,120.53          | \$ 45,164.23           | \$ 49,544.76           | \$ 50,287.93           | \$ 51,042.25           | \$ 51,807.88           | \$ 52,585.00           |
| Operation - Supervisions                | \$ 86,659.00           | \$ 89,028.00           | \$ 100,912.67          | \$ 102,802.48          | \$ 123,711.87          | \$ 82,052.62           | \$ 92,699.85           | \$ 94,090.35           | \$ 95,501.70           | \$ 96,934.23           | \$ 98,388.24           |
| G. & A. - General                       | \$ 98,266.00           | \$ 104,326.00          | \$ 119,721.10          | \$ 97,741.59           | \$ 140,224.84          | \$ 148,295.99          | \$ 143,444.70          | \$ 145,596.37          | \$ 147,780.32          | \$ 149,997.02          | \$ 152,246.98          |
| Meter Readings Reimbursed               | \$ 15,337.00           | \$ 15,361.00           | \$ 15,240.00           | \$ 3,517.00            | \$ 1,579.00            | \$ 5,020.00            | \$ 1,842.33            | \$ 1,869.96            | \$ 1,898.01            | \$ 1,926.48            | \$ 1,955.38            |
| G. & A. - Reimbursed                    | \$ 224,111.00          | \$ 220,125.00          | \$ 252,078.64          | \$ 231,127.72          | \$ 230,246.21          | \$ 266,011.01          | \$ 270,441.01          | \$ 274,497.63          | \$ 278,615.09          | \$ 282,794.32          | \$ 287,036.23          |
| Minus Depreciation *                    | \$ (507,825.00)        | \$ (500,672.00)        | \$ (515,147.00)        | \$ (514,101.00)        | \$ (527,108.00)        | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   |
| Total O&M Expenses                      | \$ 1,399,418.00        | \$ 1,392,146.30        | \$ 1,583,564.68        | \$ 1,433,217.72        | \$ 1,566,196.40        | \$ 1,882,093.87        | \$ 1,915,924.44        | \$ 1,944,663.31        | \$ 1,973,833.26        | \$ 2,003,440.76        | \$ 2,033,492.37        |
| Debt Services                           |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
| Interest and Fiscal Charges on Bonds ** | \$ 71,801.00           | \$ 68,600.00           | \$ 65,641.51           | \$ 61,741.99           | \$ 21,540.75           | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   | \$ -                   |
| Bond Retirement                         |                        |                        |                        |                        | \$ 1,200,000.00        |                        |                        |                        |                        |                        |                        |
| Total Capital Improvements              |                        |                        |                        |                        | \$ 500,000.00          | \$ 390,000.00          | \$ 2,450,000.00        | \$ 350,000.00          | \$ 350,000.00          | \$ 350,000.00          | \$ 350,000.00          |
| <b>Total Expenses</b>                   | <b>\$ 1,471,219.00</b> | <b>\$ 1,460,746.30</b> | <b>\$ 1,649,206.19</b> | <b>\$ 1,494,959.71</b> | <b>\$ 2,087,737.15</b> | <b>\$ 2,272,093.87</b> | <b>\$ 4,365,924.44</b> | <b>\$ 2,294,663.31</b> | <b>\$ 2,323,833.26</b> | <b>\$ 2,353,440.76</b> | <b>\$ 2,383,492.37</b> |

**Note:**

- \* The O&M expenses from 2006-2010 includes depreciation data in it. The depreciation is not part of cost of service study and therefore, it is subtracted from the total expenses. The depreciation number is already subtracted from the individual category from 2011 onwards.
- \*\* The department paid off one of their bonds in 2010. The amount shown here is for the payment. This is not included in the rate study calculation. All the data until 2012 is from the water fund expense sheet provided by department staff. The data from 2013 to 2016 is projected as a 1.5% increase per year except for the capital improvements. The capital improvements are as provided by the department staff and is as shown in Table 5.

**Table 5a  
East Grand Forks  
Water Utility  
Water Rate Study  
Depreciation and CIP Schedule - Using Higher CIP for 2010**

| Description                 | Year        |            |             |            |            |            |            | Total        |
|-----------------------------|-------------|------------|-------------|------------|------------|------------|------------|--------------|
|                             | 2010        | 2011       | 2012        | 2013       | 2014       | 2015       | 2016       |              |
| CIP*                        | \$ -        | \$ -       | \$1,900,000 | \$ -       | \$ -       | \$ -       | \$ -       | \$ 1,900,000 |
| Replacement                 | \$1,105,852 | \$ 300,000 | \$ 325,000  | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 3,130,852 |
| Elevated Tank Repairs       | \$ -        | \$ -       | \$ 225,000  | \$ -       | \$ -       | \$ -       | \$ -       | \$ 225,000   |
| Filter and Building Repairs | \$ -        | \$ 90,000  | \$ -        | \$ -       | \$ -       | \$ -       | \$ -       | \$ 90,000    |
| Total                       | \$1,105,852 | \$ 390,000 | \$2,450,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 5,345,852 |
| Depreciation**              | \$ 527,108  | \$ 521,333 | \$ 526,349  | \$ 569,040 | \$ 620,363 | \$ 602,896 | \$ 585,216 | \$ 3,952,305 |

Note:

\* Lime sludge lagoon relocation. City to fund \$500,000 from remaining flood control project amount.

\*\* From finance director projections with adding in 11Cp#10 watermain and lime sludge pond relocation.

All the data are provided by the department staff.

**Table 5b  
East Grand Forks  
Water Utility  
Water Rate Study  
Depreciation and CIP Schedule - Using Lower CIP for 2010**

| Description                 | Year       |            |             |            |            |            |            | Total        |
|-----------------------------|------------|------------|-------------|------------|------------|------------|------------|--------------|
|                             | 2010       | 2011       | 2012        | 2013       | 2014       | 2015       | 2016       |              |
| CIP*                        | \$ -       | \$ -       | \$1,900,000 | \$ -       | \$ -       | \$ -       | \$ -       | \$ 1,900,000 |
| Replacement                 | \$ 500,000 | \$ 300,000 | \$ 325,000  | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 2,525,000 |
| Elevated Tank Repairs       | \$ -       | \$ -       | \$ 225,000  | \$ -       | \$ -       | \$ -       | \$ -       | \$ 225,000   |
| Filter and Building Repairs | \$ -       | \$ 90,000  | \$ -        | \$ -       | \$ -       | \$ -       | \$ -       | \$ 90,000    |
| Total                       | \$ 500,000 | \$ 390,000 | \$2,450,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 350,000 | \$ 4,740,000 |
| Depreciation**              | \$ 527,108 | \$ 521,333 | \$ 526,349  | \$ 569,040 | \$ 620,363 | \$ 602,896 | \$ 585,216 | \$ 3,952,305 |

Note:

\* Lime sludge lagoon relocation. City to fund \$500,000 from remaining flood control project amount.

\*\* From finance director projections with adding in 11Cp#10 watermain and lime sludge pond relocation.

All the data are provided by the department staff.

**Table 6**  
**East Grand Forks**  
**Water Utility**  
**Water Rate Study**  
**Cash Inflow, Cash Outflow and Cash Balance with Current Rate Increase 11% Every Year After 2012**

| Description                              | Actual       |              | Budget       | Proposed     |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         |
| No. of Connections                       | 2,845        | 2,850        | 2,854        | 2,858        | 2,862        | 2,866        | 2,870        |
| Meter Equivalents                        | 3,515        | 3,520        | 3,524        | 3,528        | 3,533        | 3,537        | 3,541        |
| Residential Use per Year (1000 gallons)  | 128,782      | 128,100      | 127,600      | 127,350      | 127,100      | 126,825      | 126,600      |
| Apartment Use per Year (1000 gallons)    | 46,844       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       |
| Commercial Use per Year (1000 gallons)   | 142,209      | 142,000      | 141,000      | 140,000      | 139,000      | 138,000      | 137,000      |
| Total Water Sold Per Year (1000 gallons) | 317,835      | 316,950      | 315,450      | 314,200      | 312,950      | 311,675      | 310,450      |
| Current Rate per 1000 gallons *          |              |              |              |              |              |              |              |
| Residential                              | \$ 4.85      | \$ 4.95      | \$ 5.49      | \$ 6.10      | \$ 6.77      | \$ 7.51      | \$ 8.34      |
| Apartment                                | \$ 4.85      | \$ 4.95      | \$ 5.49      | \$ 6.10      | \$ 6.77      | \$ 7.51      | \$ 8.34      |
| Commercial                               | \$ 4.85      | \$ 4.95      | \$ 5.49      | \$ 6.10      | \$ 6.77      | \$ 7.51      | \$ 8.34      |
| Fixed Charge per Month (for 5/8" meter)  | \$ 7.00      | \$ 7.00      | \$ 7.77      | \$ 8.62      | \$ 9.57      | \$ 10.63     | \$ 11.80     |
| <b>Cash Inflows</b>                      |              |              |              |              |              |              |              |
| Fixed Charges **                         | \$ 296,719   | \$ 305,467   | \$ 328,598   | \$ 365,182   | \$ 405,838   | \$ 451,020   | \$ 501,231   |
| Residential Sales                        | \$ 554,309   | \$ 634,095   | \$ 701,098   | \$ 776,694   | \$ 860,438   | \$ 953,020   | \$ 1,055,975 |
| Apartment Sales                          | \$ 227,234   | \$ 231,908   | \$ 257,417   | \$ 285,733   | \$ 317,164   | \$ 352,052   | \$ 390,778   |
| Commercial Sales                         | \$ 689,762   | \$ 702,900   | \$ 774,725   | \$ 853,845   | \$ 940,999   | \$ 1,036,994 | \$ 1,142,722 |
| Water Sale Revenue                       | \$ 1,768,024 | \$ 1,874,370 | \$ 2,061,838 | \$ 2,281,455 | \$ 2,524,439 | \$ 2,793,086 | \$ 3,090,706 |
| Other Operating Revenue                  | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     |
| Interest Revenues                        | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     |
| Transfers In (from other funds)          | \$ 400,000   | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Operating Cash Inflows             | \$ 2,181,160 | \$ 1,887,506 | \$ 2,074,974 | \$ 2,294,591 | \$ 2,537,575 | \$ 2,806,222 | \$ 3,103,842 |
| Transfer from Electric Fund ***          | \$ -         | \$ -         | \$ 2,000,000 | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Inflows                       | \$ 2,181,160 | \$ 1,887,506 | \$ 4,074,974 | \$ 2,294,591 | \$ 2,537,575 | \$ 2,806,222 | \$ 3,103,842 |
| <b>Cash Outflow</b>                      |              |              |              |              |              |              |              |
| Operating Cash Outflows                  | \$ 1,566,196 | \$ 1,882,094 | \$ 1,915,924 | \$ 1,944,663 | \$ 1,973,833 | \$ 2,003,441 | \$ 2,033,492 |
| Debt Service                             | \$ 21,541    | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Capital Improvements               | \$ 1,105,852 | \$ 390,000   | \$ 2,450,000 | \$ 350,000   | \$ 350,000   | \$ 350,000   | \$ 350,000   |
| Transfer from Electric Fund ****         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Outflows                      | \$ 2,693,589 | \$ 2,272,094 | \$ 4,365,924 | \$ 2,294,663 | \$ 2,323,833 | \$ 2,353,441 | \$ 2,383,492 |
| Net Increase (Decrease)                  | \$ (512,429) | \$ (384,588) | \$ (290,950) | \$ (73)      | \$ 213,741   | \$ 452,781   | \$ 720,350   |
| <b>Cash Balance ****</b>                 |              |              |              |              |              |              |              |
| Cash Balance Jan 1                       |              | \$ 145,593   | \$ (238,995) | \$ (529,945) | \$ (530,018) | \$ (316,276) | \$ 136,504   |
| Cash Balance Dec 31                      | \$ 145,593   | \$ (238,995) | \$ (529,945) | \$ (530,018) | \$ (316,276) | \$ 136,504   | \$ 856,854   |

**Note:**

- \* The rates for 2010 and 2011 are the current rates as charged by the department to their customers. The rates from 2012 onwards are projected as an 11% increase per year. Cash info for the year 2010 is from the City's comprehensive financial report 2010 - water fund.
- \*\* The fixed charge for 2010 and 2011 are calculated using the current charges based on meter sizes as used by the department. The fixed charge from 2012 onwards are calculated using 5/8" meter size and its subsequent equivalent meter ratio i.e. fixed charge for 5/8" meter times total meter equivalents.
- \*\*\* It is assumed that the water fund would receive \$2,000,000 from the electric fund in 2012 to pay for the lime sludge pond relocation project.
- \*\*\*\* Cash balance for 2010 was provided by the department staff. The targeted cash balance of 750,000 by the year 2016 is recommended by the department staff. The rates are increased based on the staff recommended cash balance.

**Table 7a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Allocation of Operation and Maintenance Expenses (2010) - Using Higher CIP for 2010**

| Description                         | Total Cost          | Customer Meters &<br>Service Cost |
|-------------------------------------|---------------------|-----------------------------------|
| <b>Operating Expenses</b>           |                     |                                   |
| Raw Water Pumping                   | \$ 4,529            |                                   |
| Treatment - Plant                   | \$ 886,554          |                                   |
| Treatment - M & E                   | \$ 107,077          |                                   |
| Treatment - B & G                   | \$ 32,176           |                                   |
| Distribution - Pumping              | \$ 14,030           |                                   |
| Distribution - Lines                | \$ 79,737           |                                   |
| Distribution - Storage              | \$ 14,323           |                                   |
| Distribution - Meters               | \$ 14,304           |                                   |
| Distribution - Hydrants             | \$ 32,549           |                                   |
| Distribution - Vehicles             | \$ 10,915           |                                   |
| Distribution - DSC                  | \$ 43,229           |                                   |
| Distribution - Others               | \$ 358,121          |                                   |
| Operation - Supervisions            | \$ 123,712          |                                   |
| G. & A. - General                   | \$ 140,225          |                                   |
| Meter Readings Reimbursed           | \$ 1,579            |                                   |
| G. & A. - Reimbursed                | \$ 230,246          |                                   |
| Minus Depreciation *                | \$ (527,108)        |                                   |
| <b>Total Operating Expenses</b>     | <b>\$ 1,194,146</b> | <b>\$ 372,050</b>                 |
| <b>Capital Improvement</b>          |                     |                                   |
| Total CIP                           | \$ 1,105,852        |                                   |
| <b>Total Capital Improvement</b>    | <b>\$ 1,105,852</b> |                                   |
| <b>Debt Services (Bond Payment)</b> |                     |                                   |
| Debt Services                       | \$ 21,541           |                                   |
| <b>Total Debt Services</b>          | <b>\$ 21,541</b>    |                                   |

**Note:**

- \* See note in Table 4 for depreciation.  
The customer cost for the year 2010 is from the City's Annual Financial Report 2010.  
See pg 35 of the report.

**Table 7b  
East Grand Forks  
Water Utility  
Water Rate Study**

**Allocation of Operation and Maintenance Expenses (2010) - Using Lower CIP for 2010**

| Description                         | Total Cost          | Customer Meters &<br>Service Cost |
|-------------------------------------|---------------------|-----------------------------------|
| <b>Operating Expenses</b>           |                     |                                   |
| Raw Water Pumping                   | \$ 4,529            |                                   |
| Treatment - Plant                   | \$ 886,554          |                                   |
| Treatment - M & E                   | \$ 107,077          |                                   |
| Treatment - B & G                   | \$ 32,176           |                                   |
| Distribution - Pumping              | \$ 14,030           |                                   |
| Distribution - Lines                | \$ 79,737           |                                   |
| Distribution - Storage              | \$ 14,323           |                                   |
| Distribution - Meters               | \$ 14,304           |                                   |
| Distribution - Hydrants             | \$ 32,549           |                                   |
| Distribution - Vehicles             | \$ 10,915           |                                   |
| Distribution - DSC                  | \$ 43,229           |                                   |
| Distribution - Others               | \$ 358,121          |                                   |
| Operation - Supervisions            | \$ 123,712          |                                   |
| G. & A. - General                   | \$ 140,225          |                                   |
| Meter Readings Reimbursed           | \$ 1,579            |                                   |
| G. & A. - Reimbursed                | \$ 230,246          |                                   |
| Minus Depreciation *                | \$ (527,108)        |                                   |
| <b>Total Operating Expenses</b>     | <b>\$ 1,194,146</b> | <b>\$ 372,050</b>                 |
| <b>Capital Improvement</b>          |                     |                                   |
| Total CIP                           | \$ 500,000          |                                   |
| <b>Total Capital Improvement</b>    | <b>\$ 500,000</b>   |                                   |
| <b>Debt Services (Bond Payment)</b> |                     |                                   |
| Debt Services                       | \$ 21,541           |                                   |
| <b>Total Debt Services</b>          | <b>\$ 21,541</b>    |                                   |

**Note:**

\* See note in Table 4 for depreciation.

The customer cost for the year 2010 is from the City's Annual Financial Report 2010.  
See pg 35 of the report.

**Table 8a  
East Grand Forks  
Water Utility  
Water Rate Study  
Unit Cost of Service (2010) - Using Higher CIP for 2010**

| Description                               | Total        | Customer Costs<br>Meter and<br>Services |
|---|--------------|---|
| TOTAL SYSTEM UNITS OF SERVICE:            | 1000 gallons | Meter Equivalents                       |
| Total Sales                               | 317,835      | 3,515                                   |
| <u>Capital and O&amp;M Expenses:</u>      |              |   |
| Total *                                   | \$ 2,299,998 | \$ 372,050                              |
| Unit Cost (\$/Unit)                       | \$ 7.24      | \$ 105.86                               |
| <u>Debt Services:</u>                     |              |   |
| Total                                     | \$ 21,541    |   |
| Unit Cost (\$/Unit)                       | \$ 0.07      |   |
| Total Cost of Service (\$)                | \$ 2,321,539 | \$ 372,050                              |
| <u>Total Unit Costs of Service:</u>       |              |   |
| Commodity Cost (\$/Unit)                  | \$ 7.30      |   |
| Fixed Cost for 5/8" meter size (\$/month) |              | \$ 8.82                                 |

Note:

\* Total O&M Expenses is from Table 7 without the Debt service amount. Debt Service is described as a separate line item in the table.

**Table 8b**  
**East Grand Forks**  
**Water Utility**  
**Water Rate Study**  
**Unit Cost of Service (2010) - Using Lower CIP for 2010**

| Description                               | Total        | Customer Costs<br>Meter and<br>Services |
|---|--------------|---|
| TOTAL SYSTEM UNITS OF SERVICE:            | 1000 gallons | Meter Equivalents                       |
| Total Sales                               | 317,835      | 3,515                                   |
| <u>Capital and O&amp;M Expenses:</u>      |              |   |
| Total *                                   | \$ 1,694,146 | \$ 372,050                              |
| Unit Cost (\$/Unit)                       | \$ 5.33      | \$ 105.86                               |
| <u>Debt Services:</u>                     |              |   |
| Total                                     | \$ 21,541    |   |
| Unit Cost (\$/Unit)                       | \$ 0.07      |   |
| Total Cost of Service (\$)                | \$ 1,715,687 | \$ 372,050                              |
| <u>Total Unit Costs of Service:</u>       |              |   |
| Commodity Cost (\$/Unit)                  | \$ 5.40      |   |
| Fixed Cost for 5/8" meter size (\$/month) |              | \$ 8.82                                 |

Note:

\* Total O&M Expenses is from Table 7 without the Debt service amount. Debt Service is described as a separate line item in the table.

**Table 9a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Cost Distribution Allocated to Customer Category (2010) - Using Higher CIP for 2010**

| Description   | Total Cost of Service |
|---|-----------------------|
| Fixed Cost (5/8" Meter Equivalent)<br>All Customers (\$/Month)  | \$ 8.82               |
| Retail Service :  |                       |
| <b>Residential</b>  |                       |
| Block 1<br>Customers using 4,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)   | \$ 7.30               |
| Block 2<br>Customers using water above 4,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate  | \$ 9.13               |
| <b>Apartments</b>   |                       |
| Block 1<br>Customers using 50,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)  | \$ 7.30               |
| Block 2<br>Customers using water above 50,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate | \$ 9.13               |
| <b>Commercial</b>   |                       |
| Block 1<br>Customers using 36,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)  | \$ 7.30               |
| Block 2<br>Customers using water above 36,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate | \$ 9.13               |

**Note:**

- \* Block 1 is the average water usage per month by the customers.
- \* Outdoor usage is used as a higher block of indoor usage since the outdoor usage is mostly for lawn watering and other non-essential water usage.

**Table 9b  
East Grand Forks  
Water Utility  
Water Rate Study**

**Cost Distribution Allocated to Customer Category (2010) - Using Lower CIP for 2010**

| Description   | Total Cost of Service |
|---|-----------------------|
| Fixed Cost (5/8" Meter Equivalent)<br>All Customers (\$/Month)  | \$ 8.82               |
| Retail Service :  |                       |
| <b>Residential</b>  |                       |
| Block 1<br>Customers using 4,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)   | \$ 5.40               |
| Block 2<br>Customers using water above 4,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate  | \$ 6.75               |
| <b>Apartments</b>   |                       |
| Block 1<br>Customers using 50,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)  | \$ 5.40               |
| Block 2<br>Customers using water above 50,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate | \$ 6.75               |
| <b>Commercial</b>   |                       |
| Block 1<br>Customers using 36,000 gallons or less water per Month*<br>Block 1 Rate (\$/1000 gallons)  | \$ 5.40               |
| Block 2<br>Customers using water above 36,000 gallons per Month<br>Block 2 Rate (\$/1000 gallons)<br>Assume the cost 25% higher than block 1 rate | \$ 6.75               |

**Note:**

- \* Block 1 is the average water usage per month by the customers.
- \* Outdoor usage is used as a higher block of indoor usage since the outdoor usage is mostly for lawn watering and other non-essential water usage.

**Table 10a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Cash Inflow, Cash Outflow and Cash Balance with Proposed Rate Increase 2% Every Year After 2012 - Using Higher CIP for 2010**

| Description                                      | Actual       |              | Budget       | Proposed     |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         |
| No. of Connections                               | 2,845        | 2,850        | 2,854        | 2,858        | 2,862        | 2,866        | 2,870        |
| Meter Equivalents                                | 3,515        | 3,520        | 3,524        | 3,528        | 3,533        | 3,537        | 3,541        |
| Residential Use per Year (1000 gallons)          | 128,782      | 128,100      | 127,600      | 127,350      | 127,100      | 126,825      | 126,600      |
| Apartment Use per Year (1000 gallons)            | 46,844       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       |
| Commercial Use per Year (1000 gallons)           | 142,209      | 142,000      | 141,000      | 140,000      | 139,000      | 138,000      | 137,000      |
| Total Water Sold Per Year (1000 gallons)         | 317,835      | 316,950      | 315,450      | 314,200      | 312,950      | 311,675      | 310,450      |
| Current Rate per 1000 gallons *                  |              |              |              |              |              |              |              |
| Residential                                      | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Apartment  | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Commercial                                       | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Fixed Charge per Month (for 5/8" meter)          | \$ 7.00      | \$ 7.00      |              |              |              |              |              |
| Proposed Inclining Block Rate Per 1000 gallons * |              |              |              |              |              |              |              |
| Residential - Block 1                            |              |              | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      |
| Residential - Block 2                            |              |              | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      |
| Apartments - Block 1                             |              |              | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      |
| Apartments - Block 2                             |              |              | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      |
| Commercial - Block 1                             |              |              | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      | \$ 7.30      |
| Commercial - Block 2                             |              |              | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      | \$ 9.13      |
| Fixed Charge per Month (for 5/8" meter)          |              |              | \$ 8.82      | \$ 8.82      | \$ 8.82      | \$ 8.82      | \$ 8.82      |
| Cash Inflows                                     |              |              |              |              |              |              |              |
| Fixed Charges **                                 | \$ 296,719   | \$ 305,467   | \$ 373,058   | \$ 373,506   | \$ 373,953   | \$ 374,401   | \$ 374,849   |
| Residential Sales **                             | \$ 554,309   | \$ 634,095   | \$ 1,006,581 | \$ 1,004,609 | \$ 1,002,637 | \$ 1,000,467 | \$ 998,692   |
| Apartment Sales **                               | \$ 227,234   | \$ 231,908   | \$ 359,313   | \$ 359,313   | \$ 359,313   | \$ 359,313   | \$ 359,313   |
| Commercial Sales **                              | \$ 689,762   | \$ 702,900   | \$ 1,065,942 | \$ 1,058,383 | \$ 1,050,823 | \$ 1,043,263 | \$ 1,035,703 |
| Water Sale Revenue                               | \$ 1,768,024 | \$ 1,874,370 | \$ 2,804,894 | \$ 2,795,810 | \$ 2,786,726 | \$ 2,777,445 | \$ 2,768,558 |
| Other Operating Revenue                          | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     |
| Interest Revenues **                             | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     |
| Transfers In (from other funds)                  | \$ 400,000   |              |              |              |              |              |              |
| Total Operating Cash Inflows                     | \$ 2,181,160 | \$ 1,887,506 | \$ 2,818,030 | \$ 2,808,946 | \$ 2,799,862 | \$ 2,790,581 | \$ 2,781,694 |
| Transfer from Electric Fund ***                  | \$ -         | \$ -         | \$ 2,000,000 | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Inflows                               | \$ 2,181,160 | \$ 1,887,506 | \$ 4,818,030 | \$ 2,808,946 | \$ 2,799,862 | \$ 2,790,581 | \$ 2,781,694 |
| Cash Outflow                                     |              |              |              |              |              |              |              |
| Operating Cash Outflows                          | \$ 1,566,196 | \$ 1,882,094 | \$ 1,915,924 | \$ 1,944,663 | \$ 1,973,833 | \$ 2,003,441 | \$ 2,033,492 |
| Debt Service                                     | \$ 21,541    | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Capital Improvements + Replacements              | \$ 1,105,852 | \$ 390,000   | \$ 2,450,000 | \$ 350,000   | \$ 350,000   | \$ 350,000   | \$ 350,000   |
| Transfer from Electric Fund ***                  | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Outflows                              | \$ 2,693,589 | \$ 2,272,094 | \$ 4,365,924 | \$ 2,294,663 | \$ 2,323,833 | \$ 2,353,441 | \$ 2,383,492 |
| Net Increase (Decrease)                          | \$ (512,429) | \$ (384,588) | \$ 452,106   | \$ 514,283   | \$ 476,029   | \$ 437,140   | \$ 398,201   |
| Cash Balance ****                                |              |              |              |              |              |              |              |
| Cash Balance Jan 1                               |              | \$ 145,593   | \$ (238,995) | \$ 213,111   | \$ 727,394   | \$ 1,203,423 | \$ 1,640,563 |
| Cash Balance Dec 31                              | \$ 145,593   | \$ (238,995) | \$ 213,111   | \$ 727,394   | \$ 1,203,423 | \$ 1,640,563 | \$ 2,038,764 |

**Note:**

\* The rates for 2010 and 2011 are the current rates as charged by the department to their customers. The rates from 2012 onwards are projected as a 0% increase per year. Cash info for the year 2010 is from the City's comprehensive financial report 2010 - water fund.

\*\* The fixed charge for 2010 and 2011 are calculated using the current charges based on meter sizes as used by the department. The fixed charge from 2012 onwards are calculated using 5/8" meter size and its subsequent equivalent meter ratio i.e. fixed charge for 5/8" meter times total meter equivalents. The revenue from water sales (for 2012) for residential, apartment and commercial customers was calculated using the following % breakdown based on the info provided by the department staff - Residential - 68% Block1 and 32% Block 2, Apartment - 80% Block1 and 20% Block 2, and commercial - 86% Block1 and 14% Block 2. This same % breakdown is used for water sales revenue projections from 2012 and onwards.

\*\*\* It is assumed that the water fund would receive \$2,000,000 from the electric fund in 2012 to pay for the lime sludge pond relocation project.

\*\*\*\* Cash balance for 2010 was provided by the department staff

**Table 10b  
East Grand Forks  
Water Utility  
Water Rate Study**

**Cash Inflow, Cash Outflow and Cash Balance with Proposed Rate Increase 8% Every Year After 2013 - Using Lower CIP for 2010**

| Description                                      | Actual       |              | Budget       | Proposed     |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         |
| No. of Connections                               | 2,845        | 2,850        | 2,854        | 2,858        | 2,862        | 2,866        | 2,870        |
| Meter Equivalents                                | 3,515        | 3,520        | 3,524        | 3,528        | 3,533        | 3,537        | 3,541        |
| Residential Use per Year (1000 gallons)          | 128,782      | 128,100      | 127,600      | 127,350      | 127,100      | 126,825      | 126,600      |
| Apartment Use per Year (1000 gallons)            | 46,844       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       | 46,850       |
| Commercial Use per Year (1000 gallons)           | 142,209      | 142,000      | 141,000      | 140,000      | 139,000      | 138,000      | 137,000      |
| Total Water Sold Per Year (1000 gallons)         | 317,835      | 316,950      | 315,450      | 314,200      | 312,950      | 311,675      | 310,450      |
| Current Rate per 1000 gallons *                  |              |              |              |              |              |              |              |
| Residential                                      | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Apartment  | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Commercial                                       | \$ 4.85      | \$ 4.95      |              |              |              |              |              |
| Fixed Charge per Month (for 5/8" meter)          | \$ 7.00      | \$ 7.00      |              |              |              |              |              |
| Proposed Inclining Block Rate Per 1000 gallons * |              |              |              |              |              |              |              |
| Residential - Block 1                            |              |              | \$ 5.40      | \$ 5.83      | \$ 6.30      | \$ 6.80      | \$ 7.34      |
| Residential - Block 2                            |              |              | \$ 6.75      | \$ 7.29      | \$ 7.87      | \$ 8.50      | \$ 9.18      |
| Apartments - Block 1                             |              |              | \$ 5.40      | \$ 5.83      | \$ 6.30      | \$ 6.80      | \$ 7.34      |
| Apartments - Block 2                             |              |              | \$ 6.75      | \$ 7.29      | \$ 7.87      | \$ 8.50      | \$ 9.18      |
| Commercial - Block 1                             |              |              | \$ 5.40      | \$ 5.83      | \$ 6.30      | \$ 6.80      | \$ 7.34      |
| Commercial - Block 2                             |              |              | \$ 6.75      | \$ 7.29      | \$ 7.87      | \$ 8.50      | \$ 9.18      |
| Fixed Charge per Month (for 5/8" meter)          |              |              | \$ 8.82      | \$ 9.53      | \$ 10.29     | \$ 11.11     | \$ 12.00     |
| Cash Inflows                                     |              |              |              |              |              |              |              |
| Fixed Charges **                                 | \$ 296,719   | \$ 305,467   | \$ 373,058   | \$ 403,386   | \$ 436,179   | \$ 471,638   | \$ 509,978   |
| Residential Sales **                             | \$ 554,309   | \$ 634,095   | \$ 743,894   | \$ 801,831   | \$ 864,277   | \$ 931,400   | \$ 1,004,128 |
| Apartment Sales **                               | \$ 227,234   | \$ 231,908   | \$ 265,543   | \$ 286,787   | \$ 309,730   | \$ 334,508   | \$ 361,269   |
| Commercial Sales **                              | \$ 689,762   | \$ 702,900   | \$ 787,763   | \$ 844,751   | \$ 905,814   | \$ 971,241   | \$ 1,041,339 |
| Water Sale Revenue                               | \$ 1,768,024 | \$ 1,874,370 | \$ 2,170,258 | \$ 2,336,754 | \$ 2,516,001 | \$ 2,708,787 | \$ 2,916,714 |
| Other Operating Revenue                          | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     | \$ 5,120     |
| Interest Revenues **                             | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     | \$ 8,016     |
| Transfers In (from other funds)                  | \$ 400,000   |              |              |              |              |              |              |
| Total Operating Cash Inflows                     | \$ 2,181,160 | \$ 1,887,506 | \$ 2,183,394 | \$ 2,349,890 | \$ 2,529,137 | \$ 2,721,923 | \$ 2,929,850 |
| Transfer from Electric Fund ***                  | \$ -         | \$ -         | \$ 2,000,000 | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Inflows                               | \$ 2,181,160 | \$ 1,887,506 | \$ 4,183,394 | \$ 2,349,890 | \$ 2,529,137 | \$ 2,721,923 | \$ 2,929,850 |
| Cash Outflow                                     |              |              |              |              |              |              |              |
| Operating Cash Outflows                          | \$ 1,566,196 | \$ 1,882,094 | \$ 1,915,924 | \$ 1,944,663 | \$ 1,973,833 | \$ 2,003,441 | \$ 2,033,492 |
| Debt Service                                     | \$ 21,541    | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Capital Improvements + Replacements              | \$ 500,000   | \$ 390,000   | \$ 2,450,000 | \$ 350,000   | \$ 350,000   | \$ 350,000   | \$ 350,000   |
| Transfer from Electric Fund ***                  | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         | \$ -         |
| Total Cash Outflows                              | \$ 2,087,737 | \$ 2,272,094 | \$ 4,365,924 | \$ 2,294,663 | \$ 2,323,833 | \$ 2,353,441 | \$ 2,383,492 |
| Net Increase (Decrease)                          | \$ 93,423    | \$ (384,588) | \$ (182,530) | \$ 55,227    | \$ 205,303   | \$ 368,482   | \$ 546,358   |
| Cash Balance ****                                |              |              |              |              |              |              |              |
| Cash Balance Jan 1                               |              | \$ 145,593   | \$ (238,995) | \$ (421,525) | \$ (366,298) | \$ (160,995) | \$ 207,487   |
| Cash Balance Dec 31                              | \$ 145,593   | \$ (238,995) | \$ (421,525) | \$ (366,298) | \$ (160,995) | \$ 207,487   | \$ 753,845   |

**Note:**

\* The rates for 2010 and 2011 are the current rates as charged by the department to their customers. The rates from 2012 onwards are projected as an 8% increase per year. Cash info for the year 2010 is from the City's comprehensive financial report 2010 - water fund.

\*\* The fixed charge for 2010 and 2011 are calculated using the current charges based on meter sizes as used by the department. The fixed charge from 2012 onwards are calculated using 5/8" meter size and its subsequent equivalent meter ratio i.e. fixed charge for 5/8" meter times total meter equivalents. The revenue from water sales (for 2012) for residential, apartment and commercial customers was calculated using the following % breakdown based on the info provided by the department staff - Residential - 68% Block 1 and 32% Block 2, Apartment - 80% Block1 and 20% Block 2, and commercial - 86% Block 1 and 14% Block 2. This same % breakdown is used for water sales revenue projections from 2012 and onwards.

\*\*\* It is assumed that the water fund would receive \$2,000,000 from the electric fund in 2012 to pay for the lime sludge pond relocation project.

\*\*\*\* Cash balance for 2010 was provided by the department staff.

The targeted cash balance of 750,000 by the year 2016 is recommended by the department staff. The rates are increased based on the staff recommended

**Table 11a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Billing Comparison Using Current and Proposed Rates for Various City Customers - Using Higher CIP for 2010**

| Description   | Monthly Bill |
|---|--------------|
| <b>Residential - 4,000 gallons per Month - 5/8" Meter</b>                                 |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month   | \$ 7.00      |
| Commodity Charges Per Month   | \$ 19.80     |
| Total Per Month   | \$ 26.80     |
| Proposed Rates (2012)   |              |
| Commodity Rates per 1000 gallons (Block 1)  | \$ 7.30      |
| Commodity Rates per 1000 gallons (Block 2)  | \$ 9.13      |
| Fixed Charges Per Month   | \$ 8.82      |
| Commodity Charges Per Month   | \$ 29.22     |
| Total Per Month   | \$ 38.04     |
| Dollar Increase   | \$ 11.24     |
| % Increase  | 41.9%        |
| <b>Commercial - American Crystal Water Use - 3,070,000 gallons per Month - 6" Meter *</b> |              |
| Commercial - Average Use of 36,000 gallons per Month                                      |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month (5/8" meter size)   | \$ 7.00      |
| Proposed Rates (2012)   |              |
| Rates per 1000 gallons (Block 1)  | \$ 7.30      |
| Rates per 1000 gallons (Block 2)  | \$ 9.13      |
| Fixed Charges Per Month (Assume 5/8" Meter Size)  | \$ 8.82      |
| Commodity Charges Per Month with Existing Rate  | \$ 16,772    |
| Commodity Charges Per Month with Proposed Rates   | \$ 28,176    |
| Dollar Increase   | \$ 11,404    |
| % Increase  | 68.0%        |
| <b>Apartment</b>  |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month (5/8" meter size)   | \$ 7.00      |
| Proposed Rates (2012)   |              |
| Rates per 1000 gallons (Block 1)  | \$ 7.30      |
| Rates per 1000 gallons (Block 2)  | \$ 9.13      |
| Fixed Charges Per Month (Assume 5/8" Meter Size)  | \$ 8.82      |
| <b>North Star Terrace - 837,500 gallons per Month - 3" Meter</b>                          |              |
| Commodity Charges Per Month with Existing Rate  | \$ 4,618     |
| Commodity Charges Per Month with Proposed Rates   | \$ 7,678     |
| Dollar Increase   | \$ 3,060     |
| % Increase  | 66.3%        |
| <b>Riverview Terrace - 540,833 gallons per Month - 3" Meter</b>                           |              |
| Commodity Charges Per Month with Existing Rate  | \$ 3,150     |
| Commodity Charges Per Month with Proposed Rates   | \$ 4,969     |
| Dollar Increase   | \$ 1,820     |
| % Increase  | 57.8%        |

Note:

\* The Americal Crystal Water has multiple meters on different accounts. An account with the highest usage (6" meter size) was used here.  
The usage per month is calculated as yearly usage divided by 12.

**Table 11b  
East Grand Forks  
Water Utility  
Water Rate Study  
Billing Comparison Using Current and Proposed Rates for Various City Customers - Using Lower CIP for 2010**

| Description   | Monthly Bill |
|---|--------------|
| <b>Residential - 4,000 gallons per Month - 5/8" Meter</b>                                 |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month   | \$ 7.00      |
| Commodity Charges Per Month   | \$ 19.80     |
| Total Per Month   | \$ 26.80     |
| Proposed Rates (2012)   |              |
| Commodity Rates per 1000 gallons (Block 1)  | \$ 5.40      |
| Commodity Rates per 1000 gallons (Block 2)  | \$ 6.75      |
| Fixed Charges Per Month   | \$ 8.82      |
| Commodity Charges Per Month   | \$ 21.59     |
| Total Per Month   | \$ 30.41     |
| Dollar Increase   | \$ 3.61      |
| % Increase  | 13.5%        |
| <b>Commercial - American Crystal Water Use - 3,070,000 gallons per Month - 6" Meter *</b> |              |
| Commercial - Average Use of 36,000 gallons per Month                                      |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month (5/8" meter size)   | \$ 7.00      |
| Proposed Rates (2012)   |              |
| Rates per 1000 gallons (Block 1)  | \$ 5.40      |
| Rates per 1000 gallons (Block 2)  | \$ 6.75      |
| Fixed Charges Per Month (Assume 5/8" Meter Size)  | \$ 8.82      |
| Commodity Charges Per Month with Existing Rate  | \$ 16,772    |
| Commodity Charges Per Month with Proposed Rates   | \$ 20,878    |
| Dollar Increase   | \$ 4,107     |
| % Increase  | 24.5%        |
| <b>Apartment</b>  |              |
| Existing Rates (2010-11)  |              |
| Rates per 1000 gallons  | \$ 4.95      |
| Fixed Charges Per Month (5/8" meter size)   | \$ 7.00      |
| Proposed Rates (2012)   |              |
| Rates per 1000 gallons (Block 1)  | \$ 5.40      |
| Rates per 1000 gallons (Block 2)  | \$ 6.75      |
| Fixed Charges Per Month (Assume 5/8" Meter Size)  | \$ 8.82      |
| <b>North Star Terrace - 837,500 gallons per Month - 3" Meter</b>                          |              |
| Commodity Charges Per Month with Existing Rate  | \$ 4,618     |
| Commodity Charges Per Month with Proposed Rates   | \$ 5,700     |
| Dollar Increase   | \$ 1,081     |
| % Increase  | 23.4%        |
| <b>Riverview Terrace - 540,833 gallond per Month - 3" Meter</b>                           |              |
| Commodity Charges Per Month with Existing Rate  | \$ 3,150     |
| Commodity Charges Per Month with Proposed Rates   | \$ 3,698     |
| Dollar Increase   | \$ 548       |
| % Increase  | 17.4%        |

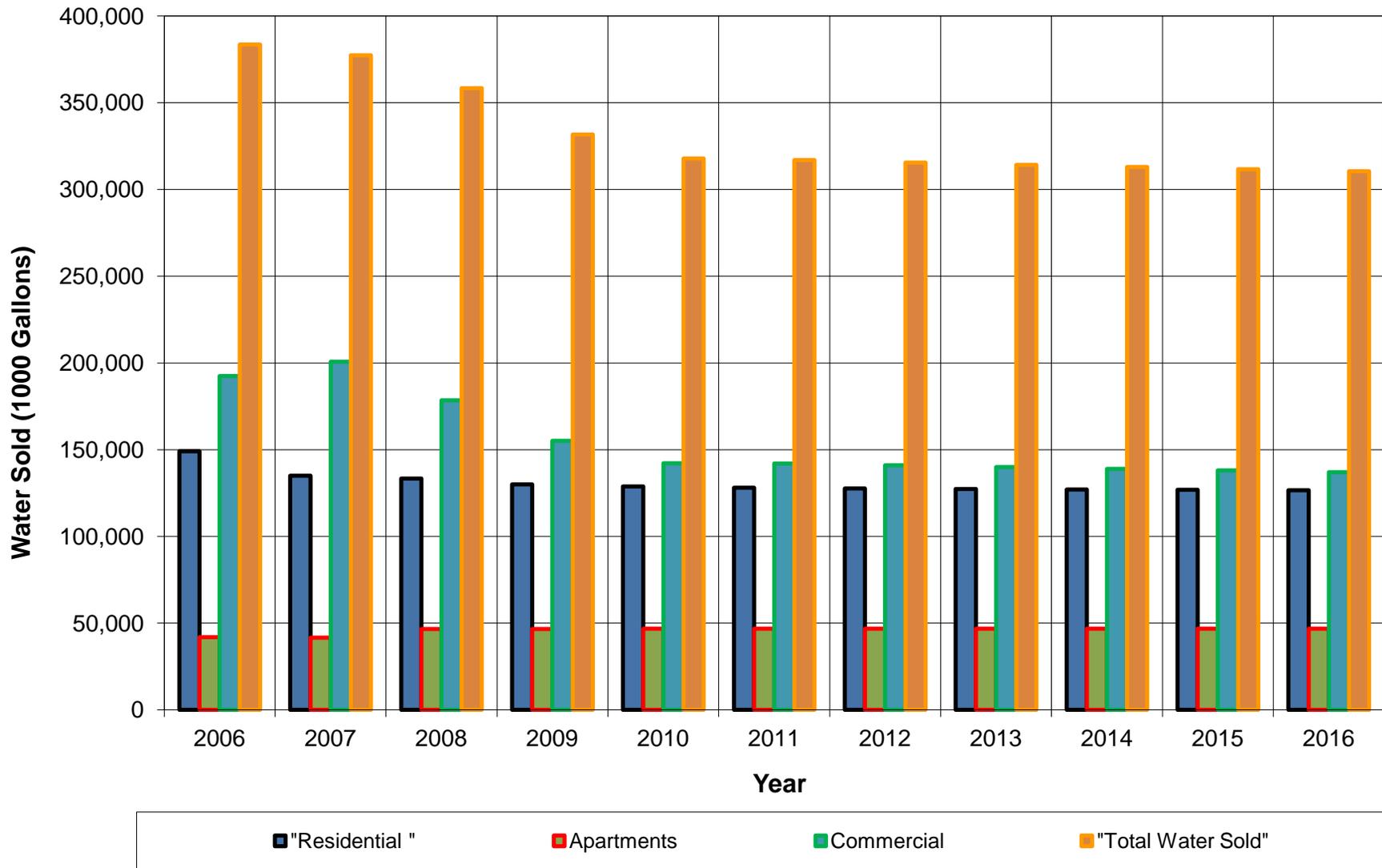
Note:

\* The Americal Crystal Water has multiple meter on different accounts. An account with highest usage (6" meter size) was used here.

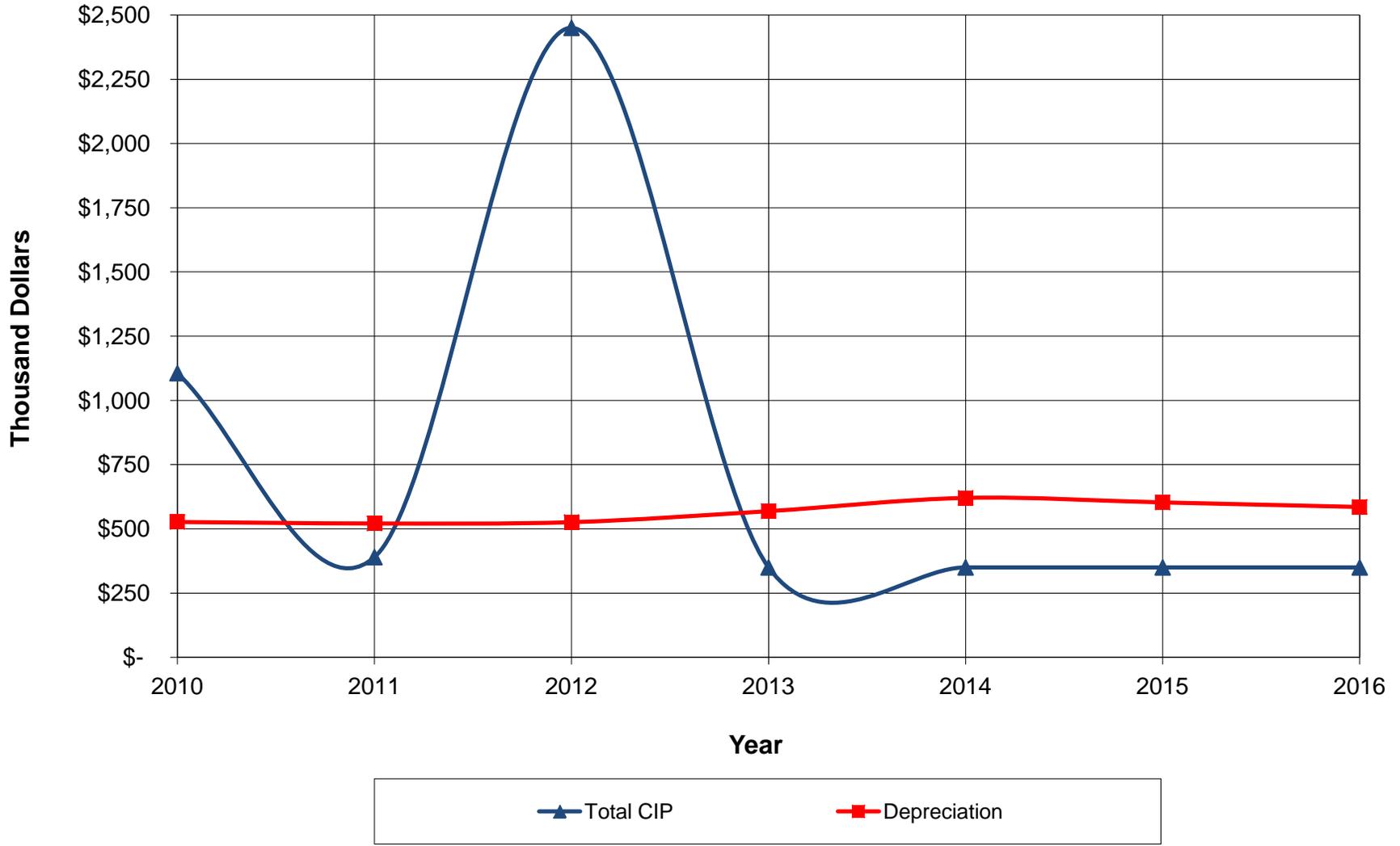
The usage per month is calculated as yearly usage divided by 12.

# Graphs

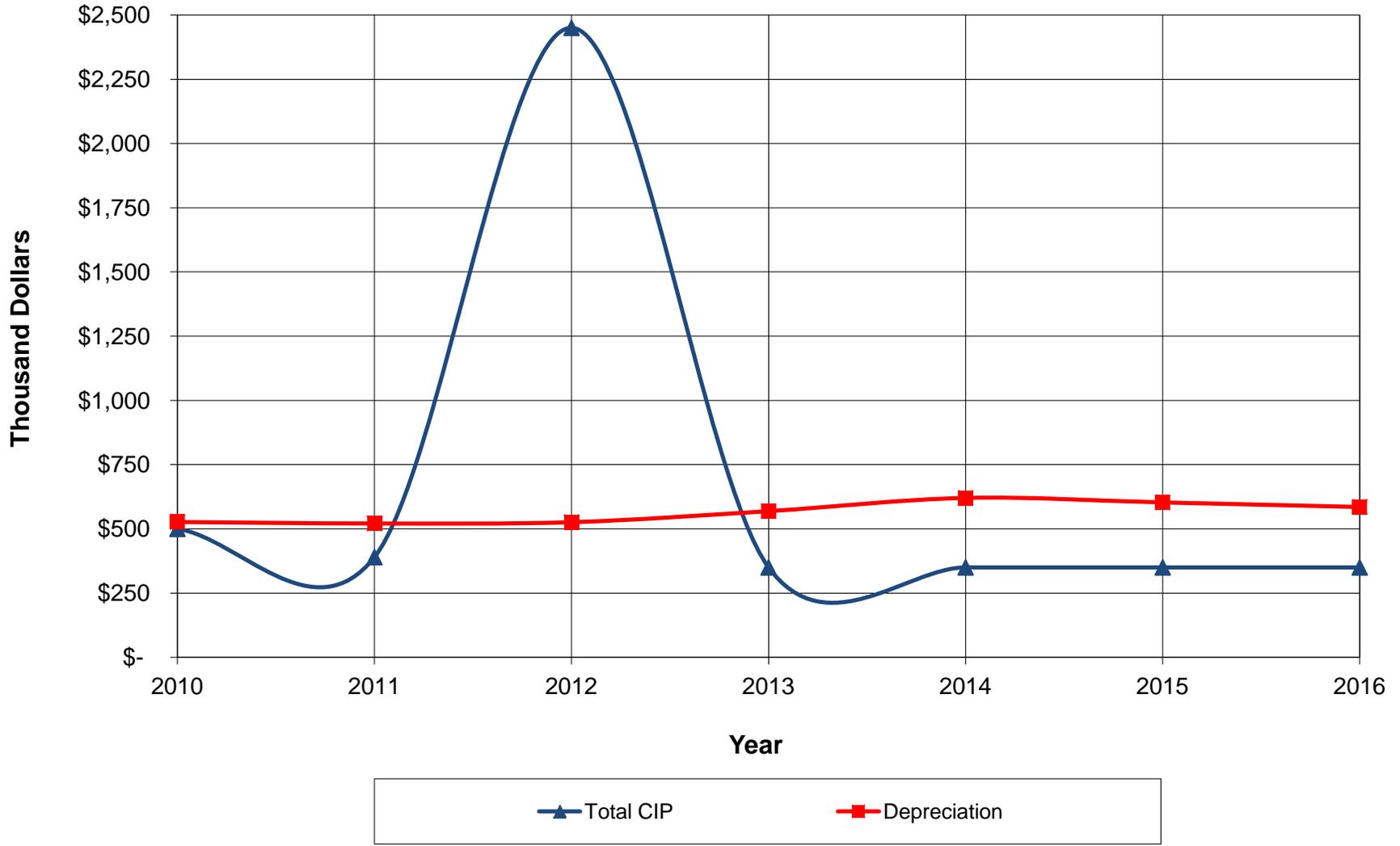
**Graph 1  
East Grand Forks  
Water Utility  
Water Rate Study  
Historic and Projected Annual Water Sales**



**Graph 2a  
 East Grand Forks  
 Water Utility  
 Water Rate Study  
 Projected CIP and Annual Depreciation - Using Higher CIP for 2010**

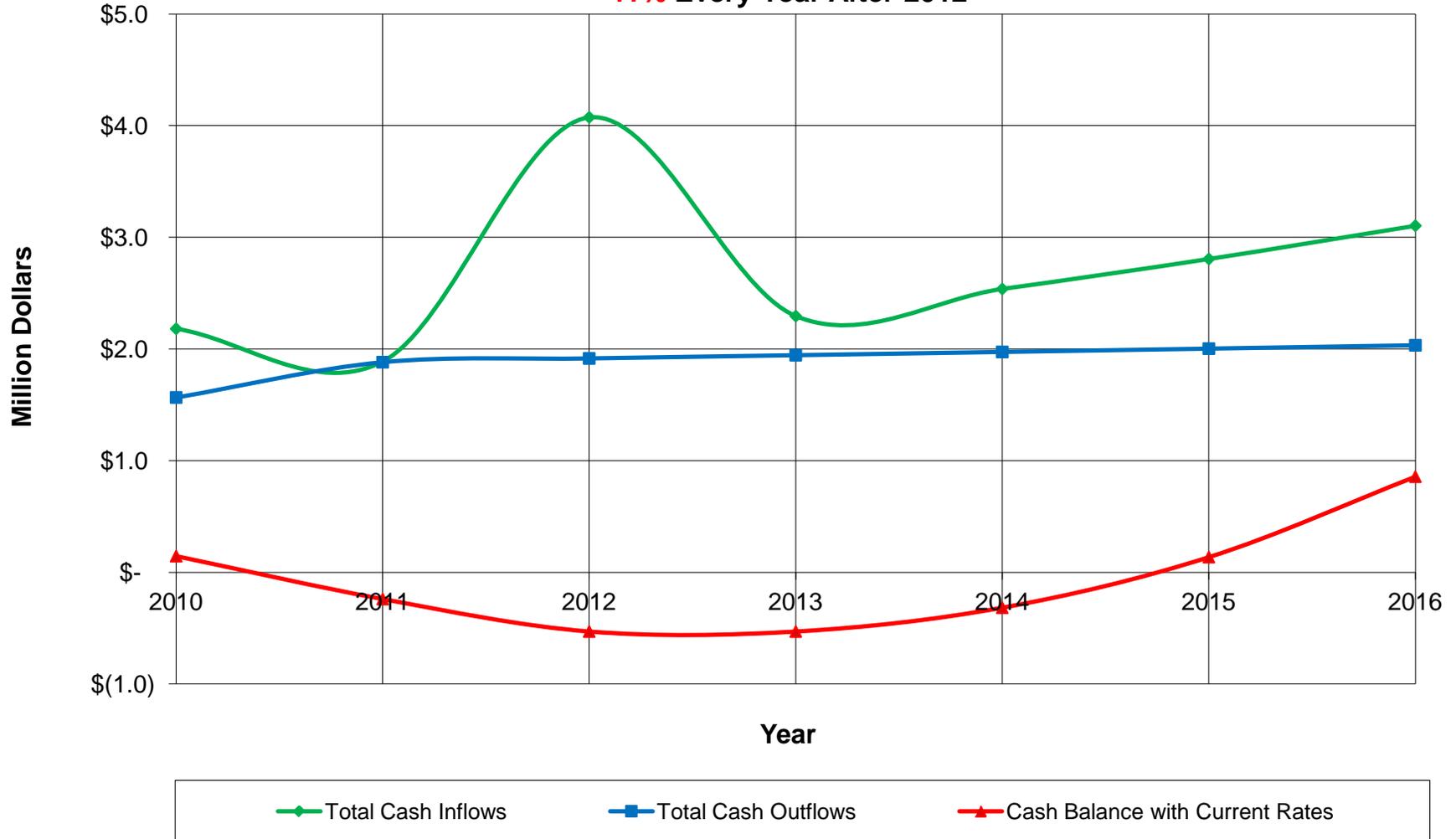


**Graph 2b  
 East Grand Forks  
 Water Utility  
 Water Rate Study  
 Projected CIP and Annual Depreciation - Using Lower CIP for 2010**



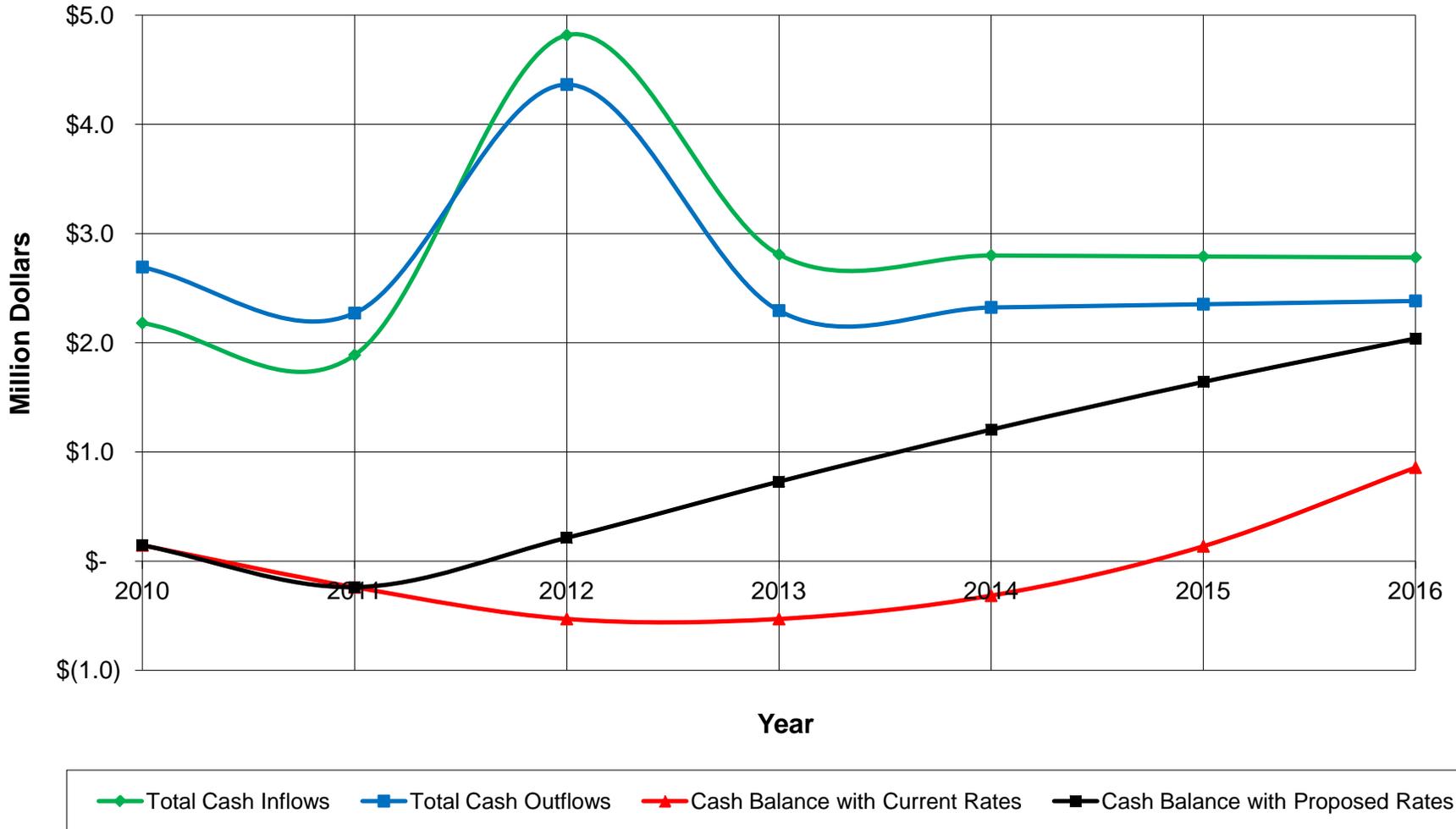
**Graph 3  
East Grand Forks  
Water Utility  
Water Rate Study**

**Projected Cash Inflow, Cash Outflow and Cash Balance With Current Rate Increased  
11% Every Year After 2012**



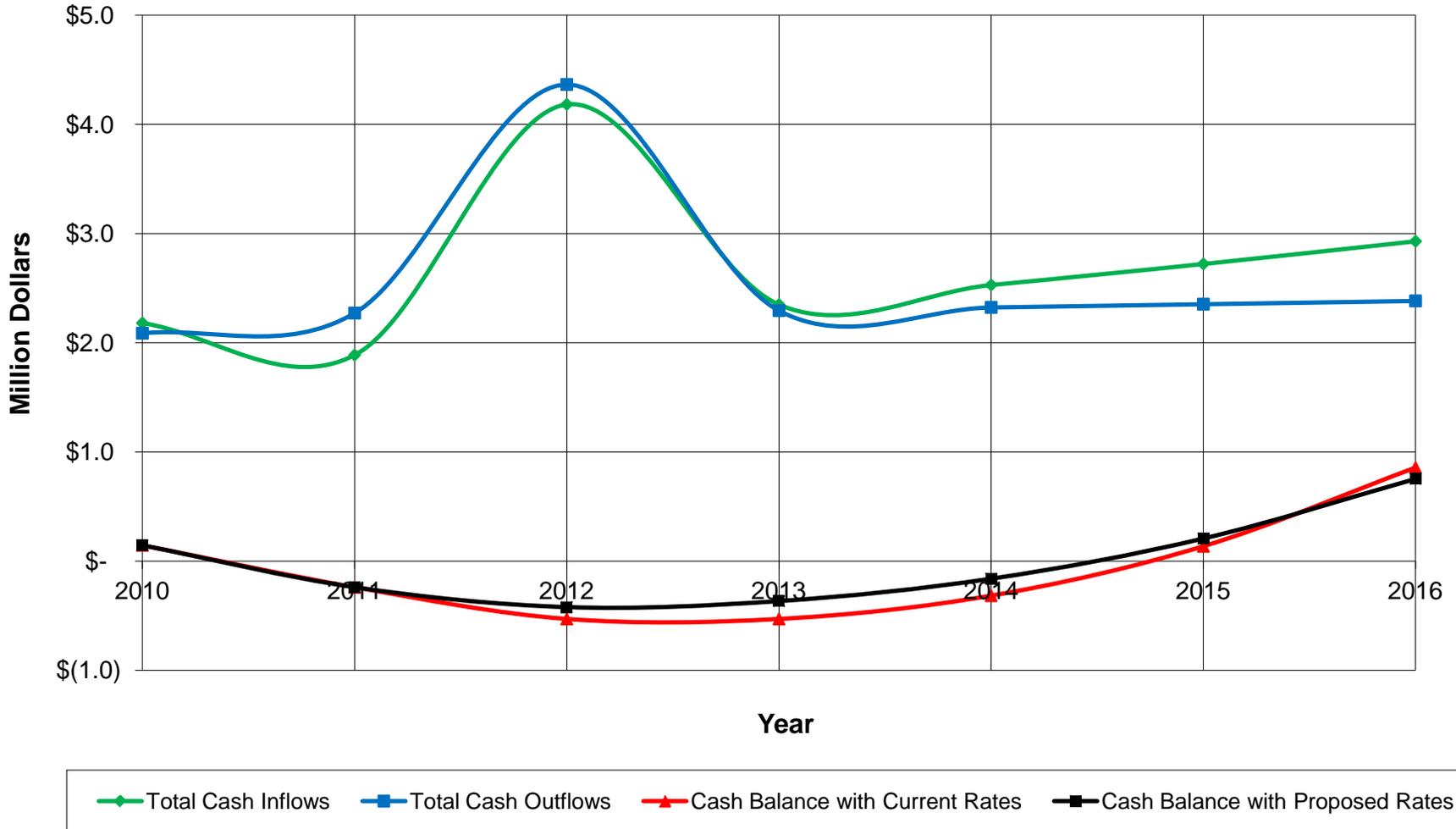
**Graph 4a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Projected Cash Inflow, Cash Outflow and Cash Balance With Proposed Rates  
Increased 0% Every Year After 2012 - Using Higher CIP for 2010**



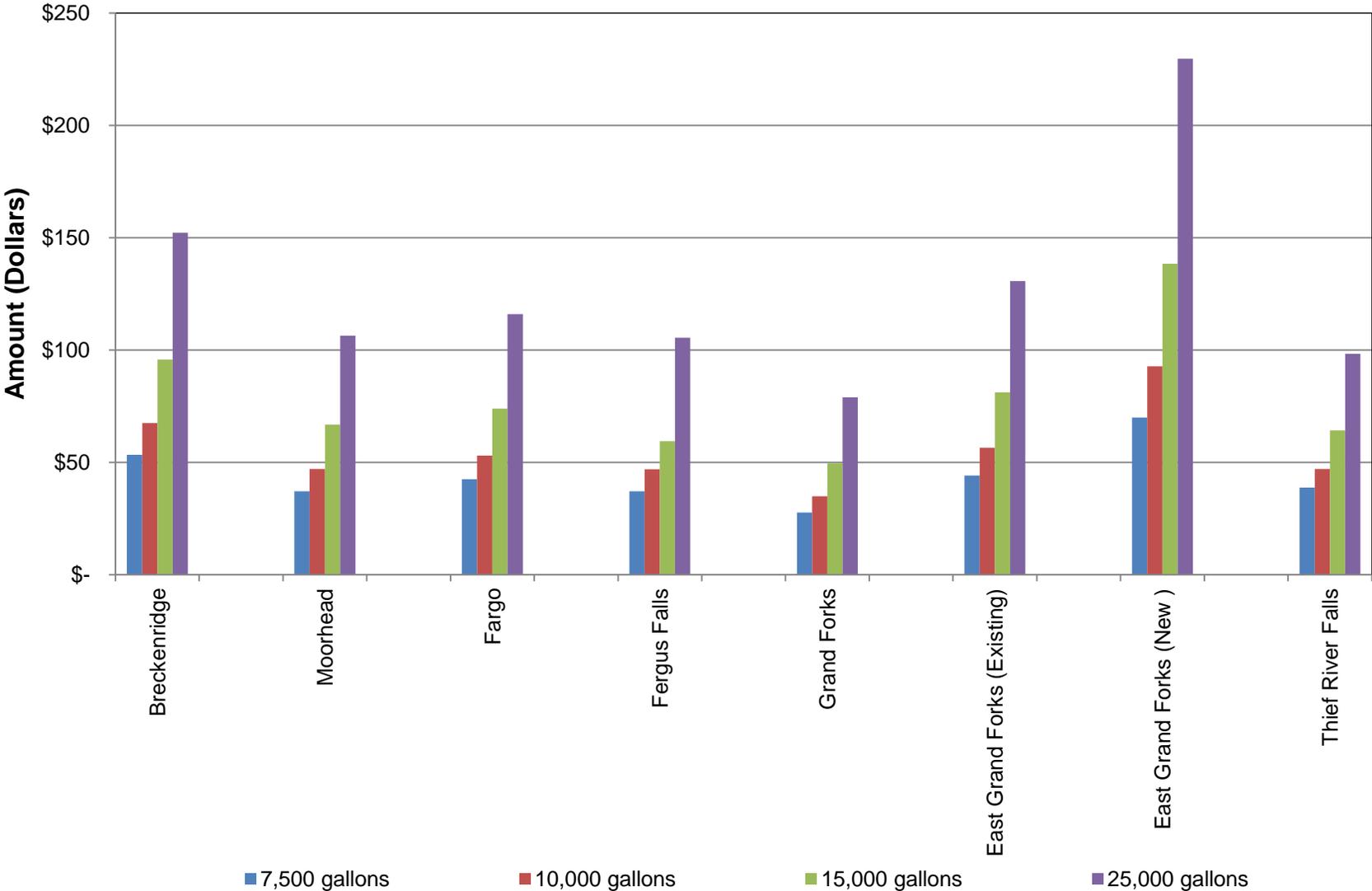
**Graph 4b  
East Grand Forks  
Water Utility  
Water Rate Study**

**Projected Cash Inflow, Cash Outflow and Cash Balance With Proposed Rates  
Increased 8% Every Year After 2012 - Using Lower CIP for 2010**



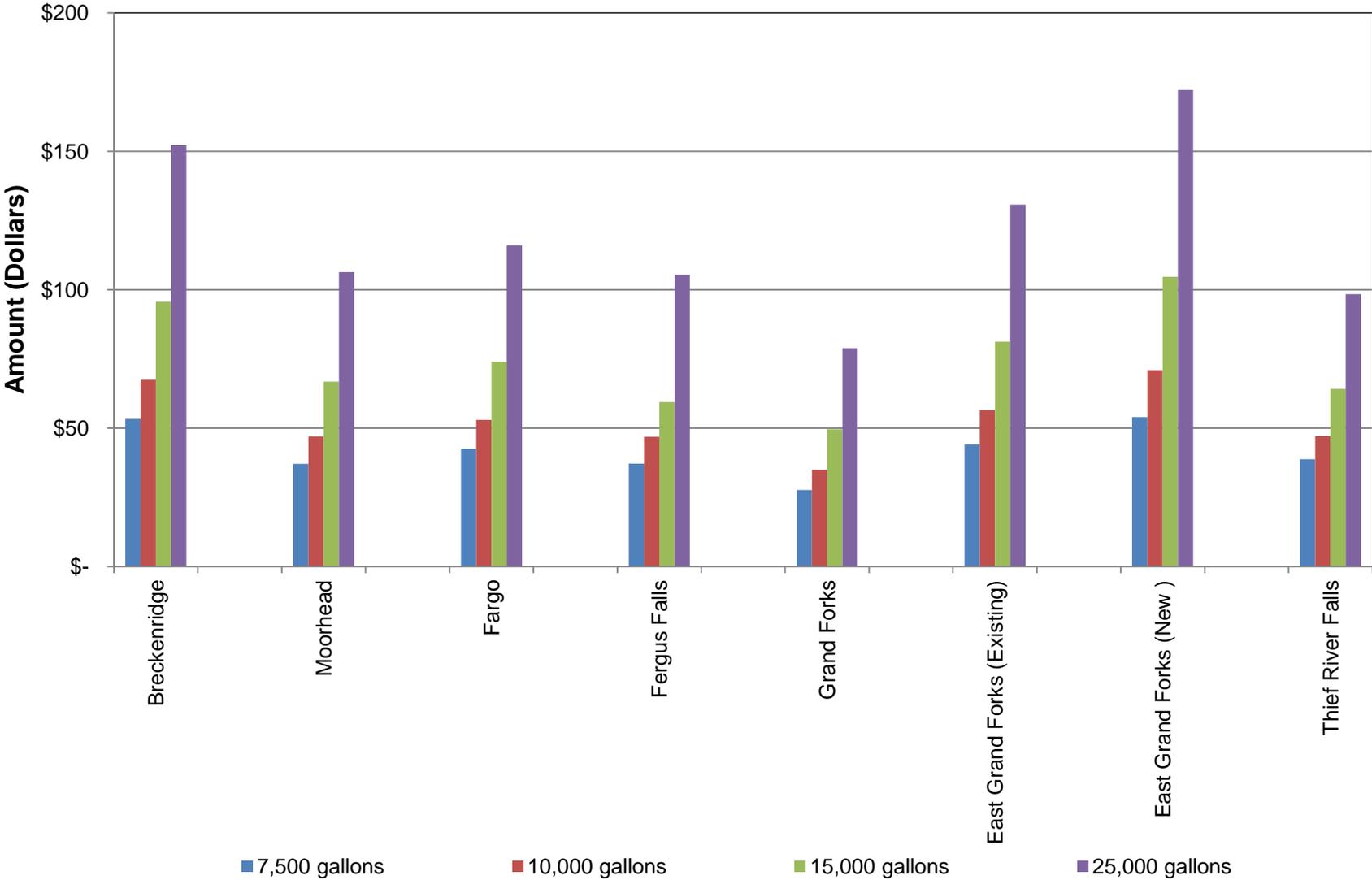
**Graph 5a  
East Grand Forks  
Water Utility  
Water Rate Study**

**Residential Rate Comparison with Neighboring Cities - Using Higher CIP for 2010**



**Graph 5b  
East Grand Forks  
Water Utility  
Water Rate Study**

**Residential Rate Comparison with Neighboring Cities - Using Lower CIP for 2010**



# Appendix A

East Grand Forks Water and Light Department  
 Water Rate Summary  
 1977-2011

Adopted

All Rates are Per Thousand Gallons

|                      | 1977   | 1979   | 1980   | 1986   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 5%<br>1996 | 7%<br>1997 | 1998   | 1999   | Adopted<br>2000 | 2001<br>Adopted<br>Rate | 2002<br>Adopted<br>Rate | 2003<br>Adopted<br>Rate | 2004<br>Adopted<br>Rate | 2005<br>Adopted<br>Rate | 2006<br>Adopted<br>Rate | 2007<br>Adopted<br>Rate | 2008<br>Adopted<br>Rate | 2009<br>Adopted<br>Rate | 2010<br>Adopted<br>Rate | 2011<br>Adopted<br>Rate |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------|------------|--------|--------|-----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| First 2,000 gallons  | \$1.30 | \$1.30 | \$1.30 | \$1.50 | \$1.75 | \$1.85 | \$2.10 | \$2.31 | \$2.54 | \$2.54 | \$2.67     | \$2.85     | \$2.85 | \$3.25 | \$3.55          | \$4.05                  | \$4.50                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Next 8,000 gallons   | \$1.10 | \$1.20 | \$1.25 | \$1.45 | \$1.70 | \$1.80 | \$2.05 | \$2.26 | \$2.48 | \$2.48 | \$2.60     | \$2.79     | \$2.79 | \$3.19 | \$3.49          | \$3.99                  | \$4.50                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Next 20,000 gallons  | \$0.95 | \$1.10 | \$1.20 | \$1.40 | \$1.65 | \$1.75 | \$2.00 | \$2.20 | \$2.42 | \$2.42 | \$2.54     | \$2.72     | \$2.72 | \$3.12 | \$3.42          | \$3.92                  | \$4.50                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Next 70,000 gallons  | \$0.70 | \$1.00 | \$1.15 | \$1.35 | \$1.60 | \$1.70 | \$1.95 | \$2.15 | \$2.36 | \$2.36 | \$2.48     | \$2.65     | \$2.65 | \$3.05 | \$3.35          | \$3.85                  | \$4.45                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Next 100,000 gallons | \$0.70 | \$0.90 | \$1.10 | \$1.30 | \$1.55 | \$1.65 | \$1.90 | \$2.09 | \$2.30 | \$2.30 | \$2.42     | \$2.58     | \$2.58 | \$2.98 | \$3.28          | \$3.78                  | \$4.40                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Next 300,000 gallons |        | \$0.85 | \$1.05 | \$1.20 | \$1.50 | \$1.60 | \$1.85 | \$2.04 | \$2.24 | \$2.24 | \$2.35     | \$2.51     | \$2.51 | \$2.91 | \$3.21          | \$3.71                  | \$4.35                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |
| Excess gallons       | \$0.65 | \$0.80 | \$1.00 | \$1.15 | \$1.45 | \$1.55 | \$1.80 | \$1.98 | \$2.18 | \$2.18 | \$2.29     | \$2.45     | \$2.45 | \$2.85 | \$3.15          | \$3.65                  | \$4.30                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.75                  | \$4.85                  | \$4.95                  |                         |

NOTE: Beginning in 1992, the monthly minimum charge includes no water and varies depending upon meter size.  
 Prior to 1992, the monthly minimum charge includes 2,000 gallons of water.

|                        | 1977   | 1979   | 1980   | 1986   | 1990   | 1991   | 1992     | 1993     | 1994     | 1995     | 5%<br>1996 | Adopted<br>1997 | Adopted<br>1998 | Adopted<br>1999 | Adopted<br>2000 | Adopted<br>2001 | 2002<br>Adopted<br>Rate | 2003<br>Adopted<br>Rate | 2004<br>Adopted<br>Rate | 2005<br>Adopted<br>Rate | 2006<br>Adopted<br>Rate | 2007<br>Adopted<br>Rate | 2008<br>Adopted<br>Rate | 2009<br>Adopted<br>Rate | 2010<br>Adopted<br>Rate | 2011<br>Adopted<br>Rate |
|------------------------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Minimum monthly charge | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$3.70   | \$4.07   | \$4.48   | \$4.48   | \$4.70     | \$6.00          | \$6.00          | \$6.00          | \$6.00          | \$7.00          | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  |
| 5/8" Meter             | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$3.70   | \$4.07   | \$4.48   | \$4.48   | \$4.70     | \$6.00          | \$6.00          | \$6.00          | \$6.00          | \$7.00          | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  |
| 3/4" Meter             | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$3.70   | \$4.07   | \$4.48   | \$4.48   | \$4.70     | \$6.00          | \$6.00          | \$6.00          | \$6.00          | \$7.00          | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  | \$7.00                  |
| 1" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$6.18   | \$6.80   | \$7.48   | \$7.48   | \$7.85     | \$10.00         | \$10.00         | \$10.00         | \$10.00         | \$11.25         | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 | \$11.25                 |
| 1 1/2" Meter           | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$12.32  | \$13.55  | \$14.91  | \$14.91  | \$15.65    | \$20.00         | \$20.00         | \$20.00         | \$20.00         | \$22.50         | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 | \$22.50                 |
| 2" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$19.72  | \$21.69  | \$23.86  | \$23.86  | \$25.05    | \$32.00         | \$32.00         | \$32.00         | \$32.00         | \$36.00         | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 | \$36.00                 |
| 3" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$37.00  | \$40.70  | \$44.77  | \$44.77  | \$47.01    | \$60.00         | \$60.00         | \$60.00         | \$60.00         | \$67.50         | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 | \$67.50                 |
| 4" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$61.64  | \$67.80  | \$74.58  | \$74.58  | \$78.31    | \$100.00        | \$100.00        | \$100.00        | \$100.00        | \$111.25        | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                | \$111.25                |
| 6" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$123.32 | \$135.65 | \$149.22 | \$149.22 | \$156.68   | \$200.00        | \$200.00        | \$200.00        | \$200.00        | \$225.00        | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                | \$225.00                |
| 8" Meter               | \$2.60 | \$2.60 | \$2.60 | \$3.00 | \$3.50 | \$3.70 | \$197.32 | \$217.05 | \$238.76 | \$238.76 | \$250.70   | \$320.00        | \$320.00        | \$320.00        | \$320.00        | \$352.00        | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                | \$352.00                |

Any meter over 8" - Rate to be determined by department.

# Appendix B

**RE: Preliminary Draft Tables for Water Rate Study**

Dan Boyce [dboyce@ci.east-grand-forks.mn.us]

**Sent:** Monday, November 21, 2011 1:10 PM**To:** Jeny Shah; Bonnie Abel [babel@egf.mn]**Cc:** Steve Emery [semery@fs-mn.com]; Naeem Qureshi

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Let's see what it looks like at 750,000. That represents a bit over 2 months of regular expenses plus about 1 year of typical capital expense for water main replacement OR about 4.5 months of regular operation and maintenance expenses.

Dan Boyce

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**From:** Jeny Shah [mailto:jenyshah@pce.com]**Sent:** Monday, November 21, 2011 12:02 PM**To:** Dan Boyce; Bonnie Abel**Cc:** Steve Emery; Naeem Qureshi**Subject:** RE: Preliminary Draft Tables for Water Rate Study

Hi Dan,

You are right. If the targeted water cash fund is less than 1 year of O&M cost (which is around \$2,000,000 for the year 2016), the % increase every year would be less than 13%. The 1 year of O&M cost is the recommended target cash balance considering the wet and dry year and any other unplanned expense but its upto the City staff to decide on higher or lower target they want to achieve by certain year. You can decide and email me the cash balance that the water fund requires by 2016 and I will recalculate the % increase.

Jeny

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**From:** Dan Boyce [dboyce@ci.east-grand-forks.mn.us]**Sent:** Monday, November 21, 2011 12:19 PM**To:** Jeny Shah; Bonnie Abel**Cc:** Steve Emery; Naeem Qureshi**Subject:** RE: Preliminary Draft Tables for Water Rate Study

Would I be correct in assuming a lower % rate increase would be needed going forward if the targeted water fund cash balance were less than 1 year of O&M cost?

The Water and Light Commission has a reserve policy for the electric division which is around 11.4 million.

It has not yet set a specific target for the water fund reserve.

When others look at the combined reserve, there may be a tendency to believe it excessive.

Part of the process on our end may be to provide a clearer definition as to what the target reserve for each is within the same overall combined target.

It also may reflect the possibility of carrying a lower water cash balance if the electric fund backs up the water fund.

Dan Boyce

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**From:** Jeny Shah [mailto:jenyshah@pce.com]  
**Sent:** Monday, November 21, 2011 10:51 AM  
**To:** Bonnie Abel  
**Cc:** Dan Boyce; Steve Emery; Naeem Qureshi  
**Subject:** RE: Preliminary Draft Tables for Water Rate Study

Hi Bonnie,

If I change the CIP from \$1,105,852 to \$500,000 for the test year 2010, then the rate of \$7.30 that we came up with the cost of service study reduces to \$5.40 per 1,000 gallons. The fixed charge will remain the same (\$8.82 per month).

If we do this than the City has to increase the rate 13% every year to achieve the recommended cash balance of one year of O&M cost. This is with the inclining block (same as shown in the preliminary draft tables earlier - 2 block) and assuming that the water fund will borrow \$2,000,000 from the electric fund in 2012.

Let me know if you need any other analysis before our conference call today at 2:00 PM.

Thanks.  
Jeny

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**From:** Bonnie Abel [babel@egf.mn]  
**Sent:** Friday, November 18, 2011 4:25 PM  
**To:** Jeny Shah  
**Subject:** RE: Preliminary Draft Tables for Water Rate Study

Jeny,

Would it be possible for you to see what the impact would be if the capital expense in the test year (2010) was changed to \$500,000.00 instead of the 1,105,852? The reason I am asking is that the capital improvements in 2010 were far over what we normally spend, because we took advantage of some city street improvements being done to replace extra water main where we normally wouldn't do that.

*Bonnie Abel*

Customer & Energy Services Mgr  
East Grand Forks Water and Light  
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