

May 26, 2011

The Honorable Frank Roland, Jr., Mayor
City of Hillsboro
P O Box 19
Hillsboro, MO 63050

Subject: User Charge Analysis Results

Dear Mayor Roland:

Enclosed please find the results of the water and sewer utility user charge analyses I recently completed for the City.

Before turning to the analyses, I want to tell you this. I have enjoyed working with Gery Marmaduke for many years now. Gery has always been great to work with. He gets the job done quickly and efficiently but will take the time to discuss any issue that needs more consideration. I have worked with very capable city administrators among my 170-plus clients but Gery stands out. He does a great job. Besides, I simply like the person he is. The City is well-served by having him.

You may know or even recall that I did rate analyses for the City five years ago. I am pleased to tell you that the City took my advice to heart and has done a nice job of keeping rates current over the years. Had the City not done this your rates, and therefore your reserve levels would have been lower and that would have made for severe rate increases to fund approaching capital improvements. The rate increases proposed in this package are significant, but nothing like what they would have been had you not kept them current.

The report is long, detailed and technical. You, the board and others should read through it but do not obsess over the details. When I attend the board meeting in June I will explain all of the critical points and I can answer any questions you may have then.

Later on, Gery and his staff can certainly handle most questions with ease. If you have any questions later, I suggest you first talk with Gery because it is likely he will know the answers. If you still need help, please feel free to give me a call. It will be much easier for me to talk you through issues than it would be for you to study the charts to find the answers on your own.

Before or even long after you adjust rates I want you and your staff to feel free to just give me a call anytime you have a question about the analyses, my recommendations or even things that may not be related to the analyses at all. A year from now you may need to call me, and that is just fine. If I can help you simply on the phone or by e-mail, and I usually can, I will do so. There will be no extra charge because that is just part of my service to get your rates set where they need to be. If the issue of concern requires substantial analysis we can then talk about if and how you would like me or someone else to help you. Whether I help you with the issue or I find someone else who is more appropriate to help you, I want to make sure you get and keep strong and fairly structured rates.

Finally, I am sure you know of other cities, districts and service authorities that need rate setting assistance. I hope you will tell these folks about me. I get almost all of my business by referrals from past clients and I hope to be able to trace several future clients back to my work with Hillsboro.

Best regards,
Carl Brown Consulting, LLC



Carl E. Brown
President

Enclosures

Water and Sewer Rate Analysis Report

City of Hillsboro, Missouri

Prepared May 26, 2011

Carl Brown, President
Carl Brown Consulting, LLC

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Legal Disclaimer

It is imperative that all readers understand that this report and the accompanying analysis models are not legal recommendations. For legal issues consult your attorney.

Purpose

This report is intended to help the staff of the City of Hillsboro (simply called the “City” throughout the report) to prepare proposed rate and fee revisions and to help the board to better understand the City’s situation and what should be done about it.

This report is part of a package that includes the following:

- A cover letter,
- This narrative report that details the findings and recommendations, and
- The analysis models themselves which depict what will happen if you adjust rates and fees in the ways described in each model.

Unlike many reports, this one starts with the more specific items. Therefore, after a summary the report covers actions you should take to make the recommended rate adjustments. It then covers progressively more general items and issues.

Summary

Analysis determined that your water system has total reserves that are adequate right now and they are generating revenues that will be adequate for a few years. However, an improvement project will change this picture drastically around 2015 when new debt payments are projected to start. If rates are increased as proposed the real purchasing power of reserves will peak in about 2014 but remain at a strong level for years after that.

The sewer system is in a similar situation. While sewer debt will be 50 percent less than water debt, it will start sooner. This shorter lead time makes it so the system must collect revenues more rapidly. Fortunately, if this project is funded privately (does not use government agency programs), which is most likely, some existing debt can be paid off with the new funding, reducing the overall debt payments significantly.

The analyses and this report will cover rate adequacy, rate structure appropriateness and rate fairness. To that end, my analyses determined that several changes to the rate structures would serve the City well, including:

1. Adjust user rates so the minimum charge captures all fixed costs plus the cost of the usage allowance. Right now the minimum and unit charges for water are both too low, the minimum charge more so. For sewer rates the opposite is strongly the case; the minimum charge is nearly high enough but the unit charge is significantly too low. Because most water users are also sewer users, these adjustments will level the increases for combined water and sewer service somewhat across the usage classes.
2. The City wants to encourage development. Therefore, you should continue the current impact and tap-on fees without changes.

This report includes one analysis model for each of the systems. These analyses are built on the same basic model so once you become familiar with one, you will understand the other. In addition, rates and fees for both utilities have been built using the same basic structure so there is a high level of consistency between the two.

The models were built to match the systems' actual financial statements as much as possible. However, the intent of the rate modeling is to see to it that the resulting rates are adequate to pay all system expenses for the next 10 years, maintain responsible reserves and collect fees from customers on a fair basis.

For modeling purposes, it does not matter whether funds are held in the general system account, a debt service sinking fund, debt coverage reserve fund, etc. Therefore, the models account for funds in a more simplified way than the accounting records of the systems. When it comes to segregating funds, staff knows best how to do that so the models do little in this regard and leave the segregating up to staff.

Some fund balances shown in the models are negative during a few years. However, the "All Assets Except Hard Assets and R&R, Discounted for Inflation (Future Purchasing Power)" amount at the bottom of Chart 11 of each model is the important overall balance to be concerned with. This balance always remains strongly positive. As to system accounting, if a segregated fund runs precariously low staff will recommend transfers to prevent problems.

The analysis models should not be considered by anyone as a dictum on where rates and fees *must* be set – that is the prerogative of the board. However, the models do provide guidance that will help you to, in an informed way, set rates and fees successfully. They also give indications of how the modeled rates and fees will affect the various users.

As you set and later reset your rates I suggest you follow the guidance I give in my book, "How to Get Great Rates." I gave a copy to Gery Marmaduke. I suggest you also use the "Replacement Scheduler[®]" spreadsheet, at no charge, that I e-mailed to Mr. Marmaduke and use it for future equipment replacement scheduling.

Action Items

(Use the following as a checklist of rate setting "to-do" tasks.)

The following actions are required to achieve the results predicted by the analyses, also called "models" and "scenarios."

1. Adjust all rates and fees as described here on or near July 1, 2011.
2. Set the minimum charge for all customers as shown in Chart 1 of each model.
3. Continue billing on a monthly cycle.
4. Continue including a 2,000 gallon usage allowance with the minimum charge for each system. However, be aware that if you seek a Clean Water State Revolving Fund (SRF) loan, such an allowance will probably not be allowed.
5. Set all unit charge rates as shown in Chart 1 of each model. Where there is a gap in the volumes displayed in the chart, keep the rate the same as the rate for the volumes below it. (Volume classes that included no users have been hidden just to make the tables less voluminous.)
6. Assuming financial performance was well predicted by the scenarios, effective on the one-year anniversary of the initial rate adjustments, and every year thereafter until a new analysis determines otherwise, raise all rates in each of the systems by six percent. This rate of increase is shown near the top of Chart 2A of each scenario.

Note: If you copy only a handful of charts as handouts for the public attending your rate setting meeting, charts 1, and 21 are the most useful charts for them to view.

Discussion of Significant Issues

Rate Adjustment Scenarios

In this report there is one scenario for the water system. That is called "Hillsboro, MO, Water Rates Scenario 1." Likewise, there is one scenario for the sewer system. That is called "Hillsboro, MO, Sewer Rates Scenario 1." I did the rate modeling for both scenarios at the same time and tried to maintain as much consistency as possible between the systems' rates.

System Development (Impact) Fees and Tap-on Fees

Some systems fund large portions of improvement costs with impact fees up front. In addition, they often charge high-volume and expensive to serve customers surcharges on each bill to recover much of the costs such users cause. Unfortunately, such strategies give developers a disincentive to develop because it drives their costs higher.

Other systems prefer fees that are more level between new and existing customers and high and low volume customers. This strategy sometimes causes lower volume customers to “subsidize” higher volume customers by paying higher minimum charges.

The City has chosen a path that charges developers less than the full cost to build capacity to serve their developments. Therefore, I propose making no changes to the current tap-on and impact fees and policies the City has pursued. In addition, I structured the minimum charges for each system so that the minimum charge recovers all fixed costs plus the unit charge value of the usage allowance volume. This will result in rates that will be structured very much as they are now.

Water Unit Charge Structure (Conservation Rates)

Currently the water rates are structured as mild “conservation” rates¹. That means that most conservation rates go up more steeply than those of the City. Most conservation rates encourage conservation (marginally) and they generate slightly greater revenues than comparable unit charge structures that do not increase. This increases rates slightly for high-volume users, those that are generally the most able to pay user fees. And, it decreases rates slightly to low-volume users, generally those least able to pay. The current rate structure allows in-city customers to pay unit charges at the base rate only on almost all volume they use. Only higher volume customers’ have to pay the higher unit charges. This is an excellent structuring strategy.

I continued the current conservation rates structure, with almost no change, in the proposed rates. This can be seen in Chart 9 near the top right corner and the corresponding highlighted rates within that table.

Decision Criteria

Several key criteria impact your situation and how you should set future rates. These include the following:

- I performed rate analyses five years ago for the City. At that time I recommended building strong reserves by setting strong rates and increasing them regularly. Over the years the City has done a good job of keeping rates current and building reserves. Because of that, even though very expensive improvements are needed for the water and sewer systems, rate increases to cover those costs will not have to be severe because strong reserves are already in place.
- For water, a substantial improvement project will be started soon. The debt service for this project will be greater than the total of the system’s current operating costs. That is a very big issue. Obviously, rates need to go up markedly to cover this cost. However, by raising rates significantly now and later by slightly more than the rate of inflation expected for operating costs in the future, rates do not need to go up nearly so much immediately to cover the debt costs. The same situation is true for the sewer system.
- I targeted total reserves at 10 years out that include these components:
 - The “Working Capital Goal” in the last year from the bottom of Chart 3, plus
 - The “Total CIP Spending Plus Debt Payments” in the last year from the bottom of Chart 6, plus
 - The “End of Year Balance in Future Dollars” in the 12th year of Chart 26.

¹ Conservation rates are structured so unit charges go up as the volume used goes up.

These reserve levels are responsibly strong goals to build towards. They will enable the systems to pay for unusual operating cost fluctuations, bank one-year's worth of debt service at all times and cover equipment replace needs as they come due.

To build these reserves I settled upon future rate increases of six percent for both systems. That resulted in average initial rate increases of 18 and 22 percent for water and sewer, respectively. Such rate increases are on the low side of what I normally see.

- The City now has rate structures that are already sound and in the same basic format as what I propose. The analysis models compare proposed rates with the current rates (often called the “do-nothing” or “do nothing different” scenario) to give readers a basic understanding of what would happen to them under the proposed rates as compared to what they were paying during the test year. These comparisons are shown in Chart 21.
- The overall rate increase percentage shown at the top of Chart 2 of each analysis compares the proposed rates with those in effect at the end of the test year.

Rate Affordability

The affordability index of your current rates and my proposed rates are shown numerically in Chart 11 and graphically in Chart 15 of each analysis model. The initial rate increases push the affordability index up, meaning rates to the 5,000 gallon per month residential household become less affordable. The affordability index will then rise gradually over the next 10 years as rates increase incrementally to cover inflation, new debt service and other new or increased costs. All of this means that rates will become slightly less affordable with time if the systems' costs rise as rapidly as projected and household incomes do not rise faster than the Census Bureau's projections indicate.

Affordability Index: The monthly charge for (typically) 5,000 gallons of residential service divided by the median monthly household income for the area served by the system. An index of 1.0, meaning a household pays one percent of its income to pay its bill for 5,000 gallons of service, is generally considered affordable. Affordability index is a primary factor in determining grant and loan eligibility and grant amount.

I must note that the Census Bureau's data indicates household incomes only increased in the City by 0.1 percent annually during the last 10 years (top of Chart 25). Most cities like Hillsboro saw increases of three to four percent per year. Therefore, I suspect the income increases for the City are not accurate. If incomes actually are rising at a greater rate, the affordability of the proposed rates will be much better (the value will be lower).

Depreciation and Capital Improvements

Depreciation is a real event. Built facilities wear out with use and age with time, reducing and eventually eliminating their value and function. However, that wear out and aging process does not occur in a straight line as most depreciation schedules depict. Facilities usually function well for the first 75 percent or more of their useful lives and then they start a rapid decline. In addition, depreciation is “backwards looking” in that it considers the value of the system when it was initially built rather than considering the future cost to build a new system that would serve users as they desire in the future plus satisfy additional functions required by tighter environmental and health standards and customer desires.

Water utilities are made up of core components such as wells, treatment plants, towers and lines. These components wear and age slowly. Their useful lives define the maximum useful life of the utility as a whole.

Water utilities are also made up of secondary components that age and especially wear out with use more rapidly. These include pumps, motors and other mechanical parts that move. All of these parts are replaceable or can be refurbished to extend the useful life of the system as a whole.

Depreciation financially models the aging and breakdown process. It is a useful concept and it is even required to adhere to generally accepted accounting principles (GAAP). However, almost never is depreciation actually funded by placing those funds into an account to be available to pay for a new system when it is needed. Thus, it has limited value for municipal system rate setting.

Core components are generally funded as capital improvements, paid for initially with loan and perhaps grant proceeds, with loans retired in subsequent years by debt payments. This process works well because it generally has users pay for facilities dedicated to them during the time they get benefit from them. Paying for such components over time also generally works well because rarely do such components unexpectedly break down and need immediate replacement.

The capital improvement program includes a running balance. At the end of each year you should endeavor to retain in your various CIP and debt service reserve balances a total of at least the balance shown near the bottom of Chart 11 that is called, "CIP Reserves."

In your case, expensive improvements are needed very soon. The debt service for those improvements will be the major driver of the need to raise rates significantly. Unless funding these improvements with user charges can be avoided (grant funding or simply not building the improvements at all), there is no getting around the need to make significant rate increases.

Equipment Replacement

Secondary components wear out. That process is fairly predictable generally but it is not so predictable for individual equipment items. Pumps, motors, rolling stock and other moving parts can fail one to several years earlier than expected and require immediate replacement to keep the system functioning. Problems may result if the system does not have reserves to pay for replacements. For this reason it is prudent to schedule equipment replacements, refurbishments and the like and set aside funds ahead of time to pay for these expenses when they occur.

While staff has a good sense of what needs to be replaced or refurbished, when and at what cost, the systems do not currently have formal equipment repair and replacement schedules (R&R). I recommend you formalize what you are already doing by using the spreadsheet called "ReplacementScheduler[©]." I e-mailed this spreadsheet to Mr. Marmaduke and it is available for free download from my Web site, as well.

Basic and Policy Action Items

Use the following as a checklist of "to-do" tasks. Many if not all of these things you are already doing but they bear repeating.

1. If your current late payment penalties are not at least \$10.00 or 10 percent of the outstanding balance each month, whichever is greater, set them at these rates to give late payers more incentive to pay on time.

2. Before you officially propose or adopt new rate language, you may mail or e-mail the rate charts, ordinances or agreements to me and, as a part of this project, I will verify that your language will effectuate the intended rate and policy adjustments.
3. Determine how long, on average, it takes to perform the various services you provide in the field, such as after-hours service, meter disconnects and reconnects, special meter readings, etc. Be sure to include all the time you actually pay staff for performing these services. Then determine how much it costs the City per hour, on average, to have staff perform these services. This includes benefits, taxes, use of City vehicles, tools and minor equipment, etc. It should also include a fair amount to cover the time that office staff devotes to working on these services to track them, bill for them, etc. This should be the hourly rate you will charge for these services. In addition, set a minimum that you will charge for showing up, whether the service takes an hour to perform or 10 minutes. In essence, set your fees in the same way plumbers and similar technicians do – a set fee for showing up, which buys the customer a set amount of time, and an hourly rate if the job takes longer than the show up charge will cover. While accounting for time and other investments in the various functions is important, do not make the process burdensome. For many functions you likely can just estimate your time occasionally and charge fees based upon those estimates.
4. Staff performs services for developers and others. This may include review and approval of water system expansion plans and connection applications. For all such services you should determine their full costs. While current fees and charges do not fully recover those costs, it is useful to know what you are giving up.
5. Retain required funds in interest bearing debt service and debt reserve accounts when required by your lender(s).
6. It makes sense to do equipment replacement and capital improvement planning comprehensively. However, the two types of expenses will usually be funded differently. Equipment replacement should generally be funded from operating revenues on a “saved ahead of time” basis. Capital improvements are usually paid for with grant and loan proceeds and then paid for over time after the improvements have been built. Therefore, you should plan for each type of expense using separate schedules as soon as practical. Use Charts 6 and the “ReplacementScheduler[©]” as models for these tasks.
7. Have me conduct a full rate analysis again when your actual financial performance and my projections diverge significantly, but not longer than five years from now to make sure your rates remain adequate for the system and fair to your ratepayers. That is just a continuation of what you have already done over the last five years.
8. Start adopting management strategies that are included in what is most commonly called, “advanced asset management.” These strategies can yield better service and reduced costs for utilities, especially those looking to build new facilities or replace existing facilities soon. Visit <http://carlbrownconsulting.com/> for more information on asset management or call me to discuss how the City might move into asset management.

9. If you do not already do so, consider “paying” developers to install over-sized lines and other equipment and features when such installations would facilitate future development more economically. To illustrate:
 - You may have a developer who would need to install a two inch water distribution line to serve the needs of their development. However, other properties in the area that would use that same line when developed later may require it to be four inches in diameter. Or, you may require a larger line size to accommodate fire flow capacity. In these cases you and the initial developer would determine the additional cost of installing the larger line size and the City would reimburse the developer for that portion of the cost. (The incrementally higher cost of installing a larger line is small but the value of having that line in place and ready for use when needed is very large.) That reimbursement may be in the form of a discount on the developer’s connection fees.
 - Later, when other developments use the larger line you would charge those developer(s) their proportionate share of the cost to make that line available for their use. In addition, you may, and I suggest that you do, charge an additional amount or percentage to serve as reimbursement for the City’s expenses to finance the upsizing and to cover risk. These costs are substantial. In that way, lines and other systems would be built in the most economical fashion possible. Plus, the City could recoup its investment in up-sized lines and facilities, and cover its risks of loss.
 - Be careful about how this cost sharing may affect your cash flow. I strongly suggest you set up a separate fund to which you will deposit connection and developer fees and from which you will pay for system upsizing. Manage this fund so it will fully cash flow itself and maintain a reserve over expected disbursements of at least 50 percent.
 - Be resigned to the fact that you may invest in upsizing a line or two and then new development will not occur in the area at all or it will be very late to reach the area. Either event will erode your “profit” margin for such cost-sharing ventures. You should try to minimize such events by not cost-sharing where you do not expect additional development to occur fairly soon. But, to get the most appropriate lines and facilities installed in most places, and at the most economical overall cost, you will have to “push the bubble” just a bit. This risk of loss is a large part of the reason I recommend you price taps to cost-shared lines so you will make a profit.
10. Continue to track your volume usage, incomes and expenses on a regular basis so the data and information you generate will continue to support future rate adjustments as well as they did this one.
11. As a reminder, check with your attorney for language and legality of all charges and issues discussed.

Principles

I use several guiding principles when I help systems set their utility rates, fees and policies. As you read this report and the analyses, keep in mind that my recommendations have been weighed against these principles:

1. Water, sewer and all other utilities are businesses, regardless of who owns them. Businesses must cash flow properly.
2. In addition to functioning in a business-like manner, a utility has a responsibility to its customers to nearly guarantee its long-term prosperity for their benefit. The customers expect the service to be there whenever they want to use it. Thus, a utility must err on the conservative side by maintaining strong reserves that will enable it to weather financial storms.
3. If a service costs the utility money, the utility should recover that cost from the most logical "person" if that makes good business and community administration sense. For example, generally "growth should pay for growth." Developers should fairly pay for their consumption of utility capacity. Likewise, service users should pay for their use. Each user or class of users should pay their fair share of service costs.
4. If adjusting a rate, fee or policy will turn currently "good" customers into "bad" customers, consider the necessity of the change carefully before making it. For example, while it may be warranted, raising the minimum charge markedly to your residential customers may make it very difficult for fixed, low-income customers to pay their water bills. That may cause more of them to pay late or not pay at all. That may trigger the City's processes of having the City's attorney write threatening letters to those customers and eventually require shutoff of service. Thus, in the attempt to generate more net revenue by raising rates, net revenues may actually go down.

General Background

I made assumptions and estimates where necessary for the analyses. Using sensitivity tests and my experience in performing over 170 rate analyses, I am confident these assumptions are adequate for your rate setting purposes at this time.

Notable assumptions and issues include these:

- The analyses use the test year of January 1, 2010 through December 31, 2010. This is the one-year period from which actual cost, revenue, usage and other data were gathered. The test year is the starting point for the analyses. Costs, revenues and all other data will change in future years based upon inflation, growth, the proposed rates and fees and many other things. Essentially the analyses seek "best fit" rates to satisfy many issues facing the system. Therefore, you cannot look at the analysis charts several years out and view financial predictions like they are accounting records. Future costs, revenues and other data, though they are based upon solid starting data and change rates, are predictions and estimates only.
- I assumed that you will continue to bill on a monthly basis.
- I assumed that future operating costs will rise at varying inflation rates, as shown in Chart 3. Some costs, like electricity for pumping, will rise due to inflation and due to additional use caused by customer growth.

- I assumed what may be considered a “worst-case scenario” for capital improvements funding. That is, they would be funded entirely with market-rate bonds. If some of these costs can actually be paid with grants or interest subsidized (SRF) loans, the debt service for these improvements will be lower and the rates will not need to be raised as much as shown.

Closing

Except that you have some expensive capital improvements on the horizon, your current rates and rate adjustment policies would probably keep your reserves at strong levels for several years to come. These improvements will force rates higher but the improvements will position the City well to accommodate new development and growth. Added users will moderate future rate increase needs and the development itself will add significant economic benefits to the City, its residents and its businesses.

I recommend you make initial rate adjustments as soon as possible and follow up annually with across the board inflationary rate and fee increases. You have done a great job of doing just that over the last five years so this really is a continuation of what you are already doing. In several years, after several rounds of inflationary increases, it will then be time to reanalyze and restructure rates again – restart the cycle.

You now should do those things listed in the Action Items sections above.

Hillsboro, MO, Water Rates Scenario 1

Rate Analysis Modeling Results

It is the intent of Carl Brown Consulting to help clients set user rates that are adequate to pay all reasonably expectable costs and accomplish this goal by charging rates that are fairly structured and appropriately simple or complex.

This analysis model assumes initial rate adjustments as reflected in Chart 1. Annually thereafter rates will be increased as shown near the top of Chart 2. The model compares the system's financial outlook under the proposed rates with the outlook if no adjustments are made. This makes it easy to understand the outcome of the proposed changes compared to the "status quo."

For most, the best way to read and understand what this model means is this. Scan the "Index of Charts and Other Results" to see how the model is laid out. Scan the "Definitions" for any terms you are not already familiar with. Read and even ponder Chart 1 and the line graph charts. These will show you how the proposed rate adjustments will affect ratepayers and the system. If you need more detail than that, review the entire model. Finally, rate setting involves much more than just rates so you need to read the accompanying narrative report to understand what you need to do and why.

Several tables in this model depict volume usage and user rates for the various customer classes. The model includes a continuum of volumes but many volume categories had no users or use. Most of these lines have been hidden simply to make the tables less cumbersome. However, all volume classes that had use or that are break points for rate blocks are shown. For volume classes that are not shown, rates will be the same as the previous rate that is shown.

May 26, 2011

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CBGreatRates© Version 5.3

Hillsboro, MO, Water Rates Scenario 1

Index of Charts and Other Results

Note: Only the most complex conditions require use of all of the charts described below.

Name	What Each is or Does
Definitions	The meaning of terms used in this report and in rate setting generally
Financial Highlights	A summary of financial outcomes produced by the proposed rates
Chart 1 - Proposed Rate Chart	User rates proposed in this model for each user class
Chart 2 - User Base and Operating Incomes	Basic user base and user rate statistics and operating revenues, projected for next 10 years, based upon adopting modeled rates
Chart 3 - Operating Costs and Net	Operating costs projected for next 10 years, excluding debt service
Chart 4 - New Connections Cost	Costs for making new connections, if applicable
Chart 5 - Meter-size Based Connection Fees	Calculation of average tap fee and total tap fee revenues for the year following the test year, if applicable
Chart 6 - Capital Improvement Program	Capital improvements and how they will be paid over next 10 years, including debt service
Chart 7 - Potential Demand-based Annualized CIP Costs	Cost of facilities needed to satisfy potential flow demand, if applicable
Chart 8 - Potential Demand Minimum Charges Based on Meter Size	Surcharges to apply to minimum charges, based upon meter size or similar criteria, that will recoup part or all of the costs incurred to provide high-flow capacity, if applicable
Chart 9 - Rate Adjustments and Incomes for Modeling Year	Current rates, proposed (modeled) rates and blended revenues they will produce during the year following the test year (usually this year in real time)
Chart 10 - Rate Statistics	Table depicting effects of modeled rates on user classes
Chart 11 - Indicators	Financial results that adopting the modeled rates will cause
Chart 12 - Operating Ratio	Graph of operating ratio for next 10 years if modeled rates are adopted
Chart 13 - Coverage Ratio	Graph of coverage ratio for next 10 years if modeled rates are adopted
Chart 14 - 5,000 Gallon Residential User's Bill	Graph of bill for a 5,000 gallon per month residential user for next 10 years at modeled rates (used in grant and loan eligibility determinations)
Chart 15 - Affordability Index	Graph of affordability index of residential user's bill for next 10 years at modeled rates (used in grant and loan eligibility determinations)
Chart 16 - Working Capital	Graph of working capital for next 10 years at modeled rates
Chart 17 - Working Capital and CIP Reserves Discounted for Inflation	Graph of working capital and CIP (capital improvement program) reserves adjusted for inflation for next 10 years at modeled rates
Chart 18 - Current Position	Graph of current position for next 10 years at modeled rates
Chart 19 - Residential Use and Revenues	Graph of usage vs. revenues for next 10 years for single family residential users at modeled rates
Chart 20 - All Other Use and Revenues	Graph of usage vs. revenues for next 10 years for all users except single family residential at modeled rates, if applicable
Chart 21 - Old Rates, New Rates and Changes	Illustrates effects of modeled rates on ratepayers (increases or decreases)
Chart 22 - Test Year Usage	Volume of service used by customers during the test year
Chart 23 - Oversized Meter Surcharges	Revenues generated by charging surcharges based on meter size
Chart 24 - Rates During Test Year	The test year user rate chart
Chart 25 - Reserves, AMHI, Incomes	Reserves available at the start of the test year, Annual Median Household Income data and system incomes for the test year

Index of Charts and Other Results, Continued

Name	What Each is or Does
Chart 26 - Replacement Schedule	Calculation of the annual annuity (yearly savings amount) needed to pay for all equipment replacements as they come due
Equipment Replacement Details Chart	Detailed schedule of equipment replacements for next 20 years, if applicable
Chart 28 - Cost Basis for "Proportional" Rate Structure Calculations	Sumation of test year system costs and calculation of "proportional to use" cost recovery rates for fixed cost and variable cost (cost to produce)
Chart 29 - Test Year Extra Service Fixed Costs	Cost of providing service to units such as apartments and mobile homes when they are not billed separately, if applicable
Chart 30 - Test Year Marginal Fixed Costs	Fixed costs incurred in the course of serving users that are not average customers, if applicable
Chart 31 - Test Year Marginal Variable Costs	Incremental variable costs that would be incurred if the system produced incrementally more volume of service, if applicable
Chart 32 - Test Year Wholesale Customers' Share of Capital Costs	Incremental capital costs that are attributable to wholesale customers, if applicable

Definitions

Affordability Index	The monthly charge for (typically) 5,000 gallons of residential service divided by the median monthly household income for the area served by the system. An index of 1.0, meaning a household pays one percent of its income to pay its bill for 5,000 gallons of service, is generally considered affordable. Affordability index is a primary factor in determining grant and loan eligibility and grant amount.
Capacity Charge, also commonly called an 'Impact Fee' or 'Availability Charge'	A charge that buys a new customer system capacity. This is a charge levied on a new customer that recovers all or part of the capital costs to build capacity to be able to serve that customer's actual or potential demand. This charge may be a few thousand dollars for a residential customer to many thousands of dollars for a large industrial customer.
Capital Improvement Plan or Program (CIP)	A listing of anticipated capital improvements. These are the more expensive items such as water towers, treatment plants and lines, that generally require bond or grant funding. They do not include equipment replacement items.
Capital Improvement Reserves	Cash reserves dedicated to funding the CIP
Comprehensive Rate Analysis	A thorough examination of a system's operating, capital improvement, equipment replacement and all other costs, revenues, current rates, number of users and their use of the system, growth rates and all other issues surrounding the system. This examination will determine how rates and fees should be set in the future to cash-flow the system properly, to build appropriate reserves and to be fair the ratepayers. It also will determine how policies should be adjusted to enable the system to operate well now, operate well in the medium-range future (about 10 years) and prepare for expected and expectable events such as capital improvements and equipment replacement.
Connection Charge	A charge that buys a new customer connection to the system. This charge is levied on a new customer to recover all or part of the costs a system incurs in the course of connecting the new customer to the system. This may include labor costs for staff or others on-site; equipment sold by the system to the new customer for making the connection; equipment, tools and supplies used by system staff for making the connection; and the like. This charge may be a few hundred dollars for a residential customer to thousands of dollars for a large industrial customer.
Conservation (Inclining) Rates	Unit charges that go up as the volume used goes up
Cost to Produce	There are several ways to define cost to produce. Each is acceptable for different purposes. Generally, cost to produce is the total of all variable costs required to get service to a utility's customers during one year divided by the total units of service delivered during that year. In a proportional to use rate structure, this will be the variable cost. See "Cost Calculations" at the bottom of Chart 18.
Cost to Serve Rates	Rates where fixed and variable costs generated by each user class are paid by that class with minimum and unit charges, respectively.
Coverage Ratio (CR)	Incomes and reserves available to pay debt divided by the amount of the debt for that year. Most systems should have a CR of 1.25 or higher.
Current Position	For a year, the sum of all incomes and undedicated reserves minus all current financial obligations for that year. Future obligations (next year's loan payments) and depreciation are not included. Current position is a good measure of overall financial health.
Declining Rates	Rates where unit charges go down as the volume used goes up
Flat Rates	Rates where all users pay exactly the same fee regardless of the volume of service they use
Equivalent Dwelling Unit (EDU)	Based upon number of water using fixtures, average flow, potential flow or similar criteria, the service consumption rate of the average single family home is rated at one EDU. All other types of customers are then compared on this measuring basis and the EDUs are calculated. Generally the purpose of this exercise is to calculate fees that each EDU must pay.
Extra Service Unit	A refinement of the EDU system used to assess a surcharge for each living or business unit within a multiple unit facility; apartments in an apartment complex, shops in a strip mall or a motel rooms in a
Extra Service Unit Costs	Incremental costs incurred, importantly including debt service, to provide service to extra service units. In systems with few extra service units or little debt service, these costs are usually negligible.
Incremental Rate Adjustments	Rate increases done, generally annually, following the initial rate adjustment. The goal of these rate increases is to keep the system's income and reserve levels on track. Rate structure fairness is a small issue, if it is an issue at all. Such increases are usually small, in the two to five percent per year range.

Definitions, Continued

Initial Rate Adjustments	Rate adjustments done in follow up to the comprehensive rate analysis. Generally, the goal of such adjustments is to establish rates that put the system's income and reserve levels on track with the system's financial needs and do it with a structure that is fair to the ratepayers.
Inflow & Infiltration (I&I)	In a sewer system, water that gets into the collection system by way of illicit connections (inflow) such as gutter downspouts and leaks in manholes and sewer lines (infiltration)
Infrastructure	Hard assets, such as water towers, treatment plants and lines needed to provide service to customers connected to the system
Life-cycle Cost	The total cost to design, build, operate, maintain and eventually dispose of an asset. One asset may cost less to build but be more expensive to operate and maintain, yielding a higher life-cycle cost.
Marginal Costs	Those costs associated with producing marginally more service. For example, when a new business moves into the service area the costs to provide that additional level of service will rise incrementally. It usually costs less on a unit of service basis to produce more service. However, in some circumstances, such as when the additional service will require building a new water tower, it actually costs more.
Operating Costs	Definitions vary. For rate setting purposes operating costs are costs incurred because a system is owned and operated. Such costs are generally recovered through user fees.
Operating Revenues	Revenues generated by user fees
Operating Ratio (OR)	Current incomes and undedicated reserves minus current expenses, not including debt. An OR of 1.0 is "break even." Most systems should have an OR of 1.25 or higher.
Payback Period	Time required for the investment made to get this analysis to return that investment through increased user and other fees
Potential Demand	The volume of service that a user could demand for a short period of time at full volume use. The potential demand limiting factor is usually the size of the customer's meter or service line.
Proportional to Use Rates	Rates where the minimum charge recovers all fixed costs, the unit charge recovers all variable costs, the unit charge is the same for all volume sold, and there is no usage allowance in the minimum charge.
Replacement Schedule	A timetable that describes equipment replacement and important repairs that are too infrequent and/or too expensive to cover as annual operating costs but not so expensive that they need to be covered as capital improvements.
Replacement Reserves	Cash reserves used to fund the Replacement Schedule
Return on Investment	The dollar amount or percentage of revenue gain enabled by this analysis
Tap Fee, also called a "Hook up Fee"	A charge that gives a new customer the <u>right</u> to connect to the system. This fee may include the costs of administering the connection program, such as staff time to 'sign up' new customers, get them into the system's billing program, do an inspection of the service connection to assure that it meets the system's standards and the like. This charge is usually minimal for a residential customer and maybe a few thousand dollars for a large industrial customer. Capacity and connection fees are commonly added to tap fees and the total fee is just called a 'tap' fee.
Test Year	The one year period from which data was gathered to be the basis of the rate analysis
Usage Allowance	The volume, if any, that is "given away" with the minimum charge. Most systems give away no volume. Those that give away an unlimited volume have what are called "flat rates."
User Fee, User Charge, User Rates	Fees assessed to customers for use of the system. Does not include tap, capacity or connection fees, late payment penalties or other types of charges.
Water Loss	Measured by volume or percent, the part of a water system's net water production that does not get to customers. This loss also includes billable volume lost due to under-registering customer meters.
Working Capital or Net Income	The amount left in the operating fund after paying all costs due during that month, year or other time period. Working capital of \$0 is "break even."
Working Capital Goal	The desired percentage above "break even" for the operating fund. Small systems (a few hundred connections) generally should target 35 percent or greater. Larger systems can target less, down to a minimum of about 20 percent for systems with 5,000 or more connections but the goal for each system should be based upon the needs of that system.

Hillsboro, MO, Water Rates Scenario 1

Financial Highlights

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This analysis package examines a "proposed rates scenario" that depicts what will happen under the adjusted rates and other changes recommended for the system. The results of this scenario are compared to the results you can expect if you do not adjust rates at all during the 10 years following the test year.

In the following table you can see several key financial benchmarks made possible by the proposed rates. The first column below is the test year, the year from which historical data was used to build the model. The second is the year following the test year - the year during which initial rate adjustments (typically) go into effect. The last two columns are the fifth and tenth years following the test year.

	Results for Years Ending on			
	12/31/10	12/31/11	12/31/15	12/31/20
Rate revenues collected	\$376,977	\$421,977	\$573,678	\$806,871
Sum of incomes	\$397,039	\$427,317	\$580,918	\$815,082
Sum of operating costs	\$334,618	\$313,114	\$360,704	\$443,182
Net income gain or loss (-)	\$62,421	\$114,203	\$220,214	\$371,900
Capital improvement reserves	\$287,219	\$420,145	\$868,088	\$767,209
Replacement reserves	-\$26,000	-\$7,431	\$58,995	\$120,020
Current position*	\$167,309	\$156,557	\$180,352	\$221,591
*All current incomes plus reserves minus all current obligations				
Increase or decrease (-) in total assets, excluding hard assets, due to this analysis	N.A.	-\$11,706	\$1,068,773	\$4,007,213

Return on Investment and Payback Period Calculations

Return on investment due to this analysis, projected one and five years into the future	N.A.	-316%	28890%
Payback period, in days, made possible by this analysis	5		

Return rate and payback period are based upon the following investments:

Fees to Carl Brown Consulting	\$3,200
Estimated value of city staff time and incidentals to assemble needed information	<u>\$500</u>
Total Investment	\$3,700

With the exception of tables that depict test year data, all other tables and charts depict the financial performance made possible by the modeled rate changes. The easiest way to grasp the financial future of the system is to view the line graphs. Another table shows the bills your users are paying now compared to the bills they would pay under the proposed rates scenario.

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Hillsboro, MO, Water Rates Scenario 1

Chart 1 - Proposed Rate Chart

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Starting with bills on and after July 1, 2011 user rates will be as follows:

	Class Bottom Use in Gallons	Class Top Use in Gallons	Minimum Charge per Billing Cycle	Usage Allowance in 1,000 Gallons	Unit Charge This Class per 1,000 Gallons
Inside City	0	999	\$13.75	2.000	\$3.23
	1,000	1,999	\$13.75	2.000	\$3.23
	4,000	4,999	\$13.75	2.000	\$3.23
	5,000	5,999	\$13.75	2.000	\$3.23
	9,000	9,999	\$13.75	2.000	\$3.48
	10,000	14,999	\$13.75	2.000	\$3.48
	90,000	9,999,999	\$13.75	2.000	\$4.26
Outside City	0	999	\$20.62	2.000	\$4.31
	4,000	4,999	\$20.62	2.000	\$4.31
	5,000	5,999	\$20.62	2.000	\$4.31
	9,000	9,999	\$20.62	2.000	\$4.31
	10,000	14,999	\$20.62	2.000	\$4.31
	90,000	9,999,999	\$20.62	2.000	\$4.31
Jefferson College	0	999	\$13.75	2.000	\$3.23
	4,000	4,999	\$13.75	2.000	\$3.23
	5,000	5,999	\$13.75	2.000	\$3.23
	9,000	9,999	\$13.75	2.000	\$3.48
	10,000	14,999	\$13.75	2.000	\$3.48
	90,000	9,999,999	\$13.75	2.000	\$4.26

Hillsboro, MO, Water Rates Scenario 1
 Chart 2 - User Base and Operating Incomes

This chart depicts incomes during the test year, this year and for the next 10 years.

(First year balances and incomes are actual,
 subsequent years are projected.)

	Infla./De- flation (-) Factor	Year Starting 1/1/10	Year Starting 1/1/11	Year Starting 1/1/12	Year Starting 1/1/13	Year Starting 1/1/14	Year Starting 1/1/15	Year Starting 1/1/16	Year Starting 1/1/17	Year Starting 1/1/18	Year Starting 1/1/19	Year Starting 1/1/20
User Base												
Average Users for the Year	NA	1060	1113	1119	1124	1130	1141	1153	1164	1176	1188	1199
Users Added/Lost During the Year	NA	54	6	6	6	11	11	12	12	12	12	12
User Growth/Loss Rate	NA	5.05%	0.50%	0.50%	0.50%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Rate Increases Initiated in Future Years	NA	NA	17.8%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Operating Incomes												
Sales	NA	\$376,977	\$421,977	\$472,168	\$503,001	\$535,847	\$573,678	\$614,179	\$657,540	\$703,963	\$753,662	\$806,871
Reconnection Fees	NA	\$750	\$840	\$939	\$1,001	\$1,066	\$1,141	\$1,222	\$1,308	\$1,401	\$1,499	\$1,605
Tap Fees % Above		\$21,400	\$2,226	\$2,372	\$2,527	\$5,383	\$5,763	\$6,170	\$6,606	\$7,072	\$7,571	\$8,106
Interest	NA	\$4,031	\$1,673	\$1,566	\$1,609	\$1,671	\$1,753	\$1,804	\$1,875	\$1,969	\$2,027	\$2,109
Surcharge Fees	NA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Impact Fees	NA	\$13,900	\$1,446	\$1,453	\$1,461	\$2,936	\$2,965	\$2,995	\$3,025	\$3,055	\$3,086	\$3,116
Miscellaneous	NA	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381	\$1,381
Tap Fees Trans to CIP Reserves	NA	-\$21,400	-\$2,226	-\$2,372	-\$2,527	-\$5,383	-\$5,763	-\$6,170	-\$6,606	-\$7,072	-\$7,571	-\$8,106
Total Regular Income		\$397,039	\$427,317	\$477,508	\$508,452	\$542,900	\$580,918	\$621,580	\$665,129	\$711,768	\$761,655	\$815,082

Hillsboro, MO, Water Rates Scenario 1
 Chart 3 - Operating Costs and Net Income

This chart depicts expenses during the test year, this year and for the next 10 years.

(First year costs and net incomes are actual,
 subsequent years are projected.)

Infla./De- flation (-) Factor	Year Starting 1/1/10	Year Starting 1/1/11	Year Starting 1/1/12	Year Starting 1/1/13	Year Starting 1/1/14	Year Starting 1/1/15	Year Starting 1/1/16	Year Starting 1/1/17	Year Starting 1/1/18	Year Starting 1/1/19	Year Starting 1/1/20
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(Note: Some future costs will experience inflation. Those costs that go up as use goes up are also increased by the growth rate in users and the percentage by which that cost is variable as reported in Chart 4.)

ADMIN SAL, INS, RETIRE, WORK COMP, TAX	4.0%	\$23,398	\$24,333	\$25,307	\$26,319	\$27,372	\$28,467	\$29,605	\$30,790	\$32,021	\$33,302	\$34,634	
OPS SAL, INS, RETIRE, WORK COMP, TAX	4.0%	\$43,453	\$45,191	\$46,998	\$48,878	\$50,833	\$52,867	\$54,981	\$57,181	\$59,468	\$61,847	\$64,320	
PROFESSIONAL SVCS LEGAL W	5.0%	\$294	\$309	\$324	\$340	\$357	\$375	\$394	\$414	\$435	\$456	\$479	
WATER SYSTEM REPAIRS	5.0%	\$32,559	\$34,187	\$35,896	\$37,691	\$39,575	\$41,554	\$43,632	\$45,813	\$48,104	\$50,509	\$53,035	
WATER SYSTEM EQUIPMENT	5.0%	\$54,110	\$40,000	\$42,000	\$44,100	\$46,305	\$48,620	\$51,051	\$53,604	\$56,284	\$59,098	\$62,053	
MISSOURI PRIMACY FEE WATER	1.0%	\$4,698	\$4,745	\$4,792	\$4,840	\$4,889	\$4,937	\$4,987	\$5,037	\$5,087	\$5,138	\$5,189	
DUES & SUBSCRIPTIONS WATER	3.0%	\$454	\$468	\$482	\$496	\$511	\$526	\$542	\$558	\$575	\$592	\$610	
FUEL/OIL - W	5.0%	\$6,066	\$6,369	\$6,687	\$7,022	\$7,373	\$7,742	\$8,129	\$8,535	\$8,962	\$9,410	\$9,880	
INSURANCE WATER	5.0%	\$4,312	\$4,527	\$4,754	\$4,991	\$5,241	\$5,503	\$5,778	\$6,067	\$6,370	\$6,689	\$7,023	
MISC W	5.0%	\$1,593	\$1,673	\$1,756	\$1,844	\$1,936	\$2,033	\$2,135	\$2,242	\$2,354	\$2,471	\$2,595	
POSTAGE - WATER	5.0%	\$1,588	\$1,667	\$1,751	\$1,838	\$1,930	\$2,027	\$2,128	\$2,234	\$2,346	\$2,463	\$2,587	
MATERIALS & SUPPLIES OPS W	5.0%	\$57,552	\$40,000	\$42,000	\$44,100	\$46,305	\$48,620	\$51,051	\$53,604	\$56,284	\$59,098	\$62,053	
REPAIRS-VEHICLES WATER	5.0%	\$5,156	\$5,414	\$5,684	\$5,969	\$6,267	\$6,580	\$6,909	\$7,255	\$7,618	\$7,998	\$8,398	
REPAIRS-EQUIP W	5.0%	\$2,944	\$3,091	\$3,246	\$3,408	\$3,578	\$3,757	\$3,945	\$4,142	\$4,349	\$4,567	\$4,795	
SALES TAX W	1.0%	\$11,390	\$11,504	\$11,619	\$11,735	\$11,853	\$11,971	\$12,091	\$12,212	\$12,334	\$12,457	\$12,582	
SUPPLIES-OFFICE WATER	5.0%	\$1,442	\$1,514	\$1,590	\$1,670	\$1,753	\$1,841	\$1,933	\$2,029	\$2,131	\$2,237	\$2,349	
MATERIALS & SUPPLIES MAINT W	5.0%	\$6,963	\$7,311	\$7,677	\$8,061	\$8,464	\$8,887	\$9,331	\$9,798	\$10,288	\$10,802	\$11,342	
TELEPHONE WATER	5.0%	\$748	\$785	\$824	\$865	\$909	\$954	\$1,002	\$1,052	\$1,104	\$1,160	\$1,218	
UTILITIES WATER	5.0%	\$27,916	\$29,311	\$30,777	\$32,316	\$33,932	\$35,628	\$37,410	\$39,280	\$41,244	\$43,306	\$45,472	
TRAINING WATER	5.0%	\$72	\$76	\$79	\$83	\$88	\$92	\$96	\$101	\$106	\$112	\$117	
UNIFORMS WATER	5.0%	\$1,248	\$1,310	\$1,376	\$1,445	\$1,517	\$1,593	\$1,672	\$1,756	\$1,844	\$1,936	\$2,033	
H&S TO 13 WATER MAIN RPL BUS21	NA	\$535	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Annual Payment to Replacement Fund	0.0%	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	
User Charge Analysis Services	5.0%	\$0	\$3,200	\$0	\$0	\$3,527	\$0	\$0	\$3,889	\$0	\$0	\$4,288	
Bond/Int/Debt Service	0.0%	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	
Total Operating Costs		\$334,618	\$313,114	\$321,749	\$334,141	\$350,644	\$360,704	\$374,932	\$393,722	\$405,437	\$421,779	\$443,182	
Net Income (or Loss)		\$62,421	\$114,203	\$155,759	\$174,311	\$192,257	\$220,214	\$246,648	\$271,407	\$306,331	\$339,876	\$371,900	
Working Capital Goal: 50%		In Dollars, That is:	\$167,309	\$156,557	\$160,874	\$167,070	\$175,322	\$180,352	\$187,466	\$196,861	\$202,719	\$210,890	\$221,591

Hillsboro, MO, Water Rates Scenario 1
 Chart 6 - Capital Improvement Program

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This chart depicts the capital improvements needed for the next 10 years and how they will be paid for. Costs reflect inflation.

	This Year Year Starting 1/1/10	Next Year Year Starting 1/1/11	3rd Year Year Starting 1/1/12	4th Year Year Starting 1/1/13	5th Year Year Starting 1/1/14	6th Year Year Starting 1/1/15	7th Year Year Starting 1/1/16	8th Year Year Starting 1/1/17	9th Year Year Starting 1/1/18	10th Year Year Starting 1/1/19	10th Year Year Starting 1/1/20
CIP Spending Plan											
Capital Improvements to be Paid With Debt											
Water Tank, Main, Deep Well	\$0	\$0	\$0	\$0	\$3,937,024	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Improvements to be Paid With Debt	\$0	\$0	\$0	\$0	\$3,937,024	\$0	\$0	\$0	\$0	\$0	\$0
Capital Improvements to be Paid With Cash											
None	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cap Imprvmts to be Paid With Cash	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total CIP Planned Spending	\$0	\$0	\$0	\$0	\$3,937,024	\$0	\$0	\$0	\$0	\$0	\$0
CIP Funding Plan											
CIP Reserves Carryover Plus Transfers in	\$265,819	\$412,175	\$571,586	\$750,476	\$948,655	\$1,184,516	\$1,107,622	\$1,051,588	\$1,032,881	\$1,044,728	\$1,086,181
CIP Reserves Interest Earned (or Paid)	\$0	\$5,744	\$8,403	\$11,647	\$15,293	\$19,387	\$17,362	\$15,792	\$14,648	\$14,260	\$14,500
Tap Fees Transferred From Net Current Assets to CIP Reserves	\$21,400	\$2,226	\$2,372	\$2,527	\$5,383	\$5,763	\$6,170	\$6,606	\$7,072	\$7,571	\$8,106
Loan Originated in 4th Year					\$3,937,024	\$0	\$0	\$0	\$0	\$0	\$0
Total CIP Fund Sources	\$287,219	\$420,145	\$582,361	\$764,650	\$4,906,355	\$1,209,666	\$1,131,154	\$1,073,985	\$1,054,601	\$1,066,560	\$1,108,787
New Debt Payment Plan											
	Payments for future loans assume 100 percent financing for projects, term of:					20	years and	5.94%	interest		
Loan Originated in 4th Year						\$341,578	\$341,578	\$341,578	\$341,578	\$341,578	\$341,578
Total Debt Payments	\$0	\$0	\$0	\$0	\$0	\$341,578	\$341,578	\$341,578	\$341,578	\$341,578	\$341,578
Total CIP Spending Plus Debt Payments	\$0	\$0	\$0	\$0	\$3,937,024	\$341,578	\$341,578	\$341,578	\$341,578	\$341,578	\$341,578
CIP Reserves Balance	\$287,219	\$420,145	\$582,361	\$764,650	\$969,331	\$868,088	\$789,576	\$732,408	\$713,023	\$724,983	\$767,209

Notes: This plan includes construction of a water tank, main and deep well. It is assumed the project will be funded with market-rate bonds or a lease with an average interest rate as modeled by Provident Capital.

Hillsboro, MO, Water Rates Scenario 1

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Chart 9 - Rate Adjustments and Incomes for Modeling Year 1/1/11 Through 12/31/11

This chart depicts how rates would be set for this scenario.

\$400 Current average connection fee

\$400 Proposed average connection fee

\$400 The part of the proposed average connection fee, above, that will be devoted to future capital improvements

1st rate block multiplier 108%

2nd rate block multiplier 116%

3rd rate block multiplier 124%

4th rate block multiplier 132%

7/1/11 Date when fees will first be collected at adjusted rates. Actual adjustment should occur one billing period earlier.

Compare the rates here with the adjusted rates in the table below. Disregarding special costs, rates are "proportional to use" when there is no usage allowance, the minimum charge is \$7.30 and the unit charge is \$3.23 per 1,000 Gallons.

After rate adjustments are made, general customers will be billed monthly.

Sales to be Billed This Year at Current Rates			Proposed Rates and Sales to be Billed at Those Rates This Year				Total Sales This Year	
Class Bottom Use in Gallons	Class Top Use in Gallons	Revenues at Test Year Rates	New Minimum Charge Base Rates ¹	New Usage Allowance in 1,000 Gallons	New Unit Charge This Class per 1,000 Gallons	Revenues at Proposed Rates	Total Blended Revenues for Modeling Year	
Inside City	0	999	\$5,444	\$13.75	2,000	\$3.23	\$6,932	\$12,376
	1,000	1,999	\$6,278	\$13.75	2,000	\$3.23	\$7,994	\$14,272
	2,000	2,999	\$8,160	\$13.75	2,000	\$3.23	\$10,391	\$18,551
	3,000	3,999	\$12,092	\$13.75	2,000	\$3.23	\$15,094	\$27,185
	4,000	4,999	\$14,405	\$13.75	2,000	\$3.23	\$17,744	\$32,149
	5,000	5,999	\$12,489	\$13.75	2,000	\$3.23	\$15,237	\$27,726
	6,000	6,999	\$11,054	\$13.75	2,000	\$3.48	\$13,390	\$24,444
	7,000	7,999	\$9,137	\$13.75	2,000	\$3.48	\$11,003	\$20,141
	8,000	8,999	\$6,361	\$13.75	2,000	\$3.48	\$7,624	\$13,985
	9,000	9,999	\$4,314	\$13.75	2,000	\$3.48	\$5,152	\$9,466
	10,000	14,999	\$11,055	\$13.75	2,000	\$3.48	\$13,115	\$24,170
	15,000	19,999	\$6,249	\$13.75	2,000	\$3.74	\$7,353	\$13,602
	20,000	24,999	\$3,903	\$13.75	2,000	\$4.00	\$4,572	\$8,474
	25,000	29,999	\$3,926	\$13.75	2,000	\$4.00	\$4,581	\$8,508
	30,000	34,999	\$3,960	\$13.75	2,000	\$4.26	\$4,608	\$8,568
	35,000	39,999	\$3,846	\$13.75	2,000	\$4.26	\$4,459	\$8,304
	40,000	44,999	\$2,782	\$13.75	2,000	\$4.26	\$3,217	\$5,999
	45,000	49,999	\$1,563	\$13.75	2,000	\$4.26	\$1,805	\$3,368
	50,000	54,999	\$1,572	\$13.75	2,000	\$4.26	\$1,812	\$3,385
	55,000	59,999	\$1,733	\$13.75	2,000	\$4.26	\$1,995	\$3,728
60,000	64,999	\$1,508	\$13.75	2,000	\$4.26	\$1,734	\$3,242	
65,000	69,999	\$1,274	\$13.75	2,000	\$4.26	\$1,464	\$2,738	
70,000	74,999	\$1,250	\$13.75	2,000	\$4.26	\$1,436	\$2,686	
75,000	79,999	\$1,027	\$13.75	2,000	\$4.26	\$1,178	\$2,205	
80,000	84,999	\$462	\$13.75	2,000	\$4.26	\$530	\$993	
85,000	89,999	\$827	\$13.75	2,000	\$4.26	\$948	\$1,775	
90,000	9,999,999	\$28,460	\$13.75	2,000	\$4.26	\$32,454	\$60,914	
Outside City	0	999	\$408	\$20.62	2,000	\$4.31	\$520	\$928
	1,000	1,999	\$426	\$20.62	2,000	\$4.31	\$542	\$967
	2,000	2,999	\$808	\$20.62	2,000	\$4.31	\$1,028	\$1,836
	3,000	3,999	\$1,571	\$20.62	2,000	\$4.31	\$1,965	\$3,537
	4,000	4,999	\$2,323	\$20.62	2,000	\$4.31	\$2,869	\$5,192
	5,000	5,999	\$2,646	\$20.62	2,000	\$4.31	\$3,238	\$5,884
	6,000	6,999	\$2,289	\$20.62	2,000	\$4.31	\$2,780	\$5,069
	7,000	7,999	\$2,021	\$20.62	2,000	\$4.31	\$2,441	\$4,462
	8,000	8,999	\$1,471	\$20.62	2,000	\$4.31	\$1,769	\$3,240
	9,000	9,999	\$1,045	\$20.62	2,000	\$4.31	\$1,252	\$2,298
	10,000	14,999	\$2,078	\$20.62	2,000	\$4.31	\$2,473	\$4,551
	15,000	19,999	\$831	\$20.62	2,000	\$4.31	\$980	\$1,811
	20,000	24,999	\$714	\$20.62	2,000	\$4.31	\$838	\$1,552
	25,000	29,999	\$359	\$20.62	2,000	\$4.31	\$420	\$779
	30,000	34,999	\$142	\$20.62	2,000	\$4.31	\$165	\$307
	35,000	39,999	\$156	\$20.62	2,000	\$4.31	\$182	\$337
	45,000	49,999	\$192	\$20.62	2,000	\$4.31	\$223	\$415
	55,000	59,999	\$244	\$20.62	2,000	\$4.31	\$283	\$527
	60,000	64,999	\$264	\$20.62	2,000	\$4.31	\$306	\$571
	65,000	69,999	\$137	\$20.62	2,000	\$4.31	\$159	\$296
70,000	74,999	\$147	\$20.62	2,000	\$4.31	\$170	\$318	
75,000	79,999	\$637	\$20.62	2,000	\$4.31	\$737	\$1,374	
80,000	84,999	\$334	\$20.62	2,000	\$4.31	\$387	\$722	
85,000	89,999	\$183	\$20.62	2,000	\$4.31	\$212	\$395	
90,000	9,999,999	\$1,638	\$20.62	2,000	\$4.31	\$1,894	\$3,532	
Jefferson College	0	999	\$0	\$13.75	2,000	\$3.23	\$0	\$0
	6,000	6,999	\$0	\$13.75	2,000	\$3.48	\$0	\$0
	15,000	19,999	\$63	\$13.75	2,000	\$3.74	\$74	\$137
	20,000	24,999	\$0	\$13.75	2,000	\$4.00	\$0	\$0
	25,000	29,999	\$52	\$13.75	2,000	\$4.00	\$60	\$112
	30,000	34,999	\$0	\$13.75	2,000	\$4.26	\$0	\$0
	50,000	54,999	\$202	\$13.75	2,000	\$4.26	\$233	\$434
	55,000	59,999	\$110	\$13.75	2,000	\$4.26	\$127	\$236
	65,000	69,999	\$132	\$13.75	2,000	\$4.26	\$152	\$284
	75,000	79,999	\$294	\$13.75	2,000	\$4.26	\$338	\$632
80,000	84,999	\$308	\$13.75	2,000	\$4.26	\$354	\$662	
85,000	89,999	\$510	\$13.75	2,000	\$4.26	\$585	\$1,096	
90,000	9,999,999	\$2,111	\$13.75	2,000	\$4.26	\$2,417	\$4,528	
Rate Rev at Current Rates		\$191,980	Rate Rev at Adjusted Rates		\$229,997	Total Blended Rate Revenues for the Year ²		\$421,977

Note 1: If meter size-based minimum charges are being used, the amounts shown in this column are for fixed operating costs only. See the Meter Size-based Minimum Charges chart for the full minimum charges to assess to each meter or connection size class.

Note 2: Blended Rate Revenues for the one-year period 1/1/11 through 12/31/11 assume the following:
6.0 months at the old user charge rates and 6.0 months at the new user charge rates.

Hillsboro, MO, Water Rates Scenario 1
 Chart 10 - Rate Statistics

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This chart shows the equitability of the rates as modeled in the Rate Setting Chart.

If your rates are absolutely proportional to use on a volumetric basis, your % of usage and % of revenues figures will be the same within all the classes. That is not possible if you have any minimum charge.

Normally, the % of usage figure will be lower than the % of revenue for the lower volume classes. That will switch for the higher volume classes. Even for declining rate structures, this switch should occur near the volume of the average residential user, typically near 5,000 gallons/month (668 cu ft).

In urban and suburban areas the average monthly use for residential or general customers can be twice that used by their rural and "old town" counterparts. Use is largely dependent upon who lives in a community. Older people living in longer established neighborhoods tend to use less volume than younger people living in more recently developed areas. Consider this.

Your average residential customer uses 6,768 Gallons per billing cycle.

Compare the % of Usage and % of Revenue for this volume of use, and others, in the chart below to get an idea of how proportional to actual volume use the rates are as proposed in this analysis.

	Class Bottom Use in Gallons	Class Top Use in Gallons	% Users	% Usage	% Rev at Current Rates	% Rev at Proposed Rates
Inside City	0	999	7.39%	0.00%	2.84%	3.01%
	1,000	1,999	8.52%	1.23%	3.27%	3.48%
	2,000	2,999	11.08%	3.19%	4.25%	4.52%
	3,000	3,999	13.04%	5.64%	6.30%	6.56%
	4,000	4,999	12.88%	7.42%	7.50%	7.71%
	5,000	5,999	9.54%	6.87%	6.51%	6.62%
	6,000	6,999	7.37%	6.37%	5.76%	5.82%
	7,000	7,999	5.36%	5.40%	4.76%	4.78%
	8,000	8,999	3.33%	3.83%	3.31%	3.32%
	9,000	9,999	2.04%	2.64%	2.25%	2.24%
	10,000	14,999	4.24%	6.95%	5.76%	5.70%
	15,000	19,999	1.67%	4.03%	3.26%	3.20%
	20,000	24,999	0.80%	2.51%	2.03%	1.99%
	25,000	29,999	0.64%	2.50%	2.05%	1.99%
	30,000	34,999	0.55%	2.49%	2.06%	2.00%
	35,000	39,999	0.45%	2.38%	2.00%	1.94%
	40,000	44,999	0.28%	1.70%	1.45%	1.40%
	45,000	49,999	0.14%	0.95%	0.81%	0.78%
	50,000	54,999	0.13%	0.95%	0.82%	0.79%
	55,000	59,999	0.13%	1.04%	0.90%	0.87%
60,000	64,999	0.10%	0.90%	0.79%	0.75%	
65,000	69,999	0.08%	0.76%	0.66%	0.64%	
70,000	74,999	0.07%	0.74%	0.65%	0.62%	
75,000	79,999	0.06%	0.61%	0.53%	0.51%	
80,000	84,999	0.02%	0.27%	0.24%	0.23%	
85,000	89,999	0.04%	0.48%	0.43%	0.41%	
90,000	9,999,999	0.39%	16.24%	14.82%	14.11%	
			90.33%	88.09%	86.01%	86.01%
Outside City	0	999	0.37%	0.00%	0.21%	0.23%
	1,000	1,999	0.39%	0.06%	0.22%	0.24%
	2,000	2,999	0.73%	0.21%	0.42%	0.45%
	3,000	3,999	1.16%	0.50%	0.82%	0.85%
	4,000	4,999	1.44%	0.83%	1.21%	1.25%
	5,000	5,999	1.42%	1.02%	1.38%	1.41%
	6,000	6,999	1.08%	0.93%	1.19%	1.21%
	7,000	7,999	0.85%	0.86%	1.05%	1.06%
	8,000	8,999	0.56%	0.64%	0.77%	0.77%
	9,000	9,999	0.36%	0.47%	0.54%	0.54%
	10,000	14,999	0.60%	0.97%	1.08%	1.08%
	15,000	19,999	0.17%	0.41%	0.43%	0.43%
	20,000	24,999	0.12%	0.36%	0.37%	0.36%
	25,000	29,999	0.05%	0.19%	0.19%	0.18%
	30,000	34,999	0.02%	0.07%	0.07%	0.07%
	35,000	39,999	0.02%	0.08%	0.08%	0.08%
	45,000	49,999	0.02%	0.10%	0.10%	0.10%
	50,000	54,999	0.00%	0.00%	0.00%	0.00%
	55,000	59,999	0.02%	0.13%	0.13%	0.12%
	60,000	64,999	0.02%	0.14%	0.14%	0.13%
65,000	69,999	0.01%	0.07%	0.07%	0.07%	
70,000	74,999	0.01%	0.08%	0.08%	0.07%	
75,000	79,999	0.03%	0.35%	0.33%	0.32%	
80,000	84,999	0.02%	0.18%	0.17%	0.17%	
85,000	89,999	0.01%	0.10%	0.10%	0.09%	
90,000	9,999,999	0.06%	0.91%	0.85%	0.82%	
			9.48%	9.68%	12.01%	12.10%
Jefferson College	15,000	19,999	0.02%	0.04%	0.03%	0.03%
	25,000	29,999	0.01%	0.03%	0.03%	0.03%
	50,000	54,999	0.02%	0.12%	0.11%	0.10%
	55,000	59,999	0.01%	0.07%	0.06%	0.06%
	65,000	69,999	0.01%	0.08%	0.07%	0.07%
	75,000	79,999	0.02%	0.17%	0.15%	0.15%
	80,000	84,999	0.02%	0.18%	0.16%	0.15%
85,000	89,999	0.02%	0.30%	0.27%	0.25%	
90,000	9,999,999	0.08%	1.23%	1.10%	1.05%	
			0.19%	2.22%	1.97%	1.89%

Hillsboro, MO, Water Rates Scenario 1

Chart 11 - Indicators This chart depicts the affordability of future rates, the financial health of the system and the ending balances in various accounts for 10 years.

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	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting
	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20	1/1/20
Capacity Indicators												
Equivalent Average Monthly Bill Actually Paid by All Customers Throughout the Year	\$29.65	\$31.59	\$35.17	\$37.28	\$39.52	\$41.89	\$44.40	\$47.07	\$49.89	\$52.88	\$56.06	\$56.06
Equivalent Final Monthly Bill for a 5,000 gal per Month In-city Residential User	\$20.01	\$23.43	\$24.84	\$26.33	\$27.91	\$29.58	\$31.35	\$33.24	\$35.23	\$37.34	\$39.58	\$39.58
Annual Median Household Income (AMHI)	\$37,166	\$37,201	\$37,237	\$37,272	\$37,308	\$37,343	\$37,379	\$37,415	\$37,450	\$37,486	\$37,522	\$37,522
Affordability Index for Proposed Rates	0.65%	0.76%	0.80%	0.85%	0.90%	0.95%	1.01%	1.07%	1.13%	1.20%	1.27%	1.27%
Affordability Index is the percent of AMHI needed by a 5,000 gallon per month residential user to pay their bill. Rates near 1.0% are common in the U.S. and are generally considered affordable. Federal grant agencies generally will not consider awarding grants if this indicator is less than 2.0%.												
Estimated Operating Ratio for Proposed Rates	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
1.0 is break even for Operating Ratio. Below 1.0 indicates operating in the "red." Generally, the operating ratio should be at least 1.15 for large systems, 1.30 or more for medium systems and perhaps as high as 2.0 for small systems.												
Estimated Coverage Ratio for Proposed Rates	N.A.	N.A.	N.A.	N.A.	N.A.	3.54	3.31	3.14	3.09	3.12	3.25	3.25
Coverage Ratio applies only to years with debt service. 1.0 is break even. Generally, the coverage ratio should be at least 1.25.												
	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on
	12/31/09	12/31/10	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20
Reserves												
Net Current Assets (Current Position)	\$370,707	\$167,309	\$156,557	\$160,874	\$167,070	\$175,322	\$180,352	\$187,466	\$196,861	\$202,719	\$210,890	\$221,591
CIP Reserves	\$0	\$287,219	\$420,145	\$582,361	\$764,650	\$969,331	\$868,088	\$789,576	\$732,408	\$713,023	\$724,983	\$767,209
Debt Reserves	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Reserves	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Replacement Fund	\$0	-\$26,000	-\$7,431	\$10,279	\$27,367	\$43,626	\$58,995	\$73,405	\$86,788	\$99,070	\$110,174	\$120,020
All Assets Except Hard Assets and R&R, Discounted for Inflation (Future Purchasing Power)	\$370,707	\$454,528	\$576,702	\$713,506	\$858,674	\$1,012,716	\$890,489	\$796,653	\$727,392	\$688,132	\$675,128	\$684,778

Chart 12 - Operating Ratio

Hillsboro, MO

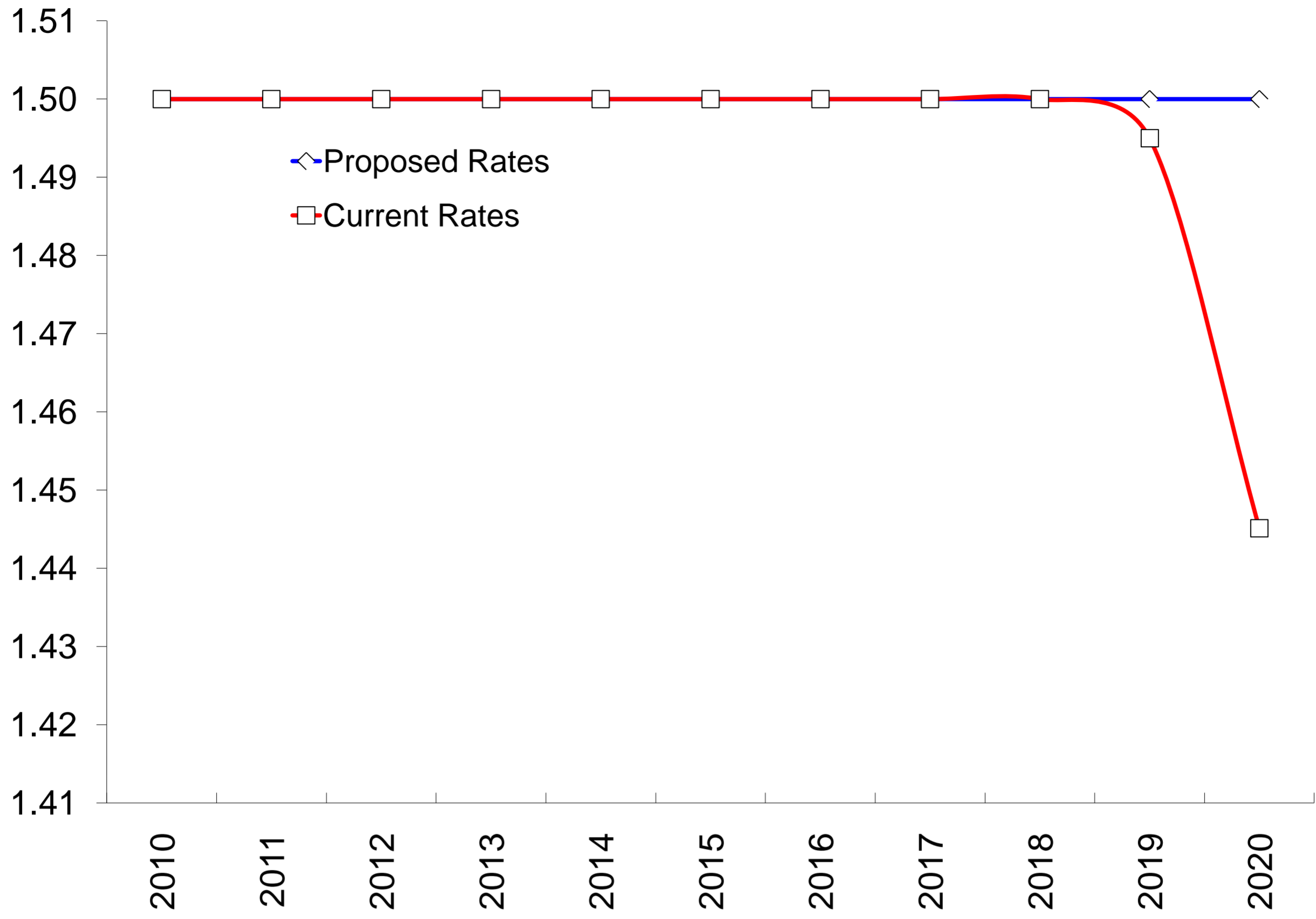


Chart 13 - Coverage Ratio

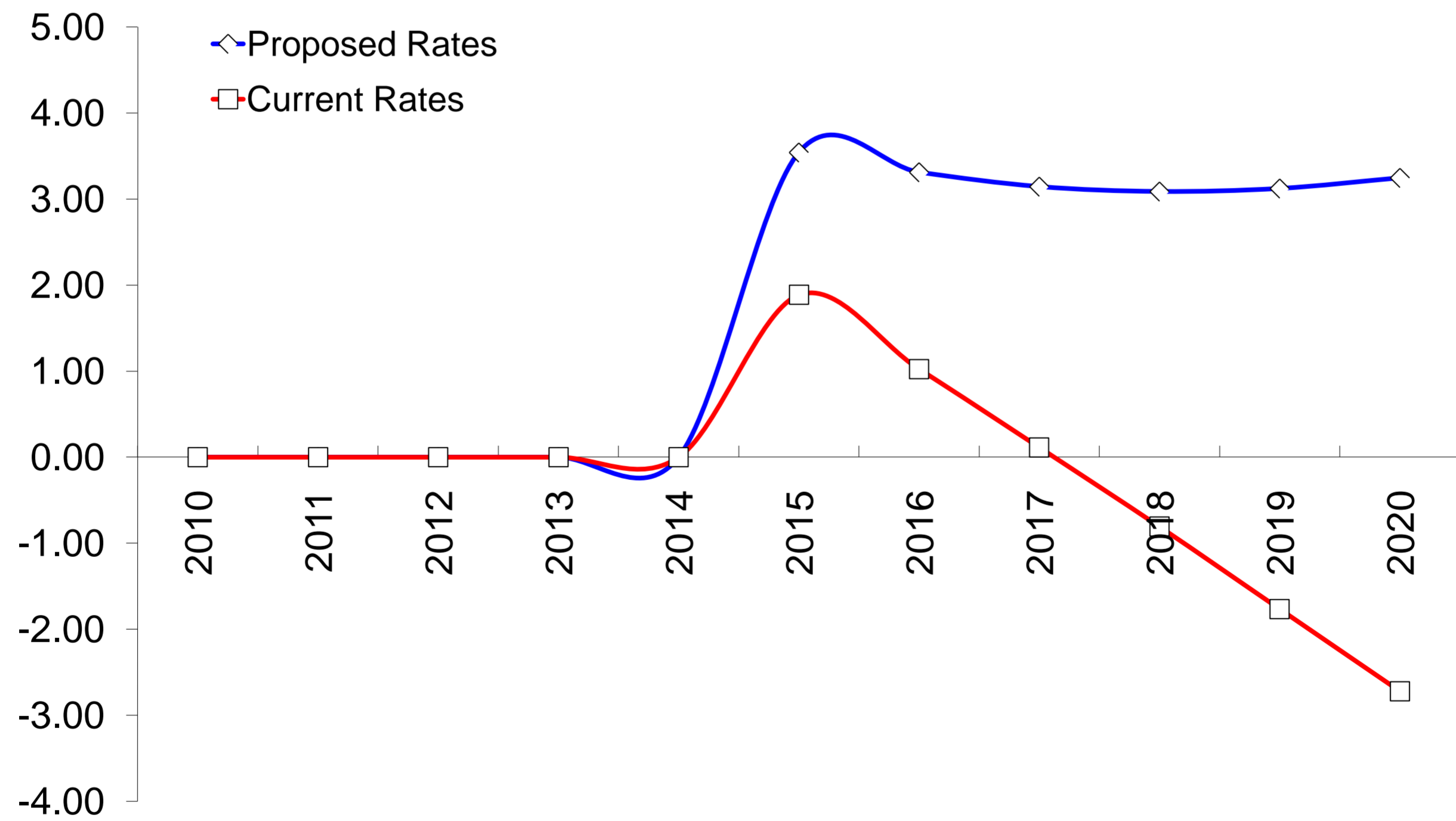


Chart 14 - 5,000 Gal Residential User's Bill

Hillsboro, MO

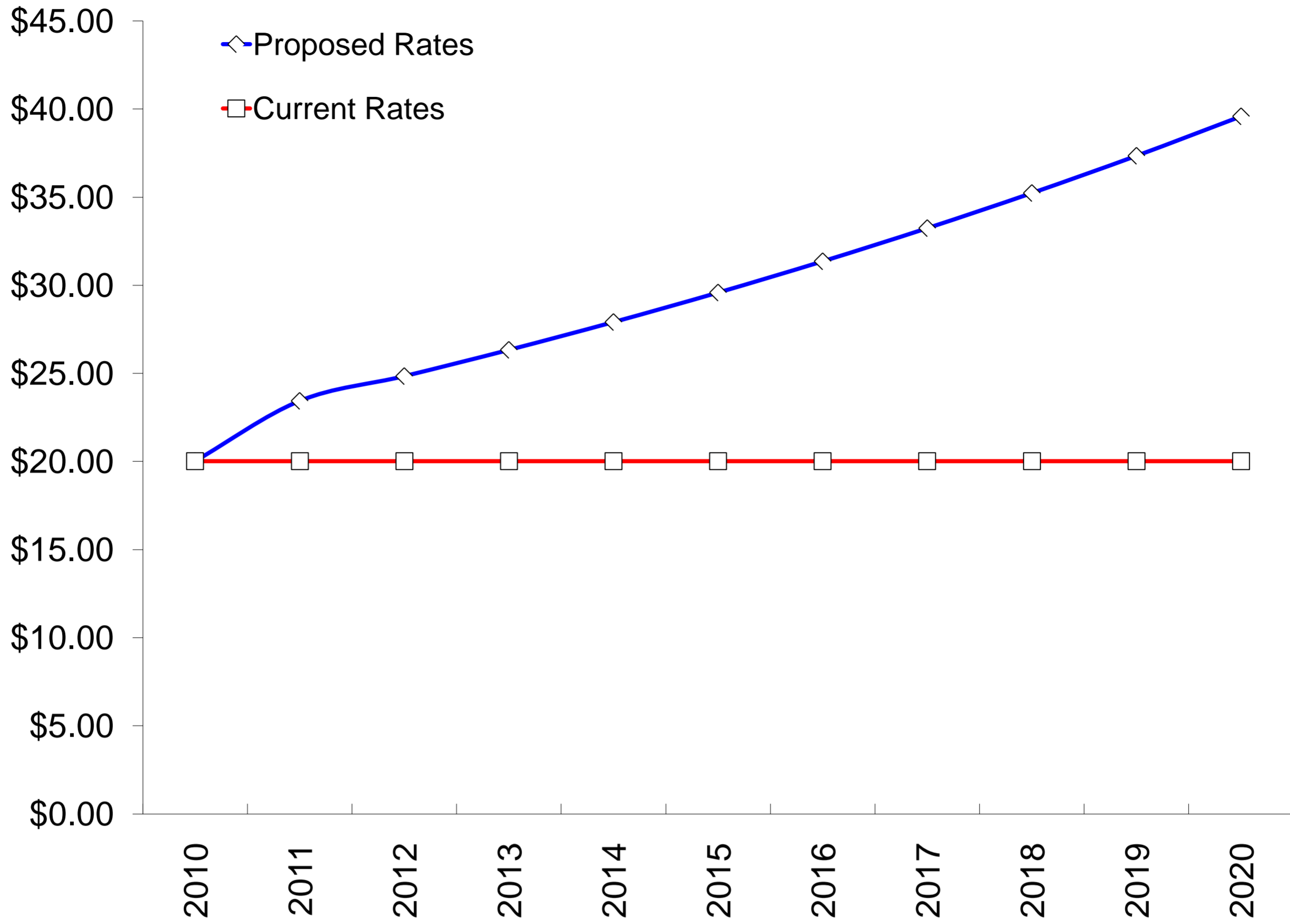


Chart 15 - Affordability Index

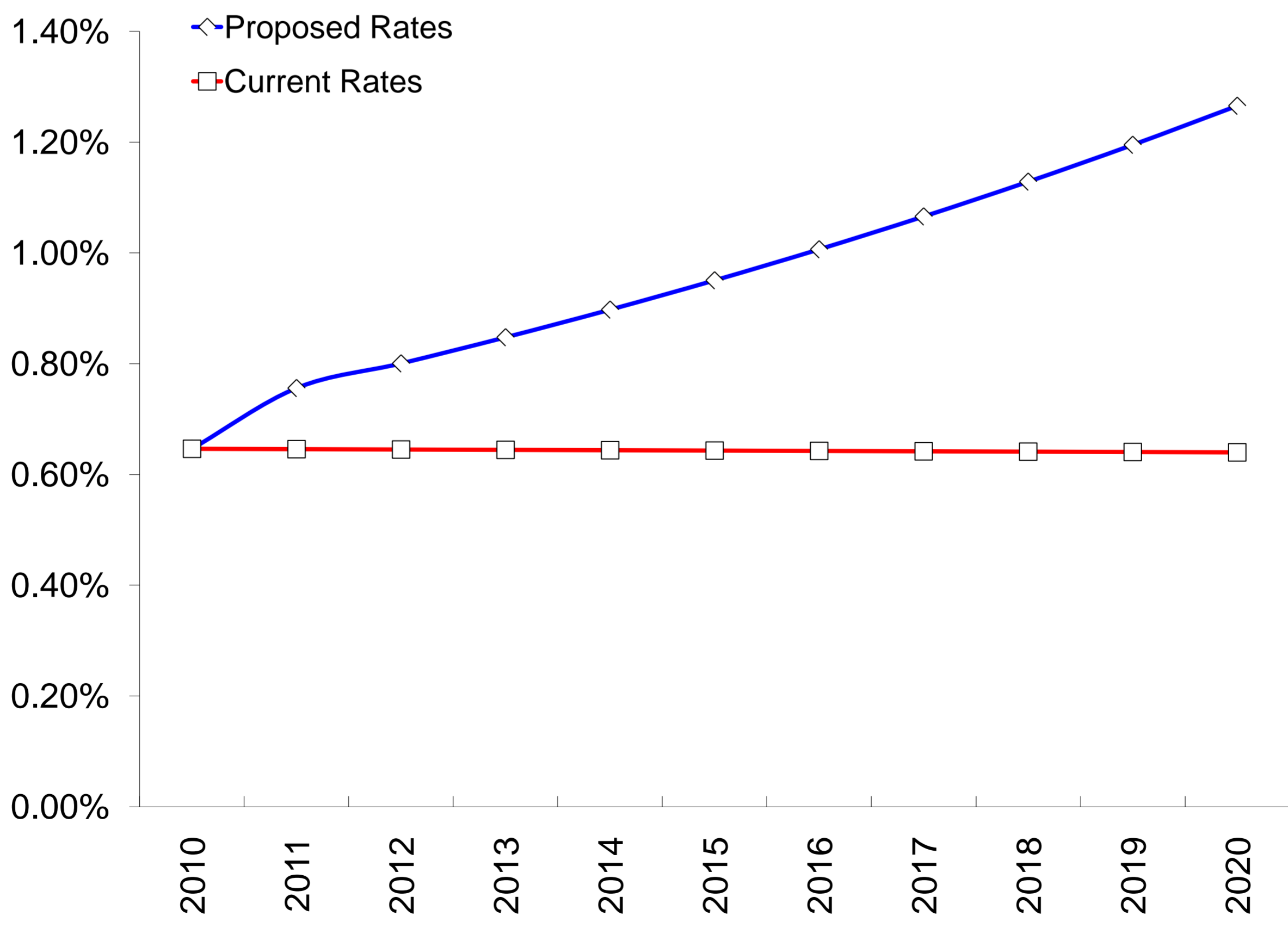


Chart 16 - Working Capital

Hillsboro, MO

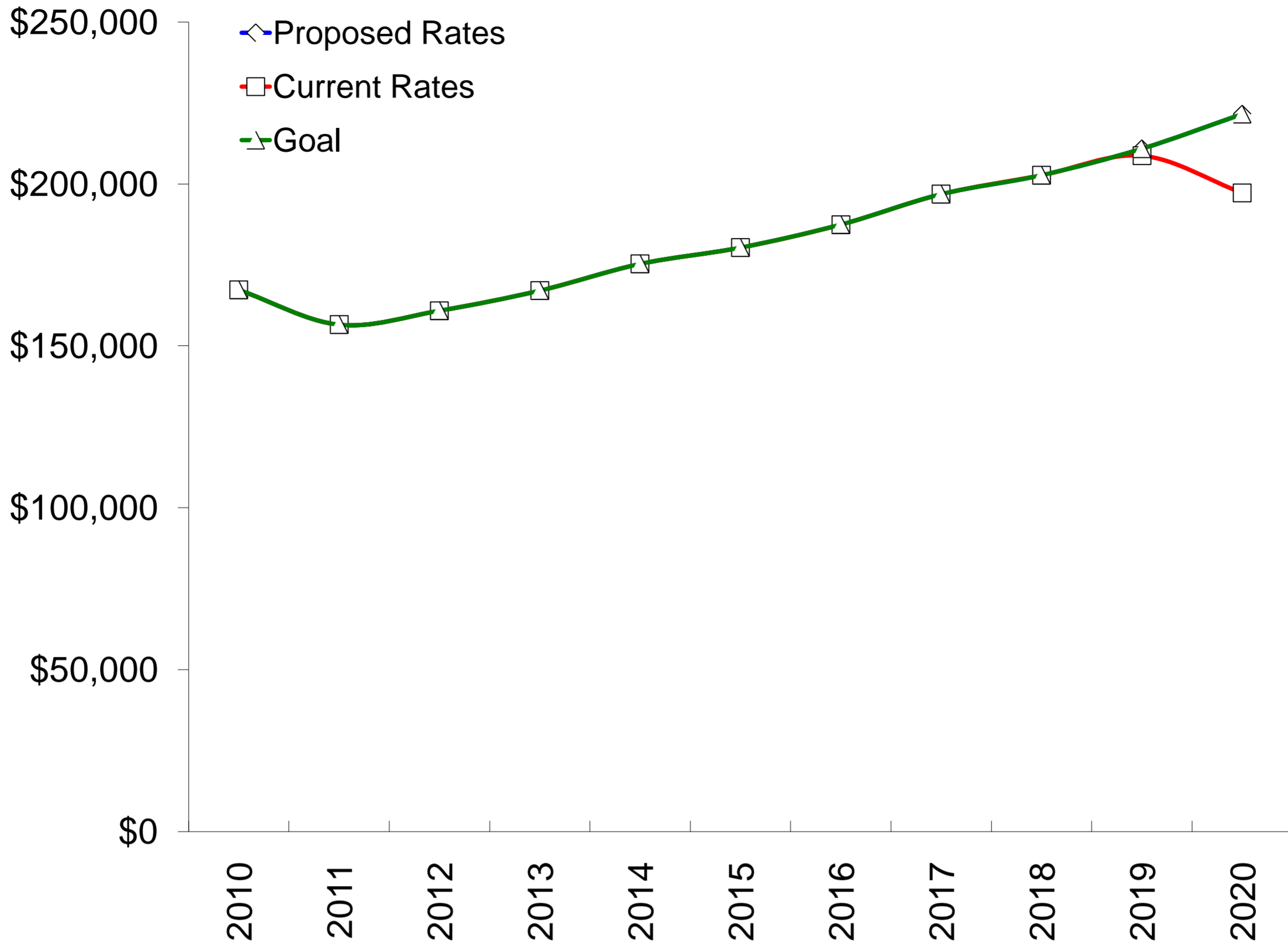


Chart 17 - Future Purchasing Power of Liquid Assets

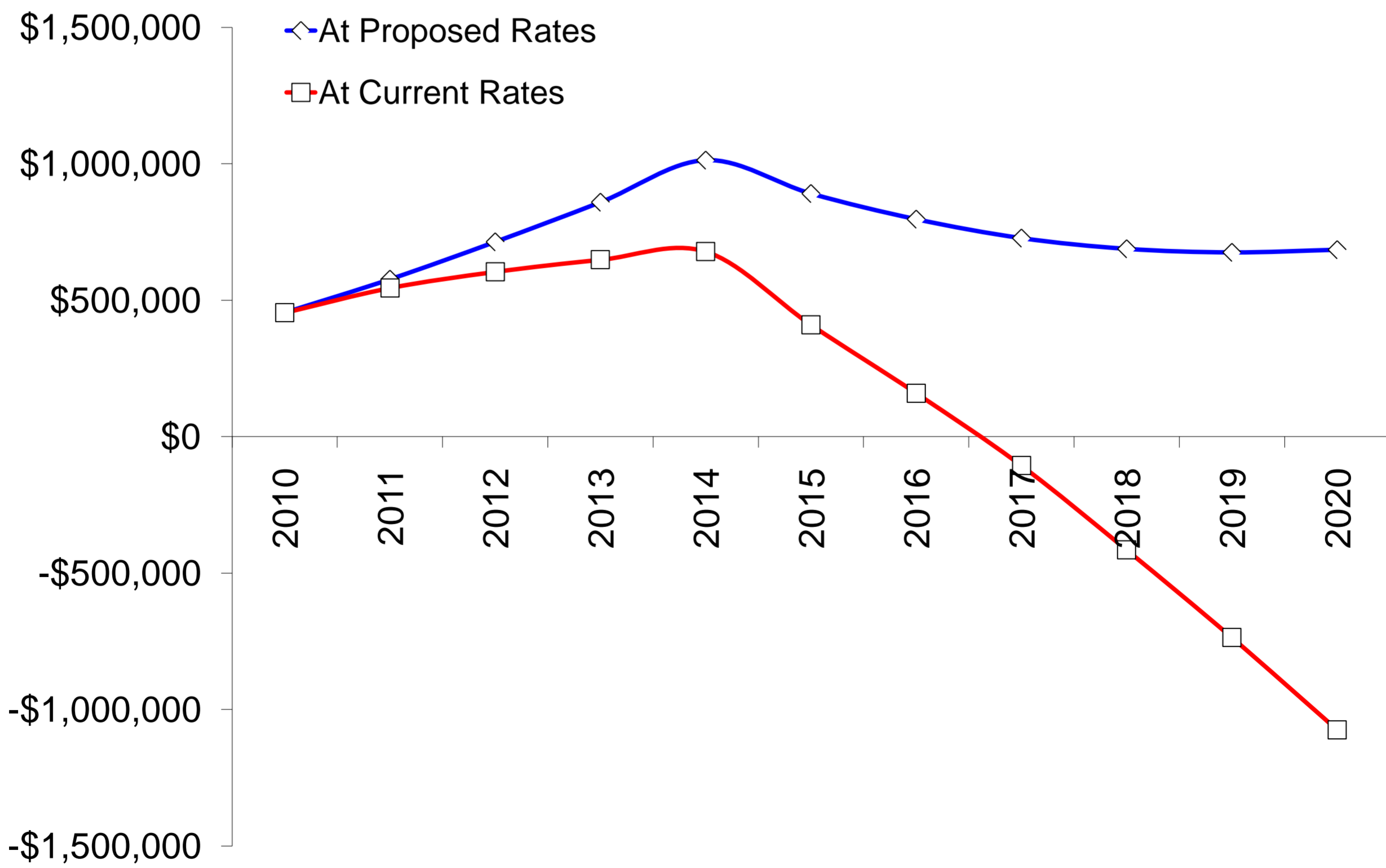
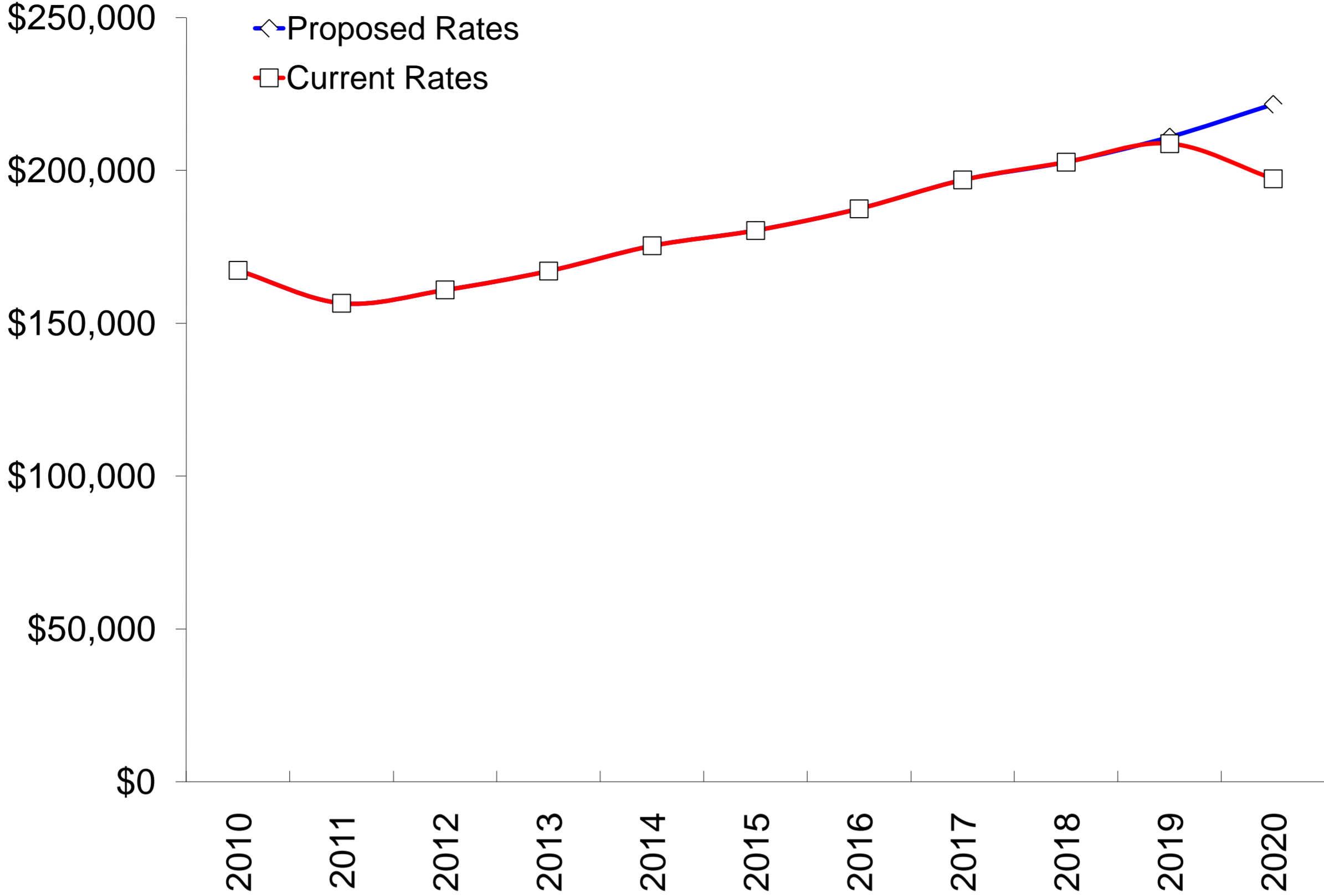


Chart 18 - Current Position



Hillsboro, MO, Water Rates Scenario 1

Chart 21 - Old Rates, New Rates and Changes

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This chart compares current and proposed rates.

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	Current Average Bill	Proposed Average Bill Starting on 7/1/11	Bill Increase or (Decrease) After Rate Adjustment	Percent Increase or Decrease (-) After Rate Adjustment
Inside City	0	999	0.000	\$11.25	\$13.75	\$2.50	22%
	1,000	1,999	1.000	\$11.25	\$13.75	\$2.50	22%
	2,000	2,999	2.000	\$11.25	\$13.75	\$2.50	22%
	3,000	3,999	3.000	\$14.17	\$16.97	\$2.81	20%
	4,000	4,999	4.000	\$17.08	\$20.20	\$3.11	18%
	5,000	5,999	5.000	\$20.00	\$23.42	\$3.42	17%
Outside City	0	999	0.000	\$16.87	\$20.62	\$3.75	22%
	1,000	1,999	1.000	\$16.87	\$20.62	\$3.75	22%
	2,000	2,999	2.000	\$16.87	\$20.62	\$3.75	22%
	3,000	3,999	3.000	\$20.77	\$24.92	\$4.16	20%
	4,000	4,999	4.000	\$24.66	\$29.23	\$4.57	19%
	5,000	5,999	5.000	\$28.56	\$33.53	\$4.98	17%
	6,000	6,999	6.000	\$32.45	\$37.84	\$5.39	17%
	7,000	7,999	7.000	\$36.35	\$42.14	\$5.79	16%
	8,000	8,999	8.000	\$40.25	\$46.45	\$6.20	15%
	9,000	9,999	9.000	\$44.14	\$50.76	\$6.61	15%
	10,000	14,999	11.303	\$53.12	\$60.67	\$7.56	14%
15,000	19,999	16.500	\$73.38	\$83.07	\$9.68	13%	
Jefferson College	0	999	0.500	\$11.25	\$13.75	\$2.50	22%
	5,000	5,999	5.500	\$21.46	\$25.03	\$3.57	17%
	6,000	6,999	6.500	\$24.49	\$28.38	\$3.89	16%
	7,000	7,999	7.500	\$27.64	\$31.87	\$4.23	15%
	8,000	8,999	8.500	\$30.79	\$35.35	\$4.56	15%
	9,000	9,999	9.500	\$33.93	\$38.83	\$4.90	14%
	10,000	14,999	12.500	\$43.38	\$49.28	\$5.90	14%
	15,000	19,999	18.000	\$61.36	\$69.22	\$7.85	13%

Chart 22 - Test Year Usage

One-year period being analyzed starts 1/1/2010

This chart shows usage by all customers during the test year.

Date this scenario created 4/1/2011

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	January-10	February-10	March-10	April-10	May-10	June-10	July-10	August-10	September-10	October-10	November-10	December-10	Average Number Users in Each Class	
Inside City	0	999	0.000	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78	
	1,000	1,999	1.000	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90	
	2,000	2,999	2.000	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117.4	117	
	3,000	3,999	3.000	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138	
	4,000	4,999	4.000	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	137	
	5,000	5,999	5.000	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101	
	6,000	6,999	6.000	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78	
	7,000	7,999	7.000	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	57	
	8,000	8,999	8.000	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35	
	9,000	9,999	9.000	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	22	
	10,000	14,999	11.377	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	45
	15,000	19,999	16.783	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	18
	20,000	24,999	21.716	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9
	25,000	29,999	26.866	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	7
	30,000	34,999	31.414	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	6
	35,000	39,999	36.842	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	5
	40,000	44,999	41.722	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3
	45,000	49,999	46.500	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2
	50,000	54,999	52.188	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1
	55,000	59,999	57.188	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1
60,000	64,999	61.000	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1	
65,000	69,999	66.700	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	
70,000	74,999	72.444	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	
75,000	79,999	76.286	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1	
80,000	84,999	80.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0	
85,000	89,999	85.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0	
90,000	9,999,999	292.551	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4	
Subtotal:															957		

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	January-10	February-10	March-10	April-10	May-10	June-10	July-10	August-10	September-10	October-10	November-10	December-10	Average Number Users in Each Class
Outside City	0	999	0.000	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4
	1,000	1,999	1.000	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4
	2,000	2,999	2.000	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	8
	3,000	3,999	3.000	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12
	4,000	4,999	4.000	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15
	5,000	5,999	5.000	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15
	6,000	6,999	6.000	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11
	7,000	7,999	7.000	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9
	8,000	8,999	8.000	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6
	9,000	9,999	9.000	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4
	10,000	14,999	11.303	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6
	15,000	19,999	16.500	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2
	20,000	24,999	21.400	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1
	25,000	29,999	27.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
	30,000	34,999	33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	35,000	39,999	36.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	45,000	49,999	45.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	55,000	59,999	58.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	60,000	64,999	63.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	65,000	69,999	66.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
70,000	74,999	71.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	
75,000	79,999	77.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0	
80,000	84,999	81.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0	
85,000	89,999	89.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	
90,000	9,999,999	114.286	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1	
															Subtotal:	101
Jefferson College	15,000	19,999	18.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	25,000	29,999	29.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
	50,000	54,999	53.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	55,000	59,999	58.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
	65,000	69,999	69.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
	75,000	79,999	76.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	80,000	84,999	80.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
	85,000	89,999	88.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
90,000	9,999,999	108.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	
															Subtotal:	2
															Total:	1,060

Hillsboro, MO

Chart 24 - Rates During Test Year

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This chart shows user rates for the test year.

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	Base Minimum Charge	Usage Allowance in 1,000 Gallons	Unit Charge This Class per 1,000 Gallons
Inside City	0	999	0.000	\$11.25	2.000	\$2.92
	1,000	1,999	1.000	\$11.25	2.000	\$2.92
	2,000	2,999	2.000	\$11.25	2.000	\$2.92
	3,000	3,999	3.000	\$11.25	2.000	\$2.92
	4,000	4,999	4.000	\$11.25	2.000	\$2.92
	5,000	5,999	5.000	\$11.25	2.000	\$2.92
	6,000	6,999	6.000	\$11.25	2.000	\$3.15
	7,000	7,999	7.000	\$11.25	2.000	\$3.15
	8,000	8,999	8.000	\$11.25	2.000	\$3.15
	9,000	9,999	9.000	\$11.25	2.000	\$3.15
	10,000	14,999	11.377	\$11.25	2.000	\$3.15
	15,000	19,999	16.783	\$11.25	2.000	\$3.37
	20,000	24,999	21.716	\$11.25	2.000	\$3.63
	25,000	29,999	26.866	\$11.25	2.000	\$3.63
	30,000	34,999	31.414	\$11.25	2.000	\$3.90
	90,000	9,999,999	292.551	\$11.25	2.000	\$3.90
Outside City	0	999	0.000	\$16.87	2.000	\$3.90
	1,000	1,999	1.000	\$16.87	2.000	\$3.90
	85,000	89,999	89.000	\$16.87	2.000	\$3.90
	90,000	9,999,999	114.286	\$16.87	2.000	\$3.90
Jefferson College	0	999	0.500	\$11.25	2.000	\$2.92
	1,000	1,999	1.500	\$11.25	2.000	\$2.92
	2,000	2,999	2.500	\$11.25	2.000	\$2.92
	3,000	3,999	3.500	\$11.25	2.000	\$2.92
	4,000	4,999	4.500	\$11.25	2.000	\$2.92
	5,000	5,999	5.500	\$11.25	2.000	\$2.92
	6,000	6,999	6.500	\$11.25	2.000	\$3.15
	7,000	7,999	7.500	\$11.25	2.000	\$3.15
	8,000	8,999	8.500	\$11.25	2.000	\$3.15
	9,000	9,999	9.500	\$11.25	2.000	\$3.15
	10,000	14,999	12.500	\$11.25	2.000	\$3.15
	15,000	19,999	18.000	\$11.25	2.000	\$3.37
	20,000	24,999	22.500	\$11.25	2.000	\$3.63
	25,000	29,999	29.000	\$11.25	2.000	\$3.63
	30,000	34,999	32.500	\$11.25	2.000	\$3.90
	90,000	9,999,999	108.400	\$11.25	2.000	\$3.90

Hillsboro, MO, Water Rates Scenario 1

Chart 26 - Replacement Schedule

Replacement Scheduler© Version 1.4

This schedule calculates the annual annuity to fund all replacement and refurbishment from the detailed schedule, if that was used. Otherwise, it includes assumed equipment replacement needs.

- 4.00% Average Inflation Rate for the Following Water System Equipment for the Term of This Replacement Schedule
- 2.00% Average Interest Rate on Balances Invested for the Term of This Replacement Schedule
- 4.00% Average Interest Rate on Amounts Borrowed for the Term of This Replacement Schedule

Year Beginning	Item Description	This Year's Costs in Current Dollars	One-time Transfers From Operating Fund	One-time Transfers to Operating Fund	End of Year Balance in Future Dollars	Minimum Desired End of Year Balance in Future Dollars
1/1/10	Test year replacements	\$26,000	\$0	\$0	-\$26,000	\$58,500
1/1/11	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	-\$7,431	\$60,840
1/1/12	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$10,279	\$63,274
1/1/13	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$27,367	\$65,805
1/1/14	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$43,626	\$68,437
1/1/15	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$58,995	\$71,174
1/1/16	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$73,405	\$74,021
1/1/17	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$86,788	\$76,982
1/1/18	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$99,070	\$80,061
1/1/19	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$110,174	\$83,264
1/1/20	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$120,020	\$86,594
1/1/21	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$128,523	\$90,058
1/1/22	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$135,595	\$93,660
1/1/23	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$141,144	\$97,407
1/1/24	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$145,072	\$101,303
1/1/25	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$147,278	\$105,355
1/1/26	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$147,655	\$109,569
1/1/27	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$146,091	\$113,952
1/1/28	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$142,471	\$118,510
1/1/29	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$136,671	\$123,251
1/1/30	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$128,564	\$128,181

Notes: R&R has been costing approximately \$26,000/year. This schedule assumes that will continue except costs will inflate and the ending balance should be 1.5 times greater than the average annual R&R expense. The required annual deposit was calculated accordingly.

Starting Account Balance	\$0	\$58,500
Minimum Annual Annuity	\$40,829	Minimum Desired Balance in Today's Dollars
Discretionary Annuity	\$5,300	

Required Annual Deposit to Replacement Account \$46,129

This chart distributes costs to fixed and variable categories (see Definitions) and calculates the "proportional to use" rate structure basis of that cost breakdown. All costs shown here are the 2010 actual amounts except for amounts for production electricity and commodities. Those are from 2006, the last full year when the rural water districts purchased water from La Cygne. Those items are highlighted green.

Operating Costs

Item	Full Costs	% of Each Cost That is Fixed	Full Fixed Costs	Full Variable Costs	Regular* Fixed Costs	Regular* Variable Costs
ADMIN SAL, INS, RETIRE, WORK COMP, TAX	\$23,398	100.0%	\$23,398	\$0	\$23,398	\$0
OPS SAL, INS, RETIRE, WORK COMP, TAX	\$43,453	25.0%	\$10,863	\$32,589	\$10,863	\$32,589
PROFESSIONAL SVCS LEGAL W	\$294	100.0%	\$294	\$0	\$294	\$0
WATER SYSTEM REPAIRS	\$32,559	0.0%	\$0	\$32,559	\$0	\$32,559
WATER SYSTEM EQUIPMENT	\$54,110	0.0%	\$0	\$54,110	\$0	\$54,110
MISSOURI PRIMACY FEE WATER	\$4,698	100.0%	\$4,698	\$0	\$4,698	\$0
DUES & SUBSCRIPTIONS WATER	\$454	100.0%	\$454	\$0	\$454	\$0
FUEL/OIL - W	\$6,066	0.0%	\$0	\$6,066	\$0	\$6,066
INSURANCE WATER	\$4,312	100.0%	\$4,312	\$0	\$4,312	\$0
MISC W	\$1,593	100.0%	\$1,593	\$0	\$1,593	\$0
POSTAGE - WATER	\$1,588	100.0%	\$1,588	\$0	\$1,588	\$0
MATERIALS & SUPPLIES OPS W	\$57,552	25.0%	\$14,388	\$43,164	\$14,388	\$43,164
REPAIRS-VEHICLES WATER	\$5,156	25.0%	\$1,289	\$3,867	\$1,289	\$3,867
REPAIRS-EQUIP W	\$2,944	25.0%	\$736	\$2,208	\$736	\$2,208
SALES TAX W	\$11,390	40.2%	\$4,576	\$6,814	\$4,576	\$6,814
SUPPLIES-OFFICE WATER	\$1,442	100.0%	\$1,442	\$0	\$1,442	\$0
MATERIALS & SUPPLIES MAINT W	\$6,963	0.0%	\$0	\$6,963	\$0	\$6,963
TELEPHONE WATER	\$748	100.0%	\$748	\$0	\$748	\$0
UTILITIES WATER	\$27,916	0.0%	\$0	\$27,916	\$0	\$27,916
TRAINING WATER	\$72	25.0%	\$18	\$54	\$18	\$54
UNIFORMS WATER	\$1,248	25.0%	\$312	\$936	\$312	\$936
H&S TO 13 WATER MAIN RPL BUS21	\$535	0.0%	\$0	\$535	\$0	\$535
Annual Payment to Replacement Fund	\$46,129	25.0%	\$11,532	\$34,597	\$11,532	\$34,597
User Charge Analysis Services	\$0	100.0%	\$0	\$0	\$0	\$0
Bond/Int/Debt Service	\$0	25.0%	\$0	\$0	\$0	\$0
Grand Total All Costs	\$334,618		\$82,240	\$252,377	\$82,240	\$252,377
			\$334,618		\$334,618	

* "Regular" costs are those caused by "regular" customers, not extraordinary customers. If marginal costs will be assessed to extraordinary customers, the regular fixed and variable costs will be the full fixed and variable costs minus the marginal fixed and variable costs, respectively from charts 30 and 31.

"Proportional to Use" Rate Structure Cost Basis

Fixed Cost/User/Month =	\$6.47
Variable Costs (Cost to Produce)/1,000 Gallons Sold =	\$2.86
Gallons/Billing Cycle Used by General Customer =	6,768

Surchargeable Services are Estimated at	\$0
Water Loss is Estimated at	22%
Percentage of Water Loss to Allocate to Fixed Costs is	0%
Cost of Water Loss is Estimated at	90%
Resulting Cost of Water Loss	\$44,517
Test Year Usage Metered Through Customer Meters (in Gallons)	88,248,029
+ Test Year Water Loss	24,567,371
= Total Test Year Volume	112,815,400

Hillsboro, MO, Sewer Rates Scenario 1

Rate Analysis Modeling Results

It is the intent of Carl Brown Consulting to help clients set user rates that are adequate to pay all reasonably expectable costs and accomplish this goal by charging rates that are fairly structured and appropriately simple or complex.

This analysis model assumes initial rate adjustments as reflected in Chart 1. Annually thereafter rates will be increased as shown near the top of Chart 2. The model compares the system's financial outlook under the proposed rates with the outlook if no adjustments are made. This makes it easy to understand the outcome of the proposed changes compared to the "status quo."

For most, the best way to read and understand what this model means is this. Scan the "Index of Charts and Other Results" to see how the model is laid out. Scan the "Definitions" for any terms you are not already familiar with. Read and even ponder Chart 1 and the line graph charts. These will show you how the proposed rate adjustments will affect ratepayers and the system. If you need more detail than that, review the entire model. Finally, rate setting involves much more than just rates so you need to read the accompanying narrative report to understand what you need to do and why.

Several tables in this model depict volume usage and user rates for the various customer classes. The model includes a continuum of volumes but many volume categories had no users or use. Most of these lines have been hidden simply to make the tables less cumbersome. However, all volume classes that had use or that are break points for rate blocks are shown. For volume classes that are not shown, rates will be the same as the previous rate that is shown.

May 26, 2011

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Hillsboro, MO, Sewer Rates Scenario 1

Index of Charts and Other Results

Note: Only the most complex conditions require use of all of the charts described below.

Name	What Each is or Does
Definitions	The meaning of terms used in this report and in rate setting generally
Financial Highlights	A summary of financial outcomes produced by the proposed rates
Chart 1 - Proposed Rate Chart	User rates proposed in this model for each user class
Chart 2 - User Base and Operating Incomes	Basic user base and user rate statistics and operating revenues, projected for next 10 years, based upon adopting modeled rates
Chart 3 - Operating Costs and Net	Operating costs projected for next 10 years, excluding debt service
Chart 4 - New Connections Cost	Costs for making new connections, if applicable
Chart 5 - Meter-size Based Connection Fees	Calculation of average tap fee and total tap fee revenues for the year following the test year, if applicable
Chart 6 - Capital Improvement Program	Capital improvements and how they will be paid over next 10 years, including debt service
Chart 7 - Potential Demand-based Annualized CIP Costs	Cost of facilities needed to satisfy potential flow demand, if applicable
Chart 8 - Potential Demand Minimum Charges Based on Meter Size	Surcharges to apply to minimum charges, based upon meter size or similar criteria, that will recoup part or all of the costs incurred to provide high-flow capacity, if applicable
Chart 9 - Rate Adjustments and Incomes for Modeling Year	Current rates, proposed (modeled) rates and blended revenues they will produce during the year following the test year (usually this year in real time)
Chart 10 - Rate Statistics	Table depicting effects of modeled rates on user classes
Chart 11 - Indicators	Financial results that adopting the modeled rates will cause
Chart 12 - Operating Ratio	Graph of operating ratio for next 10 years if modeled rates are adopted
Chart 13 - Coverage Ratio	Graph of coverage ratio for next 10 years if modeled rates are adopted
Chart 14 - 5,000 Gallon Residential User's Bill	Graph of bill for a 5,000 gallon per month residential user for next 10 years at modeled rates (used in grant and loan eligibility determinations)
Chart 15 - Affordability Index	Graph of affordability index of residential user's bill for next 10 years at modeled rates (used in grant and loan eligibility determinations)
Chart 16 - Working Capital	Graph of working capital for next 10 years at modeled rates
Chart 17 - Working Capital and CIP Reserves Discounted for Inflation	Graph of working capital and CIP (capital improvement program) reserves adjusted for inflation for next 10 years at modeled rates
Chart 18 - Current Position	Graph of current position for next 10 years at modeled rates
Chart 19 - Residential Use and Revenues	Graph of usage vs. revenues for next 10 years for single family residential users at modeled rates
Chart 20 - All Other Use and Revenues	Graph of usage vs. revenues for next 10 years for all users except single family residential at modeled rates, if applicable
Chart 21 - Old Rates, New Rates and Changes	Illustrates effects of modeled rates on ratepayers (increases or decreases)
Chart 22 - Test Year Usage	Volume of service used by customers during the test year
Chart 23 - Oversized Meter Surcharges	Revenues generated by charging surcharges based on meter size
Chart 24 - Rates During Test Year	The test year user rate chart
Chart 25 - Reserves, AMHI, Incomes	Reserves available at the start of the test year, Annual Median Household Income data and system incomes for the test year

Index of Charts and Other Results, Continued

Name	What Each is or Does
Chart 26 - Replacement Schedule	Calculation of the annual annuity (yearly savings amount) needed to pay for all equipment replacements as they come due
Equipment Replacement Details Chart	Detailed schedule of equipment replacements for next 20 years, if applicable
Chart 28 - Cost Basis for "Proportional" Rate Structure Calculations	Sumation of test year system costs and calculation of "proportional to use" cost recovery rates for fixed cost and variable cost (cost to produce)
Chart 29 - Test Year Extra Service Fixed Costs	Cost of providing service to units such as apartments and mobile homes when they are not billed separately, if applicable
Chart 30 - Test Year Marginal Fixed Costs	Fixed costs incurred in the course of serving users that are not average customers, if applicable
Chart 31 - Test Year Marginal Variable Costs	Incremental variable costs that would be incurred if the system produced incrementally more volume of service, if applicable
Chart 32 - Test Year Wholesale Customers' Share of Capital Costs	Incremental capital costs that are attributable to wholesale customers, if applicable

Definitions

Affordability Index	The monthly charge for (typically) 5,000 gallons of residential service divided by the median monthly household income for the area served by the system. An index of 1.0, meaning a household pays one percent of its income to pay its bill for 5,000 gallons of service, is generally considered affordable. Affordability index is a primary factor in determining grant and loan eligibility and grant amount.
Capacity Charge, also commonly called an 'Impact Fee' or 'Availability Charge'	A charge that buys a new customer system capacity. This is a charge levied on a new customer that recovers all or part of the capital costs to build capacity to be able to serve that customer's actual or potential demand. This charge may be a few thousand dollars for a residential customer to many thousands of dollars for a large industrial customer.
Capital Improvement Plan or Program (CIP)	A listing of anticipated capital improvements. These are the more expensive items such as water towers, treatment plants and lines, that generally require bond or grant funding. They do not include equipment replacement items.
Capital Improvement Reserves	Cash reserves dedicated to funding the CIP
Comprehensive Rate Analysis	A thorough examination of a system's operating, capital improvement, equipment replacement and all other costs, revenues, current rates, number of users and their use of the system, growth rates and all other issues surrounding the system. This examination will determine how rates and fees should be set in the future to cash-flow the system properly, to build appropriate reserves and to be fair the ratepayers. It also will determine how policies should be adjusted to enable the system to operate well now, operate well in the medium-range future (about 10 years) and prepare for expected and expectable events such as capital improvements and equipment replacement.
Connection Charge	A charge that buys a new customer connection to the system. This charge is levied on a new customer to recover all or part of the costs a system incurs in the course of connecting the new customer to the system. This may include labor costs for staff or others on-site; equipment sold by the system to the new customer for making the connection; equipment, tools and supplies used by system staff for making the connection; and the like. This charge may be a few hundred dollars for a residential customer to thousands of dollars for a large industrial customer.
Conservation (Inclining) Rates	Unit charges that go up as the volume used goes up
Cost to Produce	There are several ways to define cost to produce. Each is acceptable for different purposes. Generally, cost to produce is the total of all variable costs required to get service to a utility's customers during one year divided by the total units of service delivered during that year. In a proportional to use rate structure, this will be the variable cost. See "Cost Calculations" at the bottom of Chart 18.
Cost to Serve Rates	Rates where fixed and variable costs generated by each user class are paid by that class with minimum and unit charges, respectively.
Coverage Ratio (CR)	Incomes and reserves available to pay debt divided by the amount of the debt for that year. Most systems should have a CR of 1.25 or higher.
Current Position	For a year, the sum of all incomes and undedicated reserves minus all current financial obligations for that year. Future obligations (next year's loan payments) and depreciation are not included. Current position is a good measure of overall financial health.
Declining Rates	Rates where unit charges go down as the volume used goes up
Flat Rates	Rates where all users pay exactly the same fee regardless of the volume of service they use
Equivalent Dwelling Unit (EDU)	Based upon number of water using fixtures, average flow, potential flow or similar criteria, the service consumption rate of the average single family home is rated at one EDU. All other types of customers are then compared on this measuring basis and the EDUs are calculated. Generally the purpose of this exercise is to calculate fees that each EDU must pay.
Extra Service Unit	A refinement of the EDU system used to assess a surcharge for each living or business unit within a multiple unit facility; apartments in an apartment complex, shops in a strip mall or a motel rooms in a
Extra Service Unit Costs	Incremental costs incurred, importantly including debt service, to provide service to extra service units. In systems with few extra service units or little debt service, these costs are usually negligible.
Incremental Rate Adjustments	Rate increases done, generally annually, following the initial rate adjustment. The goal of these rate increases is to keep the system's income and reserve levels on track. Rate structure fairness is a small issue, if it is an issue at all. Such increases are usually small, in the two to five percent per year range.

Definitions, Continued

Initial Rate Adjustments	Rate adjustments done in follow up to the comprehensive rate analysis. Generally, the goal of such adjustments is to establish rates that put the system's income and reserve levels on track with the system's financial needs and do it with a structure that is fair to the ratepayers.
Inflow & Infiltration (I&I)	In a sewer system, water that gets into the collection system by way of illicit connections (inflow) such as gutter downspouts and leaks in manholes and sewer lines (infiltration)
Infrastructure	Hard assets, such as water towers, treatment plants and lines needed to provide service to customers connected to the system
Life-cycle Cost	The total cost to design, build, operate, maintain and eventually dispose of an asset. One asset may cost less to build but be more expensive to operate and maintain, yielding a higher life-cycle cost.
Marginal Costs	Those costs associated with producing marginally more service. For example, when a new business moves into the service area the costs to provide that additional level of service will rise incrementally. It usually costs less on a unit of service basis to produce more service. However, in some circumstances, such as when the additional service will require building a new water tower, it actually costs more.
Operating Costs	Definitions vary. For rate setting purposes operating costs are costs incurred because a system is owned and operated. Such costs are generally recovered through user fees.
Operating Revenues	Revenues generated by user fees
Operating Ratio (OR)	Current incomes and undedicated reserves minus current expenses, not including debt. An OR of 1.0 is "break even." Most systems should have an OR of 1.25 or higher.
Payback Period	Time required for the investment made to get this analysis to return that investment through increased user and other fees
Potential Demand	The volume of service that a user could demand for a short period of time at full volume use. The potential demand limiting factor is usually the size of the customer's meter or service line.
Proportional to Use Rates	Rates where the minimum charge recovers all fixed costs, the unit charge recovers all variable costs, the unit charge is the same for all volume sold, and there is no usage allowance in the minimum charge.
Replacement Schedule	A timetable that describes equipment replacement and important repairs that are too infrequent and/or too expensive to cover as annual operating costs but not so expensive that they need to be covered as capital improvements.
Replacement Reserves	Cash reserves used to fund the Replacement Schedule
Return on Investment	The dollar amount or percentage of revenue gain enabled by this analysis
Tap Fee, also called a "Hook up Fee"	A charge that gives a new customer the <u>right</u> to connect to the system. This fee may include the costs of administering the connection program, such as staff time to 'sign up' new customers, get them into the system's billing program, do an inspection of the service connection to assure that it meets the system's standards and the like. This charge is usually minimal for a residential customer and maybe a few thousand dollars for a large industrial customer. Capacity and connection fees are commonly added to tap fees and the total fee is just called a 'tap' fee.
Test Year	The one year period from which data was gathered to be the basis of the rate analysis
Usage Allowance	The volume, if any, that is "given away" with the minimum charge. Most systems give away no volume. Those that give away an unlimited volume have what are called "flat rates."
User Fee, User Charge, User Rates	Fees assessed to customers for use of the system. Does not include tap, capacity or connection fees, late payment penalties or other types of charges.
Water Loss	Measured by volume or percent, the part of a water system's net water production that does not get to customers. This loss also includes billable volume lost due to under-registering customer meters.
Working Capital or Net Income	The amount left in the operating fund after paying all costs due during that month, year or other time period. Working capital of \$0 is "break even."
Working Capital Goal	The desired percentage above "break even" for the operating fund. Small systems (a few hundred connections) generally should target 35 percent or greater. Larger systems can target less, down to a minimum of about 20 percent for systems with 5,000 or more connections but the goal for each system should be based upon the needs of that system.

Hillsboro, MO, Sewer Rates Scenario 1

Financial Highlights

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This analysis package examines a "proposed rates scenario" that depicts what will happen under the adjusted rates and other changes recommended for the system. The results of this scenario are compared to the results you can expect if you do not adjust rates at all during the 10 years following the test year.

In the following table you can see several key financial benchmarks made possible by the proposed rates. The first column below is the test year, the year from which historical data was used to build the model. The second is the year following the test year - the year during which initial rate adjustments (typically) go into effect. The last two columns are the fifth and tenth years following the test year.

	Results for Years Ending on			
	12/31/10	12/31/11	12/31/15	12/31/20
Rate revenues collected	\$395,138	\$460,490	\$635,229	\$893,443
Sum of incomes	\$408,956	\$478,636	\$659,428	\$927,055
Sum of operating costs	\$410,819	\$360,006	\$417,198	\$518,234
Net income gain or loss (-)	-\$1,864	\$118,630	\$242,230	\$408,821
Capital improvement reserves	\$132,976	\$230,617	\$239,149	\$667,260
Replacement reserves	-\$26,000	-\$7,431	\$58,995	\$120,020
Current position*	\$205,410	\$180,003	\$208,599	\$259,117
*All current incomes plus reserves minus all current obligations				
Increase or decrease (-) in total assets, excluding hard assets, due to this analysis	N.A.	-\$11,706	\$1,068,773	\$4,007,213

Return on Investment and Payback Period Calculations

Return on investment due to this analysis, projected one and five years into the future	N.A.	-237%	21600%
Payback period, in days, made possible by this analysis	8		

Return rate and payback period are based upon the following investments:

Fees to Carl Brown Consulting	\$4,448
Estimated value of city staff time and incidentals to assemble needed information	<u>\$500</u>
Total Investment	\$4,948

With the exception of tables that depict test year data, all other tables and charts depict the financial performance made possible by the modeled rate changes. The easiest way to grasp the financial future of the system is to view the line graphs. Another table shows the bills your users are paying now compared to the bills they would pay under the proposed rates scenario.

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Hillsboro, MO, Sewer Rates Scenario 1

Chart 1 - Proposed Rate Chart

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Starting with bills on and after July 1, 2011 user rates will be as follows:

	Class Bottom Use in Gallons	Class Top Use in Gallons	Minimum Charge per Billing Cycle	Usage Allowance in 1,000 Gallons	Unit Charge This Class per 1,000 Gallons
Inside City	0	999	\$16.81	2.000	\$4.78
	1,000	1,999	\$16.81	2.000	\$4.78
	4,000	4,999	\$16.81	2.000	\$4.78
	5,000	5,999	\$16.81	2.000	\$4.78
	9,000	9,999	\$16.81	2.000	\$4.78
	10,000	14,999	\$16.81	2.000	\$4.78
	90,000	9,999,999	\$16.81	2.000	\$4.78
Outside City	0	999	\$25.21	2.000	\$4.78
	4,000	4,999	\$25.21	2.000	\$4.78
	5,000	5,999	\$25.21	2.000	\$4.78
	9,000	9,999	\$25.21	2.000	\$4.78
	10,000	14,999	\$25.21	2.000	\$4.78
	90,000	9,999,999	\$25.21	2.000	\$4.78
Sewer Only	0	999	\$39.61	0.000	\$0.00
	4,000	4,999	\$39.61	0.000	\$0.00
	5,000	5,999	\$39.61	0.000	\$0.00
	9,000	9,999	\$39.61	0.000	\$0.00
	10,000	14,999	\$39.61	0.000	\$0.00
	90,000	9,999,999	\$39.61	0.000	\$0.00
Jefferson College	0	999	\$16.81	2.000	\$4.78
	4,000	4,999	\$16.81	2.000	\$4.78
	5,000	5,999	\$16.81	2.000	\$4.78
	9,000	9,999	\$16.81	2.000	\$4.78
	10,000	14,999	\$16.81	2.000	\$4.78
	90,000	9,999,999	\$16.81	2.000	\$4.78

Hillsboro, MO, Sewer Rates Scenario 1
 Chart 2 - User Base and Operating Incomes

This chart depicts incomes during the test year, this year and for the next 10 years.

(First year balances and incomes are actual, subsequent years are projected.)

	Infla./De- flation (-) Factor	Year Starting 1/1/10	Year Starting 1/1/11	Year Starting 1/1/12	Year Starting 1/1/13	Year Starting 1/1/14	Year Starting 1/1/15	Year Starting 1/1/16	Year Starting 1/1/17	Year Starting 1/1/18	Year Starting 1/1/19	Year Starting 1/1/20
User Base												
Average Users for the Year	NA	950	1001	1006	1011	1016	1026	1037	1047	1058	1068	1079
Users Added/Lost During the Year	NA	52	5	5	5	10	10	10	10	11	11	11
User Growth/Loss Rate	NA	5.42%	0.50%	0.50%	0.50%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Rate Increases Initiated in Future Years	NA	NA	21.7%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Operating Incomes												
Sales	NA	\$395,138	\$460,490	\$522,829	\$556,969	\$593,339	\$635,229	\$680,076	\$728,090	\$779,493	\$834,525	\$893,443
Tap Fees % Above		\$20,600	\$2,002	\$2,133	\$2,272	\$4,842	\$5,183	\$5,549	\$5,941	\$6,360	\$6,810	\$7,290
Interest	NA	\$0	\$2,054	\$1,800	\$1,850	\$1,925	\$2,028	\$2,086	\$2,172	\$2,290	\$2,358	\$2,457
Miscellaneous	NA	\$69	\$69	\$69	\$69	\$69	\$69	\$69	\$69	\$69	\$69	\$69
Sewer, All Weather Use	NA	\$13,748	\$16,022	\$18,191	\$19,379	\$20,644	\$22,102	\$23,662	\$25,333	\$27,121	\$29,036	\$31,086
Tap Fees Trans to CIP Reserves	NA	-\$20,600	-\$2,002	-\$2,133	-\$2,272	-\$4,842	-\$5,183	-\$5,549	-\$5,941	-\$6,360	-\$6,810	-\$7,290
Total Regular Income		\$408,956	\$478,636	\$542,889	\$578,267	\$615,978	\$659,428	\$705,894	\$755,664	\$808,973	\$865,988	\$927,055

Chart 3 - Operating Costs and Net Income

This chart depicts expenses during the test year, this year and for the next 10 years.

(First year costs and net incomes are actual, subsequent years are projected.)

	Infla./De- flation (-) Factor	Year Starting 1/1/10	Year Starting 1/1/11	Year Starting 1/1/12	Year Starting 1/1/13	Year Starting 1/1/14	Year Starting 1/1/15	Year Starting 1/1/16	Year Starting 1/1/17	Year Starting 1/1/18	Year Starting 1/1/19	Year Starting 1/1/20	
Operating Costs													
ADMIN SAL, INS, RETIRE, WORK COMP, TAX	4.0%	\$24,902	\$25,898	\$26,934	\$28,011	\$29,132	\$30,297	\$31,509	\$32,769	\$34,080	\$35,443	\$36,861	
OPS SAL, INS, RETIRE, WORK COMP, TAX	4.0%	\$46,247	\$48,097	\$50,020	\$52,021	\$54,102	\$56,266	\$58,517	\$60,858	\$63,292	\$65,823	\$68,456	
PROFESSIONAL SVCS LEGAL S	5.0%	\$294	\$309	\$324	\$340	\$357	\$375	\$394	\$414	\$435	\$456	\$479	
SEWER SYSTEM REPAIRS	5.0%	\$52,739	\$55,376	\$58,145	\$61,052	\$64,105	\$67,310	\$70,675	\$74,209	\$77,920	\$81,816	\$85,906	
SEWER SYSTEM EQUIPMENT	5.0%	\$82,933	\$40,000	\$42,000	\$44,100	\$46,305	\$48,620	\$51,051	\$53,604	\$56,284	\$59,098	\$62,053	
FUEL/OIL - S	1.0%	\$6,066	\$6,126	\$6,188	\$6,250	\$6,312	\$6,375	\$6,439	\$6,503	\$6,568	\$6,634	\$6,700	
INSURANCE SEWER	3.0%	\$4,312	\$4,441	\$4,574	\$4,711	\$4,853	\$4,998	\$5,148	\$5,303	\$5,462	\$5,626	\$5,795	
MISC S	5.0%	\$260	\$272	\$286	\$300	\$315	\$331	\$348	\$365	\$383	\$403	\$423	
POSTAGE - SEWER	5.0%	\$1,572	\$1,650	\$1,733	\$1,820	\$1,911	\$2,006	\$2,106	\$2,212	\$2,322	\$2,438	\$2,560	
MATERIALS & SUPPLIES OPS S	5.0%	\$29,890	\$20,000	\$21,000	\$22,050	\$23,153	\$24,310	\$25,526	\$26,802	\$28,142	\$29,549	\$31,027	
REPAIRS-VEHICLES SEWER	5.0%	\$7,121	\$7,477	\$7,851	\$8,243	\$8,655	\$9,088	\$9,542	\$10,019	\$10,520	\$11,046	\$11,599	
REPAIRS-EQUIP S	5.0%	\$14,471	\$10,000	\$10,500	\$11,025	\$11,576	\$12,155	\$12,763	\$13,401	\$14,071	\$14,775	\$15,513	
SLUDGE REMOVAL	5.0%	\$27,128	\$28,484	\$29,908	\$31,404	\$32,974	\$34,623	\$36,354	\$38,171	\$40,080	\$42,084	\$44,188	
SUPPLIES-OFFICE SEWER	5.0%	\$1,467	\$1,540	\$1,617	\$1,698	\$1,783	\$1,872	\$1,966	\$2,064	\$2,167	\$2,276	\$2,389	
MATERIALS & SUPPLIES MAINT S	5.0%	\$7,827	\$8,218	\$8,629	\$9,061	\$9,514	\$9,989	\$10,489	\$11,013	\$11,564	\$12,142	\$12,749	
TELEPHONE SEWER	1.0%	\$1,103	\$1,114	\$1,125	\$1,136	\$1,148	\$1,159	\$1,171	\$1,182	\$1,194	\$1,206	\$1,218	
UTILITIES SEWER	5.0%	\$45,730	\$48,016	\$50,417	\$52,938	\$55,585	\$58,364	\$61,282	\$64,346	\$67,563	\$70,941	\$74,489	
TRAINING SEWER	5.0%	\$247	\$259	\$272	\$286	\$300	\$315	\$331	\$348	\$365	\$383	\$402	
UNIFORMS SEWER	5.0%	\$2,048	\$2,150	\$2,258	\$2,371	\$2,489	\$2,614	\$2,744	\$2,882	\$3,026	\$3,177	\$3,336	
H&S TO10 HWY BB WWTP UPGRADE	5.0%	\$3,836	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
H&S TASK ORDER 9, SRF LOAN	5.0%	\$4,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Annual Payment to Replacement Fund	0.0%	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	\$46,129	
User Charge Analysis Services	5.0%	\$0	\$4,448	\$0	\$0	\$4,904	\$0	\$0	\$5,407	\$0	\$0	\$5,961	
2001 COP Lease Payment	0.0%	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	CIP	
Total Operating Costs		\$410,819	\$360,006	\$369,911	\$384,946	\$405,601	\$417,198	\$434,484	\$458,001	\$471,568	\$491,447	\$518,234	
Net Income (or Loss)		-\$1,864	\$118,630	\$172,978	\$193,321	\$210,377	\$242,230	\$271,409	\$297,663	\$337,405	\$374,542	\$408,821	
Working Capital Goal: 50%		In Dollars, That is:	\$205,410	\$180,003	\$184,955	\$192,473	\$202,801	\$208,599	\$217,242	\$229,001	\$235,784	\$245,723	\$259,117

Hillsboro, MO, Sewer Rates Scenario 1
 Chart 6 - Capital Improvement Program

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This chart depicts the capital improvements needed for the next 10 years and how they will be paid for. Costs reflect inflation.

	This Year	Next Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	
	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	
	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
CIP Spending Plan											
Capital Improvements to be Paid With Debt											
Highway BB WWTP	\$0	\$0	\$3,016,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Improvements to be Paid With Debt	\$0	\$0	\$3,016,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Improvements to be Paid With Cash											
None	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cap Imprvmts to be Paid With Cash	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total CIP Planned Spending	\$0	\$0	\$3,016,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CIP Funding Plan											
CIP Reserves Carryover Plus Transfers in	\$163,433	\$277,013	\$398,643	\$540,133	\$492,989	\$485,791	\$501,915	\$544,667	\$631,360	\$752,297	\$905,909
CIP Reserves Interest Earned (or Paid)	\$0	\$2,660	\$4,612	\$7,087	\$5,859	\$4,987	\$4,783	\$5,175	\$6,015	\$7,754	\$10,210
Tap Fees Transferred From Net Current Assets to CIP Reserves	\$20,600	\$2,002	\$2,133	\$2,272	\$4,842	\$5,183	\$5,549	\$5,941	\$6,360	\$6,810	\$7,290
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total CIP Fund Sources	\$184,033	\$281,674	\$3,421,388	\$549,492	\$503,689	\$495,962	\$512,247	\$555,783	\$643,735	\$766,861	\$923,409
New Debt Payment Plan											
	Payments for future loans assume 100 percent financing for projects, term of:					20	years and	5.94%	interest		
Loan(s) Originated Before Test Year	\$51,058	\$51,058	\$51,058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Loan Originated Next Year				\$256,553	\$254,330	\$256,813	\$253,485	\$255,045	\$256,041	\$256,379	\$256,149
Total Debt Payments	\$51,058	\$51,058	\$51,058	\$256,553	\$254,330	\$256,813	\$253,485	\$255,045	\$256,041	\$256,379	\$256,149
Total CIP Spending Plus Debt Payments	\$51,058	\$51,058	\$3,067,058	\$256,553	\$254,330	\$256,813	\$253,485	\$255,045	\$256,041	\$256,379	\$256,149
CIP Reserves Balance	\$132,976	\$230,617	\$354,330	\$292,939	\$249,359	\$239,149	\$258,762	\$300,738	\$387,695	\$510,482	\$667,260

Notes: This plan includes the Highway BB wastewater treatment plant. It is assumed the project will be funded with market-rate bonds or a lease with an average interest rate as modeled by Provident Capital for a water project. If the project qualifies for an SRF loan the interest rate and payments will be less.

Hillsboro, MO, Sewer Rates Scenario 1

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Chart 9 - Rate Adjustments and Incomes for Modeling Year

1/1/11 Through 12/31/11

This chart depicts how rates would be set for this scenario.

	1st rate block multiplier	100%
\$400 Current average connection fee	2nd rate block multiplier	100%
\$400 Proposed average connection fee	3rd rate block multiplier	100%
\$400 The part of the proposed average connection fee, above, that will be devoted to future capital improvements	4th rate block multiplier	100%

7/1/11 Date when fees will first be collected at adjusted rates. Actual adjustment should occur one billing period earlier.

Compare the rates here with the adjusted rates in the table below. Disregarding special costs, rates are "proportional to use" when there is no usage allowance, the minimum charge is \$7.25 and the unit charge is \$4.78 per 1,000 Gallons. After rate adjustments are made, general customers will be billed monthly.

Sales to be Billed This Year at Current Rates			Proposed Rates and Sales to be Billed at Those Rates This Year			Total Sales This Year	
Class Bottom Use in Gallons	Class Top Use in Gallons	Revenues at Test Year Rates	New Minimum Charge Base Rates ¹	New Usage Allowance in 1,000 Gallons	New Unit Charge This Class per 1,000 Gallons	Revenues at Proposed Rates	Total Blended Revenues for Modeling Year
Inside City							
0	999	\$7,156	\$16.81	2.000	\$4.78	\$7,699	\$14,855
1,000	1,999	\$8,789	\$16.81	2.000	\$4.78	\$9,456	\$18,245
2,000	2,999	\$11,660	\$16.81	2.000	\$4.78	\$12,544	\$24,205
3,000	3,999	\$16,858	\$16.81	2.000	\$4.78	\$19,060	\$35,919
4,000	4,999	\$19,590	\$16.81	2.000	\$4.78	\$22,892	\$42,482
5,000	5,999	\$16,753	\$16.81	2.000	\$4.78	\$20,044	\$36,797
6,000	6,999	\$14,631	\$16.81	2.000	\$4.78	\$17,817	\$32,448
7,000	7,999	\$11,894	\$16.81	2.000	\$4.78	\$14,684	\$26,579
8,000	8,999	\$8,083	\$16.81	2.000	\$4.78	\$10,089	\$18,173
9,000	9,999	\$5,500	\$16.81	2.000	\$4.78	\$6,928	\$12,428
10,000	14,999	\$13,702	\$16.81	2.000	\$4.78	\$17,536	\$31,238
15,000	19,999	\$7,448	\$16.81	2.000	\$4.78	\$9,735	\$17,183
20,000	24,999	\$4,573	\$16.81	2.000	\$4.78	\$6,043	\$10,616
25,000	29,999	\$4,447	\$16.81	2.000	\$4.78	\$5,922	\$10,369
30,000	34,999	\$4,371	\$16.81	2.000	\$4.78	\$5,846	\$10,217
35,000	39,999	\$4,116	\$16.81	2.000	\$4.78	\$5,528	\$9,644
40,000	44,999	\$2,889	\$16.81	2.000	\$4.78	\$3,892	\$6,781
45,000	49,999	\$1,552	\$16.81	2.000	\$4.78	\$2,094	\$3,646
50,000	54,999	\$1,535	\$16.81	2.000	\$4.78	\$2,076	\$3,611
55,000	59,999	\$1,784	\$16.81	2.000	\$4.78	\$2,418	\$4,202
60,000	64,999	\$1,424	\$16.81	2.000	\$4.78	\$1,931	\$3,354
65,000	69,999	\$1,293	\$16.81	2.000	\$4.78	\$1,756	\$3,049
70,000	74,999	\$1,260	\$16.81	2.000	\$4.78	\$1,713	\$2,973
75,000	79,999	\$1,030	\$16.81	2.000	\$4.78	\$1,402	\$2,432
80,000	84,999	\$462	\$16.81	2.000	\$4.78	\$629	\$1,092
85,000	89,999	\$823	\$16.81	2.000	\$4.78	\$1,121	\$1,944
90,000	9,999,999	\$25,577	\$16.81	2.000	\$4.78	\$35,130	\$60,706
Outside City							
0	999	\$13	\$25.21	2.000	\$4.78	\$14	\$26
1,000	1,999	\$25	\$25.21	2.000	\$4.78	\$27	\$52
2,000	2,999	\$177	\$25.21	2.000	\$4.78	\$190	\$367
3,000	3,999	\$261	\$25.21	2.000	\$4.78	\$291	\$552
4,000	4,999	\$131	\$25.21	2.000	\$4.78	\$150	\$281
5,000	5,999	\$273	\$25.21	2.000	\$4.78	\$319	\$593
6,000	6,999	\$321	\$25.21	2.000	\$4.78	\$382	\$703
7,000	7,999	\$307	\$25.21	2.000	\$4.78	\$370	\$678
8,000	8,999	\$214	\$25.21	2.000	\$4.78	\$261	\$476
9,000	9,999	\$51	\$25.21	2.000	\$4.78	\$63	\$115
10,000	14,999	\$29	\$25.21	2.000	\$4.78	\$37	\$66
15,000	19,999	\$44	\$25.21	2.000	\$4.78	\$57	\$102
20,000	24,999	\$46	\$25.21	2.000	\$4.78	\$60	\$106
Sewer Only							
0	999	\$0	\$39.61	0.000	\$0.00	\$0	\$0
6,000	6,999	\$892	\$39.61	0.000	\$0.00	\$1,281	\$2,172
Jefferson College							
0	999	\$0	\$16.81	2.000	\$4.78	\$0	\$0
4,000	4,999	\$12	\$16.81	2.000	\$4.78	\$14	\$26
10,000	14,999	\$31	\$16.81	2.000	\$4.78	\$40	\$71
15,000	19,999	\$78	\$16.81	2.000	\$4.78	\$103	\$181
20,000	24,999	\$324	\$16.81	2.000	\$4.78	\$429	\$753
25,000	29,999	\$222	\$16.81	2.000	\$4.78	\$296	\$518
30,000	34,999	\$133	\$16.81	2.000	\$4.78	\$178	\$310
45,000	49,999	\$89	\$16.81	2.000	\$4.78	\$120	\$208
55,000	59,999	\$228	\$16.81	2.000	\$4.78	\$309	\$537
60,000	64,999	\$247	\$16.81	2.000	\$4.78	\$335	\$581
65,000	69,999	\$128	\$16.81	2.000	\$4.78	\$174	\$302
70,000	74,999	\$137	\$16.81	2.000	\$4.78	\$187	\$324
75,000	79,999	\$594	\$16.81	2.000	\$4.78	\$808	\$1,402
80,000	84,999	\$312	\$16.81	2.000	\$4.78	\$425	\$737
85,000	89,999	\$171	\$16.81	2.000	\$4.78	\$233	\$404
90,000	9,999,999	\$1,124	\$16.81	2.000	\$4.78	\$1,536	\$2,659
Rate Rev at Current Rates		\$205,816	Rate Rev at Adjusted Rates		\$254,674	Total Blended Rate Revenues for the Year ²	
						\$460,490	

Note 1: If meter size-based minimum charges are being used, the amounts shown in this column are for fixed operating costs only. See the Meter Size-based Minimum Charges chart for the full minimum charges to assess to each meter or connection size class.

Note 2: Blended Rate Revenues for the one-year period 1/1/11 through 12/31/11 assume the following:
6.0 months at the old user charge rates and 6.0 months at the new user charge rates.

Hillsboro, MO, Sewer Rates Scenario 1
 Chart 10 - Rate Statistics

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This chart shows the equitability of the rates as modeled in the Rate Setting Chart.

If your rates are absolutely proportional to use on a volumetric basis, your % of usage and % of revenues figures will be the same within all the classes. That is not possible if you have any minimum charge.

Normally, the % of usage figure will be lower than the % of revenue for the lower volume classes. That will switch for the higher volume classes. Even for declining rate structures, this switch should occur near the volume of the average residential user, typically near 5,000 gallons/month (668 cu ft).

In urban and suburban areas the average monthly use for residential or general customers can be twice that used by their rural and "old town" counterparts. Use is largely dependent upon who lives in a community. Older people living in longer established neighborhoods tend to use less volume than younger people living in more recently developed areas. Consider this.

Your average residential customer uses 6,772 Gallons per billing cycle.

Compare the % of Usage and % of Revenue for this volume of use, and others, in the chart below to get an idea of how proportional to actual volume use the rates are as proposed in this analysis.

	Class Bottom Use in Gallons	Class Top Use in Gallons	% Users	% Usage	% Rev at Current Rates	% Rev at Proposed Rates
Inside City	0	999	7.46%	0.00%	3.48%	3.02%
	1,000	1,999	9.16%	1.33%	4.27%	3.71%
	2,000	2,999	12.15%	3.52%	5.67%	4.93%
	3,000	3,999	14.38%	6.25%	8.19%	7.48%
	4,000	4,999	14.15%	8.19%	9.52%	8.99%
	5,000	5,999	10.49%	7.59%	8.14%	7.87%
	6,000	6,999	8.08%	7.02%	7.11%	7.00%
	7,000	7,999	5.88%	5.96%	5.78%	5.77%
	8,000	8,999	3.62%	4.19%	3.93%	3.96%
	9,000	9,999	2.25%	2.93%	2.67%	2.72%
	10,000	14,999	4.63%	7.64%	6.66%	6.89%
	15,000	19,999	1.82%	4.41%	3.62%	3.82%
	20,000	24,999	0.89%	2.79%	2.22%	2.37%
	25,000	29,999	0.71%	2.77%	2.16%	2.33%
	30,000	34,999	0.61%	2.75%	2.12%	2.30%
	35,000	39,999	0.49%	2.62%	2.00%	2.17%
	40,000	44,999	0.31%	1.85%	1.40%	1.53%
	45,000	49,999	0.15%	1.00%	0.75%	0.82%
	50,000	54,999	0.13%	1.00%	0.75%	0.82%
	55,000	59,999	0.14%	1.16%	0.87%	0.95%
60,000	64,999	0.11%	0.93%	0.69%	0.76%	
65,000	69,999	0.09%	0.85%	0.63%	0.69%	
70,000	74,999	0.08%	0.83%	0.61%	0.67%	
75,000	79,999	0.06%	0.68%	0.50%	0.55%	
80,000	84,999	0.03%	0.30%	0.22%	0.25%	
85,000	89,999	0.04%	0.54%	0.40%	0.44%	
90,000	9,999,999	0.38%	17.25%	12.43%	13.79%	
			98.26%	96.33%	96.79%	96.59%
Outside City	0	999	0.01%	0.00%	0.01%	0.01%
	1,000	1,999	0.02%	0.00%	0.01%	0.01%
	2,000	2,999	0.12%	0.04%	0.09%	0.07%
	3,000	3,999	0.16%	0.07%	0.13%	0.11%
	4,000	4,999	0.07%	0.04%	0.06%	0.06%
	5,000	5,999	0.13%	0.10%	0.13%	0.13%
	6,000	6,999	0.14%	0.12%	0.16%	0.15%
	7,000	7,999	0.12%	0.12%	0.15%	0.15%
	8,000	8,999	0.08%	0.09%	0.10%	0.10%
	9,000	9,999	0.02%	0.02%	0.02%	0.02%
	10,000	14,999	0.01%	0.01%	0.01%	0.01%
15,000	19,999	0.01%	0.02%	0.02%	0.02%	
20,000	24,999	0.01%	0.03%	0.02%	0.02%	
			0.90%	0.67%	0.92%	0.87%
Sewer Only	6,000	6,999	0.53%	0.52%	0.43%	0.50%
			0.53%	0.52%	0.43%	0.50%
Jefferson College	4,000	4,999	0.01%	0.01%	0.01%	0.01%
	10,000	14,999	0.01%	0.02%	0.01%	0.02%
	15,000	19,999	0.02%	0.05%	0.04%	0.04%
	20,000	24,999	0.06%	0.20%	0.16%	0.17%
	25,000	29,999	0.04%	0.14%	0.11%	0.12%
	30,000	34,999	0.02%	0.08%	0.06%	0.07%
	45,000	49,999	0.01%	0.06%	0.04%	0.05%
	55,000	59,999	0.02%	0.15%	0.11%	0.12%
	60,000	64,999	0.02%	0.16%	0.12%	0.13%
	65,000	69,999	0.01%	0.08%	0.06%	0.07%
	70,000	74,999	0.01%	0.09%	0.07%	0.07%
	75,000	79,999	0.04%	0.39%	0.29%	0.32%
	80,000	84,999	0.02%	0.21%	0.15%	0.17%
85,000	89,999	0.01%	0.11%	0.08%	0.09%	
90,000	9,999,999	0.04%	0.75%	0.55%	0.60%	
			0.32%	2.49%	1.86%	2.04%

Hillsboro, MO, Sewer Rates Scenario 1

Chart 11 - Indicators This chart depicts the affordability of future rates, the financial health of the system and the ending balances in various accounts for 10 years.

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	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting	Year Starting
	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20	1/1/20
Capacity Indicators												
Equivalent Average Monthly Bill Actually Paid by All Customers Throughout the Year	\$34.67	\$38.33	\$43.30	\$45.90	\$48.65	\$51.57	\$54.67	\$57.95	\$61.42	\$65.11	\$69.02	\$69.02
Equivalent Final Monthly Bill for a 5,000 gal per Month In-city Residential User	\$27.17	\$31.15	\$33.01	\$35.00	\$37.10	\$39.32	\$41.68	\$44.18	\$46.83	\$49.64	\$52.62	\$52.62
Annual Median Household Income (AMHI)	\$37,166	\$37,201	\$37,237	\$37,272	\$37,308	\$37,343	\$37,379	\$37,415	\$37,450	\$37,486	\$37,522	\$37,522
Affordability Index for Proposed Rates	0.88%	1.00%	1.06%	1.13%	1.19%	1.26%	1.34%	1.42%	1.50%	1.59%	1.68%	1.68%
Affordability Index is the percent of AMHI needed by a 5,000 gallon per month residential user to pay their bill. Rates near 1.0% are common in the U.S. and are generally considered affordable. Federal grant agencies generally will not consider awarding grants if this indicator is less than 2.0%.												
Estimated Operating Ratio for Proposed Rates	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
1.0 is break even for Operating Ratio. Below 1.0 indicates operating in the "red." Generally, the operating ratio should be at least 1.15 for large systems, 1.30 or more for medium systems and perhaps as high as 2.0 for small systems.												
Estimated Coverage Ratio for Proposed Rates	3.60	5.52	7.94	2.14	1.98	1.93	2.02	2.18	2.51	2.99	3.60	3.60
Coverage Ratio applies only to years with debt service. 1.0 is break even. Generally, the coverage ratio should be at least 1.25.												
	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on	Balance Ending on
Reserves	12/31/09	12/31/10	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20
Net Current Assets (Current Position)	\$370,707	\$205,410	\$180,003	\$184,955	\$192,473	\$202,801	\$208,599	\$217,242	\$229,001	\$235,784	\$245,723	\$259,117
CIP Reserves	\$0	\$132,976	\$230,617	\$354,330	\$292,939	\$249,359	\$239,149	\$258,762	\$300,738	\$387,695	\$510,482	\$667,260
Debt Reserves	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Reserves	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Replacement Fund	\$0	-\$26,000	-\$7,431	\$10,279	\$27,367	\$43,626	\$58,995	\$73,405	\$86,788	\$99,070	\$110,174	\$120,020
All Assets Except Hard Assets and R&R, Discounted for Inflation (Future Purchasing Power)	\$370,707	\$338,386	\$410,620	\$517,714	\$447,356	\$400,042	\$380,293	\$388,121	\$414,657	\$468,512	\$545,519	\$641,547

Chart 12 - Operating Ratio

Hillsboro, MO

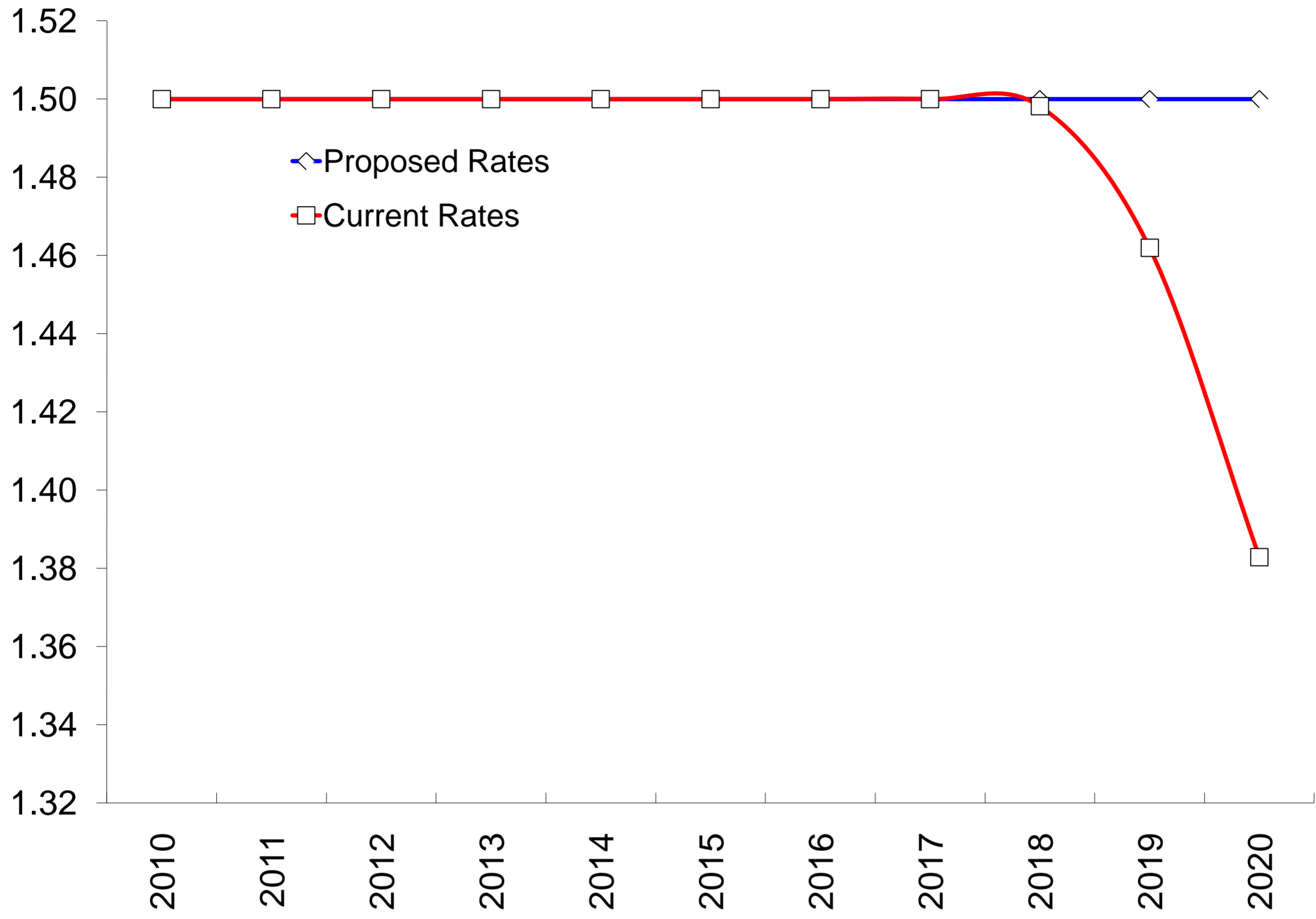


Chart 13 - Coverage Ratio

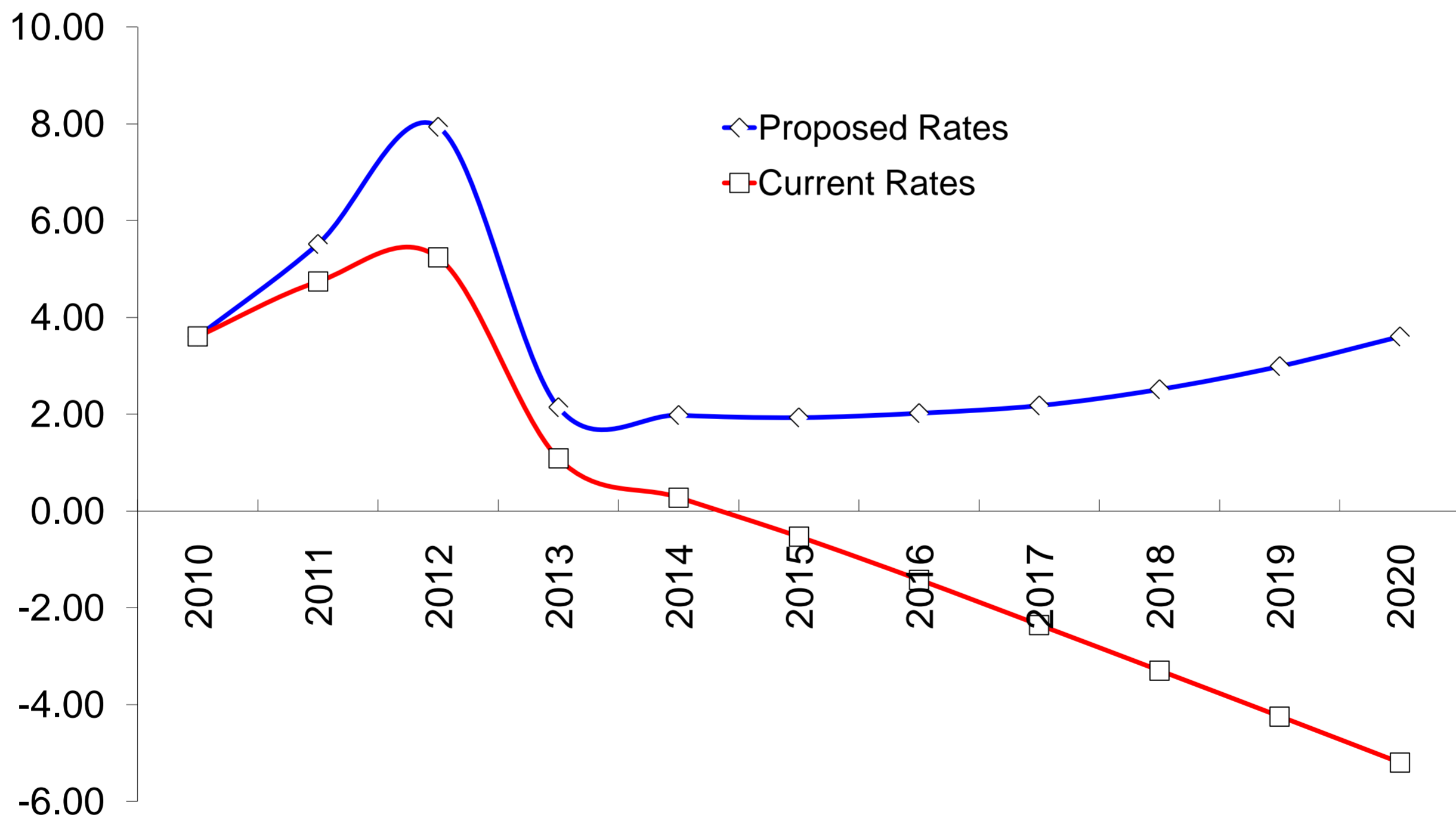


Chart 14 - 5,000 Gal Residential User's Bill

Hillsboro, MO

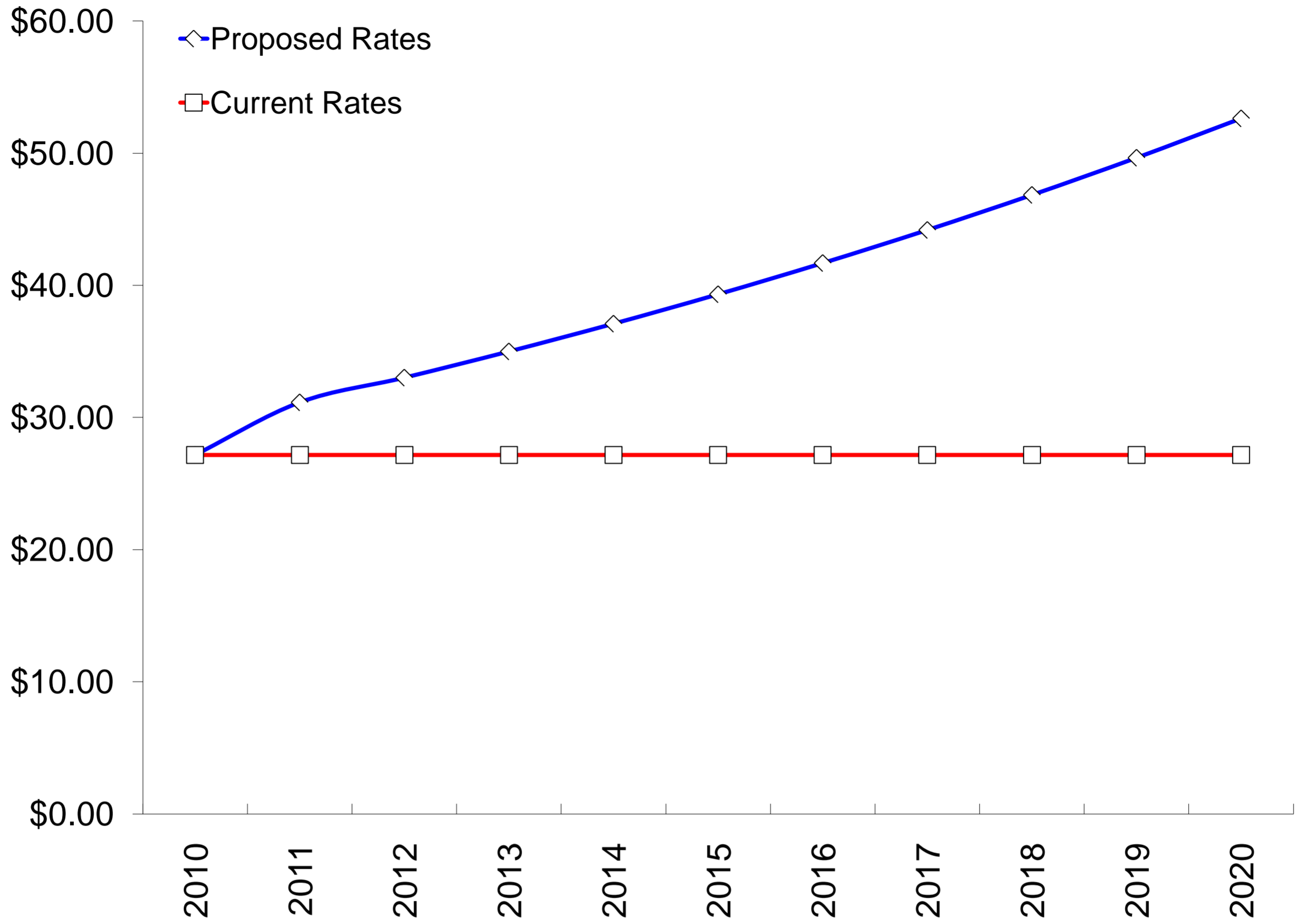


Chart 15 - Affordability Index

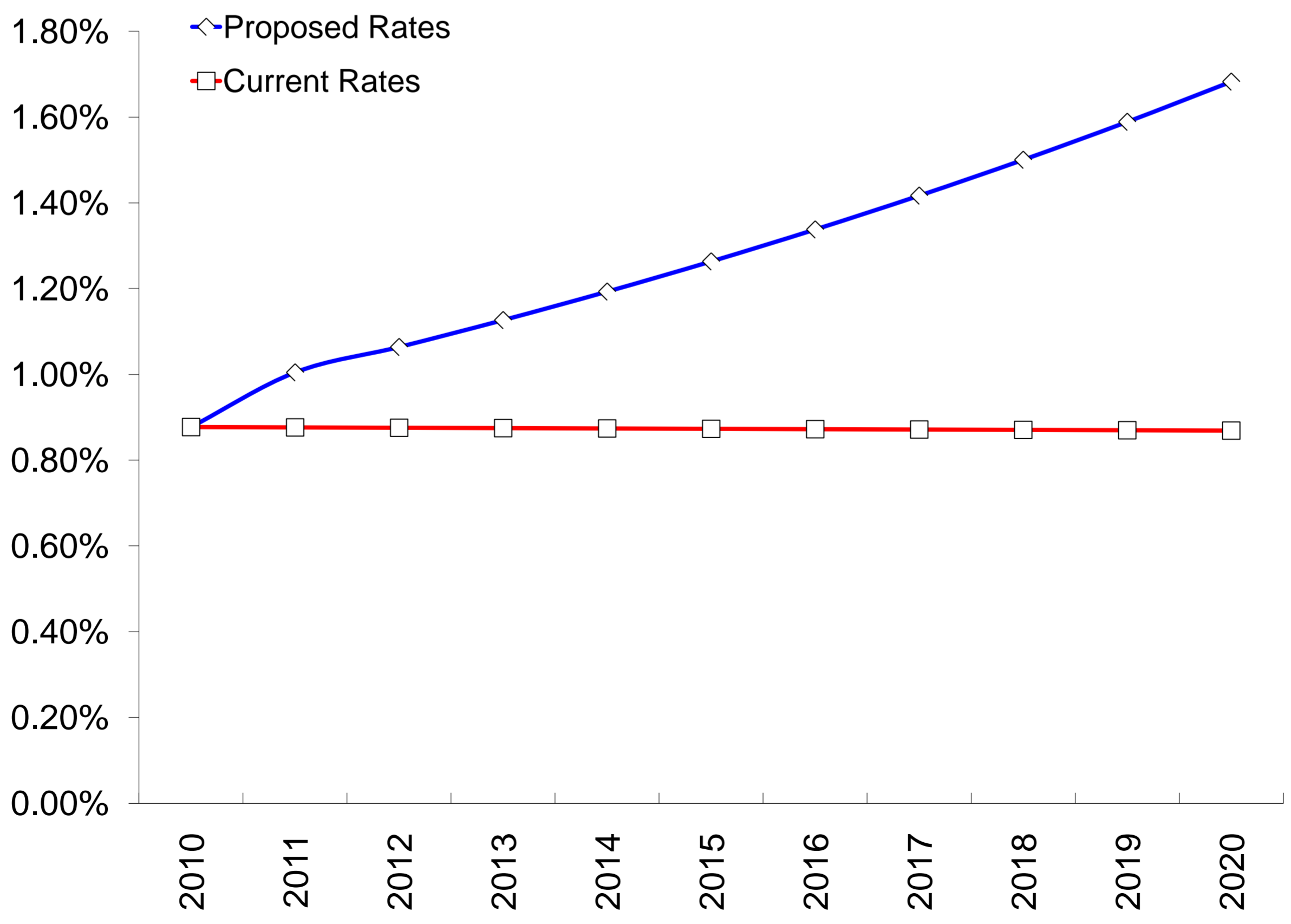


Chart 16 - Working Capital

Hillsboro, MO

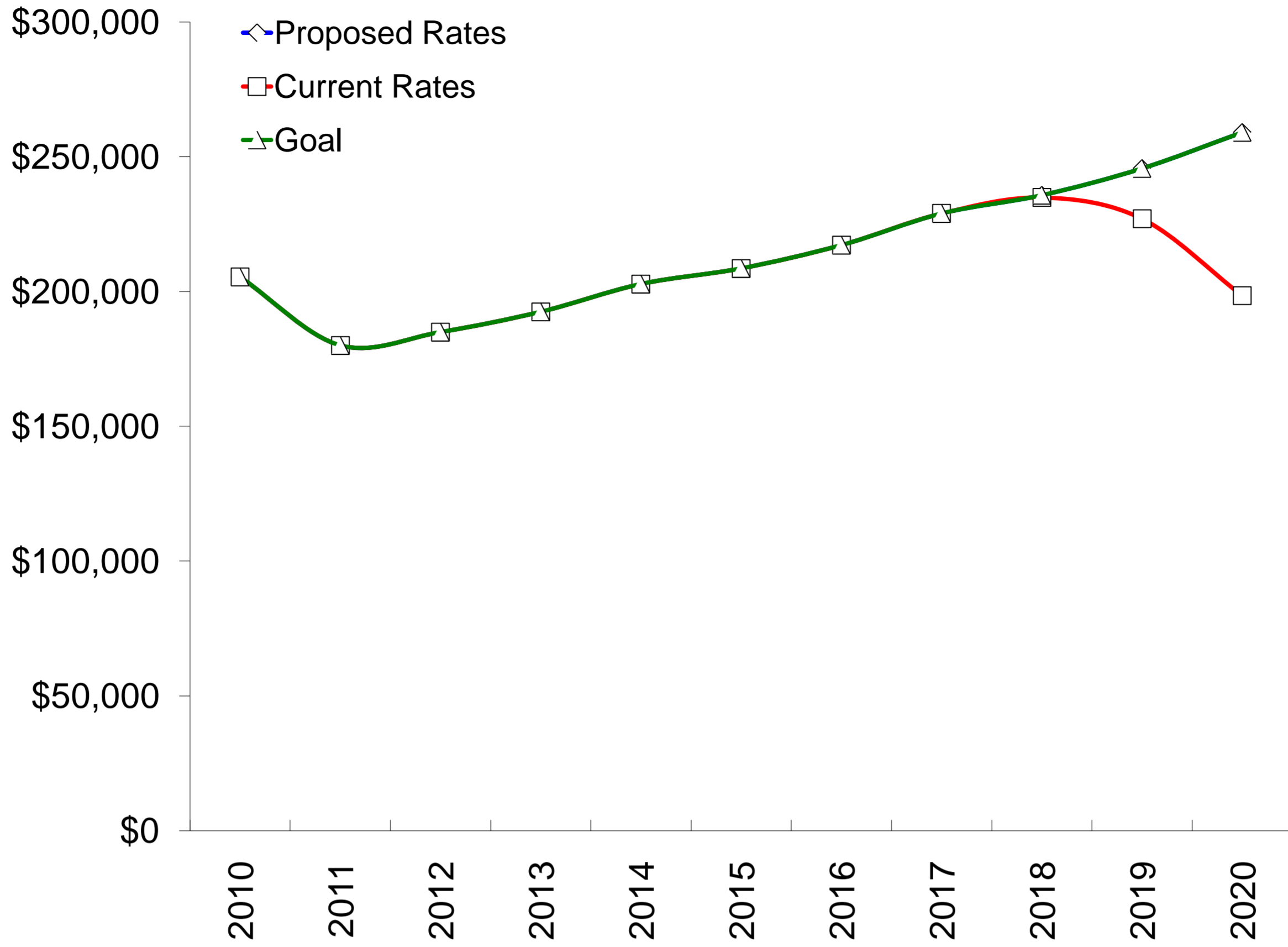


Chart 17 - Future Purchasing Power of Liquid Assets

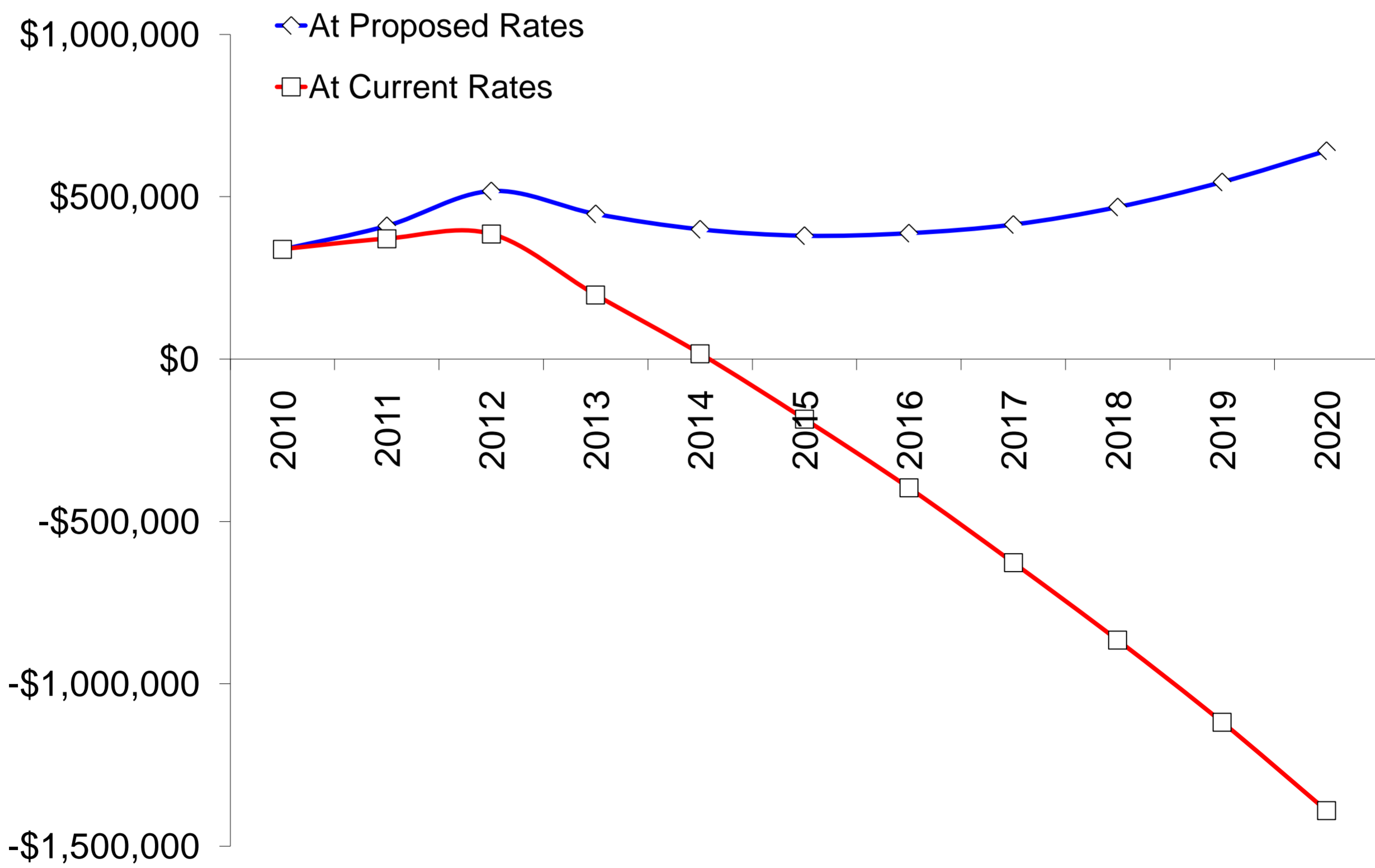
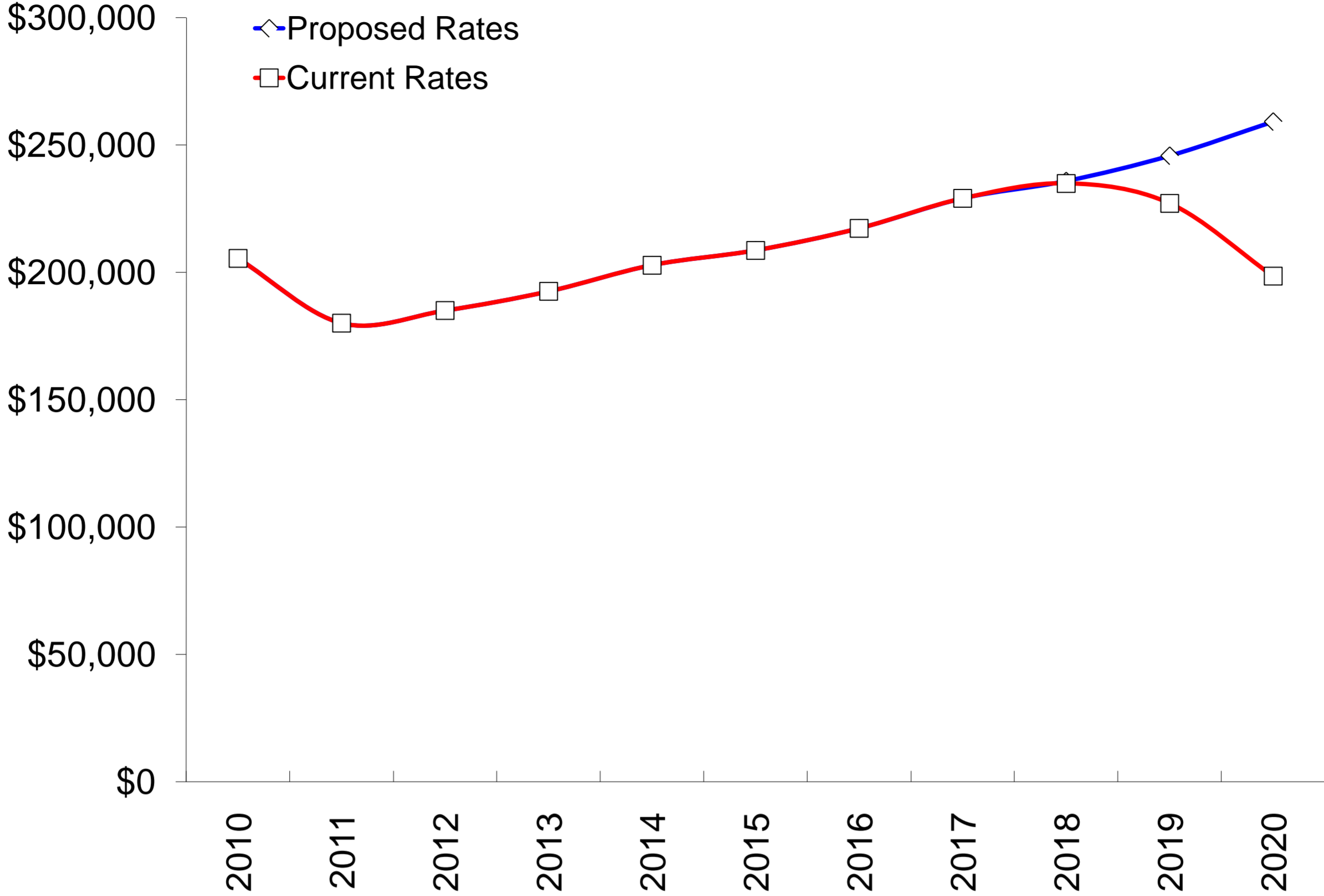


Chart 18 - Current Position



Hillsboro, MO, Sewer Rates Scenario 1

Chart 21 - Old Rates, New Rates and Changes

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This chart compares current and proposed rates.

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	Current Average Bill	Proposed Average Bill Starting on 7/1/11	Bill Increase or (Decrease) After Rate Adjustment	Percent Increase or Decrease (-) After Rate Adjustment
Inside City	0	999	0.000	\$16.31	\$16.81	\$0.50	3%
	1,000	1,999	1.000	\$16.31	\$16.81	\$0.50	3%
	2,000	2,999	2.000	\$16.31	\$16.81	\$0.50	3%
	3,000	3,999	3.000	\$19.93	\$21.58	\$1.66	8%
	4,000	4,999	4.000	\$23.54	\$26.36	\$2.82	12%
	5,000	5,999	5.000	\$27.16	\$31.13	\$3.97	15%
	6,000	6,999	6.000	\$30.78	\$35.91	\$5.13	17%
	7,000	7,999	7.000	\$34.39	\$40.68	\$6.29	18%
	8,000	8,999	8.000	\$38.01	\$45.45	\$7.44	20%
	9,000	9,999	9.000	\$41.62	\$50.23	\$8.60	21%
	10,000	14,999	11.390	\$50.27	\$61.64	\$11.37	23%
	15,000	19,999	16.758	\$69.70	\$87.29	\$17.59	25%
	20,000	24,999	21.733	\$87.71	\$111.05	\$23.35	27%
	90,000	9,999,999	315.837	\$1,152.31	\$1,516.34	\$364.02	32%
Outside City	0	999	0.000	\$24.46	\$25.21	\$0.75	3%
	1,000	1,999	1.000	\$24.46	\$25.21	\$0.75	3%
	2,000	2,999	2.000	\$24.46	\$25.21	\$0.75	3%
	3,000	3,999	3.000	\$28.08	\$29.98	\$1.91	7%
	4,000	4,999	4.000	\$31.69	\$34.76	\$3.07	10%
	5,000	5,999	5.000	\$35.31	\$39.53	\$4.22	12%
	6,000	6,999	6.000	\$38.93	\$44.31	\$5.38	14%
	7,000	7,999	7.000	\$42.54	\$49.08	\$6.54	15%
	8,000	8,999	8.000	\$46.16	\$53.85	\$7.69	17%
	9,000	9,999	9.000	\$49.77	\$58.63	\$8.85	18%
	10,000	14,999	11.000	\$57.01	\$68.18	\$11.17	20%
	15,000	19,999	19.000	\$85.97	\$106.40	\$20.43	24%
	20,000	24,999	20.000	\$89.58	\$111.17	\$21.59	24%
	90,000	9,999,999	5,045.000	\$18,280.03	\$24,122.57	\$5,842.53	32%
Sewer Only	6,000	6,999	6.772	\$28.79	\$39.61	\$10.82	38%
	7,000	7,999	7.500	\$28.79	\$39.61	\$10.82	38%
Jefferson College	0	999	0.500	\$16.31	\$16.81	\$0.50	3%
	1,000	1,999	1.500	\$16.31	\$16.81	\$0.50	3%
	2,000	2,999	2.500	\$18.12	\$19.20	\$1.08	6%
	3,000	3,999	3.500	\$21.73	\$23.97	\$2.24	10%
	4,000	4,999	4.000	\$23.54	\$26.36	\$2.82	12%
	5,000	5,999	5.500	\$28.97	\$33.52	\$4.55	16%
	6,000	6,999	6.500	\$32.58	\$38.29	\$5.71	18%
	7,000	7,999	7.500	\$36.20	\$43.07	\$6.87	19%
	8,000	8,999	8.500	\$39.82	\$47.84	\$8.02	20%
	9,000	9,999	9.500	\$43.43	\$52.61	\$9.18	21%
	10,000	14,999	14.000	\$59.72	\$74.11	\$14.39	24%
	15,000	19,999	18.500	\$76.01	\$95.61	\$19.60	26%
	20,000	24,999	22.286	\$89.71	\$113.70	\$23.99	27%
	90,000	9,999,999	117.800	\$435.42	\$570.03	\$134.62	31%

Chart 22 - Test Year Usage

One-year period being analyzed starts 1/1/2010

This chart shows usage by all customers during the test year.

Date this scenario created 4/1/2011

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	January-10	February-10	March-10	April-10	May-10	June-10	July-10	August-10	September-10	October-10	November-10	December-10	Average Number Users in Each Class
Inside City	0	999	0.000	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	71
	1,000	1,999	1.000	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87.0	87
	2,000	2,999	2.000	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	115
	3,000	3,999	3.000	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	137
	4,000	4,999	4.000	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134
	5,000	5,999	5.000	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	100
	6,000	6,999	6.000	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	77
	7,000	7,999	7.000	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	56
	8,000	8,999	8.000	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34
	9,000	9,999	9.000	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21
	10,000	14,999	11.390	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44
	15,000	19,999	16.758	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17
	20,000	24,999	21.733	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8
	25,000	29,999	26.889	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	7
	30,000	34,999	31.406	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	6
	35,000	39,999	36.839	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	5
	40,000	44,999	41.686	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3
	45,000	49,999	46.353	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1
	50,000	54,999	52.267	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1
	55,000	59,999	57.188	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1
60,000	64,999	61.000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1	
65,000	69,999	66.700	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	
70,000	74,999	72.444	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	
75,000	79,999	76.286	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1	
80,000	84,999	80.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0	
85,000	89,999	85.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0	
90,000	9,999,999	315.837	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4	
Subtotal:															933	

	Class Bottom Use in Gallons	Class Top Use in Gallons	Median or Actual Average use in 1,000 Gallons	January-10	February-10	March-10	April-10	May-10	June-10	July-10	August-10	September-10	October-10	November-10	December-10	Average Number Users in Each Class		
Outside City	0	999	0.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	1,000	1,999	1.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	2,000	2,999	2.000	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1		
	3,000	3,999	3.000	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2		
	4,000	4,999	4.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1		
	5,000	5,999	5.000	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1		
	6,000	6,999	6.000	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1		
	7,000	7,999	7.000	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1		
	8,000	8,999	8.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1		
	9,000	9,999	9.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	10,000	14,999	11.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	15,000	19,999	19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	20,000	24,999	20.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
																Subtotal:	9	
Sewer Only	5,000	5,999	5.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0		
	6,000	6,999	6.772	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5		
																	Subtotal:	5
Jefferson College	4,000	4,999	4.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	10,000	14,999	14.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	15,000	19,999	18.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	20,000	24,999	22.286	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1		
	25,000	29,999	27.250	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0		
	30,000	34,999	33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	45,000	49,999	45.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	55,000	59,999	58.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	60,000	64,999	63.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	65,000	69,999	66.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	70,000	74,999	71.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
	75,000	79,999	77.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0		
	80,000	84,999	81.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0		
	85,000	89,999	89.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0		
90,000	9,999,999	117.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0			
																	Subtotal:	3
Total:																950		

Hillsboro, MO, Sewer Rates Scenario 1

Chart 26 - Replacement Schedule

Replacement Scheduler© Version 1.4

This schedule calculates the annual annuity to fund all replacement and refurbishment from the detailed schedule, if that was used. Otherwise, it includes assumed equipment replacement needs.

4.00% Average Inflation Rate for the Following Sewer System Equipment for the Term of This Replacement Schedule

2.00% Average Interest Rate on Balances Invested for the Term of This Replacement Schedule

4.00% Average Interest Rate on Amounts Borrowed for the Term of This Replacement Schedule

Year Beginning	Item Description	This Year's Costs in Current Dollars	One-time Transfers From Operating Fund	One-time Transfers to Operating Fund	End of Year Balance in Future Dollars	Minimum Desired End of Year Balance in Future Dollars
1/1/10	Test year replacements	\$26,000	\$0	\$0	-\$26,000	\$58,500
1/1/11	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	-\$7,431	\$60,840
1/1/12	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$10,279	\$63,274
1/1/13	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$27,367	\$65,805
1/1/14	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$43,626	\$68,437
1/1/15	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$58,995	\$71,174
1/1/16	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$73,405	\$74,021
1/1/17	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$86,788	\$76,982
1/1/18	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$99,070	\$80,061
1/1/19	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$110,174	\$83,264
1/1/20	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$120,020	\$86,594
1/1/21	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$128,523	\$90,058
1/1/22	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$135,595	\$93,660
1/1/23	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$141,144	\$97,407
1/1/24	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$145,072	\$101,303
1/1/25	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$147,278	\$105,355
1/1/26	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$147,655	\$109,569
1/1/27	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$146,091	\$113,952
1/1/28	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$142,471	\$118,510
1/1/29	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$136,671	\$123,251
1/1/30	Total of replacements from detailed replacement schedule	\$26,000	\$0	\$0	\$128,564	\$128,181

Notes: R&R has been costing approximately \$26,000/year. This schedule assumes that will continue except costs will inflate and the ending balance should be 1.5 times greater than the average annual R&R expense. The required annual deposit was calculated accordingly.

Starting Account Balance	\$0	\$58,500
Minimum Annual Annuity	\$40,829	Minimum Desired Balance in Today's Dollars
Discretionary Annuity	\$5,300	

Required Annual Deposit to Replacement Account \$46,129

This chart distributes costs to fixed and variable categories (see Definitions) and calculates the "proportional to use" rate structure basis of that cost breakdown. All costs shown here are the 2010 actual amounts except for amounts for production electricity and commodities. Those are from 2006, the last full year when the rural water districts purchased water from La Cygne. Those items are highlighted green.

Operating Costs

Item	Full Costs	% of Each Cost That is Fixed	Full Fixed Costs	Full Variable Costs	Regular* Fixed Costs	Regular* Variable Costs
ADMIN SAL, INS, RETIRE, WORK COMP, TAX	\$24,902	100.0%	\$24,902	\$0	\$24,902	\$0
OPS SAL, INS, RETIRE, WORK COMP, TAX	\$46,247	25.0%	\$11,562	\$34,685	\$11,562	\$34,685
PROFESSIONAL SVCS LEGAL S	\$294	100.0%	\$294	\$0	\$294	\$0
SEWER SYSTEM REPAIRS	\$52,739	0.0%	\$0	\$52,739	\$0	\$52,739
SEWER SYSTEM EQUIPMENT	\$82,933	0.0%	\$0	\$82,933	\$0	\$82,933
FUEL/OIL - S	\$6,066	0.0%	\$0	\$6,066	\$0	\$6,066
INSURANCE SEWER	\$4,312	100.0%	\$4,312	\$0	\$4,312	\$0
MISC S	\$260	100.0%	\$260	\$0	\$260	\$0
POSTAGE - SEWER	\$1,572	100.0%	\$1,572	\$0	\$1,572	\$0
MATERIALS & SUPPLIES OPS S	\$29,890	25.0%	\$7,473	\$22,418	\$7,473	\$22,418
REPAIRS-VEHICLES SEWER	\$7,121	25.0%	\$1,780	\$5,340	\$1,780	\$5,340
REPAIRS-EQUIP S	\$14,471	25.0%	\$3,618	\$10,854	\$3,618	\$10,854
SLUDGE REMOVAL	\$27,128	0.0%	\$0	\$27,128	\$0	\$27,128
SUPPLIES-OFFICE SEWER	\$1,467	100.0%	\$1,467	\$0	\$1,467	\$0
MATERIALS & SUPPLIES MAINT S	\$7,827	0.0%	\$0	\$7,827	\$0	\$7,827
TELEPHONE SEWER	\$1,103	100.0%	\$1,103	\$0	\$1,103	\$0
UTILITIES SEWER	\$45,730	0.0%	\$0	\$45,730	\$0	\$45,730
TRAINING SEWER	\$247	25.0%	\$62	\$185	\$62	\$185
UNIFORMS SEWER	\$2,048	25.0%	\$512	\$1,536	\$512	\$1,536
H&S TO10 HWY BB WWTP UPGRADE	\$3,836	0.0%	\$0	\$3,836	\$0	\$3,836
H&S TASK ORDER 9, SRF LOAN	\$4,500	0.0%	\$0	\$4,500	\$0	\$4,500
Annual Payment to Replacement Fund	\$46,129	25.0%	\$11,532	\$34,597	\$11,532	\$34,597
User Charge Analysis Services	\$0	100.0%	\$0	\$0	\$0	\$0
2001 COP Lease Payment	\$51,058	25.0%	\$12,764	\$38,293	\$12,764	\$38,293
Grand Total All Costs	\$461,877		\$83,212	\$378,665	\$83,212	\$378,665
			\$461,877		\$461,877	

* "Regular" costs are those caused by "regular" customers, not extraordinary customers. If marginal costs will be assessed to extraordinary customers, the regular fixed and variable costs will be the full fixed and variable costs minus the marginal fixed and variable costs, respectively from charts 30 and 31.

"Proportional to Use" Rate Structure Cost Basis

Fixed Cost/User/Month =	\$7.30
Variable Costs (Cost to Produce)/1,000 Gallons Sold =	\$4.81
Gallons/Billing Cycle Used by General Customer =	6,772

Surchargeable Services are Estimated at	\$0
Inflow and Infiltration is Estimated at	31%
Percentage of Inflow and Infiltration to Allocate to Fixed Costs is	0%
Cost of Inflow and Infiltration is Estimated at	50%
Resulting Cost of Inflow and Infiltration	\$29,060
Test Year Usage Metered Through Customer Meters (in Gallons)	78,727,361
+ Test Year Inflow and Infiltration	34,088,039
= Total Test Year Volume	111,048,153