6 Recommended Improvements

The purpose of this section of the report is to review and recommend facility improvement priorities for the water system moving forward. With growth of the City, and therefore the water system expected during the next planning period, additional water system to facilities should be planned for so that all customers receive exceptional water service. As previously mentioned, the new growth and expansion of the water system is expected to occur in the western portions of the first and second high pressure zones. While it is impossible to know exactly how the area will grow in terms of specific users and road alignment, some general estimates in relation to future land-use can be made and facilities planned for based on these assumptions.

The ultimate water system planning map, presented in Figure 6-1represents a guiding document for the growth and expansion of the water supply, distribution and storage systems. Expansion of the water system in a manner as outlined in this document will help to assure that exceptional and robust water system is provided to all customers in the future.

This section will provide recommendations to remediate deficiencies and to prepare the system for future growth. A map of planned improvements is shown in Figure 6-1 and will be reference throughout this section.

6.1 Supply Improvements

A community's water supply capacity is sized to meet maximum day demands reliably. The industry standard is to provide enough pumping capacity to meet the maximum day demand rate with the largest two pumps out of service (i.e. firm capacity). Current well supply capacity in Shakopee is 24.4 MGD, and the firm pumping capacity is 20.3 MGD. Maximum day demands reached a peak of 16.3 MGD in 2012. That rate has fluctuated since then, but could reach that level during an extreme drought year.

Based upon the peak demand projections in Table 4-7 and the well analysis shown in table 5-1, it is estimated that projected maximum daily demand may exceed firm/reliable well supply capacity. For that reason, additional capacity is recommended in the future. SPUC currently has new well 23 at Windermere under construction. When this well is complete it will supply water to the 1st high pressure zone and well as the second high zone via the booster station. If growth continues at the projected rate, additional wells will be needed as indicated in Figure 5-1

Before recommendations on supply can be made, regulations regarding supply must be first reviewed. The requirements of Minnesota state code apply, as well as any special requirements placed upon Shakopee. There is a concern in the Eastern portions of the City regarding the influence of groundwater drawdown on the nearby Fen wetland. While working with the Minnesota Department of Natural Resources (DNR), it has become apparent that the construction of any new wells east of the easternmost well in the City will likely not be permitted. Thus, new well construction is not permissible east of Well 5, and no future wells will be planned east of Well 5.

A deficiency in overall water supply capacity was shown to be possible in Figure 5-1, as well as in Table 5-5 and Table 5-7. The system has 18 wells in total. It is not unreasonable to assume that up to two wells may be offline at a time, as in Figure 5-1. Table 5-5 and Table 5-7 show that both the Normal Zone and/or the First High Zone could have a supply deficiency in the coming years, depending on growth.

A cost effective solution to dealing with the firm capacity in separate pressure zones is to provide water supply sources which benefit multiple pressure zones. As development occurs and when the firm capacity of the system is exceeded by the maximum day demand, It is recommended that the City construct additional supply wells which are capable of serving multiple pressure zones.

6.1.1 Short Term –Well 23

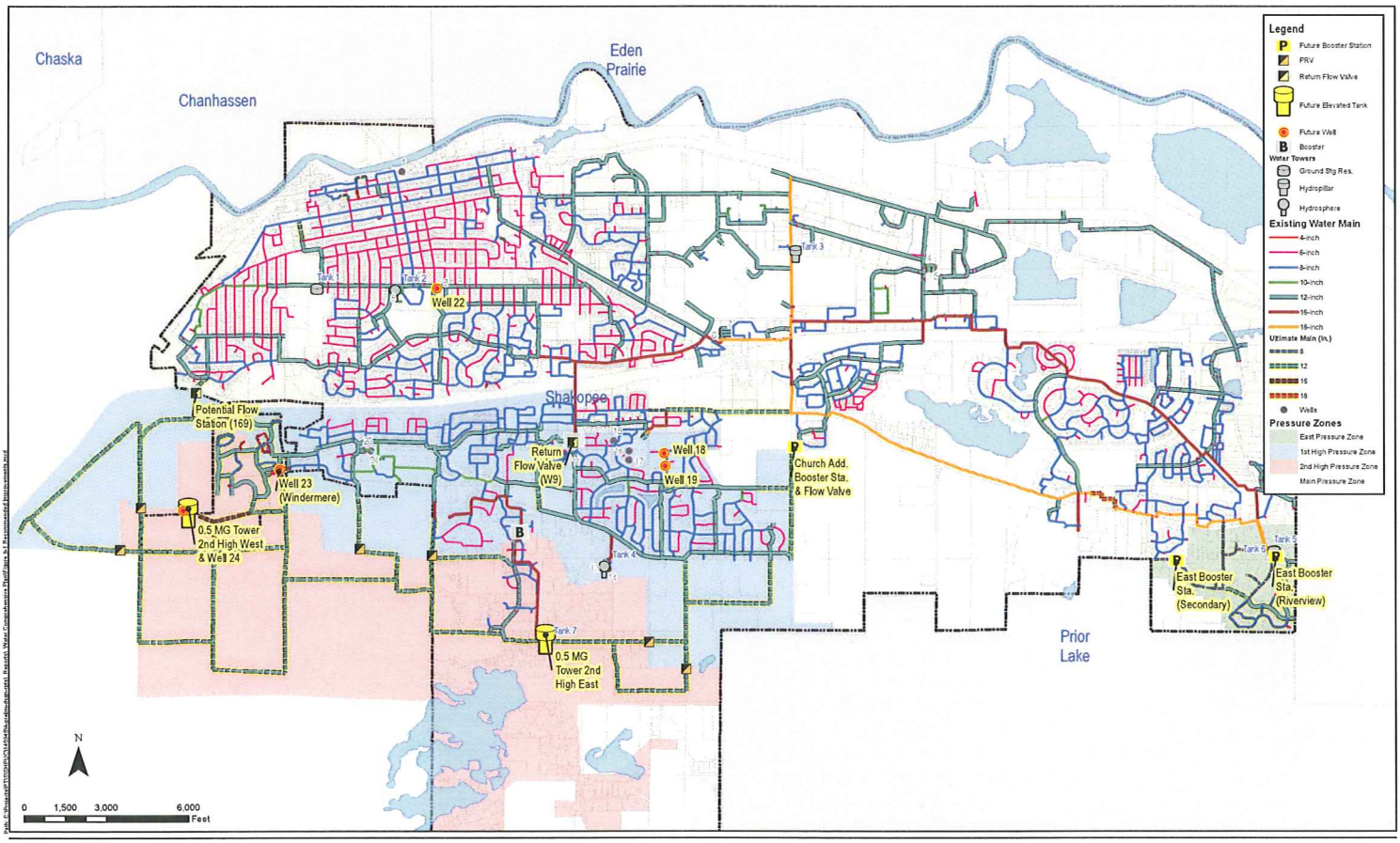
Figure 6-1 shows potential locations for up to four future wells. One new well is currently planned for the near term: Windermere Well 23 which will supply water to the 1st high zone. The construction of this well will satisfy overall system supply deficits in the near term. Table 5-5 shows an immediate deficit for the Normal Zone and its dependencies. Table 5-7, on the other hand, shows a surplus in the near term for the First High Zone and its dependencies. Thus, it is recommended that the City strengthen its ability to move water between the Normal Zone and the First High Zone, which will be discussed in detail later in this report.

6.1.2 Long Term – Additional Wells

After the construction of Well 23, additional water supply wells should be added to support projected water system needs. Long term, it is anticipated that 2-3 new wells will be needed to satisfy system demands across the entire system. Previous analysis showed that the Normal and 1st high pressure zones may eventually have supply deficits. Additionally, it is beneficial to have supply sources in each of the major pressure zones to reduce dependency on booster stations and support diverse redundant operation. Therefore planned Well 24, anticipated to be constructed near the West 21nd high tank would be a natural choice for the next well location. After that, SPUC has identified multiple potential well sites (see appendix) which could all could be feasible site options. When considering overall system redundancy and system zone transfer, it would be beneficial to locate the long term wells in either the Normal or 1st high pressure zones. In order to provide even more long term redundancy benefit, construction of a new well facility along the border of these pressure zones would be even more beneficial. By doing this, normal operation of the well pumps could be to push the water into the 1st high zone and have a control valve to throttle and bleed water to the main pressure zone. Additional, booster pumps could be installed in the facility to pull water from the normal zone and push into the 1st high zone as need. This type of facility would allow water produced from the wells to be supplied to either zone directly or water to be transferred between zones in either direction. Two potential sites, reflecting SPUC's long term well planning document are identified in figure 6-1. Both site options would require some amount of transmission water main, connecting each pressure zone with appropriately sized main.

6.1.3 Existing Well Maintenance

At existing well locations where the aquifer produces good well capacity and acceptable water quality, as the well declines in capacity and condition it should be rehabilitated and returned to normal service to take advantage of the investment of surrounding transmission capacity. Wells in this category should be identified by future well assessments that are outside the scope of this study.



Project Number: SHPUC 140940
Print Date: Print Date: 9/12/2018
Map by: Projection Source:

2018 Comprehensive Water Plan
Shakopee, Minnesota

FIGURE 6-1
Recommended Improvements

6.2 Interzone Transfer Improvements

The following tables previously analyzed the pumping and supply needs of each pressure zone: Table 5-5 for the Normal Zone, Table 5-7 for the First High Zone, Table 5-9 for the Second High Central Zone, Table 5-11 for the Second High West Zone and Table 5-13 for the East Zone. The two supply wells discussed above remedy the overall system supply needs in Figure 5-1. However, water must also be able to be moved across the system between zones as required.

6.2.1 East Zone – Riverview Booster Station

The East Zone is planned to be raised to the hydraulic grade line of the Second High Zone. In order to accomplish this, the East Zone would need a booster station. A future booster station containing two 1,000 gpm pumps was shown to be suitable for the East Zone in Table 5-13. This booster station is currently in the process of being designed and constructed and is expected to go online soon.

6.2.2 East Zone – Secondary Booster Station

It was previously thought that the East pressure zone may someday be served by an elevated water storage tank. However recent land use trends indicate that total connections in this area may be limited, therefore will be served by a booster station long term. Because of this it is recommended that a second redundant booster station be constructed to boost system pressure to this zone in the event of the failure of the primary booster station. While the primary station is being designed and constructed with two 1,000 gpm service pumps, to account for fire protection, it would be reasonable to design the secondary station on a smaller scale to accommodate typical system demands. Therefore a small scale booster station with two 100 gpm pumps is recommended. Such a station is small enough that it could be installed in a below grade vault or small flip top enclosure. Construction of a secondary booster station would allow the pressure zone to be supplied with water from two different entry points which would aid in system redundancy and water circulation.

6.2.3 Well 23 Booster Station (Windermere)

The Second High West Zone is planned to be constructed with the same hydraulic grade line of the Second High Central Zone. In order to accomplish this, the Second High West Zone would need a booster station, which is currently underway. A booster station containing two 1,000 gpm pumps was shown to be suitable for the Second High Central Zone in Table 5-11. This booster station is planned to be part of the Windermere Well 22 site.

6.2.4 Upgrade Well 9 Booster Station with Flow Control Valve

The City currently owns a booster station at Well 9 which moves water from the Normal Zone to the First High Zone. It is recommended that a flow control valve be added to the Well 9 booster station to allow water to move from the First High Zone to the Normal Zone. This will allow for operational flexibility as needed to control water flow from zone to zone. Without this improvement, water could still be moved from zone to zone, through PRV's or manual valve operation, however, the flow rate could not be controlled nor the volume of water accounted for.

6.2.5 Well 24 Booster Station

Table 5-9 showed a potential deficiency in the pumping capacity of the Second High Central Zone booster station. Well 24 previously discussed could be used to remediate this potential deficiency. A new well with a booster station would allow the City to pump water to either the First High Zone or Second High Central Zone. As a result, Well 24 is recommended in the long term with an on-site booster station.

6.2.6 Church Addition Booster Station

Long range planning indicates that only a few more wells will be needed to accommodate future growth through the 2040 planning period. With this in mind, a focus on system redundancy can be a long term goal. If the Utility were to lose the ability to safely operate multiple wells in the 1st High Zone, additional water transfer ability from the Normal Zone would be beneficial. The Utility currently owns a portion of property near the Church Addition Development. Since this site borders the Normal and 1st high pressure zones, it would be a prime site to serve a multiple purpose function of two direction water transfer. Such a facility would supplement emergency water supplies to the 1st high zone by the addition of a high service booster pump and interconnecting water main. In a like manner, the facility would provide emergency water supplies to the Normal pressure zone via of pressure-reducing/pressure-sustaining control valve to allow water to flow from the 1st High Zone to the Normal Zone.

While there is not a short term need for this facility, as the high pressures zones expand, and water supply is needed, the investment in multifunction water supply and transfer facilities will help SPUC to maintain a high level of service.

6.2.7 Highway 169 West Return Flow Valve

Highway 169 bisects the existing water system and acts as a barrier between pressure zones, with limited crossings. To increase redundancy in the system, connections between pressure zones would promote the ability to move water between the Normal Zone and the First High Zone. While not an immediate need, if development leads to the construction of a trunk water main crossing highway 169, it is recommended that a Pressure Reducing Valve (PRV) with flow control capabilities be installed along the zone boundary. This would allow for a controlled amount of flow to be transferred from the First High Zone to the Normal Zone. This crossing would add redundancy to the system as growth occurs to the west, and the controlled flow valve would assist the Normal Zone in case two wells were offline in the Normal Pressure Zone.

6.3 Storage Improvements

The following tables previously analyzed the storage needs of each pressure zone: Table 5-5 for the Normal Zone, Table 5-7 for the First High Zone, Table 5-9 for the Second High Central Zone, Table 5-11 for the Second High West Zone and Table 5-13 for the East Zone.

Because elevated storage not only provides volume but also provides pressure stability, elevated tanks may be recommended for pressure stability as the system grows.

6.3.1 Second High Pressure Zone Water Storage Options

Much of the future population growth is expected to occur in the second high pressure zone. As this pressure zone grows, so will the water that is demanded. While standalone water booster stations will be capable of serving these areas for a time. However, as the system grows, additional elevated water storage tanks will need to be added to these pressures zones. The west and central portions of the second high pressure zone are expected to see the first sustained growth and expansion. Currently these portions of the second high pressure zone are not connected, it is unknown as to when they may eventually connect since it will depend on system development and growth. The water storage analysis previously completed in this report indicated that ultimately 1,000,000 gallons of elevated water storage should be added to the water system and the second high pressure zone to sustain and support ultimate water system demand projections. Currently developers are active in the western portions of the second type pressure zone, with potential water tower sites now being discussed. With current developments now underway, the natural choice for the construction of a storage tank would be in this area to serve in new customers. It may not be prudent to place all of the 1,000,000 gallons of needed water storage at one location. Since a water tank best serves customers within a reasonable proximity depending on connected trunk water main, a single tank placed in the west would not be well positioned to serve the central portion of the second high pressure zone. Therefore it is ultimately recommended that two elevated water tanks be constructed with in the second high-pressure zone (West and central)

With this in mind, it is natural to assume that two 500,000 gallon water tanks could ultimately be built to satisfy the 1,000,000 gallon need. However another option may be to build a 750,000 gallon tank in one location, and a 250,000 gallon tank at the other. These options are further explored below

6.3.1.1 Option A – Two 500,000 gallon Elevated Water Storage Tanks

Table 5-11 showed a need for storage in the Second High West Zone as future development occurs. The storage mass balance deficit in Table 5-11 assumes the pressure zone should store equalization volume and fire protection. Pumping units are able to accomplish this, but a setback of pumping the peak demand with fire protection is the dramatic pressure loss on the suction side of the booster station.

As previously stated, the City anticipates the Second High Zone to grow, and expects the Second High Central Zone and Second High West Zone to connect. Because this area would become a large service area, elevated storage is prudent for this combined pressure zone. It is recommended that a 500,000 gallon (0.50 mg) elevated tank be constructed for the Second High West Zone. In Figure 6-1, this tank is shown on the Well 25 site where ground elevation are high. The Well 25 site would contain both the elevated tank and future Well 25, using Well 25 to fill the tank with the Well 22 booster station assisting.

Additionally, It is recommended that a 500,000 gallon (0.50 mg) elevated tank be constructed for the Second High Central Zone. In Figure 6-1, this tank is shown on the Well 24 site. The Well 24 site would contain the existing Tank #7, future Well 24, a future booster station and a future 0.50 mg elevated tank. This site concept would provide a highly reliable mechanism to move water between the First High Zone and the Second High Central Zone with little pressure spikes and drops due to pumping.

6.3.1.2 Option B - 250,000 & 750,000 Gallon Elevated Tank for Second High Central Zone

The section above documented the case and need for water storage to serve the Second high pressure zone. With initial development anticipated to be concentrated in the Western portions of the Second high pressure zone, there would be the option to construct a 750,000 gallon tank at this location and a 250,000 gallon tank at the Central location. While it may make logical sense to first construct the large tank in the area of most immediate growth, such an arrangement may not serve the water system well in the long term. The first priority of function for these tanks is pressure and flow sustainability with the full volume of each tank not essential until the system is completely built out. Building too much storage at the front end of the planning period may provide to operational challenges with limited tank turn over. Additionally, as the system expands, it is expected that these tanks will eventually connect via trunk water main. It is desirable to have these tanks fill and empty at similar rates to support equal water turn over. Building these tanks at different sizes and therefore tank geometry would result in tanks that may not balance (fill and empty at different rates. As a result, option A appears to be the more favorable tank construction option.

6.4 Water Main Improvements

As development progresses into the expansion areas, a trunk water main system must be constructed to deliver adequate flows for various conditions including emergency fire flow. A trunk water main is defined as a pipe sized such that it can supply water for nearby users as well as serve a greater function by transporting water across the system to meet the demands of the extended water system. The majority of trunk water main improvements identified are outside of the existing service area and should be constructed as development occurs and road improvements are constructed. Figure 6-1 presented the proposed preliminary routing of trunk water mains to serve future development areas. Actual main routing will depend on a variety of local factors as individual projects progress. This map should be seen as a recommendation for the general hydraulic capacity of the distribution system as it is extended to serve new development. Generally speaking, the trunk main layout is comprised of a gridded network of 16-inch and 12-inch diameter water mains. In addition Figure 6-1 shows some key water main improvements to the existing system piping. Some improvements were for system reliability and others were for fire protection. This section will review each existing system improvement in greater detail.

As stated above, the improvements presented in Figure 6-1 represent a conceptual plan for potential long term water system improvements to improve and expand the hydraulic capacity of the water distribution system. These improvements are presented to improve flow capacity, increase system reliability and support long term community development and growth. Although the local knowledge of development patterns was utilized in the preparation of the trunk water main plan, as a conceptual plan, the actual size and location of the improvements will depend upon future planning efforts and the circumstances at the time of the improvement are implemented and may not follow exactly as shown in the figure.

6.4.1 Trunk Water Main Infill

In addition to trunk water main to be constructed in expansion area, there are some section of existing trunk water main backbones that are still in need of final infill. These sections of water main are also outlined in figure 6-1.

6.4.2 Select Water Main Improvements

6.4.2.1 Pierce Street & Shumway Street

Figure 5-5 and Figure 5-6 previously showed deficiencies in available flow in the industrial area near Pierce Street along the Minnesota River. Figure 6-2 shows the recommended improvements for this deficiency. A new 12-inch main would better connect the water mains to the rest of the system, being currently choked through a single 8-inch water main. A second water main is shown on Shumway Street, which would replace the existing 4-inch with a more suitable 8-inch main. The 8-inch main would assist the 6-inch main along 3rd Avenue W.

6.4.2.2 Garden Lane

Figure 5-5 and Figure 5-6 previously showed deficiencies in available flow for the medium to high density units near Garden Lane. Figure 6-3 shows the recommended improvements for this deficiency. A new 8-inch main would better connect the water mains to the rest of the system, being currently served by 6-inch main.

6.4.2.3 Highway 169 Crossing

Figure 6-1 showed a regional connection between the Normal Zone and the First High Zone, crossing Highway 169. Figure 6-4 shows the potential crossing. The crossing is intended to have the ability to back flow water from the First High Zone to the Normal Zone. The crossing could eventually provide a site for a booster station, if development occurs to the west.

6.4.3 Ultimate Trunk Water Main Grid

As development progresses into the expansion areas, a trunk water main system must be constructed to deliver adequate flows for various conditions including emergency fire flow. A trunk water main is defined as a pipe sized such that it can supply water for nearby users as well as serve a greater function by transporting water across the system to meet the demands of the extended water system. The majority of trunk water main improvements identified are outside of the existing service area and should be constructed as development occurs and road improvements are constructed. Figure 6-1 presented the proposed preliminary routing of trunk water mains to serve future development areas. Actual main routing will depend on a variety of local factors as individual projects progress. This map should be seen as a recommendation for the general hydraulic capacity of the distribution system as it is extended to serve new development. Generally speaking, the trunk main layout is comprised of a gridded network of16-inch, and 12-inch diameter water mains. Where more defined development is in progress, 8-inch water main grids on a tighter installation scale are also included.

6.5 System Planning

Figure 6-1 illustrates the water system master plan to meet current and projected water system needs through the 2040 planning period. As mentioned previously, these improvements are intended to correct existing deficiencies as well as meet the needs for future growth and development. To demonstrate the effectiveness of the recommended improvements, Figures 6-2 and 6-3 illustrate the anticipated maximum day demand pressures and maximum day fire flows, respectively, with the recommended improvements under projected 2040 demands conditions.

The recommended improvement plan to serve the future service area has been developed as a tool to guide SPUC in the siting and sizing of future system improvements. While the plan may represent the current planned expansion of the SPUC system, future changes in land use, water demands, or customer characteristics could substantially alter the implementation of the plan. For this reason, it is recommended that the plan be periodically reviewed and updated using area planning information to reflect the most current projections of SPUC service area growth and development.

The improvement plan is a guidance document that details existing conditions and recommendations for the future. The plan is based on future conditions as perceived in 2017. As time progresses, additional information will become available and events will shape the development of the SPUC service area. The plan must be dynamic in response; it should be studied and used but also adjusted to conform to the changes and knowledge that will come with time. Updates should be made on a regular basis, probably every five to ten years.

7 Capital Improvements Plan

One of the main objectives of this study was to develop a long-range Capital Improvement Plan (CIP) for water system facilities. The CIP provides information on the anticipated cost and timing of future water supply, storage and distribution improvements.

The previous section summarizes the recommended water system improvements anticipated throughout the planning period. This section summarizes the recommended water system improvements and presents a proposed Water Utility capital improvements program. The recommended Capital Improvements Plan prioritizes system improvements and provides a schedule for the timing of construction. Budget cost estimates for each improvement are also summarized.

7.1 Wells

Based upon the current and projected water system needs, additional wells will be required to provide reliable supply capacity for current and future water demands. While near term water system demands can supplied by current well capacities, additional wells will be required to support growth and development. Four new wells are identified to support water system growth and replace aging wells through the 2040 planning period.

7.2 Storage

The current water system is supported by robust water storage volumes, however as the water system grows into the Second High pressure zone, elevated water storage should be added to the system in this zone to support system operation and provide the type of water service that is similar to the other pressure zones. Historically, it has been a policy to add elevated storage to a pressure zone when the number of users connected approaches 250 homes. With commercial and residential development now occurring in the Wester portions of the second high pressure zone, planning for the next elevated water tank should begin now. A second tank in the second high pressure zone will be eventually needed depending on development for a total of 1,000,0000 gallons of water storage in the second high pressure zone.

7.3 Water Booster Stations and Flow Control

Movement of water between the pressure zones is important from a redundancy standpoint. As new wells are added throughout the system, a demand to move the supplied water from zone to zone will be required. As a result a series of booster stations are planned to move water from the lower service zones to higher zones. In a similar fashion, flow control valves located at the booster station facilities are beneficial to move water in a controlled fashion from the higher zones to lower zones.

7.4 Distribution

Figure 6-1 is the proposed SPUC 2040 Water System Master Plan. The figure illustrates recommended improvements to the existing distribution system to serve the current service area. The improvements have been recommended to strengthen the existing water distribution network, and support system expansion into future service areas. The Figure also shows how long range trunk water mains might be installed.

7.5 CIP Costs

The table below provides a high level summary of short and long range water system facility capital costs. These costs are based on recent projected history an anticipated system growth.

Table 7-1 – Capital Improvement Plan

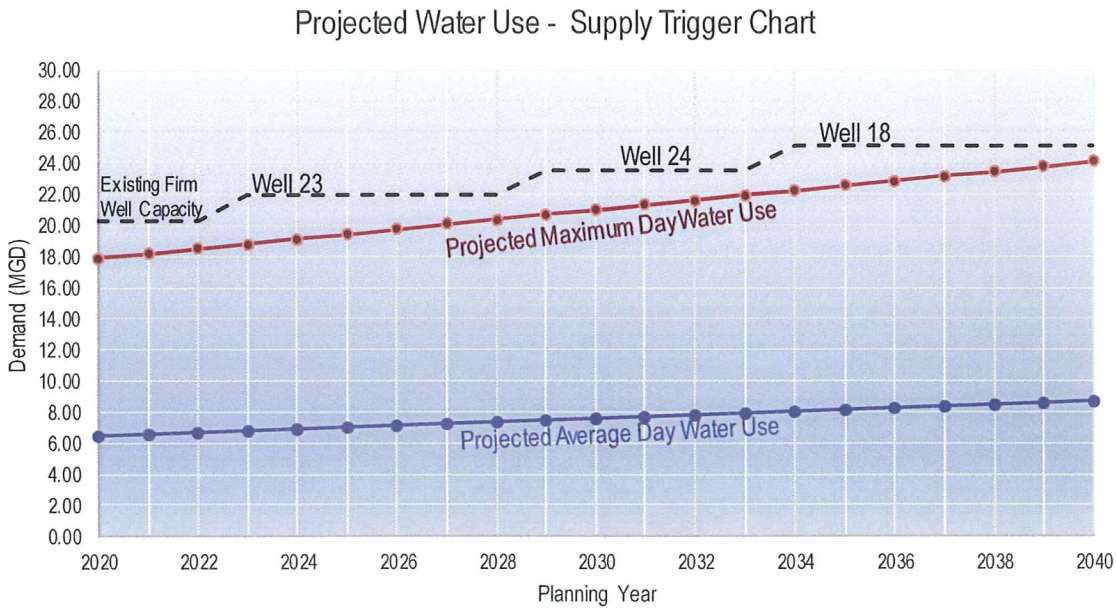
Planning Period	Improvement	Type	Estimated Cost
Short Term (2025)	Well No.23 & Booster Station (Windermere)	Supply	$4,500,000
	Well No.24		$2,500,000
	Windermere Booster Station	Booster	See Well 23
	West 500,000 Gallon Water Tower	Storage	$2,600,000
	Trunk Water Main (Oversize)	Distribution	$1,170,000
	Flow Control Stations & PRVs		$650,000
	Short Term Total		**$11,400,000**
Long Term (2040)	Well No.18		$4,500,000
	Well No.19		$1,200,000
	Secondary East Booster Station	Booster	$750,000
	Church Addition Booster Station		$2,200,000
	East 500,000 Gallon Water Tower	Storage	$2,600,000
	Trunk Water Main (Oversize)	Distribution	$2,920,000
	Flow Control Stations & PRVs		$1,460,000
	Long Term Total		**$12,330,000**
Total			**$23,700,000**

7.6 Trigger Chart

The timing of future water improvements will be influenced by a number of parameters. Items such as development pressure in specific areas, aging facilities and/or facilities which are undersized, availability of funds, etc. all play a role in the timing of future improvements.

Because of the factors involved, it is difficult to accurately predict the timing of future improvements, especially those which may occur far into the future.

A trigger chart is presented in below, which correlates well and storage improvements to system demands. Future capital improvement planning can thus be tied to actual system demands and the timeline adjusted as necessary.



Proposed As Consent Item

Monthly Water Dashboard

As of: August 2018

Shakopee Public Utilities Commission

8c

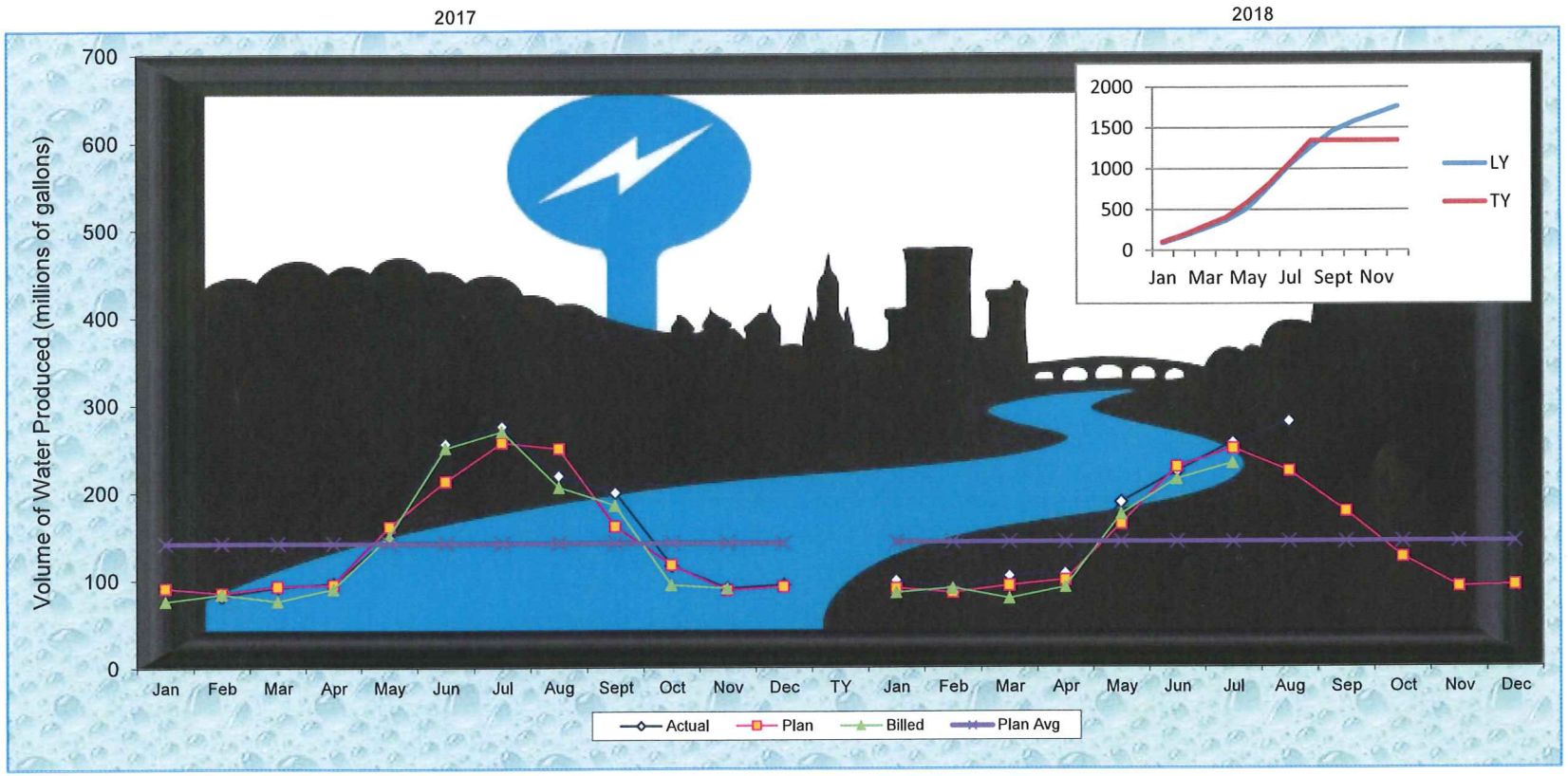
ALL VALUES IN MILLIONS OF GALLONS

Element/Measure Water Pumped/Metered

Last 6 months actuals	104	107	188	223	256	280

Averages

2015	138
2016	145
2017	147



LY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Actual	92	82	92	96	149	256	276	219	200	116	90	94
Plan	91	85	93	95	161	213	257	250	161	117	88	92
YTD % *												
Billed	76	84	76	90	150	251	270	206	185	94	90	

TY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	99	90	104	107	188	223	256	280				
	90	85	93	99	163	228	249	223	177	125	91	93
	110%	108%	109%	109%	111%	107%	106%	110%				
	85	90	78	91	174	214	232					

* Actual gallons pumped vs. Plan

8d

RESOLUTION #1205

A RESOLUTION SETTING THE AMOUNT
OF THE TRUNK WATER CHARGE, APPROVING OF ITS COLLECTION
AND AUTHORIZING WATER SERVICE TO CERTAIN PROPERTY
DESCRIBED AS:

WINDERMERE WAY SECOND ADDITION

WHEREAS, a request has been received for City water service to be made available to certain property, and

WHEREAS, the collection of the Trunk Water Charge is one of the standard requirements before City water service is newly made available to an area, and

WHEREAS, the standard rate to be applied for the Trunk Water Charge has been set by separate Resolution,

NOW THEREFORE, BE IT RESOLVED, that the amount of the Trunk Water Charge is determined to be $34,400.82 based on 9.176 net acres, and that collection of the Trunk Water Charge is one of the requirements to be completed prior to City water service being made available to that certain property described as:

Lot 1, Block 1 and Outlot A, WINDERMERE WAY SECOND ADDITION

BE IT FURTHER RESOLVED, that all things necessary to carry out the terms and purpose of this Resolution are hereby authorized and performed.

Passed in regular session of the Shakopee Public Utilities Commission, this 17th day of September, 2018.

_____
Commission President: Aaron Weyer

ATTEST:

_____
Commission Secretary: John R. Crooks

8e

RESOLUTION #1206

A RESOLUTION APPROVING OF THE ESTIMATED COST OF PIPE OVERSIZING ON THE WATERMAIN PROJECT:

WINDERMERE WAY

WHEREAS, the Shakopee Public Utilities Commission has been notified of a watermain project, and

WHEREAS, the pipe sizes required for that project have been approved as shown on the engineering drawing by Westwood, and

WHEREAS, a part, or all, of the project contains pipe sizes larger than would be required under the current Standard Watermain Design Criteria as adopted by the Shakopee Public Utilities Commission, and

WHEREAS, the policy of the Shakopee Public Utilities Commission calls for the payment of those costs to install oversize pipe above the standard size, and

WHEREAS, the pipes considered oversized are listed on an attachment to this Resolution,

NOW THEREFORE, BE IT RESOLVED, that the amount of the oversizing to be paid by the Shakopee Public Utilities Commission is approved in the amount of approximately $14,987.67, and

BE IT FURTHER RESOLVED, the payment of the actual amount for said oversizing will be approved by the Utilities Commission when final costs for the watermain project are known.

BE IT FURTHER RESOLVED, that all things necessary to carry out the terms and purpose of this Resolution are hereby authorized and performed.

Passed in regular session of the Shakopee Public Utilities Commission, this 17th day of September, 2018.

_____

Commission President: Aaron Weyer

ATTEST:

_____

Commission Secretary: John R. Crooks

WINDERMERE WAY TRUNK WATER MAIN OVERSIZING

ATTACHMENT TO RESOLUTION #1206

9b

SHAKOPEE PUBLIC UTILITIES

"Lighting the Way – Yesterday, Today and Beyond"

September 14, 2018

TO: John Crooks, Utilities Manager

FROM: Greg Drent, Electric Superintendent

Subject: MMUA MN Rodeo 2018 Update and Results

MMUA had its second MN Lineman Rodeo on Tuesday September 11, 2018 in Marshall MN. Six SPU employees participated in the rodeo. Journeyman lineman were Mike Enright, Cody Schuett, Brad Carlson and Jamie VonBank. SPU apprentice were Matt Kahle, and Tyler Hanson.

This lineman rodeo was a little different from the APPA rodeo as all the events are individual and there are no team events. The climbers competed in three different events: Obstacle Course, Hurtman Rescue and Rope Toss. Awards were given in each event and an overall champion. Shakopee Public Utilities results are as follows:

Journeyman Events

Hurtman Rescue
Mike Enright 1st
Jamie VonBank 3rd

Obstacle Course
Mike Enright 2nd

Rope Toss
Brad Carlson 3rd

Overall
Mike Enright 2nd

Apprentice Events

Hurtman Rescue
Tyler Hanson 2nd
Matt Kahle 3rd

Obstacle Course
Tyler Hanson 1st

Rope Toss
Matt Kahle 2nd

Overall
Tyler Hanson 1st
Matt Kahle 2nd

SPU had another good year at the MN rodeo as you can see from the results, we took the rodeo serious and practiced whenever we found time and as you know that can be challenging with all we have going on here at SPU. I am very pleased with the dedication of the entire staff at SPU and feel very blessed to have a Utilities Manager and Commission members that support the rodeo events throughout the year. The lineman wanted me to share a big THANK YOU to Mr. Crooks and the Commission for the opportunity to represent SPU at the rodeo events throughout the year.

Post Office Box 470 • 255 Sarazin Street • Shakopee, Minnesota 55379-0470
(952) 445-1988 • Fax (952) 445-7767 • www.spucweb.com

SHAKOPEE PUBLIC UTILITIES

"Lighting the Way – Yesterday, Today and Beyond"

September 12, 2018

PROPOSE AS CONSENT **11a**

TO: John Crooks

CC: Joe Adams
Sherri Anderson
Greg Drent
Lon Schemel
Sharon Walsh

FROM: Renee Schmid, Director of Finance and Administration

SUBJECT: Financial Results for August, 2018

The following Financial Statements are attached for your review and approval.

Month to Date and Year to Date Financial Results – August, 2018

- Combined Statement of Revenue & Expense and Net Assets – Electric, Water and Total Utility
- Electric Operating Revenue & Expense Detail
- Water Operating Revenue & Expense Detail

Key items to note:

Month to Date Results – August, 2018

- Total Utility Operating Revenues for the month of August totaled $5.8 million and were unfavorable to budget by $781k or 11.8%. Electric revenues were unfavorable to budget by $689k or 12.0% driven by lower than plan sales volume and power cost adjustment revenue in all revenue groups. Water revenues were unfavorable to budget by $91k or 10.5% also driven by lower than plans sales volume in all revenue groups.

- Total operating expenses were $4.9 million and were unfavorable to budget by $184k or 3.9%. Total purchased power expense in August was $3.7 million and was $195k or 5.5% higher than budget for the month. Total Operating Expense for electric including purchased power was $4.5 million and was unfavorable to budget by $161k or 3.7% due to higher than plan purchased power costs of $195k and timing of expenditures in conservation expense of $63k, and were partially offset by lower than plan administrative and general expense of $65k and operation and maintenance expense of $34k. Total Operating Expense for Water was $414k and was unfavorable to budget by $24k or 6.1% due to higher than plan operation and maintenance expense of $42k and customer accounts expense of $3k, and was partially offset by lower than plan administrative and general expenses of $21k.

- Total Utility Operating Income was $0.9 million and was $1.0 million unfavorable to budget due to lower than plan operating revenues of $0.8 million and higher than plan operating expenses of $0.2 million.

- Total Utility Non-Operating Revenue was $173k and was favorable to budget by $127k due to higher than plan rental and miscellaneous income, higher than plan investment income, and a gain on the sale of a trencher in the electric department.

- Capital Contributions for the month of August were $230k and were favorable to budget by $64k due to developer paid capital contributions of $100k, water connection fees of $9k, and meter fees of $6k, and partially offset by lower than plan trunk water fees of $52k.

- Municipal contributions to the City of Shakopee totaled $202k and were higher than plan by $8.3k or 3.9%.

- Change in Net Position was an increase of $1.1 million and was unfavorable to budget by $0.7 million due to lower than plan operating income and partially offset by higher than plan non-operating income and capital contributions.

- Electric usage billed to customers in August was 43,595,271 kWh, a 5.0% decrease from July usage billed at 45,883,873 kWh.

- Water usage billed to customers in August was 231.9 million gallons, an 8.5% increase from July usage billed at 213.8 million gallons.

Year to Date Financial Results – August, 2018

- Total Utility Operating Revenue year to date August was $36.9 million and was favorable to budget by $2.1 million or 5.9%. Electric revenues totaled $33.3 million and were favorable to budget by $2.0 million or 6.7% driven by higher than plan energy sales in all revenue groups and higher power cost adjustment revenues. Water revenues totaled $3.5 million and were slightly unfavorable to budget by $28k or 0.8% driven by lower than plan sales volumes in the residential and commercial revenue groups.

- Total Utility Operating Expenses year to date August were $32.8 million and were slightly unfavorable to budget by $237k or 0.7% primarily due to higher than plan purchased power costs of $1.4 million driven by higher sales and cost of purchased power per kwh that were partially offset by timing of expenditures in energy conservation of $0.4 million, and administrative and other general expense of $0.8 million due to timing of employee benefits and outside services expenses. Total Operating Expense for electric including purchased power was $29.8 million and was unfavorable to budget by $0.4 million or 1.4%. Total Operating Expense for Water was $3.0 million and was favorable to budget by $0.2 million or 5.1%.

- Total Utility Operating Income was $4.0 million and was favorable to budget by $1.8 million driven by higher than planned operating revenues of $2.0 million and partially offset by higher than plan operating expenses of $0.2 million.

- Total Utility Non-Operating expense was $597k and was favorable to budget by $330k due to higher than planned investment income of $204k, higher than plan rental and miscellaneous income of $90k, and a $48k net gain on the sale of electric equipment, and was partially offset by higher than plan interest expense of $12k due to an increase in interest rates paid customers for utility deposits. Year to date non-operating expense includes the write down of $217k in amortization of debt issuance and loss on refunding costs reflecting the redemption of the final outstanding debt issue.

- YTD Capital Contributions were $3.4 million and are favorable to budget by $2.1 million due to higher than planned collection of water connection fees of $2.2 million driven by new development, higher than plan capital contributions of $0.2 million, and partially offset by lower than plan trunk water fees of $0.3 million.

- Municipal contributions to the City of Shakopee totaled $1.6 million year to date and are lower than plan by $66k or 4.0%. The actual estimated payment throughout the year is based on prior year results and will be trued up at the end of the year.

- YTD Change in Net Position is $6.5 million and is favorable to budget by $4.3 million reflecting higher than plan operating income, non-operating revenues, and capital contributions.

SHAKOPEE PUBLIC UTILITIES

MONTH TO DATE FINANCIAL RESULTS

AUGUST 2018

SHAKOPEE PUBLIC UTILITIES

"Lighting the Way – Yesterday, Today and Beyond"

SHAKOPEE PUBLIC UTILITIES
COMBINED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN FUND NET POSITION

	Month to Date Actual - August 2018			Month to Date Budget - August 2018			Electric		Water		Total Utility	
							MTD Actual v. Budget B/(W)		MTD Actual v. Budget B/(W)		MTD Actual v. Budget B/(W)	
	Electric	Water	Total Utility	Electric	Water	Total Utility	$	%	$	%	$	%
OPERATING REVENUES	$ 5,041,560	778,071	5,819,631	5,730,825	869,370	6,600,194	(689,265)	-12.0%	(91,299)	-10.5%	(780,564)	-11.8%
OPERATING EXPENSES						-						
Operation, Customer and Administrative	4,270,229	284,830	4,555,059	4,106,382	261,294	4,367,676	(163,847)	-4.0%	(23,536)	-9.0%	(187,383)	-4.3%
Depreciation	196,268	129,257	325,525	199,558	128,912	328,470	3,290	1.6%	(344)	-0.3%	2,945	0.9%
Amortization of Plant Acquisition	-	-	-	-	-	-	-	0.0%	-	-	-	0.0%
Total Operating Expenses	4,466,498	414,086	4,880,584	4,305,940	390,206	4,696,146	(160,558)	-3.7%	(23,880)	-6.1%	(184,438)	-3.9%
Operating Income	575,062	363,985	939,047	1,424,885	479,164	1,904,048	(849,823)	-59.6%	(115,179)	-24.0%	(965,001)	-50.7%
NON-OPERATING REVENUE (EXPENSE)												
Rental and Miscellaneous	59,038	349	59,387	15,783	1,390	17,173	43,255	274.1%	(1,041)	-74.9%	42,214	245.8%
Interdepartment Rent from Water	7,500	-	7,500	7,500		7,500	-	0.0%	-	-	-	0.0%
Investment Income	55,994	49,591	105,585	16,940	5,511	22,451	39,054	230.5%	44,080	799.8%	83,134	370.3%
Interest Expense	(3,219)	(91)	(3,310)	(1,805)	(29)	(1,834)	(1,414)	-78.3%	(63)	-218.0%	(1,477)	-80.5%
Amortization of Debt Issuance Costs and Loss on Refunding	-	-	-	-	-	-	-	0.0%	-	-	-	0.0%
Gain/(Loss) on the Disposition of Property	3,426	-	3,426	-	-	-	3,426	-	-	-	3,426	0.0%
Total Non-Operating Revenue (Expense)	122,739	49,849	172,588	38,418	6,872	45,290	84,321	219.5%	42,977	625.4%	127,297	281.1%
Income Before Contributions and Transfers	697,801	413,834	1,111,635	1,463,303	486,036	1,949,339	(765,502)	-52.3%	(72,202)	-14.9%	(837,704)	-43.0%
CAPITAL CONTRIBUTIONS	100,581	129,780	230,361	-	166,373	166,373	100,581	-	(36,593)	-22.0%	63,988	38.5%
TRANSFER TO MUNICIPALITY	(118,003)	(83,500)	(201,503)	(122,048)	(87,715)	(209,763)	4,045	3.3%	4,215	4.8%	8,260	3.9%
CHANGE IN NET POSITION	$ 680,379	460,114	1,140,493	1,341,255	564,694	1,905,949	(660,876)	-49.3%	(104,580)	-18.5%	(765,456)	-40.2%

SHAKOPEE PUBLIC UTILITIES
ELECTRIC OPERATING REVENUE AND EXPENSE

	MTD Actual August 2018	MTD Budget August 2018	MTD Actual v. Budget Better/(Worse) $	MTD Actual v. Budget Better/(Worse) %
OPERATING REVENUES				
Sales of Electricity				
Residential	$ 2,055,522	2,149,942	(94,420)	-4.4%
Commercial and Industrial	2,873,914	3,467,044	(593,130)	-17.1%
Uncollectible accounts	-	-	-	-
Total Sales of Electricity	4,929,436	5,616,986	(687,549)	-12.2%
Forfeited Discounts	24,629	20,453	4,176	20.4%
Free service to the City of Shakopee	14,003	13,853	150	1.1%
Conservation program	73,492	79,533	(6,041)	-7.6%
Total Operating Revenues	5,041,560	5,730,825	(689,265)	-12.0%
OPERATING EXPENSES				
Operations and Maintenance				
Purchased power	3,736,573	3,541,133	(195,440)	-5.5%
Distribution operation expenses	14,862	37,222	22,361	60.1%
Distribution system maintenance	63,893	69,157	5,264	7.6%
Maintenance of general plant	14,725	21,340	6,615	31.0%
Total Operation and Maintenance	3,830,053	3,668,852	(161,201)	-4.4%
Customer Accounts				
Meter Reading	11,495	9,133	(2,363)	-25.9%
Customer records and collection	52,668	50,754	(1,914)	-3.8%
Energy conservation	122,443	59,003	(63,440)	-107.5%
Total Customer Accounts	186,606	118,890	(67,716)	-57.0%
Administrative and General				
Administrative and general salaries	59,339	51,183	(8,156)	-15.9%
Office supplies and expense	7,872	15,839	7,967	50.3%
Outside services employed	(3,738)	26,316	30,054	114.2%
Insurance	10,602	12,164	1,563	12.8%
Employee Benefits	164,053	175,315	11,262	6.4%
Miscellaneous general	15,441	37,822	22,380	59.2%
Total Administrative and General	253,570	318,640	65,070	20.4%
Total Operation, Customer, & Admin Expenses	4,270,229	4,106,382	(163,847)	-4.0%
Depreciation	196,268	199,558	3,290	1.6%
Amortization of plant acquisition	-	-	-	0.0%
Total Operating Expenses	$ 4,466,498	4,305,940	(160,558)	-3.7%
OPERATING INCOME	$ 575,062	1,424,885	(849,823)	-59.6%

SHAKOPEE PUBLIC UTILITIES
WATER OPERATING REVENUE AND EXPENSE

	MTD Actual August 2018	MTD Budget August 2018	MTD Actual v. Budget Better/(Worse) $	MTD Actual v. Budget Better/(Worse) %
OPERATING REVENUES				
Sales of Water	$ 774,791	867,505	(92,714)	-10.7%
Forfeited Discounts	3,280	1,865	1,415	75.9%
Uncollectible accounts	0	-	0	-
Total Operating Revenues	778,071	869,370	(91,299)	-10.5%
OPERATING EXPENSES				
Operations and Maintenance				
Pumping and distribution operation	28,964	42,942	13,978	32.6%
Pumping and distribution maintenance	86,146	28,572	(57,574)	-201.5%
Power for pumping	24,444	23,949	(495)	-2.1%
Maintenance of general plant	2,783	5,221	2,438	46.7%
Total Operation and Maintenance	142,336	100,684	(41,653)	-41.4%
Customer Accounts				
Meter Reading	6,189	5,160	(1,029)	-19.9%
Customer records and collection	15,217	13,203	(2,014)	-15.3%
Energy conservation	-	-	-	-
Total Customer Accounts	21,407	18,363	(3,044)	-16.6%
Administrative and General				
Administrative and general salaries	40,104	32,157	(7,948)	-24.7%
Office supplies and expense	2,886	7,174	4,288	59.8%
Outside services employed	1,463	13,483	12,021	89.2%
Insurance	3,534	4,055	521	12.8%
Employee Benefits	59,607	63,870	4,263	6.7%
Miscellaneous general	13,493	21,508	8,015	37.3%
Total Administrative and General	121,087	142,247	21,160	14.9%
Total Operation, Customer, & Admin Expenses	284,830	261,294	(23,536)	-9.0%
Depreciation	129,257	128,912	(344)	-0.3%
Amortization of plant acquisition	-	-	-	-
Total Operating Expenses	414,086	390,206	(23,880)	-6.1%
OPERATING INCOME	$ 363,985	479,164	(115,179)	-24.0%

SHAKOPEE PUBLIC UTILITIES

YEAR TO DATE FINANCIAL RESULTS

AUGUST 2018

SHAKOPEE PUBLIC UTILITIES

"Lighting the Way – Yesterday, Today and Beyond"

SHAKOPEE PUBLIC UTILITIES
COMBINED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN FUND NET POSITION

	Year to Date Actual - August 2018			Year to Date Budget - August 2018			Electric YTD Actual v. Budget B/(W)		Water YTD Actual v. Budget B/(W)		Total Utility YTD Actual v. Budget B/(W)	
	Electric	Water	Total Utility	Electric	Water	Total Utility	$	%	$	%	$	%
OPERATING REVENUES	$ 33,333,011	3,544,997	36,878,008	31,245,387	3,573,282	34,818,669	2,087,624	6.7%	(28,286)	-0.8%	2,059,339	5.9%
OPERATING EXPENSES						-						
Operation, Customer and Administrative	28,262,803	1,963,985	30,226,787	27,838,192	2,128,015	29,966,207	(424,611)	-1.5%	164,031	7.7%	(260,580)	-0.9%
Depreciation	1,570,145	1,034,052	2,604,198	1,596,461	1,031,300	2,627,761	26,316	1.6%	(2,753)	-0.3%	23,563	0.9%
Amortization of Plant Acquisition	-	-	-	-	-	-	-	0.0%	-	-	-	0.0%
Total Operating Expenses	29,832,948	2,998,037	32,830,985	29,434,653	3,159,315	32,593,968	(398,295)	-1.4%	161,278	5.1%	(237,017)	-0.7%
Operating Income	3,500,063	546,960	4,047,023	1,810,733	413,968	2,224,701	1,689,330	93.3%	132,992	32.1%	1,822,322	81.9%
NON-OPERATING REVENUE (EXPENSE)												
Rental and Miscellaneous	201,327	174,936	376,263	126,267	160,081	286,348	75,060	59.4%	14,855	9.3%	89,915	31.4%
Interdepartment Rent from Water	60,000	-	60,000	60,000		60,000	-	0.0%	-	-	-	0.0%
Investment Income	222,560	160,776	383,336	135,517	44,088	179,606	87,042	64.2%	116,688	264.7%	203,730	113.4%
Interest Expense	(52,930)	(611)	(53,541)	(41,804)	(229)	(42,034)	(11,126)	-26.6%	(381)	-166.3%	(11,507)	-27.4%
Amortization of Debt Issuance Costs and Loss on Refunding	(216,694)	-	(216,694)	(216,694)	-	(216,694)	-	0.0%	-	0.0%	-	0.0%
Gain/(Loss) on the Disposition of Property	48,019	-	48,019	-	-	-	48,019	0.0%	-	-	48,019	-
Total Non-Operating Revenue (Expense)	262,281	335,102	597,383	63,286	203,940	267,226	198,996	314.4%	131,162	64.3%	330,157	123.5%
Income Before Contributions and Transfers	3,762,345	882,061	4,644,406	1,874,019	617,908	2,491,927	1,888,325	100.8%	264,154	42.7%	2,152,479	86.4%
CAPITAL CONTRIBUTIONS	151,183	3,302,065	3,453,248	-	1,330,987	1,330,987	151,183	-	1,971,078	148.1%	2,122,261	159.5%
MUNICIPAL CONTRIBUTION	(943,714)	(667,987)	(1,611,700)	(976,382)	(701,720)	(1,678,102)	32,668	3.3%	33,734	4.8%	66,402	4.0%
CHANGE IN NET POSITION	$ 2,969,813	3,516,140	6,485,953	897,637	1,247,174	2,144,811	2,072,176	230.8%	2,268,966	181.9%	4,341,142	202.4%

SHAKOPEE PUBLIC UTILITIES
ELECTRIC OPERATING REVENUE AND EXPENSE

	YTD Actual August 2018	YTD Budget August 2018	YTD Actual v. Budget Better/(Worse) $	%
OPERATING REVENUES				
Sales of Electricity				
Residential	$ 11,988,540	10,940,879	1,047,660	9.6%
Commercial and Industrial	20,575,965	19,567,212	1,008,753	5.2%
Uncollectible accounts	-	-	-	-
Total Sales of Electricity	32,564,505	30,508,092	2,056,413	6.7%
Forfeited Discounts	170,827	163,623	7,203	4.4%
Free service to the City of Shakopee	112,025	110,828	1,197	1.1%
Conservation program	485,655	462,844	22,811	4.9%
Total Operating Revenues	33,333,011	31,245,387	2,087,624	6.7%
OPERATING EXPENSES				
Operations and Maintenance				
Purchased power	24,635,266	23,203,205	(1,432,061)	-6.2%
Distribution operation expenses	288,336	297,779	9,443	3.2%
Distribution system maintenance	506,253	553,252	46,999	8.5%
Maintenance of general plant	181,739	170,723	(11,016)	-6.5%
Total Operation and Maintenance	25,611,595	24,224,959	(1,386,635)	-5.7%
Customer Accounts				
Meter Reading	79,593	73,063	(6,530)	-8.9%
Customer records and collection	359,837	406,032	46,196	11.4%
Energy conservation	36,385	472,022	435,637	92.3%
Total Customer Accounts	475,815	951,118	475,303	50.0%
Administrative and General				
Administrative and general salaries	420,012	409,467	(10,545)	-2.6%
Office supplies and expense	91,118	126,713	35,595	28.1%
Outside services employed	114,390	210,526	96,137	45.7%
Insurance	84,816	97,316	12,500	12.8%
Employee Benefits	1,250,160	1,515,519	265,358	17.5%
Miscellaneous general	214,896	302,574	87,678	29.0%
Total Administrative and General	2,175,393	2,662,115	486,722	18.3%
Total Operation, Customer, & Admin Expenses	28,262,803	27,838,192	(424,611)	-1.5%
Depreciation	1,570,145	1,596,461	26,316	1.6%
Amortization of plant acquisition	-	-	-	0.0%
Total Operating Expenses	$ 29,832,948	29,434,653	(398,295)	-1.4%
OPERATING INCOME	$ 3,500,063	1,810,733	1,689,330	93.3%

SHAKOPEE PUBLIC UTILITIES
WATER OPERATING REVENUE AND EXPENSE

	YTD Actual August 2018	YTD Budget August 2018	YTD Actual v. Budget Better/(Worse) $	%
OPERATING REVENUES				
Sales of Water	$ 3,532,002	3,558,364	(26,362)	-0.7%
Forfeited Discounts	12,994	14,918	(1,924)	-12.9%
Uncollectible accounts	1	-	1	-
Total Operating Revenues	3,544,997	3,573,282	(28,286)	-0.8%
OPERATING EXPENSES				
Operations and Maintenance				
Pumping and distribution operation	327,173	343,533	16,360	4.8%
Pumping and distribution maintenance	322,556	228,574	(93,982)	-41.1%
Power for pumping	195,241	191,592	(3,649)	-1.9%
Maintenance of general plant	26,929	41,771	14,842	35.5%
Total Operation and Maintenance	871,900	805,471	(66,430)	-8.2%
Customer Accounts				
Meter Reading	42,501	41,279	(1,221)	-3.0%
Customer records and collection	100,741	105,624	4,883	4.6%
Energy conservation	-	-	-	-
Total Customer Accounts	143,242	146,904	3,662	2.5%
Administrative and General				
Administrative and general salaries	273,458	257,252	(16,206)	-6.3%
Office supplies and expense	34,094	57,394	23,299	40.6%
Outside services employed	30,966	107,865	76,899	71.3%
Insurance	28,272	32,439	4,167	12.8%
Employee Benefits	440,695	548,628	107,933	19.7%
Miscellaneous general	141,356	172,063	30,706	17.8%
Total Administrative and General	948,843	1,175,641	226,798	19.3%
Total Operation, Customer, & Admin Expenses	1,963,985	2,128,015	164,031	7.7%
Depreciation	1,034,052	1,031,300	(2,753)	-0.3%
Amortization of plant acquisition	-	-	-	-
Total Operating Expenses	$ 2,998,037	3,159,315	161,278	5.1%
OPERATING INCOME	$ 546,960	413,968	132,992	32.1%