

Minutes of a Meeting of

PUBLIC IMPROVEMENTS, STREETS, SEWERS AND DRAINAGE COMMITTEE

held February 1, 2016

6:00 p.m.

Members Present: Councilman Tom Henderson, Chairman  
Councilman Paul Vincent  
Councilman Dwight Clark

Also Present: Mayor Sutherland, President of Council Koomar, Councilman Mace, Councilwoman Lieske, Councilman Tadych, Law Director Ebert, Finance Director Mahoney, Consulting Engineer Bob Greytak.

Audience: Richard Fink, Kevin and Debbie Busdiecker, David and Karen Brill, Tom Vickers, Dennis McNulty, Suzanne Graham.

Mr. Henderson welcomed everyone to this second meeting of the Public Improvements, Streets, Sewers and Drainage Committee of 2016.

At the meeting of the Public Improvements, Streets, Sewers and Drainage Committee held January 25, 2016, the three options under consideration for the Bruce/Russell/Douglas area were reviewed. This evening the committee will review the five-year plan for the sewer system. Secondly, this evening the committee will review two documents prepared regarding the Sunset Sewer Project, one is a Sources and Uses Document that Finance Director Mahoney has prepared, and the other is a Capital Projects Request Form from the original draft of the budget.

Mr. Henderson noted that the Five Year Plan for the Sewer System document has Option 2 penciled in at the top. There will not be a lot of attention paid to the Bruce/Russell/Douglas numbers this week, and looking at the other line item numbers they are the same as Options 1 and 2 reviewed last week.

Bob Greytak, Consulting Engineer with CT Consultants, discussed each line item on the Five Year Plan for the Sewer System.

Computer model of Lake-Bradley sewer system including filed investigation and recommendations (sanitary sewer) (\$20,000 in 2016)

Mr. Greytak: At the intersection of Lake-Bradley there is a complicated network of sanitary sewers that were put together over time. There is a history of flooding upstream of this particular intersection and to try to do a hydraulic investigation of it to understand the dynamics of the system, it is recommended to create a small model for the sewers in that area. Whatever relevant sewers upstream of that intersection should be included. The model will give an indication of what the recommendations of the engineer will be to address the situation. Mayor Sutherland stated that this project is a direct result of flooding that occurred last summer. There has never

been major flooding in the Huntington Woods area like there was this past summer. There is a very strange pretzel-like configuration of piping that is right at the head of Huntington Woods Parkway at Bradley Road. That may have directly exasperated the problem. The computer modeling will take three or four months.

Mr. Vincent asked how it is determined that the modeling will cost \$20,000. Mr. Greytak stated that the proposal is based on his experience in doing models for this City and other cities. Mr. Clark noted that this project is included in the Capital requests of the 2016 budget for consideration.

Computer model of Clague-Lake sewer system including field investigation and recommendations (sanitary sewer) (\$20,000 in 2017)

Mayor Sutherland stated that this project is necessary as a direct result of the flooding from last summer. East Oakland flooded badly and there was a lot of street flooding. It has been tracked to the Clague and Lake Road area. Mr. Greytak stated that there is a similar pretzel system of sewers all concentrated in the intersection.

Mr. Henderson asked what caused these two projects to be put to the top of the priority list for 2016 and 2017 as opposed to any of the other areas where people complained about flooding. Mayor Sutherland stated that they looked at neighborhoods that were impacted and especially neighborhoods that would normally not flood. There was a lot of private property flooding due to problems on private property, but these were determined to be caused by something in the system.

Mr. Greytak stated that there are no other modeling projects other than those listed in the Five-Year Plan. The only other modeling project is the Comprehensive Calibrated Sewer System Model (Sanitary) and the Comprehensive Calibrated Drainage Model (Storm).

Mr. Henderson stated that when he reported complaints of street flooding in certain areas, the Mayor said that street flooding is not necessarily an indication of a malfunctioning sewer system but is a component of the drainage process. He asked if the area he reported (Wolf Road, Westerly, Ednil) is in need of modeling as well. Mayor Sutherland stated she would have to check with Service Director Thomas. The Mayor stated that street flooding in that area is not a bad thing; the streets were operating as a quasi-retention basin until the system could handle it and then the street would drain. The Mayor noted that the only area that did well was the Lincoln/Marygate area.

Huntington/Longbeach Pump Station Electrical Communication Improvements (\$30,000) CPU design; (\$30,000) Installation

Mr. Greytak stated that there is an antiquated communication system between the two separate pump stations and the valve that controls flow to both of those pump stations. A valve was recently replaced. A flow meter needs to be integrated into the logic of diverting flow between

Public Improvements, Streets, Sewers and Drainage Committee  
February 1, 2016

the Longbeach Pump Station and the Huntington Pump Station. It is currently done manually. An alarm goes off and an employee has to go to the site and flip the switch.

Mr. Clark related that the first \$30,000 for the CPU design is factored into the 2016 Capital Budget.

#### Pump Station Communication Improvements \$30,000 for 2017

This is to improve communication of all the pump stations including Walmar, and Nantucket Row which now have dialers that dial out to a phone number when there is a problem. It doesn't announce what the problem is and it doesn't integrate it into any of the other communications that exist for the pump stations. The dialers need to be replaced with more updated hardware. The hardware will give real time information about what is going on at the pump stations.

#### Lake Road Pump Station Improvements \$38,000 for 2017

This line item was discussed at the Public Improvements, Streets, Sewers, and Drainage Committee meeting held January 25, 2016.

#### Comprehensive Calibrated Sewer System Model (Sanitary) Comprehensive Calibrated Sewer System (Storm)

Mr. Henderson stated that in this proposal, and also in the 2016 Capital Budget it shows the storm modeling to begin in 2016, and sanitary modeling in 2017.

Mr. Greytak stated that they are both necessary projects. There are five major drainage areas in the City and the intent is to try to do one of those every year to get through the City in a five-year period. The sanitary model is a much larger project. A lot of work that is going to go into that is going to require that flow meters are installed and typically they are installed in the spring and are usually in place for a period of three months. They did not think they could get the system segregated to enough detail to determine where to put those meters starting March of 2016. The intention is to spend a little time in 2016 breaking out the system to then install the meters. They do not yet have an idea of how many meters but they would spend the rest of 2016 coming up with a plan for the number of meters.

Mr. Vincent noted that the budget is \$250,000 in 2017 and \$250,000 in 2018 for the calibrated sanitary sewer system model.

Mr. Clark asked if the Rocky River Wastewater Treatment Flow testing is scheduled for 2017. The Mayor stated that it will be April, May and June of 2017. Mr. Greytak stated that they will have meters in concurrently which will be good because they will be working off the same rain storms and we can calibrate their data. Mr. Greytak noted that a meeting was held in December to discuss the testing protocols. An additional meeting will be held Tuesday, February 2, 2016 to further move that discussion along.

Mr. Greytak noted that the work done for the modeling of Lake-Bradley, Clague-Lake will be integrated into the over-all model. The only difference is there will be some calibration efforts for those areas that won't be done initially.

Mr. Greytak noted that there is no exact way to determine the hours for modeling. Lakewood spent \$1.25 million for their model; Euclid spent \$800,000 to do their model; Geneva spent \$450,000 for their model. After you understand the issues, you make a realistic budget to create the model.

Mr. Vincent asked if CT Consultants did all of the modeling aforementioned by Mr. Greytak. Mr. Greytak said CT Consultants did do all of the modeling for the cities he mentioned.

Mr. Henderson stated that when the phase is reached when there is contracting established, is it a fixed number, or is basically materials. Mr. Greytak stated that once a project is authorized CT Consultants will develop a specific scope of services and a budget. Typically, their budgets are hourly in an amount not to exceed. It is not a lump sum of \$500,000. It will be some number after they determine how many meters are needed. There is a lot of cost in installing and retrieving data, and they will have a better idea of how many hours will be required. That is followed by the analysis portion of the contract. A lot is based on prior experience and hard facts. If there are 25 meters in the system they know how much a meter costs per month and what it costs to service the meter, keep the batteries running, and make sure it is calibrated in the field. All of the work will be performed by CT Consultant employees.

Mr. Vincent stated that Mr. Greytak spoke last week about inspectors used for post engineering or post construction. Mr. Greytak stated that they do not use inspection services for the studies. There is no construction associated with any of the model projects. The flow monitors record the depth and the velocity at five-second intervals. They are summarized in five minute packets that is stored internally in the flow meter itself. There are two ways for it can be retrieved. The simplest way is to send out a crew with a lap top to connect to the flow meter and download the data. Longer time projects uses the process of updating the data to cell phones to the CT Consultants network. In the Bay Village project, it would be manual retrieval from the meters.

Mr. Henderson asked the useful life of the model. Mr. Greytak stated that the model they use is called SWMM. It is a public domain software developed by the U.S. Environmental Protection Agency. The lifespan of the software is as long as the EPA chooses to maintain it. It has grown to the point of being international, taking on a life beyond the EPA. The advantage is that it is not proprietary and can be downloaded by anyone. It is something that can be used for a very long time to study potential changes to the system. As changes are made to the system, the model will be updated. The model also allows for analysis of how the system would react to proposed changes. CT Consultants has worked with models in Lakewood, Willoughby, Mentor, Euclid and Geneva. The Mayor stated that she would suspect Rocky River has models.

The Comprehensive Calibrated Drainage Storm Model, because there are five distinct drainage areas in the City, can be done drainage area by drainage area. They do not depend on each other

in order to do the model and calibrate it, as opposed to the sanitary sewer model where everything is interrelated and to get it calibrated the whole model must be done at one time. The only difference between the storm model and the sanitary model is that there are open channels in many cases that have to be put in the storm model.

Metering is a three month period, typically done in the spring of the year. Mr. Greytak is leaning toward White Creek to begin the analysis because there have been many issues there recently. White Creek is at the eastern part of the City. Part of it is underground at East Oakland and then it runs to Bruce and Russell under Wolf Road between Fordham and Vineland.

Mr. Henderson stated that the total cost for the five model development projects is \$875,000. Mr. Henderson asked the Mayor's view on that as far as priorities for the City, and other priorities the City could consider.

Mayor Sutherland stated that the City could undertake projects, but if you don't have the modeling done before you get into a project you could discover all kinds of things once you get in there. What we think should be done may not be what the modeling would show to be done. The thing that is complicating this is we are no longer having the two and five-year storms. We are having 100 and 150-year storms. Whatever the plans or models done in the 1960's and 1970's are outdated and have lost relevancy in light of changing environmental conditions. The Mayor would vote to do the modeling. She noted that nobody wants to spend money on sewers, but the EPA will continue to ratchet down on local communities to be sure they are compliant with the Clean Water Act. The Mayor stated that she does not think we can, with a good degree of confidence level, fix those issues and comply without doing the modeling.

Mr. Henderson stated that he does recall that the City Hall was full last summer with everyone upset about flooding and this is something we need to address. It is a matter of timing, priorities, and funding.

Mr. Koomar asked the form of the output of the data retrieved from the models. Mr. Greytak stated that it can be done through live animation, paper outputs, profiles of sewers showing water surfaces, and areas inundated under various storms to see the vulnerability of certain structures and rainfall events.

Mayor Sutherland stated that 70% of the water being sent to the Rocky River Wastewater Treatment Plant is clean water. The City is paying to process that as if it were sanitary. In a perfect world, we should be able to capture that clean water flow in the sewers and send it out to the lake. There is no need to process it. Another area to look at for drainage is the Lincoln, Aberdeen, Rexford, and Knickerbocker area because they have major drainage issues in the backyards of private properties there. All that ground water is going into the sanitary system. They have some of their backyard drains connected to the sanitary sewer.

Mr. Henderson asked if the City of Bay Village would own the actual models and in the event the City, in the future, would work with different engineering consultants, they would be able to use the model. Mr. Greytak responded affirmatively.

Mr. Koomar asked Mr. Greytak if the modeling plan could be updated to add for additional flow in the event of expansion of residential or commercial properties. Mr. Greytak stated that it could be updated for that purpose. For example, they did the Crestview extension in that manner.

Mr. Vincent asked if the model will be used by our Service Department. The Mayor stated that would probably be something that Curtis Krakowski could be charged with. There is training involved.

Source Control Program (\$200,000 - \$50,000 per year 2017 through 2020)

Mr. Greytak this is an extension of the work that has been started in the Bruce/Russell/Douglas area. As the Mayor mentioned, there are private property issues regarding inflow and infiltration throughout the City, and the program is to continue the initiative to get the proper storm and sanitary sewer connections. The \$200,000 total, broken down into \$50,000 per year beginning in 2017 and running through 2020 represent consultant services, public education and consensus building. Mr. Koomar asked if the project includes working with City crews gathering data of the nature of the individual connections. Mr. Greytak stated it does include that work.

Mr. Henderson asked what the general retainer fee paid to CT Consultants covers. Mr. Greytak stated that it covers such things as this meeting tonight and 4 hours per week at City Hall. It also covers grant applications and general public questions and responses. It is not meant to cover specific projects.

**Construction**

Sewer System Cleaning (\$40,000 in 2017)

Mr. Clark noted that sewer cleaning for \$40,000 is included in the 2016 Capital Budget. Mayor Sutherland stated that it has been moved to 2017. It is the cleaning of the portion of the sewers from Saddler and Lake to Bassett and up Bassett, south of the school driveway, to the pump station.

Mr. Koomar asked Mr. Greytak if there is a map of the major interceptors that Council could review. It is good to know the cycle of which ones the Service Department can't clean and the ones that need to be done by outside sources. Mayor Sutherland stated that last year they outsourced some because they were too deep for the Service Department. The Service Department did from Huntington Woods to Lake, and then Lake to Saddler.

Mr. Koomar stated that when looking at these Capital projects, he would be looking for information as to how often we should be cleaning. Is it better to wait twenty years, or is it much more efficient to do it more frequently. Mr. Greytak stated that he has already discussed with Director Thomas about going back on Lake Road and measuring the sediment levels so that a judgment can be made as to whether it can be cleaned more often. Mr. Koomar asked if this is

just the sanitary sewer. Mr. Greytak stated it might not necessarily be just the sanitary sewer. Mr. Koomar asked that Director Thomas update what it might include.

Saddler Sanitary Sewer (\$0)

Mr. Vincent asked if there is any significance in putting the Saddler sanitary sewer project on the Five Year Plan.

Mr. Greytak stated that he included it as a placeholder and to make a statement that he did not think there was any more work to be done in that area.

Lake/Bradley Sanitary Sewer Improvements (\$300,000 in 2017)

Mayor Sutherland stated that would be unwinding the sewer configuration. Mr. Greytak stated that there is not an engineering line noted for this work because they are unsure of what engineering may be necessary. It could be that the construction involves cleaning or lining which would not involve engineering. The modeling for this project will be done in 2016 so we will know later in 2016 what kind of engineering expenses could be expected, and the construction costs.

Mr. Greytak stated that if they find catch basins connected to the sanitary sewer it will require removing them and properly connecting them to the storm sewer.

Mr. Henderson stated that in the January 25 Capital Budget there are two line items for 2016: \$15,000 for the Huntington Pump Station Radiator Heat Exchanger and \$15,000 for Porter Creek Sewer. These items are not included on the Five Year Plan document.

Mr. Clark stated that those were added after the document was done and relegated to the top based on the recommendation of CT Consultants and the administration.

Mrs. Mahoney stated that this brings up the point as to why there are two documents. Cannot they be merged to one document? Mr. Henderson stated that this Five Year Plan document breaks things into engineering versus construction, which is helpful. It is also broken into modeling, engineering, and construction. This is the place where the description of the projects live and become more of a reference for the Public Improvements Committee whereas the budget is more of a reference to the Finance Committee. Mr. Henderson stated that he sees Mrs. Mahoney's point and if there can be a way to integrate the two documents that would be fine with him as well.

There were no further comments or review of the Five Year Sewer System Plan

**Sunset Area Improvement Project**

On the Five Year Sewer System Plan in the engineering space is noted \$243,669 total with \$121,835 in 2016, and \$121,835 in 2017. This is consistent with the most recent version of the

Public Improvements, Streets, Sewers and Drainage Committee  
February 1, 2016

Capital Budget for 2016. In the construction section, the amount of \$1,292,335 is budgeted, with \$646,167 for 2016 and \$646,167 for 2017. This is also consistent with the Capital Budget.

Mr. Henderson referred to the document entitled Capital Project Request Form. This document was provided by Director Mahoney as part of the 2016 Budget Books for the Finance Committee.

A third document is entitled Proposed Sources and Uses of Funds for the project. This is a recent document prepared by Director Mahoney.

Mr. Henderson stated that he is having a difficult time tying the numbers across these three documents. He asked Mrs. Mahoney and Mr. Greytak to walk through the variances.

Mr. Greytak referred to the Proposed Use of Funds document. The total cost of over \$2,117,411 is broken down between roadway, storm sewer improvements, miscellaneous, sanitary sewer, water main construction and contingency. Mr. Henderson noted that the \$2,117,411 ties to the Capital Budget Project form. Mr. Greytak noted that these are construction costs and there are other costs associated with the project including planning, surveying and engineering which is 8.4% of the construction cost or \$178,424. This includes the work done from the conception of the project through last December. There is an outstanding balance of \$52,446.68. Expended thus far is about \$126,000.

Mr. Clark noted that this corresponds with what Council approved last year (\$136,000) for engineering for this project. Mr. Greytak stated that this also includes prior authorizations. Mr. Clark asked if these are Council approved dollars, so we are not double counting. Mr. Greytak responded affirmatively.

Building/Construction Administration & Inspection and Testing represents 10% of the construction costs or \$192,492. This includes the engineering inspection work during construction. It is a public improvement so it must be properly inspected and tested. The amount of \$75,072 is included for Capitalized Interest (3.25%). When an assessment project begins the City is expending money without getting the revenue to cover the expenses. There are bonding costs that have to be rolled into the project to cover that outstanding amount until the assessments are approved. A 5% placeholder of \$105,871 is included for legal costs, permits and advertising. Total Project Costs, construction and soft costs is \$2,669,269.

Mr. Henderson asked how long the bonds will be outstanding before they are repaid. Mr. Greytak stated that he has calculated that as one year. The soft cost percentages are based on the construction costs. The 8.4% for planning, surveying and engineering is a contractual obligation, and the 10% is experience with other projects.

Mr. Henderson stated that we have gone through several iterations of the construction costs. Mr. Greytak stated that this construction includes replacement of all public utilities within the right-of-way of the Sunset Area, including construction of new storm sewers and a comprehensive storm sewer system replacing the current, crafted together system. They worked with the City to

have the City televise all the sanitary sewers in the area to determine whether we have to replace them or whether they could be lined and salvage. It was determined that the sewers on Sunset and on Kenmore are in good enough shape that they could be lined and salvaged rather than replace them. However, the sewer on Lakeview is too shallow to serve anywhere east of Forestview. The project includes new construction of a sewer on Lakeview. It also includes replacement of all the water mains. There are miscellaneous items such as storm water pollution prevention plans, restoration costs, miscellaneous costs, and contingency. Net contingency is about 15% of the construction costs.

Mr. Greytak distributed an exhibit which explains the accuracy of investments as you go through the process of conceptual design, engineering and final bidding. The conceptual design is a vague idea of what the project will be like and how much it is going to cost. The accuracy of the numbers could be plus or minus 50%. The percentage of uncertainty decreases as you move through the project to the point where you put the project out to bid. By law, you have to state what the engineer's estimate is. That is the number that will be judged against the 10% stated by law. At this point they are at 15%.

Mr. Henderson asked if the \$121,835 of engineering in 2016 would get us to the last 5% of detail work to move forward. Mr. Greytak responded affirmatively. Mr. Henderson asked what the \$121,835 in 2017 represents. Mr. Greytak stated that there is \$52 left in the post contract and they had estimated engineering through construction at \$192,000. That brings it up to the \$243,669, plus or minus a few dollars. That is the balance of a detailed design plus the construction engineering. The \$192,000 ties to the \$243,000 number.

In 2016 for the engineering activity necessary to get to the point where you can put the project out to bid is broken down in the document known as Proposed Source of Funds. In the conceptual stage, they had done an estimate of what the assessments would be on a front-foot basis for the project. In round numbers it was about \$300 per foot depending on which method they used. A portion of the project would be paid by the property owners through their assessment. There are certain portions of the basic project. The assessments calculated are for pavement and drainage. Those two items would be assessed because they are improvements that are currently not there. The City has an obligation to pay 2% of project costs (\$27,652) (2% of roadway and storm sewers \$968,000), and possibly including some contingency in that figure. The work in the intersection is the City's costs (\$211,751). This 2% and intersection costs is required by state law for the City to pay. The excess portion of property valuation (\$239,046) is for unimproved properties. By law you can't assess a property for more than 1/3 of the valuation. Anything above that has to be picked up either by proportioning it to the rest of the homeowners or picked up by the City. At this time it is shown as part of the City's costs. The total City obligation of these last three items is \$478,449.00 for the pavement and drainage portion of the project. Drainage is just the storm sewer; not the sanitary sewer.

Mr. Ebert stated that the City always uses the front foot method of assessing property owners for improvements. After giving a historical view of other assessed projects, Mr. Ebert noted that there has always been discussion on the Sunset area because of the cost. Even though the ordinance states that the City policy after streets are improved once is 75% that the City picks up,

it has always been discussed because assessments are running so high. Council will have to take the final number and back into it. The City needs the right-of-way on the park property. Mr. Ebert has prepared an easement granting the City the right-of-way on the park property to construct the storm sewers and road improvement along the park property. There is not enough room to put in the new things and keep the old things operating while building. That is one item the City can use as a basis to back in a larger figure for the City's contribution to the project. We need the right-of-way, we are willing to purchase the easement. The residents are concerned with having monuments on top of the park land property. Most of the work will be on the ground and the pavement on top. That will not be an issue. Whatever value the City attributes to that right-of-way will be an additional amount the City will contribute. The figure is unknown at this point. An appraiser will determine the valuation.

Mr. Ebert noted that there are also properties, at least one, that have frontages on three sides. On a corner lot, the City will assess the longest run, but not the short run. That will also come up for discussion.

Mr. Ebert stated that the next step is for Council to determine how long they will bond out for the construction and how long the term of repayment will be. Mr. Henderson stated that another meeting of the Public Improvements, Streets, Sewers and Drainage Committee will be held to continue this discussion.

To summarize the events of this meeting, Mr. Henderson made the following points:

- The Sunset project at \$2,117,411 will include new storm sewers, televising the sanitary sewers, which has already been done finding that two are good and one is to be replaced.
- Replacing water mains
- Pavement

Mayor Sutherland recommended that if going through a project this big and tearing up the streets, the water lines should be replaced.

Mr. Clark asked if the valuation of the properties will be based on the re-evaluation of 2016. Mr. Greytak stated that the numbers are based on the conceptual design.

The meeting adjourned at 7:30 p.m.

---

Joan Kemper, Secretary

---

Tom Henderson, Chairman

**Sunset Area Infrastructure Improvements  
Proposed Source of Funds**

<b>Property Owner Assessments</b>		<b>\$1,184,563</b>
<u>City Obligation for Pavement, Drainage, Miscellaneous</u>		
Local Share (2%)	\$27,652	
Intersections	\$211,751	
Excess portion of property valuation	\$239,046	
<b>City Obligation Subtotal</b>	<b>\$478,449</b>	
Repair of Sanitary Sewers - City Funding		\$430,165
Replacement of Water Mains - City Funding		\$309,730
Engineering/Legal/Advertising/other soft costs for sanitary sewers and water mains		\$192,373
Contingency for Sanitary Sewers and Water Lines		\$73,990
<b>Other City Obligation Subtotal</b>	<b>\$1,006,257</b>	
<b>Total City Obligation</b>		<b>\$1,484,706</b>
<b>Total Source of Funds</b>		<b>\$2,669,269</b>

**Sunset Area Infrastructure Improvements  
Proposed Use of Funds**

Roadway	\$521,777	
Storm Sewer Improvements (new sewers, inlets)	\$446,515	
Miscellaneous (Seeding, SWPP, Restoration, etc.)	\$216,732	
Sanitary Sewer Lining and New Construction	\$430,165	
Water Main Construction	\$309,730	
Contingency	\$192,492	
<b>Subtotal Construction</b>	<b>\$2,117,411</b>	
Planning/Surveying/Engineering (8.4%)	\$178,424	(\$52,446.68 balance as of 12/31/15)
Bidding/Construction Admin & Inspection/Testing (10%)	\$192,492	
Capitalized Interest (3.25%)	\$75,072	
Legal/Permits/Advertising (5%)	\$105,871	
<b>Total Use of Funds</b>	<b>\$2,669,269</b>	

Five Year Plan - Sewer System

PHILLON &

Category	Project	Budget	2016	2017	2018	2019	2020	
Engineering	Computer model of Lake-Bradley sewer system including field investigation and recommendations <i>5/24/17</i>	\$20,000	\$20,000					
	Computer model of Clague-Lake sewer system including field investigation and recommendations <i>5/24/17</i>	\$20,000		\$20,000				
	Huntington/Longbeach Pump Station Electrical/Communication Improvements	\$30,000	\$30,000					
	Pump Station Communication Improvements	\$30,000		\$30,000				
	Sunset Area Improvements Construction Administration (Water mains, sanitary sewers, city obligation) (See Note 1)	\$243,669	\$121,835	\$121,835				
	Lake Road Pump Station Improvements	\$38,000		\$38,000				
	Comprehensive Calibrated Sewer System Model (Sanitary)	\$250,000		\$250,000				
	Comprehensive Calibrated Drainage Model (annual) <i>(5/20/17)</i>	\$375,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	
	Source Control Program <i>8/12/17</i>	\$200,000		\$50,000	\$50,000	\$50,000	\$50,000	
	Bruce Douglas Russell - Option 2 (Storm Sewer Replacement) with lateral correction for 186 homes	\$300,000	\$300,000					
<b>Subtotal</b>		\$1,506,669	\$546,835	\$584,835	\$375,000	\$125,000	\$125,000	
Construction	Sewer System Cleaning	\$40,000		\$40,000				
	Saddler Sanitary Sewer	\$0						
	Sunset Area Improvements (Water mains, sanitary sewers, city obligation) (See Note 2)	\$1,292,335	\$646,167	\$646,167				
	Lake-Bradley Improvements Sanitary Sewer Improvements <i>STC/AJ</i>	\$300,000		\$300,000				
	Lake Road Pump Station Reconstruction	\$190,000		\$190,000				
	Bruce Douglas Russell - Option 2 (Storm Sewer Replacement) with lateral correction for 186 homes	\$3,420,000		\$3,420,000				
	<b>Subtotal</b>		\$5,242,335	\$646,167	\$4,406,167	\$190,000	\$0	\$0
	<b>TOTAL</b>		\$6,749,004	\$1,193,002	\$4,991,002	\$565,000	\$125,000	\$125,000

\* all public education & awareness  
to pump station

Note 1 Construction Administration and Inspection of the sanitary sewers, water mains, and city's portion of roadway and drainage costs.  
Note 2 City's portion of roadway and drainage costs varies between \$291,520 and \$478,450 depending on assessment method selected. For the budget, the highest obligation was used.