

# **First Report to City Council On the State of the Sewer Rehab Project**

**by the Vernonia Public Works Committee**

## **Scope of This Report**

The purpose of this report is twofold. The first and primary purpose of the report is to provide the City Council with a report of the investigations of its Public Works Committee into the ongoing Sewer Rehabilitation Project. The secondary purpose of this report is to document the process, circumstances, trade-offs and details of the Sewer Rehabilitation Project to date so they can be reported to interested citizens.

Such reporting to the citizenry is particularly important in light of the failed bond levy last May and our expectation of the need for a large levy in the future.

## **Current Status of the Sewer Rehab Project**

Committee Progress to Date

### Mission

The first order of business for the Committee was to establish a Mission Statement to guide our efforts. In our first meeting, we prepared the following mission statement:

*Our responsibilities for the sewer project requires us to:*

- *Act as liaison to encourage two-way communication between the citizens and City Council of Vernonia.*
- *Create simple, precise, understandable messages conveying the correct information about the sewer project.*
- *Educate ourselves to achieve a better understanding of the different phases and options for the sewer rehabilitation project while continuing our effort to reduce its cost and impact on Vernonia households and the Natural resources of our community.*

Discussions at our second meeting caused us to question the ad hoc character of our committee. We now believe that the City Council should establish a permanent Public Works Committee to serve Vernonia and the City Council. We believe this committee should have seven members appointed by the City Council including one member of the Council. Below is a proposed mission statement for such a committee:

*The Public Works Committee will work in partnership with city staff and consultants to:*

- *listen to stakeholders and communicate with the public*
- *investigate project strategies, costs, and funding sources*
- *examine the economic and environmental impacts of City projects*
- *advise the City Council of our findings*
- *make recommendations to the City Council regarding public works projects studied*
- *oversight by recommendation of Public Works projects.*

Our rationale for this change, is that such committees are standard procedure in virtually all

cities. They provide overworked city councils with experienced volunteer help and continuity in the management of complex city public works. At the same time, such committees provide the public with access to expert information, as well as the confidence that comes from disinterested citizen oversight of a crucial public activity involving large expenditures.

### Project Details

Because the City Council has been intimately informed about the details of this project over the last three years, we have not reiterated them here. We have included a short synopsis of the details in the public report below. As the committee begins to cover new ground working with city staff and engineers our reports will include considerably more project detail.

#### Phase I

With the help of city staff and the Committee has become familiar with the details of Phase I of the project. We have toured Pump Station 2 and the two temporary water filtration plants. We've also begun to digest the trade-offs with which the City Council has already grappled. We have tried to detail them for the public in the report below.

#### Phase II

#### Possible Value Engineering

In the flurry of citizen involvement after the May vote citizens raised many questions and suggestions. The majority of these suggestions involved ways to save money. Below we have listed some of these promising "value engineering" suggestions.

#### Lagoon Dikes:

Clearly, the plan to raise the lagoon walls as part of this project had a twofold purpose. The first was to create storage for summertime effluent. The second was to make the lagoons proof against a flood such as the one that occurred in 1996. One possible way to reduce the cost of the sewer project, specifically, is to eliminate the dike elevation as part of this project. This could possibly be eliminated, because Level IV effluent can very likely to be discharged directly into the Nehalem River after finding some way to cool it off.

Eliminating the dike work from this project would not preclude the use of funding sources such as a FEMA mitigation Grant to pay for dike elevation. Nor would it be a bad idea to include an application for such a FEMA mitigation project to be included in a blended Phase II. However, there is much to be gained by thinking of these as separate projects. First, it creates a stronger case for a FEMA grant. Secondly, such an understanding may help us reduce the cost of this project, and its impact on taxpayers.

#### Mill Site Property:

If we do not attempt a store waste water over the summer, there may be surplus land owned by the City on the Mill site. This surplus property represents an opportunity for the City. It could be sold to reduce the cost of the overall project. It could be developed into parkland, an economic development project such as the Bicycle Skills Park or subdivided into home sites or light industrial property. The light industrial property is a particularly interesting idea given the proximity of sewer, an existing industrial park, and the plan to extend California Avenue.

Funding:

The committee identified three interesting funding opportunities to reduce the cost of Phase II. These include the Community Development Block Grant, the aforementioned FEMA Mitigation Grant, and a federal earmark.

We have also identified the fundamental disadvantage in diligently pursuing these funding sources: they will take time. The challenge the City faces with each passing month is a continuation of the escalating construction costs experienced during the past five or six years. In a nutshell, we must wonder if our project costs will increase substantially as we take time to pursue grant funding.

Several members of the committee familiar with the recent inflation in construction costs believe that construction costs have generally reached their peak. But, in the end, this boils down to whose crystal ball actually predicts the correct future.

Next Steps:

The committee plans to continue monitoring the engineering of Phase II. We believe it is important for Vernonia to explore opportunities to store Level IV effluent on the Mill site outside the lagoons or possibly in Lake Vernonia. The Lake as a storage opportunity makes a lot of sense. At the same time, we are overwhelmed with effluent, we are also unable to keep the lake pumped full of Nehalem River water.

None of the value engineering, funding investigations, or alternate strategies discussed above can take place without creating substantial delay to pace of the sewer project. We believe that city staff and engineers should be directed to approach the Department of Environmental Quality with a proposal to extend the implementation of Phase II for an additional five years. This extra time will allow the necessary additional research work to allow a thorough look at cost savings. We believe that such a proposal will be acceptable to the DEQ, because our work on Phase I demonstrates the City's commitment to the project's goals.

We are working to plan communication opportunities with Vernonia citizens to explain both the project and its cost. This communication must include an explanation of the impact of project costs on sewer rates and the opportunities presented by using a tax levy to finance the project.

We will provide the Council with quarterly reports on what we've learned.

## Vernonia Public Works Committee

### **Report to citizens on our sewer project**

Over last 7 years, Vernonia's leadership has worked to address serious problems with our sewer treatment facilities. This effort, undertaken under pressure from the Oregon Department of Environmental Quality, was intended to resolve Vernonia's sewer problems for the foreseeable future. The first that many Vernonians saw of this effort, was a proposal for a \$9 million bond levy last May. In response to the public interest, the Mayor and Council established a Sewer Committee, appointing fourteen members to look into the sewer project and report back to the Council. This report is intended as background report for citizens to be supplemented by a series of planned reports from the Sewer Committee to the City Council.

It is the intention of the Sewer Committee to provide the City Council and the citizens with its best understanding of this project and the expected impact on the city.

Below is a short history of the sewer project, including a synopsis of events since the May election. The report describes both Phase I and Phase II of the current sewer project, as well as the committee's proposals to examine aspects of the project's scope and financing.

#### *The Current Project*

The Oregon Department of Environmental Quality (DEQ), and its federal counterpart, the Environmental Protection Agency (EPA), are particularly concerned about Vernonia's sewer system because we discharge our sewerage effluent directly into the Nehalem River. The Nehalem is not only habitat for endangered salmonids like trout, steelhead and salmon, but the river is also a source of drinking water for people living between Vernonia and the Nehalem River's outlet near Wheeler.

Fifteen years ago, Vernonia completed a sewer project that it believed would bring the city into compliance with DEQ's requirements for the foreseeable future. In that project, over 45% of the cost was defrayed in state and federal grants. To complete that project, Vernonia financed several million dollars of the project's cost using forty-year bonds (loans to government.) Vernonia must continue to pay on this debt until the year 2030. Unfortunately, shortly after the completion of that project, the water quality standards changed. Since that time, Vernonia has been in violation of these new standards. Despite the frustrating nature of this situation, the sad truth is that the design limitations of that project did not eliminate the damage to fish runs and the risk to the health of our downstream neighbors.

In 1993, Vernonia's City Council entered into an agreement with DEQ that required Vernonia to resolve the problem within seven years. Thirteen years later, we have barely started. We are told, that no Oregon city has ever violated one of these agreement with DEQ over such an extended period. In short, the state agency is out of patience with Vernonia and we are told EPA is out of patience with DEQ.

Last year, after spending nearly \$500,000 on engineering, Vernonia presented a proposed solution to DEQ. We promised to eliminate our illegal pollution after the completion of a two-phased sewer project. Phase I includes essential safety and mechanical improvements to Vernonia's two existing pump stations and the construction of a third pump station. Phase I of

the project has been designed, placed out to bid, and is under construction. This phase of the project, together with the expensive engineering of Phase II, will cost nearly \$4.5 million.

It is important to note that this engineering for Phase II of the project is only now being started. The ideas previously presented to DEQ included: increasing the height of the dikes enclosing our lagoons, construction of a sewage filtration system and creation of a wetland bio-filtration system. The key to understanding the design challenge of Phase II, is knowing that it must allow us to store our sewage waste for the five summer months when the Nehalem River flows are very low.

This challenge of storing 5 months of treated sewage waste requires the most expensive activities of Phase II. To obtain the most value for our money during this phase, we must ask ourselves how thoroughly can our new treatment system polish our sewage waste. Regulatory agencies, like DEQ, use standards that categorize treated waste into four levels. The preliminary plan presented to DEQ proposed to treat our waste to reach level IV, the highest standard. At Level IV, the effluent is clean enough to discharge directly in the Nehalem River, even in periods of low flow, provided the effluent is not too warm.

The preliminary design for Phase II is based on the need to create summer storage despite the fact that the effluent will meet Level IV standards. It is the warmth of the effluent that is driving plan. The Level IV quality is reached by combining the treatment provided by the lagoons with a filtration treatment plant. Despite this treatment, we must either find a way to store up to five months of effluent or cool it enough for disposal in the Nehalem River.

Achieving Level IV quality effluent requires filtration. As part of the Phase II design process, the City is demonstrating two small-scale sewage filtration systems. These competing systems are installed side-by-side near the sewer lagoons and are being comparison tested for effluent quality and dependability. The filtration from both systems produce water effluent clean enough to:

- discharge into the Nehalem River,
- irrigate a golf course, or
- place into Lake Vernonia.

The provision for storage of Level IV is redundant and an expensive approach to sewage treatment.

### Possible Value Engineering

In the flurry of citizen involvement after the May vote, citizens raised many questions and made many suggestions. The majority of these suggestions involved ways to save money. We feel that it is important to address questions and concerns that are raised within the community both as a matter of principle and as an essential requirement to success in any future bond levies. Below we have selected the best of these "value engineering" suggestions to detail in this report.

#### 1. Pump Station:

One of the questions raised by citizens was, "Why do we need a third pump station?" Upon investigation, it is clear to us that the third pump station is needed. In order to answer the public question, we must explain one of the many complications that make this project hard to understand. Our explanation is also an object lesson in the importance of city planning.

Most cities work hard to see that their sewage flows downhill. This avoids expensive infrastructure and reduces operating costs. The design of Vernonia system, requires that it pump all the sewerage from the east side of the Nehalem River Bridge and the O-A Hill Area uphill to our lagoons located at the confluence of the Nehalem River and Rock Creek.

This necessity is an artifact of Vernonia's poor control over its own growth. Clearly, the operation of our sewer system would have been more efficient had all of the city's growth had been directed to the west of downtown keeping all development east of our lagoons. Even the sewer draining O-A Hill requires pumping because it comes down a draw that crosses Bridge Street just east of the Fire Station. The result of these poor planning decisions places nearly half of our sewerage near the north end of Lake Vernonia, downhill from the sewerage treatment facilities.

2. New Headworks:

Phase I of the sewer project also includes the construction of new headworks. The purpose of a headworks is another confusing detail. In simple terms, the lagoons allow micro-organisms to break down organic solids into liquids and dissolved solids. If we want them to last, we must keep any insoluble solids out of the lagoons. Otherwise, they will simply fill up. It is the job of the headworks to slow down this inevitable filling up of the lagoons. They also help eliminate damage to pumping equipment, by separating water and organic solids from inorganic solids (plastics, some paper, etc.) Our existing headworks is working poorly and our lagoons are filling up with trash as a result.

The lagoons also allow us to treat the effluent with chlorine to kill all the microorganisms. It is this treatment, along with filtration, that makes that Level IV quality effluent safe.

3. Lagoon Dikes:

Adding seven or eight feet on top of the existing lagoon walls, as planned in our current Phase II design, is a real construction challenge. That means it's expensive. Finding a way to leave the current lagoons as they are is an important cost-saving opportunity. Since this change would reduce our ability to store summer effluent, this plan would require us to discharge directly into the Nehalem River during the summer or find on another storage solution.

Two possible storage solutions include the creation of wetland storage on the mill site and placing the very clean Level IV effluent into Lake Vernonia during parts of the summer. It is important to note that we are not sure yet whether either of these is a good idea. Both concepts are being looked at by our engineers for safety and effectiveness. These two options may well be combined. Worrying as these ideas may be, they are two of our most promising value engineering opportunities.

There is one significant drawback to the idea of leaving the lagoons unchanged which is unrelated to compliance with DEQ requirements. In the event of another flood like 1996, our existing lagoons are likely to be flooded. Increasing the height of lagoon walls, as proposed in the original project, is likely to eliminate the chance that a flood would cause a catastrophic pollution event.

#### 4. General Project:

If we do not attempt to store wastewater on the Mill Site, the City may have purchased surplus land between the lagoons and the Lake. This land could be sold, developed as parkland, or put to some other productive use. This also represents an opportunity to reduce the project's cost.

#### The Cost of the Project

Estimates of the cost of both phases of the project are now approximately \$9.5 million. Part of the agreement with DEQ was the establishment of a multimillion dollar line of credit to be used as a kind of construction loan to complete Phase I and Phase II of the project Vernonia negotiated with DEQ. The city has already drawn significantly on this line of credit and will need to do so further to complete Phase I. So far, the city has drawn approximately \$2.0 million against the line of credit. Before Phase I is complete, the city will have used nearly \$4.5 million dollars from the line of credit for construction of Phase I and the design of both phases.

Without a doubt, Vernonians will have to pay for most of this project themselves. Grant funds are not likely to exceed more than \$1-2 million. It is possible that our debt could reach \$7 million.

Once we know how much we must borrow, we need to consider how long we can take to pay it back. Our funders, the City, and citizens suggest it is not safe for Vernonia to stretch the payments on this debt longer than 20 years. Their fear is that our circumstances will change again as they did with our last sewer project. Such an event, would place us in the same difficult position we are in now -- paying for two projects at once.

We will have two payment choices for the loans. One choice will be to add the payments to our sewer bills. The other choice will be to pass a tax levy. Either way, the city will need to receive the same amount of money to amortize the debt. Cities will typically request a tax levy for such projects because that will save the majority of their citizens money. levies save money over the alternative, higher sewer rates, because taxes are deductible.

But, there are trade-offs here also. The tax levy approach is more "progressive" because households with less ability to pay tend to have less expensive homes. Consequently, these households will typically pay less when costs are financed through a bond levy. Renters also tend to pay less. It is true that those with more expensive homes usually pay more. However, these homeowners are likely to be able to exploit the tax deductibility of these taxes

On the other hand, paying for the project through user fees is less progressive. Those with the least ability to pay, often pay a larger fraction of their income to amortize the city's debt. In particular, the elderly will can be hard hit by a user fee approach.

#### The Grant -- Construction Cost Trade-Off:

The City is faced with a serious dilemma in trying to reduce the cost of this project. They can seek grant funding to reduce the approximately \$4.5 million of Phase II. Unfortunately, doing so will take additional time. We believe the city's work on Phase I will buy us some relief from regulatory pressure. However, construction costs over the last half decade have accelerated at an alarming rate. This rate of increase has been so fast that cost inflation could eliminate the benefit of all likely grant funding. There are some indications that construction costs have peaked. However, there are no guarantees in this situation. The city, its staff, and engineers will have to

make the best guess they can about this trade off. It is important for the citizens to avoid second-guessing the honest choices made in this situation.

### Next Steps

The City plans to use the engineering of Phase II as an opportunity to squeeze costs out of the project. They will explore the benefits and risks of storing Level IV effluent outside the lagoons; on the Mill site or possibly in Lake Vernonia. This exploration needs to include a careful look at the impact on the lake and the cost savings opportunities related to it. At the same time, the city is working hard to explore every possible source for outside help from the state and federal governments.