THE VILLAGE OF WAPPINGERS FALLS

Capital Infrastructure Plan

Organizing and Analyzing the Village's Infrastructural Needs

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The New York State Smart Growth Public Infrastructure Policy Act

The Village of Wappingers Falls will promote good, sound planning practices which will be guided by adherence to the Smart Growth Policy Act and its ten Smart Growth Goals as follows:

1. Use, maintain or improve existing water and sewer services.
2. Locate public infrastructure within municipal centers.
3. Promote development projects in developed areas identified for development in a comprehensive plan, local waterfront revitalization plan or brownfield redevelopment plan.
4. Protect, preserve New York State resources.
5. Foster mixed land uses and compact development.
6. Provide for mobility through a variety of transportation choices.
7. Coordinate between state and local governments.
8. Promote community-based planning and collaboration.
9. Ensure predictability in land use codes.
10. Strengthen existing communities so as to reduce greenhouse gas emissions.

These Goals are supported in this Capital Infrastructure Plan by using community-based planning and collaboration to support land use planning through comprehensive planning, local waterfront revitalization planning and brownfield redevelopment planning efforts. Through these efforts, the concentration of mixed uses of residential areas, commercial and work spaces and recreational areas are planned to be protected and enhanced as they surround our municipal center. Because the Village is already a compactly developed area with planning in place for future infill and outlying development surrounded by public and private greenspace, it effectively will be strengthened to reduce greenhouse gas emissions. Being situated in the center of Dutchess County's population concentration, we are ideally suited to benefit from our lower carbon footprint. This planning seeks to develop our needed infrastructure around our center while also protecting and preserving our New York State resources, namely Wappinger Lake, named a Critical Environmental Area by New York State Department of Conservation. We acknowledge as well that protecting our resources, also protects our infrastructure investment as well.

This planning document firstly and foremost plans for our existing water and sewer services (as well as the street surface, including walkability of sidewalks and curb structures) to be maintained and improved to support the compact development and land use codes decided by community involvement. This will in turn promote the reduction in greenhouse gas emissions. Capital planning is also needed to to show the feasibility of the studied improvements.

The following Capital Infrastructure introduces the concept of a prioritized water, sewer and streetscape improvements as well as stormwater drainage improvements. That prioritized list will be subject to a financial forecasting model described below. This forecasting model will be used to inform the public and the governing body of the Village how to determine which projects get funded and how. It will also

offer the framework with which to carry on a coordination of our local efforts with New York State and Federal representatives when assessing local needs.

This Capital Infrastructure Plan will promote good and sound planning by requiring future boards to show the analysis of future capital projects according to the Smart Growth Goals and the model described later. So as a policy, the Village Board will commit to determining how to spend public money and commit state and federal resources based on the use of this model.

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I. WHAT IS A CIP?

A Capital Infrastructure Plan (CIP) is the most efficient way for the Village to organize all of its infrastructural needs. A CIP will focus the Village to assess its current infrastructure, prioritize what needs to be fixed (i.e. which roads need immediate attention), and analyze how the cost of fixing the infrastructure will affect the Village.

II. WHAT WE PLAN TO ACCOMPLISH

The Village's economic condition is extremely poor. The Village has the second highest poverty rate in Dutchess County, where the average family only makes $38,123 per year. To make matters worse, 70% of the Village's infrastructure is failing. Augmenting the infrastructure problem, the Village is growing approximately 1.7% annually, creating an additional burden to the already failing infrastructure.

In this Plan, we plan to

1. Promote Smart Growth of the Village
2. Efficiently improve the roads, sewer and water mains to a condition that will increase the Village's livable condition in a way that minimizes the cost to the residents.
3. Maximize the Village's competitiveness to obtain State and Federal grants in order to reduce the cost of projects on Village's residents.
4. Regain the capability to independently provide for our citizens.
5. Create a base for future analysis of a possible new revenue source by selling water from the Water Treatment Facility to properties outside of the Village.

III. Assessment of Infrastructure

The infrastructure analyzed in this CIP is the streets. The streets are comprised of three separate but equally important components: the roads, water mains, and sewer mains. Both the Village's citizens and commerce depend heavily on usable and safe roads. Therefore, the streets are paramount.

Water Mains

In order to properly assess the condition of the water mains, original installation records and known problems were collected. The following charts summarize the collection. Because water mains cannot be seen, their aesthetic condition is unknown; therefore the following graph uses their age.

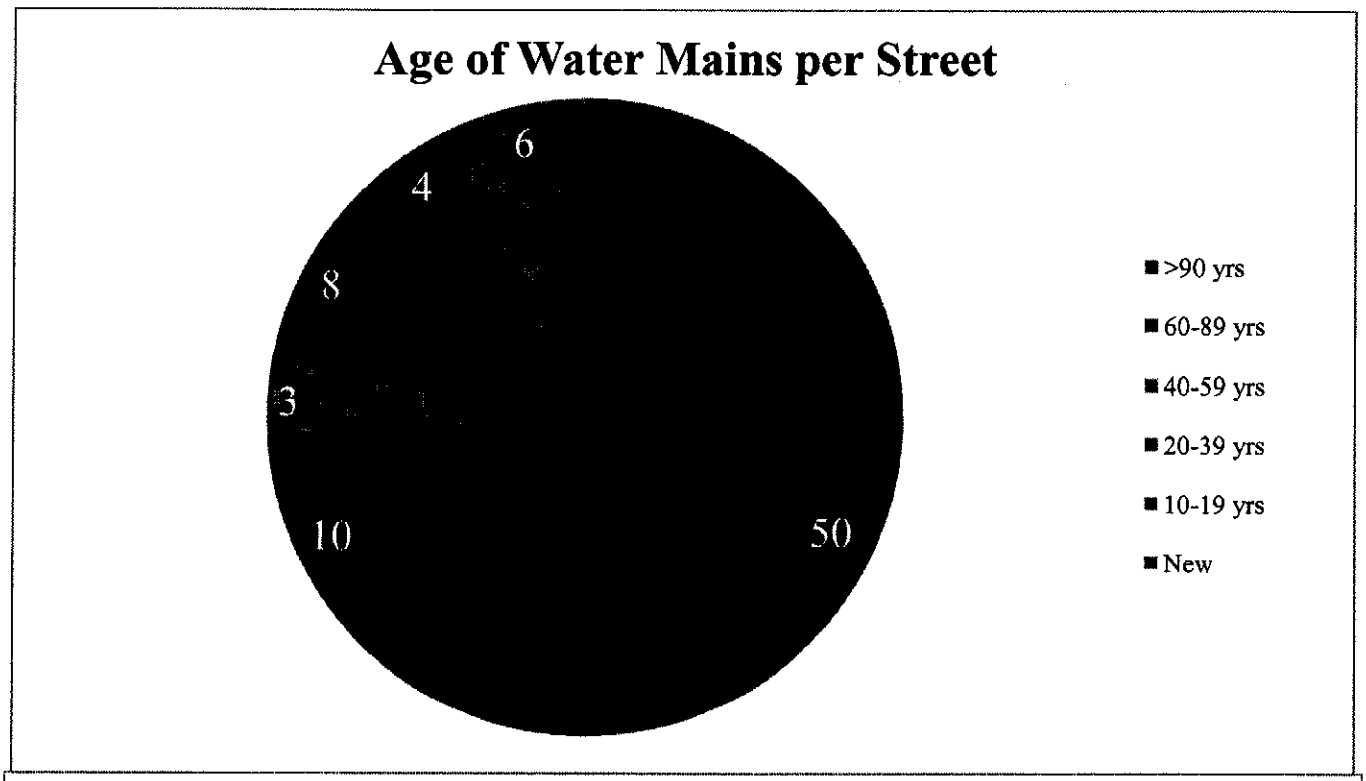


Figure 1:
This graph shows the total number of water mains in an age range. Since the water mains are located underneath the streets, each water main in the graph corresponds to a specific street.

Note that neatly 66% of the streets have water mains that are **older than 90 years.**

Sewer Mains

Like the water mains, the sewer mains cannot be visibly assessed. Therefore, conditions of the sewer mains were evaluated by the amount of times each sewer main broke. Again, because sewer mains are underneath the streets, each sewer main corresponds to the street above it.

Streets

Mayor Alexander formed a team consisting of him, the Village Clerk, the Highway Committee members Trustees John Chase and Bob Kirstein, the Water Department, and a handful of concerned citizens. This team walked the Village's streets and surveyed the condition of the streets, noting the conditions of the street themselves plus curb, sidewalk, and drainage conditions. Their survey is summarized in the chart below.

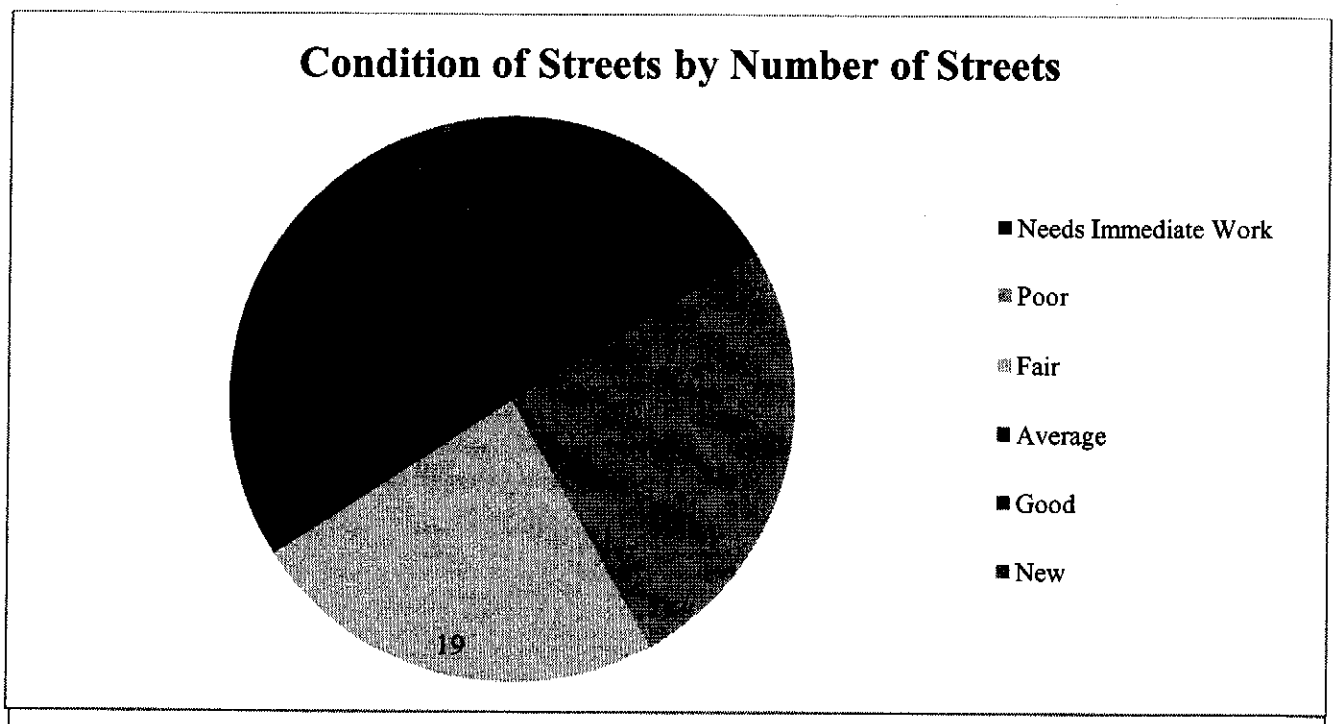


Figure 2:

The pie chart shows the number of streets by their overall condition. The condition of the sidewalk and curb of each street was also taken into account.

Note: Nearly 42% of all streets are in POOR condition or WORSE.

IV. PRIORITIZING THE PROJECTS

How the Street Projects were Prioritized

1. The street projects were prioritized with both their road and water/sewer condition
2. Type and Amount of Usage
3. Length of the road
4. Number of residents on each road
5. Review by the public and the Board

The Priority Code

The Priority Code is a simple way to easily identify a street's priority. The table below shows a description of each Priority Code.

Table 1

Priority Code	Street Needs…	Example
1	Immediate, complete renovation	Road crumbling to a dangerous level and/or water & sewer mains are extremely unreliable/leaking.
2	At least half needs major renovations	Road has possibly destructive potholes or structural cracks throughout and/or water & sewer mains are mostly unreliable.
3	One or two major renovations	Road has a few dangerous potholes or structural cracks and/or water & sewer mains are unreliable.
4	Complete less major renovations	Road has structural cracks throughout and/or sewer & water mains outdated but are decently reliable.
5	Some less major renovations	Road has some structural cracks and/or sewer & water mains are outdated but are decently reliable.

Note: A project with Priority Code 5 still needs attention, just not as immediate as Priority Code 1-4.

The following table displays some streets and their assigned Priority Code along with their estimated cost. The cost of the projects will be discussed in further detail in Section V.

Table 2

Priority Code	Street Name	Estimated Cost (In 2010 $)
	North Avenue	
1	**School Street**	**$ 670,773.64**
	High Street	
2	**North Street**	**$ 700,808.28**
	Avenue	
3	**West Academy Street**	**$ 1,051,212.41**
	Park Avenue	
4	**Pelham**	**$ 300,346.40**
	Adams	
5	**Trabucco**	**$ 450,519.61**

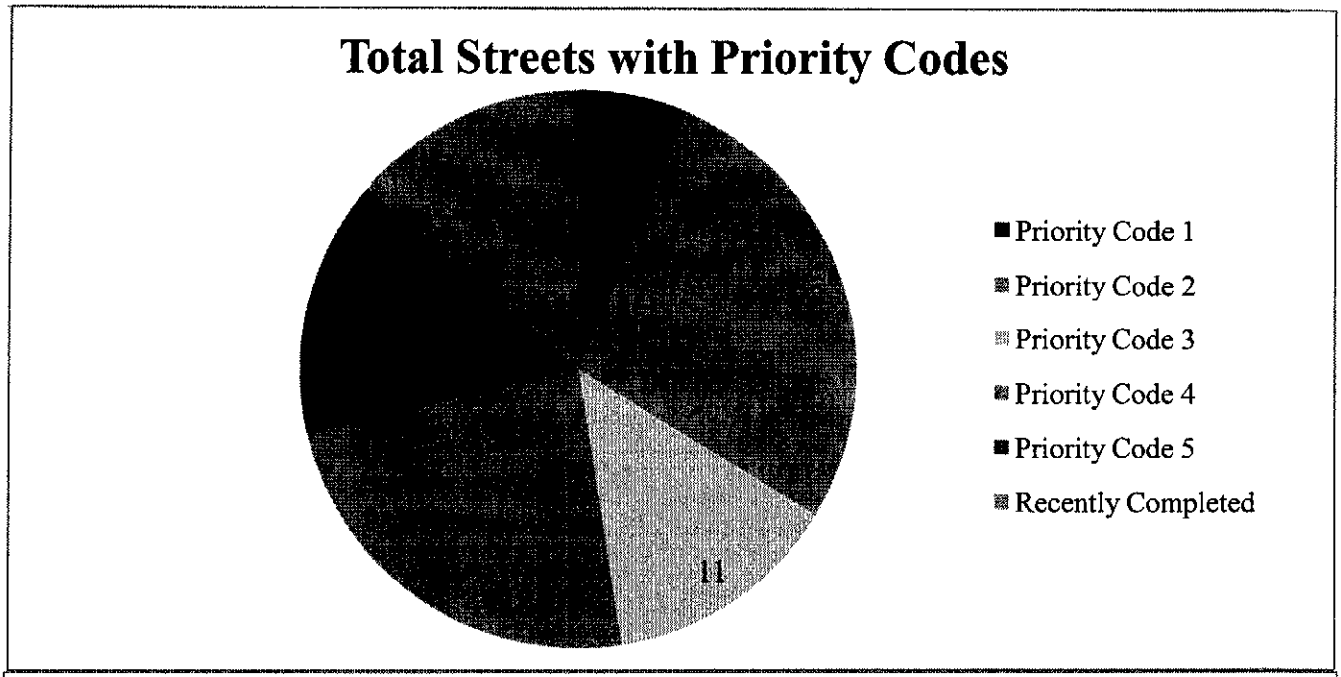


Figure 3: This graph shows that more than half of the streets need some degree of major renovation.

It should be noted that by the time the Village renovates all streets with priority codes, the recently completed streets will need renovations again.

V. Analyzing the Financial Cost of the Projects

The Village does not have the capital to pay for any project in cash. Thus, all projects must be financed, which means debt. Therefore, the Village must balance the amount of debt incurred and completing all necessary projects. The following section discusses the financial cost of the projects. However, a few things must be covered first.

Assumptions

1. The estimated cost of each project is based off an objective report made by the Village Engineer.
2. All projects assume no State or Federal aid.
3. All projects are financed at a conservative 5% for 20 years.
4. The cost to fix the street is charged to the Water Fund and the Sewer Fund at 47.3% and 52.7%, respectively.

Because these are blanket assumptions, they will not exactly match the cost of the individual projects. Thus, **the model allows all assumed variables to be changed to mirror the actual terms of the projects**. Meaning, the rate, term, amount of funding,... etc., for every project can be changed. Therefore, as the Village begins the financing of the project, the model will automatically adjust to accompany the changes.

Terminology

Equivalent Dwelling Unit: (EDU) terminology used for an individual user of water and sewer. For example, a person living alone is equivalent to 1 EDU. A family of four would be about 3-4 EDUs. The actual, more technical calculation was completed by the Village Engineer.

1. As of 2010 the Village has: **2972 Water EDUs**
   2414 Sewer EDUs
2. To forecast, the historical population growth rate of 1.7% was used for the EDU Growth Rate. Meaning every year the number of EDUs will grow 1.7%.

Water or Sewer: for simplicity' sake, whenever "water" or "sewer" is mentioned, it is referring to the Water Fund or the Sewer Fund, respectively.

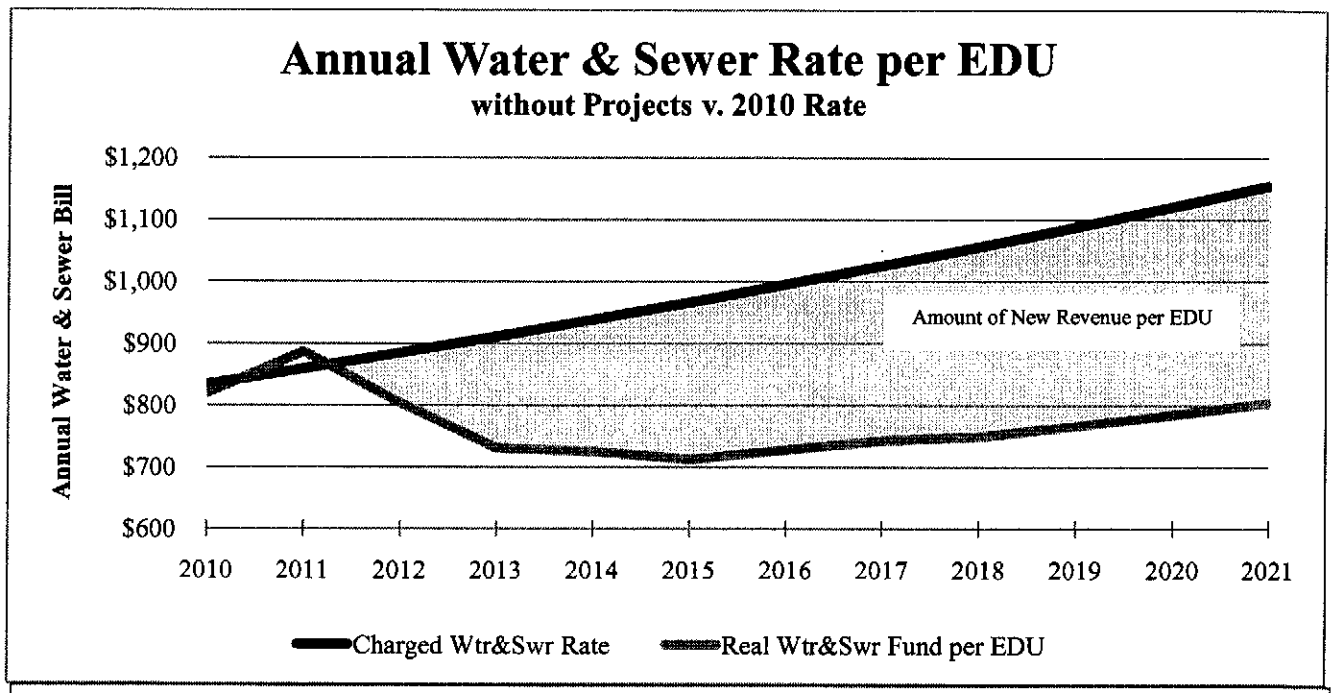
Process

It should be noted that in order to cap costs, when a road is being fixed, the Village will replace that street's water and sewer mains. This way, the roads will only need to be dug-up and fixed once.

The Plan

In order to pay for the multi-million dollar projects over the next few years, we propose to use revenue gained by annually increasing the Water & Sewer Rate at the rate of inflation (assumed at 3%). This way the user's rate will never dramatically increase and the Village can complete the projects in the most efficient manner. Just as important, when the Village asks for State and Federal help, we can show them that we have internally done everything to raise the necessary capital but still need help. To show this plan visually, the following graph was made.

Figure 4:



- The purple line shows the Water & Sewer increased annually at CPI (3%).
- The green line shows what an average user's Water & Sewer Bill would be without any projects.
- The difference between the purple line and the green line is the amount of capital available to the Village to use on the capital infrastructure projects.

Using the Graph: In the year 2016, if the Village only increased the Water & Sewer Rate by inflation, the average user would pay about $1,000 (purple line). If the Village did not take on any projects, that same user would pay approximately $710. Ergo, the Village would have an additional $290 per EDU to help finance the projects without any state or federal help.

Quick Analysis of *Figure 4:*

- The Village needs grants in order to complete all the projects on time without drastically increasing the Water & Sewer Bill.
- The purple line steadily increases the 2010 Water & Sewer Rate at inflation (3%) or ~ $24/year.
- If the costs of projects exceed the Inflation Adj, Rate (purple line), then the Village will need state or federal funding.

Before we discuss the amount of money for construction in detail, we will discuss what comprises the Water & Sewer EDU Bill.

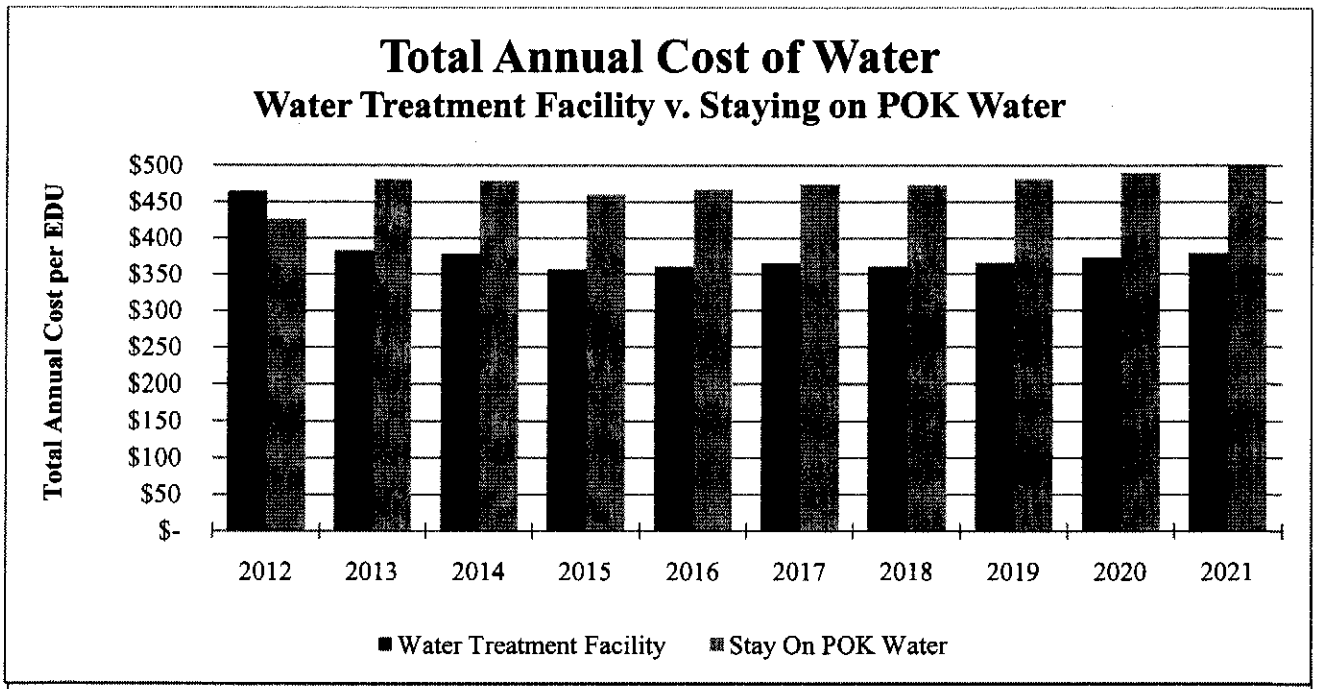
Analysis to the Individual Users

The next sections will demonstrate that the proposed Plan is the most advantageous for the Village. The remainder of the CIP is dedicated to show the effects of this Plan on the Village, starting with the Water Treatment Facility project.

The Water Treatment Facility

1 The initial cost Water Treatment Facility (WTF) is $5.75MM. With financing at 3.25% over 30 years, the WTF will cost the Village about $7 MM.

2 The WTF is a substantial amount of debt, however, the graph below shows the alternative:



Purpose of Graph: The graph above shows the annual cost of water per EDU *without additional projects*. The orange bars represent the annual cost of water if the Village stayed on Town of Poughkeepsie water. The blue bars show the annual cost now that the Village is constructing their own water treatment facility plant.

Using the Graph: In the year 2016, the expected water cost for an individual user, if the Village stayed on Poughkeepsie water, would be about $460 annually. In the same year, the expected water cost for that same user now the Village constructed the WTF would be about $355 now the Village constructed the WTF.

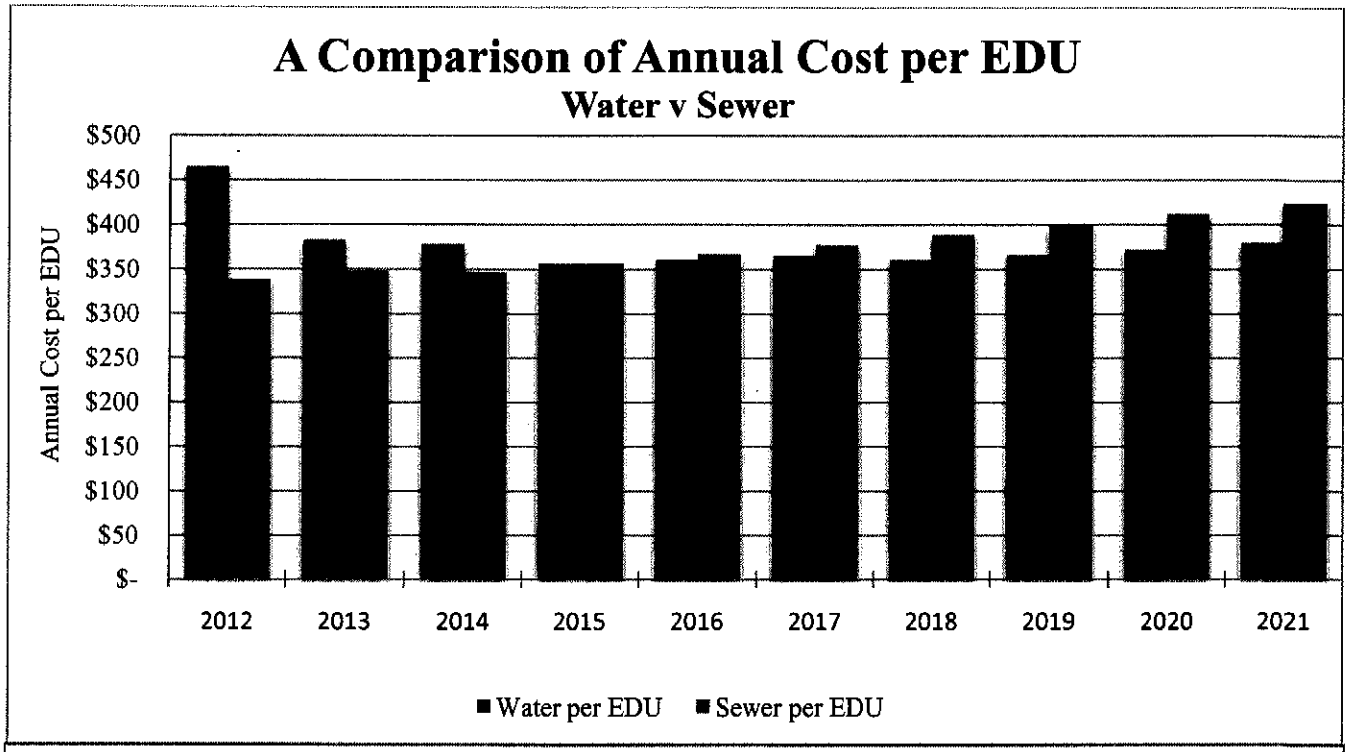
Quick Analysis of *Figure 5:*

- POK Water does not include the debt of the WTF.
- The gap between POK Water and the WTF widens as time continues.
- The cost of financing the WTF *is less than* consistently purchasing water from Poughkeepsie
- <u>The True Benefit: The Village can now independently provide for its citizens.</u>

The Water Fund, Sewer Fund, and Street Projects

In this next section, we will look at the forecasted Water Fund and the forecasted Sewer Fund. In order to forecast, we used a 3% inflation rate so all years are comparable.

Figure 6



Purpose of Graph: This graph shows the forecasted annual water and annual sewer cost for a single EDU.

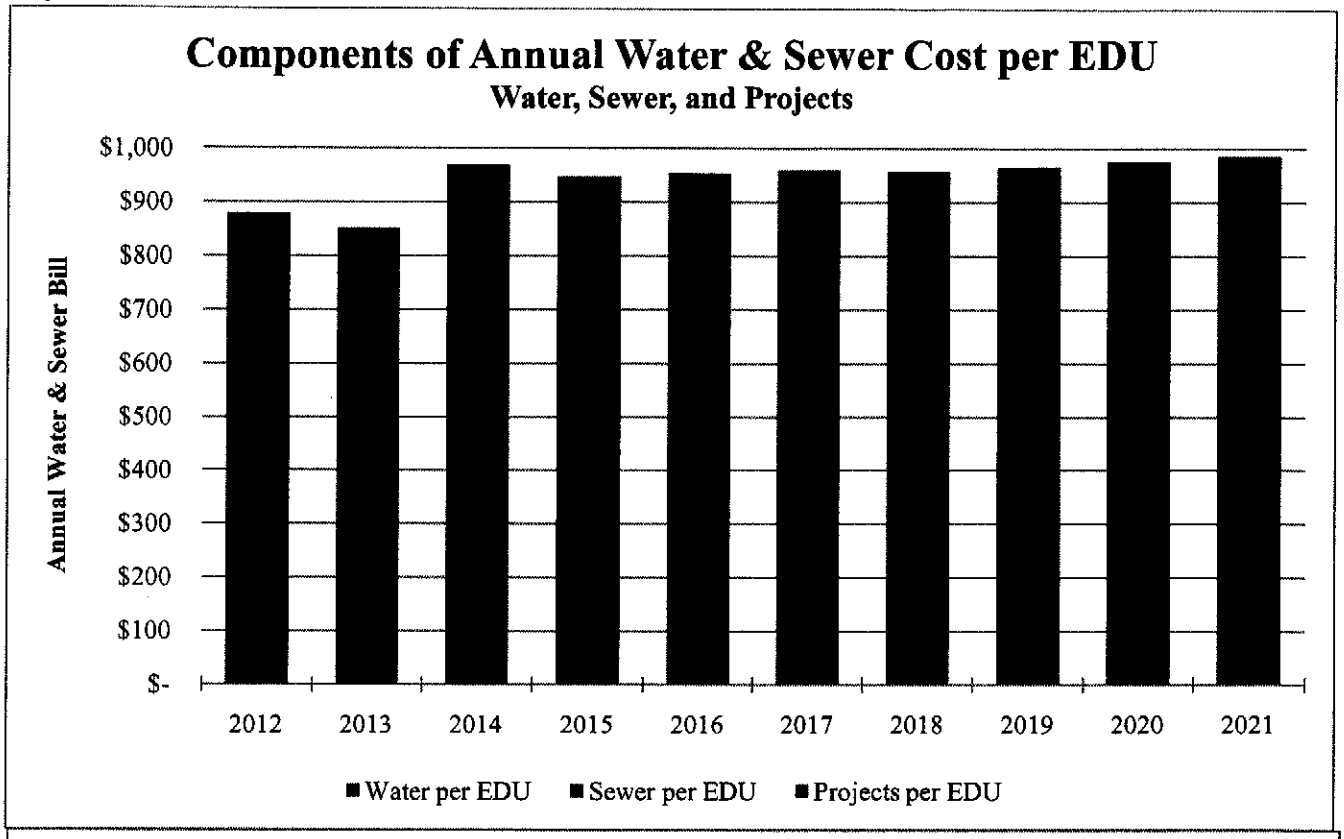
Using the Graph: In the year 2016 a single user would have to pay a total $355 for using water and $360 for sewer. Again, this depends on the amount of water consumed by the individual. Adding both the water cost and sewer cost in a single year together, you would get the Annual Water & Sewer Bill.

Quick Analysis of *Figure 6*:

- The cost fluctuations are caused by the Village paying off its debt.
- Cost of sewer will exceed cost of water because the mounting cost of sewer is spread over fewer users (EDUs) than water, which means each user pays more.
- Because a higher percentage of the street projects are charged to the Sewer Fund, eventually the Sewer Fund expenditures will surpass the Water Fund
  - For example, if a project cost $1,000, the Water Fund would be charged $473.33 while the Sewer Fund would be charges $526.67.

The next graph is particularly important because it shows the breakdown of a user's Annual Water & Sewer Rate. In other words, we can see how much an EDU needs to pay for each category (Water, Sewer, and Projects).

Figure 7



Purpose of Graph: This graph shows how the Annual Water & Sewer Rate per EDU will look. The Water (blue) and Sewer (red) sections of the bar are the Annual Water and Sewer per EDU Bill without any projects. The green section of the bar represent the cost of the projects per EDU.

Using the Graph: In 2016, a single EDU will need to pay approximately $950 for the entire year. Of this $950, about $375 will go to paying for water alone, $335 for sewer alone, and about $240 to pay for projects.

Quick Analysis of *Figure 7*:

- Because the projects are financed over 20 years, the loan payments begin to compound over the years, which is why projects will become more of the Water & Sewer Bill proportionally.
- Total cost of projects increases over time but we want the cost of projects to stay constant in proportion to the Water & Sewer Budget
- Most importantly, we know based on 2010 dollars…

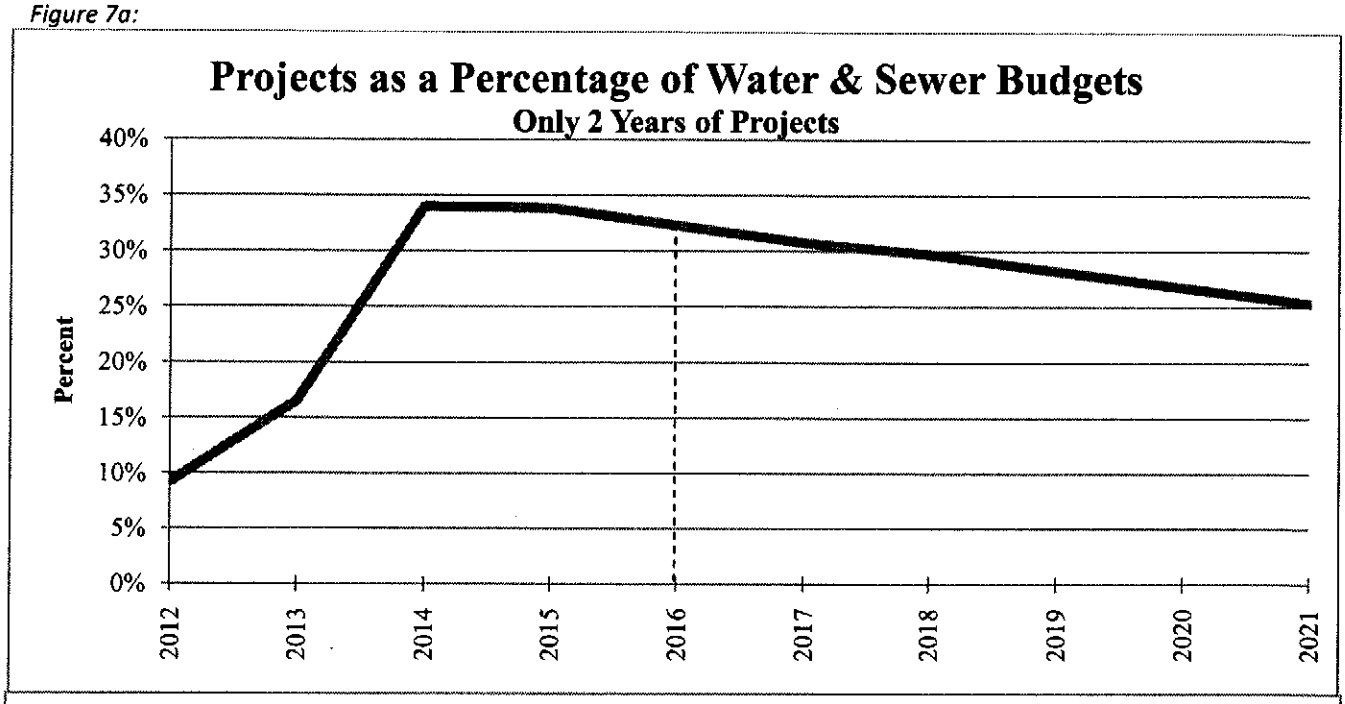
For every $100,000 spent on Projects, it increases the <u>average annual</u> cost of …

Water: <u>$ 1.08</u> per EDU for a 20 year period
Sewer: <u>$ 1.48</u> per EDU for a 20 year period

In order to ensure that users' Annual Water & Sewer Rate does not entirely comprise of projects, this next graph was created. To come up with the percentage every year, the following formula was used:

$$Percentage = \frac{Cost\ of\ Projects}{Water\ Budget + Sewer\ Budget}$$

Figure 7a:



Purpose of Graph: This graph only shows the 7 proposed projects that occur from 2012-2014. Therefore, this graph is better suited to demonstrate the trend of the project's effects on the Water & Sewer Budget.

Using this Graph: In the year 2016, 33% of the Water & Sewer Budget will go to financing the projects.

Quick Analysis of *Figure 7a:*

- Because the Village is paying down the loans, projects become less of the Water & Sewer Budget.
- With the proposed plan, the goal is to keep the percentage of projects constant through time.
- Therefore, to keep the percentage constant, more projects need to be completed.

Debt Analysis

Since the Village does not have the money to pay for the projects in cash, projects must be financed with the most competitive loans (debt).

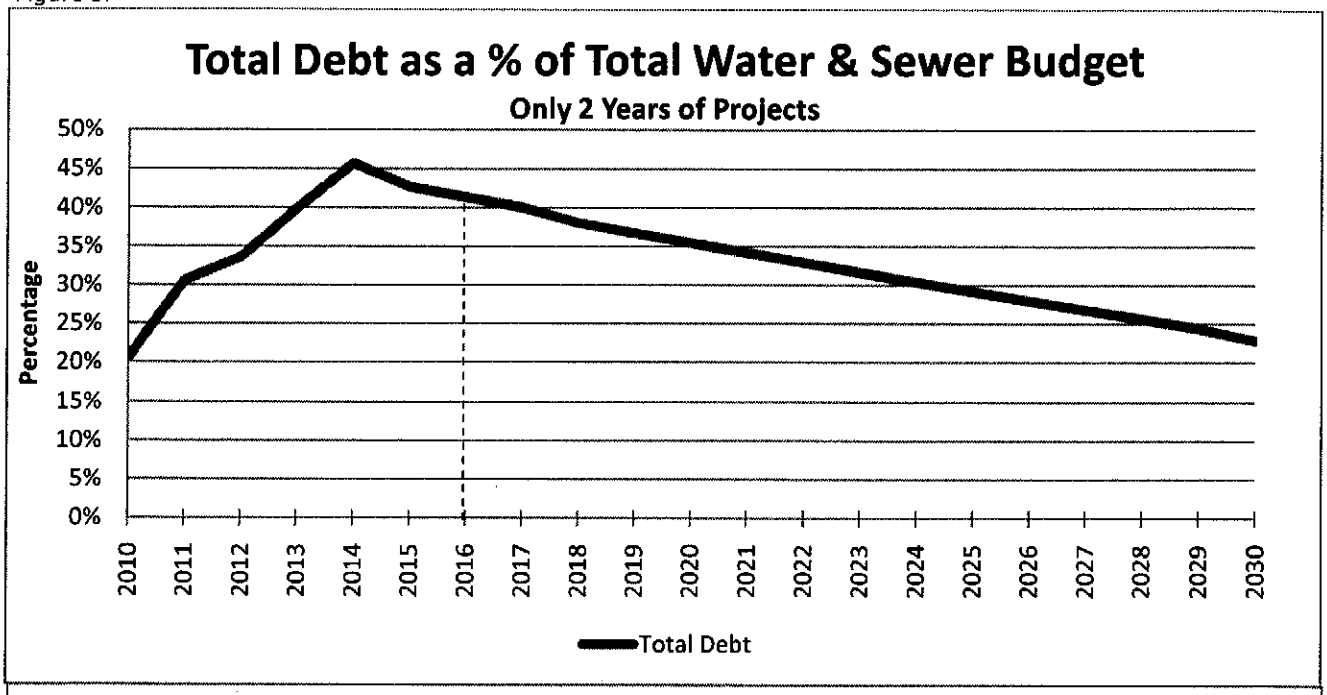
In terms of the CIP,

Total Debt = Previous Bonds + Previous BANs + POK Debt + Water Facility Payments + Project Bond Payments

To create the graph below the following formula was used for every single year:

$$Percentage\ of\ Debt = \frac{Total\ Debt}{Water\ Budget + Sewer\ Budget}$$

Figure 8:



The graph shows how much of the Water Budget and the Sewer Budget is made up of debt (i.e. bonds and BANs).

Using the Graph: In the year 2016, debt will make up approximately 41% of the water and sewer budget. Or another way to say it: For every $1 of the budget, there is 41¢ worth of debt.

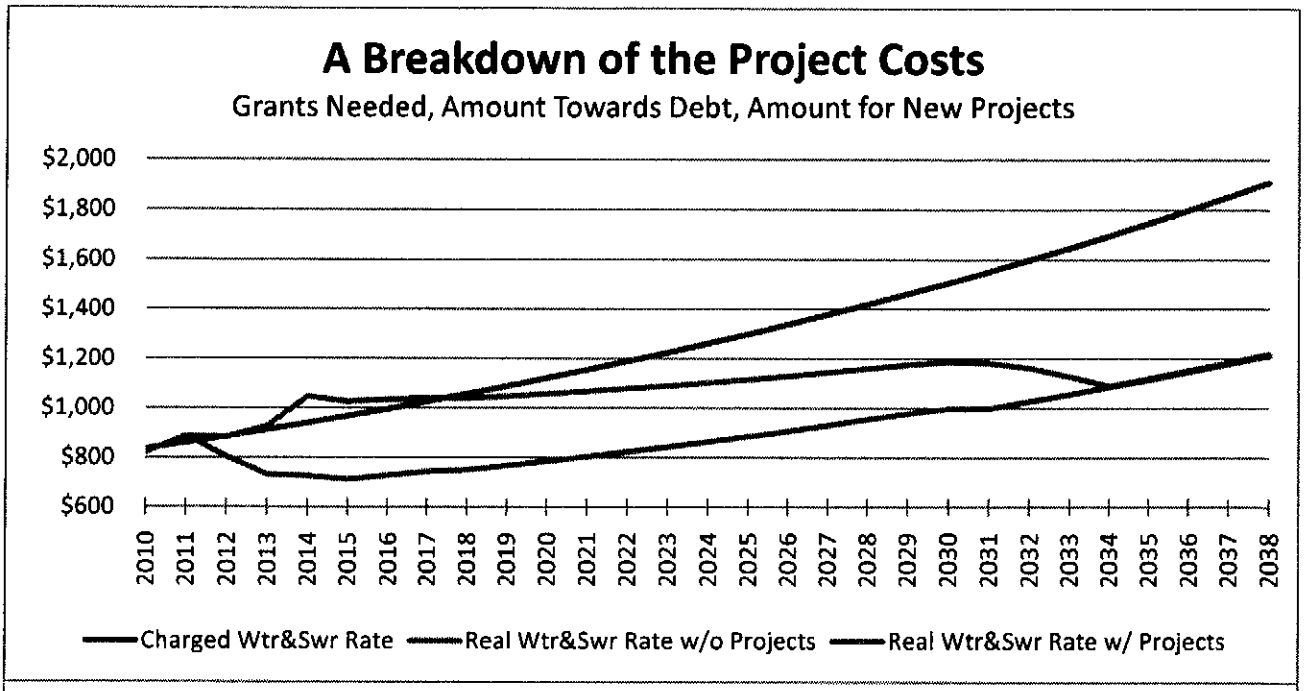
Quick Analysis of *Figure 8*:

- The debt is decreasing because projects are only completed from 2012-2014.
- Previous incurred debt us slowly being paid off.
- This graph does not take into account future debt not related to the projects.

As stated in the beginning of this section, these projects will place a decent financial toll on the Village. However, the proposed plan allows the Village to handle this debt. The next section shows how the plan works.

Recap:

In order to complete the all projects without dramatically changing the 'per EDU' rate, we proposed to increase the Water & Sewer EDU rate by inflation annually. Thus, the Village would increase its capacity to pay for the projects and keep tax payer's expectations constant. The following graph shows proposed plan in action.



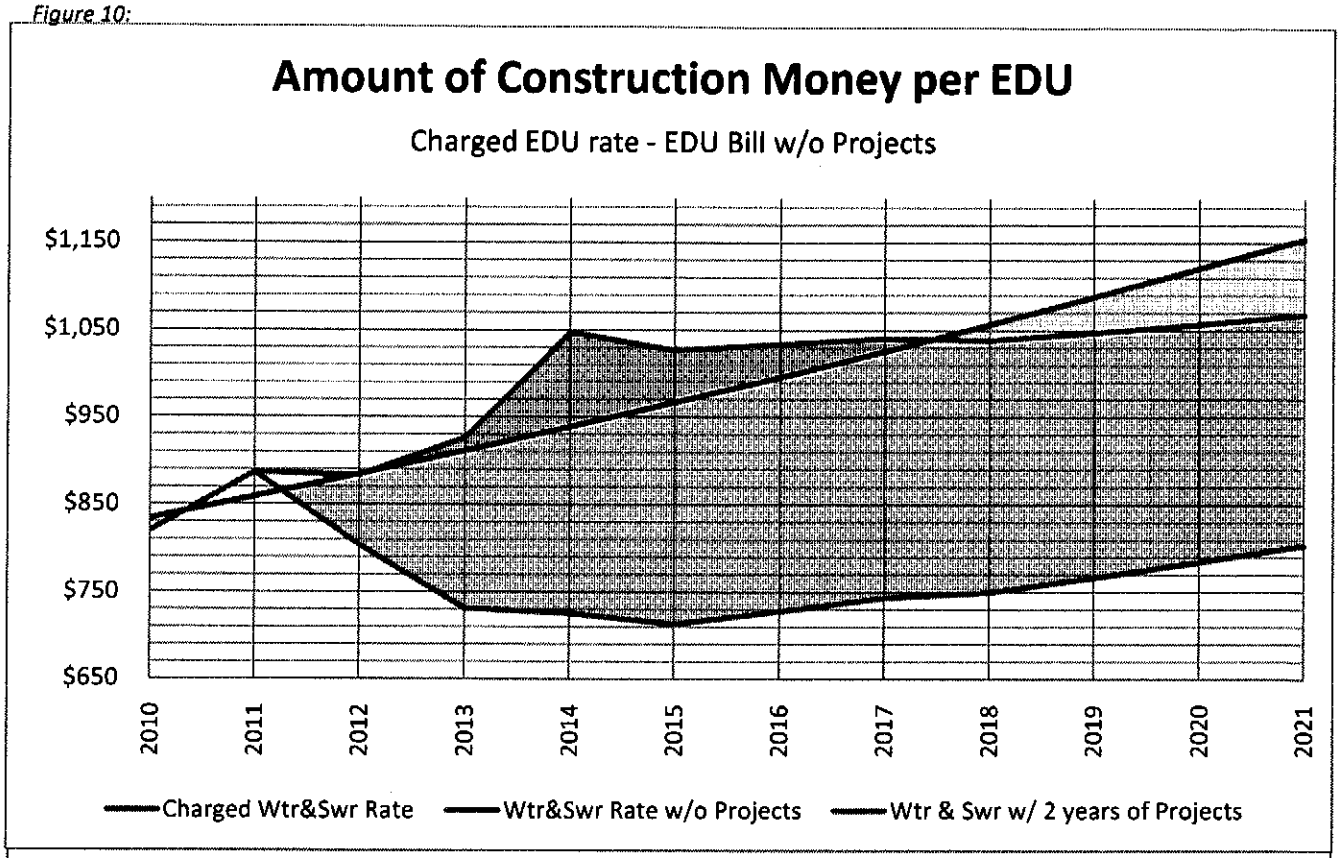
Purpose of Graph: This graph is similar to *Figure 4* except is shows the Real Wtr&Swr Rate *with* projects (orange line). It shows how the projects affect the Water & Sewer Budget per EDU. The goal is to complete as many projects as possible but have the orange line on or below the green line.

Using the Graph: In the year 2016, the Water Budget and Sewer Budget per EDU will be about $1,040, however, the Village will only charge an EDU $990.

This graph is the basis for the proposed Plan. By changing the years in which projects are completed, the orange line will change automatically. This is why the model is completely changeable so the Village can plan in the most efficient and most accurate way possible.

Though it is not obvious, *Figure 9* additionally shows how much the Village needs in grants, how much can go towards new projects, and how much is used paying for old projects. This is shown in greater detail in the following graph.

Figure 10:



Purpose of Graph: This graph is an enlarged version of *Figure 8* except it highlights (1) how much grant money is necessary (purple area), (2) how much of new revenue is going towards debt (red area), and (3) how much of new revenue can be used for new projects (yellow area).

Using the Graph: In the year 2016, because the cost of the projects exceeds the rate we are charging, the Village needs to obtain about $50 per EDU (purple area). Thus, all of the new revenue is going towards current projects. According to this graph, the Village will not have more money for new projects until 2017 (where yellow area begins).

By using this model the Village can create the best schedule to fix all of its infrastructure. It allows the Village to balance the amount of debt it owes with new construction. With this knowledge, the Village can make the best decisions to make the Village a better place to live.

Also as important, this model shows the Village how much grant money is needed. By applying for grants, it allows the Village some breathing room in terms of scheduling projects and takes the burden of the cost off of the citizens. In the next section, we show some of the grants that have already been applied for.

VI. FUNDING SOURCES

The following table is a comprehensive list of all the grants that the Village has applied for.

Table 3

Sources	Project	Amount Requested		Status
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DWSRF Guaranteed	Water Treatment Facility	$ 5,739,000	LOAN	IN PROGRESS
DWSRF Subsidized	Water Treatment Facility	$ 5,739,000	LOAN	IN PROGRESS
DWSRF Hardship	Water Treatment Facility	$ 5,739,000	LOAN	IN PROGRESS
Federal Appropriation	Water Treatment Facility	$ 1,000,000	GRANT	[illegible]
Green Grant	Water Treatment Facility	$ 700,000	GRANT	STATE withdrew GREEN program
OCR - North Mesier Ave	Street Infrastructure	$ 600,000	GRANT	denied
CWSRF (multiple streets)	Street Infrastructure	$ 7,900,000	LOAN/GRANT	IN PROGRESS
Vortech	Street Infrastructure	$ 500,000	GRANT	COMPLETED
Pump Station	Street Infrastructure	$ 600,000	GRANT	AWAITING ANNOUNCEMENT
DEC-Hudson River Estuary	Lake			
OUTFALL STUDY	Lake	$ 75,000	GRANT	COMPLETED
LAKE STUDY	Lake	$ 75,000	GRANT	GIGP RFP due Oct 2010
Managed Wetland-E.Main/Brookside/Vets Park	Lake	$ 350,000	GRANT	GIGP RFP due Oct 2010
Department of State LWRP	Planning			
LWRP	Planning	$ 115,000	GRANT	IN PROGRESS
BROWNFIELDS	Planning	$ 370,400	GRANT	AWAITING ANNOUNCEMENT
OCR Planning Grant - Zoning	Planning	$ 80,000	GRANT	Applied
LWRP	Parks	$ 475,000	GRANT	AWAITING RFP
HUD	Parks	$ 196,000	GRANT	IN PROGRESS
Transportation	Parks	$ 600,000	GRANT	Waiting for Fed Trans Bill
DEC	Bleachery			
Superfund Bleachery Cleanup	Bleachery	$ 10,500,000	GRANT	IN PROGRESS