UTILITY INFRASTRUCTURE IMPROVEMENT PLAN

PHASE I

GENERAL:

During the City Council meeting of February 15, 2018, and one council meeting past when the 2017 – 2018 fiscal year budget was approved, the discussion regarding capital spending was discussed. It was discussed because the proposed capital spending budget (plan) was removed from the budget that was approved. The City Council indicated their desire to consider capital spending projects but required the submission of a formal plan to make these decisions. There was no definition as to what the formal plan should consist of, or why the basic conclusions of the Goodwin, Mills and Cawood, GMC, report were not sufficient evidence of the need to improve the wastewater system's transmission capacity. Nor was there justification explained why Fairhope should not to proceed with the specific projects recommended in the report. The recommendations of the report are attached as Exhibit A of this plan.

There was further discussion regarding the financing of the recommended infrastructure improvement plan that was submitted, but not included in the approved budget. The proposed Capital Spending Plan, removed from the approved budget, listed a three-year capital improvement plan with proposed rate increases to cover the debt service. The major concepts of this plan were discussed during the department head reports prior to the mayor submitting her budget recommendation to the council.

A very similar Capital Spending Plan to this proposal was submitted to the City Council prior to the approval of the 2016 – 2017 budget but was also removed from consideration at that time. This proposal was originally submitted during a time when the Federal Fund Rate was 1.0%. In December of 2017, the rate was 1.5%. Interest rate projections for 2018 anticipate another rate hike up to 2.0% with a projected increase to 3% by 2020. The steady increase in rates will only increase the cost of borrowed money.

My recommendation was to borrow the money through any conventional funding plan while the interest rates were low and while knowing our cash reserves for all our Utilities could be absorbed very quickly if we were to sustain a major natural disaster. I would recommend we look at a minimum two-month reserve fund for utilities, which would require $6,500,000.00 in available funds for a natural disaster recovery effort. These funds would provide the needed recovery cost to any such disaster, which can be significant as mutual aid contractors are generally on overtime rates, while materials can be at a premium cost due to supply. A three-month reserve would be more desirable, in my opinion, as it would provide a more comfortable cash position for recovery and give us strength in our credit rating so borrowed money can be at a minimal interest rate. Plus, as we go through our power pole survey, meter accuracy evaluation and sewer rehabilitation program, I expect to find unanticipated costs in these

efforts that we should be prepared to fund out of pocket. All these described issues, from interest rates to reserve fund balance to unexpected rehabilitation needs are rationale for my original recommendation, which I continue to support.

The Capital Improvement plan submitted to the City Council was for a three-year plan to implement known infrastructure needs. These needs include 1.) Electric Substation Capacity Improvements, 2.) Cast Iron Gas Main Replacement, 3.) Water Transmission Improvements, and 4.) Wastewater Rehabilitation and Capacity Improvements. There was also funding to renovate the Pecan Street Building to house the Utilities and Public Works Departments. The renovation would provide a safe room for first responders who would support any recovery work due to natural disaster type occurrences, such as tornados and hurricanes. These types of disasters can occur in our area and can result in severe damage to property, including utility and public works infrastructure systems.

The proposed Capital Improvement and Financing Plan was to give us three years to implement known rehabilitation needs to vital portions of our infrastructure. At that point in time, we would have a much better picture of our position, in terms of possible alternative wastewater plant sites to mitigate second tier capacity improvements, the condition of the sewer system and how significant the rehabilitation needs are, based on the progress of the assessment team. The second-tier capacity improvements will be to upgrade capacity or replace certain "major" lift stations, the possible extension of certain force main sewers to bypass existing lift stations (that may defer the upgrade and/or replacement recommendations), beyond the four major pumping stations defined in the GMC Capacity report. For the most part, these lift stations were not built to carry the added load they now serve. We would then be able to upgrade certain lift stations to increase the added capacity anticipated with new growth.

Please know, as we move forward we will continue to work with developers to find ways to build additional capacity in certain areas that fit any master plan we are able to develop. This work will need to be based on a model of the wastewater system, which was first recommended as being accomplished in-house with a new engineering department. The new engineering department would assist in the phased infrastructure improvements, maintain an up to date mapping system, improve our SCADA capability and work with developers on the required infrastructure needs of each development. The recommendation to establish the engineering department was not funded, and therefore, the mapping improvements will be recommended as a tier one project using outside consultants.

TIER ONE WASTEWATER PROJECTS:

The Tier One wastewater projects are transmission related projects to improve the transmission capacity of the system from the four major pumping stations that are identified in the GMC report to the wastewater treatment plant. Since upgrades to all lift stations are recommended in the GMC report, and growth continues to occur, it is prudent to add this transmission capacity to the system prior to increasing the capacity of the first-tier lift stations.

Tier one wastewater projects; projects that are recommended for immediate approval, include:

1.) Church Street Outfall Transmission System:

The Church Street Outfall Transmission System begins at Fels Avenue and Church Street and consist of a 12" diameter gravity sewer main that flows to the wastewater plant. Flow from the Fels Avenue lift station and the South Section Street lift station discharge into this outfall system through a manhole on Fels Avenue. The current capacity of the 12" gravity main is between 1,000 and 1,250 gallons per minute. Variances in flow can result from entrance and exit losses in manholes as flow continues downstream and into the next downstream portion of the 12" gravity main. This outfall gravity main was identified as at, or near, capacity.

This project would consist of a complete survey of the Church Street Right of Way to determine the existing location of all infrastructure and identify any upgrade requirements for storm drains, water mains and gas mains, with special attention given to the wastewater transmission system.

Once the survey is complete, engineering estimates for costs relating to various options to improve the wastewater conveyance system, including: 1.) A new 16" force main, 2.) Pipe bursting of the 12" gravity main to upsize the existing 12" main to an 18" gravity main with minimal impact to the existing pavement, 3.) A new 18" gravity main, or 4.) A consideration to re-route the force main one block west of Church Street to Summit Street where known and discovered conflicts may be avoided to reduce the overall cost.

This project may also be an opportunity to incorporate moving any overhead power distribution and services to underground distribution and services, cast iron gas main replacement, water system upgrades to improve fire protection in the downtown area, storm water infrastructure, pedestrian walks and the streetscape. The total cost of the wastewater transmission upgrade includes just over 4,000 linear feet of parallel or replacement main. The cost of the wastewater portion of this work is estimated at $350,000.00. We can be selective with the other options, depending on the final recommendation, available resources and priority.

2.) Bayou Drive, Fairwood Blvd. and Fairhope Ave. Transmission System:

This outfall system extends from the plant along Bayou Drive to Fairwood Blvd. and from Fairhope Avenue to Ingleside, where the 16" force main from the "Doghouse Lift Station" discharges into a manhole where an 18" gravity line carries the flow west on Fairhope Avenue to Fairwood Blvd. and then to Bayou Drive and to the Wastewater Plant, where it continues to pick up gravity flows from the surrounding area. This outfall gravity main was identified in the GMC report as at, or near, capacity.

With the possible by-passing of the "Doghouse" Lift Station of force mains serving the Intermediate School Lift Station and Thompson Hall Road Lift Station, this project would extend the force main from Ingleside Avenue with an 18", 21" or 24" force main to the wastewater plant. The size of this force main should be analyzed based on a combination of future flow,

velocity and total head loss relative to the pumping capacity of the potential pump stations that would be connected to it.

This plan would require a survey of the three Rights of Way where the added force main would be installed. I would anticipate the consideration for improvements to any existing sanitary sewer, storm water, cast iron gas or water main infrastructure that requires rehabilitation, or capacity improvement. The wastewater system improvement work consists of approximately 5,800 linear feet of new force main with a cost ranging from $450,000.00 to $600,000.00.

Any additional work, such as storm sewer improvement, cast iron gas main replacement or water system upgrades would be considered based on available resources and priority. These considerations can be determined from the survey of the Rights of Way and our mapping information.

3.) GIS Mapping Modifications for Asset Management and Modeling Capability:

These proposed modifications to our existing GIS utility map will structure the utilities where they can be used for modeling, where master planning can be accomplished for continued growth, and asset management can be better managed as we use the base maps, with modifications to store information developed during the rehabilitation and capacity upgrade work, for future reference. Please know the requested engineering department should be approved and in place as we get final results from this mapping upgrade work. This will be to have personnel in place to manage the proper upkeep and storage of the infrastructure work within this mapping framework. This work is estimated to cost $55,000.00.

4.) Fells Avenue Lift Station Rehabilitation:

The Fels Avenue – Mobile Street Lift Station has served Fairhope well. The existing station is a Wet Well/Dry Well type lift station, which allows the belt driven, suction lift pumps to be used without having any significant above grade structures to house the pumps. This style of lift station was installed to protect the view of the bay and minimizes the focus on this necessary item of wastewater infrastructure. This pump station also receives flow from the Pier Street Lift Station, which collects flow from the Bayfront and inland to Summit (more or less) and as far south as Sweet Water Circle. Tier Two considerations will evaluate the Pier Street lift stations and the lift stations that feed into the Pier street Lift Station.

The condition of the Fels Avenue Lift Station is poor. The pumps experience periodic clogging in the suction end of the pump and oftentimes require a significant effort to clear the obstruction, one rotating assembly is held to the support framework with tie down straps. The electric panel is operable, but quite old and subject to failure at any time. There is some deterioration of the existing wet well where sewer gases promote acidic conditions on the underside of the lid and walls of the wet well attack the integrity of the concrete structure.

This proposal will be to replace the existing lift station with a convention submersible pump type lift station. We propose an 8' diameter fiberglass wet well to mitigate future deterioration

issues from sewer gases, a duplex style system, which uses two alternating pumps where pumping redundancy is provided for periodic maintenance of pumps and controls, a bypass connection for bypass capabilities using our recently acquired dry prime, bypass pump(s) and a manual transfer switch with a quick connect plug that matches a generator, which could be used for major power outages. An odor control feature for this location is also recommended. The anticipated cost of this proposal is $125,000.00.

5.) Grand Hotel Lift Station Assessment and Collection System Evaluation:

The Grand Hotel Lift Station is located approximately 125 feet south of the main entrance of the hotel and adjacent to the Scenic 98 Right of Way. The lift station is in the parking lot of the maintenance and security area of the complex. This lift station collects flow from the low-pressure system on Scenic 98 south of the Grand Hotel and around County Road 1 to Pelican Point, the force main on U.S 98 to just east of Keller Road and portions of the Lakewood Subdivision that lay west of the golf course.

This lift station has corrosion issues in the wet well from some of the low-pressure systems that pump to it. There are three pumps installed in the lift station. One pump can perform on a stand-alone basis while the other two pumps are set up to pump in series. The collection systems of the hotel and County Road 1 seem to experience high flows with each intense rain event, which stresses the lift station and has caused the lift station receiving this waste from the Grand Hotel Lift Station on Twin Beech Road to overflow.

I recommend we contract with an engineering firm to evaluate the condition of the lift station, confirm the pumping capacity of the pumps with the pump curve and explore why two pumps run in parallel while the third pump can be used as a stand-alone pump, video and smoke test the collection system within the Grand Hotel property to check the physical condition and integrity collection system and validate the force main capacity.

We need to work with the hotel on easements and some form of maintenance agreement to have rights of ingress and egress to any components of our system that are within the property. We may have discussions that involve water metering each building separately where better tracking of water usage and possible leak detection can be achieved. This is a first-class facility and I believe we need to work with the hotel to evaluate and correct any water and sewer deficiencies on that property. I am positive the hotel would be in favor of working with us.

This study will give us a better plan going forward where options for renovating versus replacing the lift station will be tangible. The condition of the internal infrastructure, such as water metering and wastewater collection, will be identified. This will give us a framework for discussions that can lead to an operation and maintenance agreement for the internal infrastructure where water system flushing, water metering and wastewater system maintenance can be managed by Fairhope Utilities. The cost of a study described herein is estimated at $35,000.00.

WATER PROJECTS:

The site of Well 3 is located just south of the south east corner of County Road 33 and Boone Lane. The site has the capability to produce more water that the current well by adding an additional well or wells on that site. The first item we need to address to maximize this site for potable water production will be a groundwater monitoring plan. A groundwater monitoring plan will help validate the withdrawals of the existing well and if those withdrawals are causing the static water level of the aquifer to drop. The results of this study will help project future capacities and allow us an opportunity to look at additional supply at each existing well site where infrastructure planning can be performed for future well, treatment plant and transmission capability.

Our geologist, O'Donnell and Associates, Inc., OAI, has proposed a 12-month monitoring plan for all our well sites. This plan will support the goals of predicting future withdrawals for any locations where an additional well, or wells, can be added to our production capability. This will also help plan the future infrastructure needs to accommodate this added production. The cost of this plan is $6,000.00. I recommend we proceed with the proposed plan, as presented by OAI and attached to this report.

GAS PROJECTS:

The Financial Advisory Committee has recommended a preliminary phase of documentation relating to the gas system. This documentation will be to validate the mapping data that is available, model the high pressure distribution system, based on projected throughputs and where the demand occurs on the system, model any low pressure distribution systems that lost pressure due to the resent cold weather demands, including the cast iron gas main portions of the low pressure system and determine the higher consequence class locations where the cast iron gas mains are located so a priority system of replacement can be identified.

A draft RFQ that was presented to the Financial Advisory Committee during their most recent meeting that is attached to this report. I recommend we advertise for this study and start working with a consultant accomplish these tasks.

Please be reminded that wastewater infrastructure projects may proceed in advance of the work being completed. As we design the wastewater infrastructure improvement projects, it must also be a priority to replace any cast iron gas mains that are discovered in these Rights of Way of the wastewater improvement work.

ELECTRIC PROJECTS:

The recent council approval of the Stewart Engineering Professional Services Agreement for the substation upgrade work was greatly appreciated. We need to return our focus to the property located at the northeast corner of Middle Street and Young Street. This property is the recommended location of the new Nichols Street Substation. As you may recall, the report

recommendations were to build a new substation at this location to effectively replace the existing Nichols Street and Church Street substations.

In addition to the substation capacity upgrades, we anticipate entering into a pole maintenance contract where we can identify poles that are at, or near, their useful life. This study will determine the number of poles that need attention, based on an industry standard for scoring of the results of the penetration test. The recommended testing frequency is ten (10) years. It has been ten years or longer since we have conducted any pole testing. We do want to add an inventory of attachments, adding a pole number unique to each pole and have a GIS location identified for each pole to be used in mapping.

SUMMARY AND CONCLUSIONS:

I trust we can all agree that certain key components of the utility infrastructure need attention. The plan offered in this report describes the first steps toward providing these needed improvements. The wastewater transmission improvements, identified herein, are only the first phase. The second phase of this plan will require capacity improvements of lift stations and/or force mains, further upstream in the wastewater system.

The rehabilitation of the wastewater collection system will be more time and labor intensive. We are using the renewed annual contract for video observation, pipeline linin and manhole repair work to repair manholes in the Valley lift station collection basin. This basin is where the 2017 contract lined over 3 miles of main. The location on Middle Street, where sanitary sewer overflows have occurred, is in this Valley lift station collection basin. We will continue our focus in this collection area basin until we are satisfied that we have made progress toward the elimination of these overflows.

As we get these initial projects started, we will start the planning process to carry the next phase of projects forward. This will likely be during the next fiscal year budgeting process. Please expect to see funding requests for a water transmission project, a continuation of funding for the electric substation upgrades, cast iron gas main replacement, certain lift station upgrades, force main extensions and sewer rehabilitation work.