



**MURRAY CITY MUNICIPAL COUNCIL
COMMITTEE OF THE WHOLE**

The Murray City Municipal Council met as a Committee of the Whole on Tuesday, October 6, 2009, in the Murray City Center, Conference Room #107, 5025 South State Street, Murray, Utah.

Members in Attendance:

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| Jeff Dredge | Council Chairman |
| Robert D. Robertson | Council Member |
| Jim Brass | Council Vice Chairman |
| Patricia W. Griffiths | Council Member |
| Krista Dunn | Council Member |

Others in Attendance:

| | |
|---------------------|----------------------------|
| Daniel Snarr | Mayor |
| Frank Nakamura | City Attorney |
| Michael D. Wagstaff | Council Executive Director |
| Jan Wells | Mayor's Chief of Staff |
| Janet M. Lopez | Council Office |
| Aaron Bryant | Student |
| Danny Astill | Public Services |
| Anne vonWeller | Public Services |
| Doug Hill | Public Services Director |
| Bill Finch | Citizen |
| Pat Wilson | Finance Director |
| Jared Shaver | Citizen |
| Craig Bagley | Bowen, Collins & Asso. |
| Andrew McKinnon | Bowen, Collins & Asso. |
| Ben Horsley | Granite School District |
| Greg Poole | Hansen Allen & Luce |
| Steve Jones | Hansen Allen & Luce |
| Jeff Hatch | SL County Auditor |
| Marcie Smith West | SL County Auditor's Office |
| Darren Stam | Citizen |
| Keith Larson | Bowen, Collins & Asso. |
| Gary Merrill | Citizen |

Chairman Dredge called the meeting to order at 5:30 p.m. and welcomed those in attendance.

Mr. Dredge asked for a motion on the minutes from the Committee of the Whole meeting held on September 22, 2009. Ms. Griffiths moved approval as written. Ms. Dunn seconded the motion. The motion carried 5-0.

Business Item #1 2009 Water & Waste Water Master Plan - Danny Astill

Mr. Hill explained that through the budget process an update to the water and waste water master plans was funded. The intent is to forward these plans to a Council meeting to have them formally adopted, for a couple of reasons. With impact fee law, it is important to have a capital facilities plan, and these master plans fulfill that criteria. Second, as projects are planned in the future knowing that the Council is aware of the overall City needs in these areas helps give some direction. This presentation will educate the Council and provide an opportunity for questions to be answered. Mr. Astill has invested about six to eight months on these projects and Mr. Hill stated his appreciation for the great efforts.

Mr. Astill commented that he would begin with the **Water System Master Plan**, and said the engineers from Bowen, Collins & Associates were in attendance to make the presentation. Craig Bagley and Andrew McKinnon proceeded to explain their work on this project.

Mr. Bagley complimented the Murray City staff, including Mr. Hill, Ms. vonWeller, and Mr. Astill, on their operation of the enterprise funds and stated his pleasure in working with them. By way of background, Mr. Bagley reported that the last City water plan update was in 1999, and after that a list of capital improvement projects was developed that the City has been working on. Conservation oriented rates were introduced in 2003, which were very successful in reducing water demands. Murray has annexed a large portion of property on the east side of the old boundary, and recently the City has modified some zoning to include some high density mixed use zones. These were the major drivers for the updated master plan.

In doing a water system master plan there are three elements taken into consideration:

- Water supply
- Capacity, storage facilities
- Water distribution system, the pipes

Mr. Bagley showed a summary of the plan evaluation criteria. He compared data from the system that included:

- Average Day Demand (total demand divided by 365 days)
- Peak Day Demand (typically a day in July)
- Peak Hour Demand (peak hour use during the year)

There were some target criteria, which was higher than the state minimum. Anything that does not meet that minimum is considered a deficiency, and these are the problems the study will try to address. Regarding storage capacity, the desire was to have enough capacity in the tanks for average day demands, and enough additional storage to meet fire flows. This number comes from the fire marshal, for example 25

hundred gallons a minute for four hours, which is what the fire flow would be.

The state requires that the source capacity be enough to meet annual demands, as well as, enough to meet peak day demands.

In master planning, the engineers developed demands to impose on the water system. Computerized hydraulic model simulations of system operation were created using existing development conditions, and then, with full build out for the year 2100, a demand scenario was computed.

Mr. Bagley displayed a Murray City map showing the current water system service area, which is the master plan area. East of 900 East the area is served by Jordan Valley Water Conservancy District, and another area is served by Salt Lake City Public Utilities. It has been assumed that the service area boundaries will not change in the future.

In developing water demands, population was first considered with demand for each person figured. In 2000, the population was about 35,000, and now the area is about 37,000. By 2100 the peak of ultimate development is estimated to be about 45,000. This data was developed in coordination with the Wasatch Front Regional Council, and a countywide water study that was recently completed.

The mixed use zones have a potential for very high density, and it was assumed that 90% of the growth by 2100 would occur in these zones.

A graph of historic data was shown by Mr. Bagley that compares average day demand and gallons per day. Annual precipitation in inches was included on the graph. Average day demands was about 272 gallons per capita per day. It is interesting to note that when the conservation rate was introduced average consumption dropped to about 228 gallons per capita per day. That was very successful. When precipitation is above average, then the demand drops. It was also shown that in years when it was hotter than average, more water was used, and when cooler, less water was consumed.

Going back to 1994, another graphic tracked annual water use from Murray sources, 19 wells and seven springs. Beside that was shown the metered water sold to customers. A large volume was unaccounted for in 1994, however, that has been reduced significantly in recent years, mostly due to the metering of parks, a large water use area. In addition, the City has been diligent in metering construction water. Due to fires and metering inaccuracies, 100% of water will never be accounted for. The revenues have increased as the lost water has been reduced through the years.

The population data and water demand was applied to the source capacity. The state has asked all entities to conserve 25%, and an estimate was created for that amount. Murray has done excellently when implementing conservation measures, and the goal is to stay below the state conservation level. Using the data with total well and spring capacity, without conservation, Murray would run out of water about the year

2065. With conservation methods, current sources and capacity will serve the City fine.

Another chart showed source capacity needed to meet peak day demands. State water criterion says that there should be enough capacity in the system to handle the usage during a day. There may be times during the day when peaks occur, and that is the purpose of reservoirs and tanks.

Murray's water system is fairly unique in Utah because there is no source that flows by gravity. All of the City sources must be pumped out of the ground or pumped uphill. If there is an equipment failure or tank contamination, then the conservative view is to plan for 70% source availability to meet peak day demand. A graph showing 70% of capacity indicates that there is not enough capacity to meet the demand with current equipment, unless conservation measures continue.

The study does indicate that some of the City wells have more water rights than equipment to bring it out of the ground. It is recommended that another study be completed to see what equipment is necessary to increase the capacity of those facilities to create more of a buffer in availability.

A summary and evaluation of source capacity show that:

- There are enough water rights to meet future needs.
- Continued conservation efforts are critical to meeting future demand.
- Production capacity needs to be increased on some sources to meet the City source redundancy goal.

The storage analysis consists of the three following elements:

- Equalization for every day when demands may exceed production for short periods of time.
- Fire suppression, necessary to have on hand in the tank at all times to fight a fire. (These two items add up to 12 million gallons, and Murray does have that amount.)
- Because Murray is a ground water system, a small amount of emergency storage is needed. A power outage or some other emergency could create a need for this.

Recommendations for storage facilities indicate addition of auxiliary power generators at the Whitmore West Well. Three wells already contain these. In an emergency Murray already has enough storage for indoor water use, although, residents may need to turn off outside water sprinklers for a day.

The distribution system analysis shows that during a peak hour demand there may be a few problems. Some are operational issues, and others are piping deficiencies. Providing fire flows are critical operations of the water system. Looking at the hottest day of the year, peak day demand and imposing fires throughout the City,

there are some areas where the fire flow cannot be met. These are the areas where piping recommendations will be made to resolve the problems. Shown on this map are some spots that are really not Murray systems, for example, the mobile home park on Winchester has its own system.

Taking the existing systems and posing the future demands for water shows that the same basic problems exist. By imposing fire flows there are some deficiencies that need piping improvements. Most of the fire flow problems are at the end of cul-de-sacs and in private systems.

The recommended pipe improvements were shown on a color-coded map, and include four inches, and smaller, pipes that are not up to today's standards. Some pipes have a lot of breaks or leaks, are aging, and need replacement. Some are dead end pipes that need replacement. In fighting fires it is important to feed it from two directions, a long single pipe loses much pressure. There are some old steel lines on 900 East that are corroding and need replacement. Some lines need to be larger to provide more transmission capacity.

There are two sets of recommendations. The first table shows one-time project or study cost recommendations that are suggested to be funded over the next five years. They are mostly studies and one well rehabilitation project. The total cost is about \$627,000.

Then the annual water system budget recommendations are intended to fund the undersized and aging infrastructure. Please note, that because Murray is totally dependent upon ground water, a well maintenance program is recommended to prevent unplanned failures. The table shows a cost of about \$1.5 million for those recommendations.

Mr. Dredge asked what Murray currently spends annually in each of these areas. Mr. Astill responded that this year the budget is about \$1.2 million in replacement, well maintenance was close to \$130,000, the master plan was a greater amount, and the conservation program was not funded, however, it will be requested in the next budget year. The complete meter replacement program has been funded. Normally, the City spends \$25,000 to \$30,000 replacing meters annually. Consequently, these recommendations are not significantly more than the City currently spends.

Mr. Bagley added that a master plan is a living document that is changed as needed. Land use changes or decreased water use are reasons to update a master plan. Prioritizing projects is done, however, if a road project demands that water plans change then a project should be moved forward. He stated that Murray has a very well run system with no serious problems.

Mr. Robertson asked about the high density areas and commented that there are not the demands for outside water use that a neighborhood has. Mr. Bagley stated that historically about 67% of water use has been for outside irrigation. The high density

development will not have the typical outside water use.

Mr. Astill stated that the study has identified some items that the City had been thinking about, and this hydraulic model confirmed the need to address certain issues. Each time it is done a better model is developed. He concluded that the staff will be working really hard on the supervisory control and data acquisition (SCADA) system to get the data necessary to continue improvements. There is a value in using the same company due to a history of knowledge of the system.

Mr. Astill introduced Greg Poole and Steve Jones of Hansen Allen and Luce who completed the **Waste Water Master Plan**. Mr. Jones made the presentation.

Greg Poole commented that the population and growth studies were very similar to those done for the water master plan.

Mr. Jones added that the Waste Water Collection System Master Plan includes only the Murray service area, and the recently annexed area is on a different system. The map shows small blue lines that are smaller pipe sizes and the more colorful ones are the main lines that were studied in the model.

The waste water flow characteristics in Murray were considered in residential areas by putting meters in man holes and recording the flow over one to two week periods. This data gave a typical residential waste water flow pattern. Some of the features show that it dips during the night, peaks in the morning hours when people take showers, it drops again, and then bumps up slightly about 4:00 p.m., as school lets out, and then in the evening hours another peak before bedtime. This flow pattern was used in the residential model.

The commercial waste water pattern is typical of what one would see in a restaurant, for example. The night is quite low, with a steep upward curve at 8:00 a.m., leveling off during the day, and a smaller curve at the end of the day, near 10:00 p.m. This was the nonresidential pattern used in the model.

Looking at annual flow data, Mr. Jones showed a graph with a pattern over the last year. It was very linear, due to the fact that Murray does not have canal water or ground water entering the system. This is a tight system with very little additional water entering, except during the winter and spring when a small increase is seen. This is very good for the system. Mr. Poole commented that in the past the ground water inflow was higher, which indicates that the City efforts to control that has been successful. The water that goes through the treatment plant has to be paid for, so it is important to reduce this additional inflow.

Another visual slide shows the long term flow variation from June of 2000 to June 2009. One line shows the growth trend, which is essentially flat, and the average monthly water flow is also very flat and matches the population. This would show problem variations if they occurred.

Mr. Jones described a typical dry day waste water flow that was completed over a four-day period in August of 2008. When a rain event is graphed, one would see a significant high inflow occurring into the waste water that is paid for at the treatment plant. Then it would even out. The rain event flow exceeds both the high events that occur during the Super Bowl and Thanksgiving Day in Utah.

These waste water flow patterns gave the following model projected flow amounts in a million gallons per day (MGD). The projections were done by using the zoning, built out to the extent allowed, and the overlay zone that could be redeveloped up to 50 units per acre. Those projections were added on top of the current flow numbers to give a future waste water system flow.

| | Year 2009 | Year 2029 |
|--------------------------------|-----------|-----------|
| Average Daily Flow | 3.9 MGD | 6.7 MGD |
| Peak Daily Flow | 4.9 MGD | 8.5 MGD |
| Peak Daily Flow & Inflow Event | 6.2 MGD | 9.8 MGD |

A model was created with existing conditions, then a future model with development conditions, and with those issues the third model corrected all the problems in the system. The master plan has very few issues identified to be improved. The last master plan that was created had a list of issues for correction and most of those have been taken care of.

There were four existing deficiencies identified to be corrected.

1. State Street line from 5770 South to Umbra Lane - This can surcharge above the top of the pipe during a rain flow event.
2. State Street from 6100 South to 5770 South - The City has identified some criteria of 50% being full on a 10-inch pipe. Full is considered 84% and a sewer pipe needs room to breathe. This pipe reaches 65% flow.
3. Edison Avenue from State Street to Main Street - This reaches 60% during peak flow.
4. Riverside Pump Station - This is included because the City has a 15 minute window to get to this station if the pumps fail. It was requested that this be looked at to be bypassed or improved in some other way. The pump station itself is fine, however, a lot of flow goes into it and there is little storage, which creates the short reaction time factor.

There is one other area of future deficiency:

5. 300 West from 5800 South to 5600 South - Peak flow is projected to reach 66% here and in this case a 10-inch pipe goes to a 12-inch pipe and back to 10 inches. This is an area of concern because its flow goes

over the 50% criteria in the future, and is located where redevelopment may occur.

Following are the solutions recommended for each deficiency:

1. Construction of a 15-inch diameter bypass line for 5770 South.
2. Up size 2,700 feet to 12-inch pipe on State Street and 6100 South.
3. Up size 1,000 feet to a 12-inch pipe for Edison Avenue.
4. Survey and GIS data show that a bypass at the Riverside Pump Station with a pipeline replacement could relieve the problem there.
5. Up size 1,900 feet of sewer with 12-inch pipe on 300 West.

In summary, there are not many problems, the system is in really good shape. Murray maintains pipeline condition monitoring, and as systems age, the City replaces them. Budgeting for these maintenance issues is an important aspect of the City waste water system.

Mr. Jones summarized the recommendations for the City. The recommended improvement projects should be included in the capital facilities plan. The staff is encouraged to continue monitoring for maintenance of pipe condition issues, and continue an asset management plan to repair and replace deficient lines. The City should conform to the proposed Utah Sanitary Sewer Management Plan to minimize sewer overflows, and work with the water department to offer incentives for installing water wise fixtures. Reducing water use in the home also reduces sewer flow.

Business Item #2 Granite School District Bond Election - Ben Horsley

Mr. Horsley explained that Granite District does not encompass the entire City, although there are schools within the Murray boundary.

Granite School District has been very fiscally conservative with the last bond election in 1983, which was paid off in 1996. At that time the Board made a commitment to the taxpayers that if they would allow the District to use the money that had been spent on bond payments, about \$17 million per year, then the District would utilize that money for any future bond payments. Truth in taxation hearings were held and Granite was allowed to keep that funding for pay-as-you-go capital needs. A number of large projects were funded on this basis. Based on school district size, Granite has one of the lowest property tax amounts in the region.

When Granite built West Valley Elementary in the year 2000, the cost was about \$86 per square foot. Last year Granger Elementary was completed at a cost of \$159 per square foot. Construction costs have nearly doubled in that time. The \$17 million does not go as far as it used to. A new elementary school costs about \$18 million today. Through saving efforts, the District has set aside \$24 million for replacement of Granger High School. That project will cost about \$64 million. It would take a few more years of saving just for that one project. At this rate the projects will keep getting further

and further behind.

What the School Board proposes is to take the capital facility master money, the annual \$17 million, and direct it toward a bond payment. This way the District can meet its current capital projects needs without raising taxes. Construction costs are lower right now; there was a 25% reduction in estimated costs on the last major project.

A list of projects was distributed with air conditioning at the top of the list. About 60% of the District schools are without any air conditioning. The health department requires the school districts to track temperature in the classrooms, and some classrooms are more than 90 degrees for weeks at a time. This is very detrimental to learning. Other improvements include rebuilding two high schools, Granger and Olympus, and two elementary schools. It is proposed to build new schools in some high growth areas, and stabilize the capital needs.

Mr. Horsley commented that there is a problem with ballot language that is impeding progress. State law requires that the District disclose this bond proposal as a tax increase, despite the fact that the capital tax levy will be reduced to increase the debt levy. There is actually no overall tax increase. This concept is explained with the full language of the bond in a brochure included for the Council Members. The Granite School District has no intention of asking for a tax increase with the current economic circumstances.

The Granite District has funding available with about \$50 million in the overall capital levy, and some flexibility exists. The cost estimates are very conservative and it is hoped that the full amount of the bond will not need to be spent, however, if construction costs do increase the District will be able to complete its projects. Current borrowing rates are at 3.4%. Construction bids are down, with more than 30 bids on a recent major project. One year ago on the Granger project there were only three bids.

Mr. Horsley pointed out an endorsement letter from the Utah Taxpayers Association. A letter from a financial advisor stated that bonding will be a more cost effective approach than waiting to do these projects and paying-as-you-go. The most critical component is responsibility to the taxpayers and getting more for the dollars spent.

Mayor Snarr asked how soon Olympus High School would be rebuilt. Mr. Horsley responded that it would begin as quickly as possible. There is a process involved with a lot of community input, and the project still must be contracted. The same size school will not be rebuilt, although, there is a long range population projection it is not as large as it once was. There is already \$24 million saved for Granger, which is one of the larger projects needed. With construction costs and interest rates low, it is desired to have these under contract as soon as possible.

Ms. Griffiths asked about the time line of Woodstock Elementary, which is in the Murray boundary. Mr. Horsley responded that until the taxpayers give approval it would

be inappropriate for him to speculate as to when that would begin. Woodstock and Oakwood are almost 100 years old.

Mr. Robertson asked about the situation on the Granite High School sale. Mr. Horsley remarked that an option has been given to South Salt Lake, and they seem interested in putting something together. Officials are thinking of the space for city offices and to keep the recreation operating. If it does not work out, then the county would be contacted.

Business Item #3 Salt Lake County Auditor Report - Jeff Hatch

Mr. Hatch has made it a point to visit cities in Salt Lake County to tell them about the Auditors Office and what is done there. He invites the Murray staff to be involved with the auditors as projects relate to the county and its fiscal conscience. The cities, counties and state need to work closely on behalf of the citizens, especially during tight budget times, to provide services to the residents.

Mr. Hatch pointed out that his office has four divisions. The *accounting and operations division* is responsible for managing general accounting, producing financial statements, and paying bills, including the payroll.

The *internal audit division* is designed to provide a function within the county to watch the taxpayers' money that is appropriated by the council. The office works with all of the county agencies to insure proper internal controls, and that spending policies are adhered to. Performance audits are also conducted by the auditor's office. Recently an audit was performed for animal services to help them evaluate the fee structure. To give them a baseline of how services and fees compared, a survey of animal services throughout the country was completed.

The third area is *management and budget*, and as chief budget officer, it is his responsibility to see that the budget process goes well. Mr. Hatch's role is to set the revenue estimates for the county's next budget year. Then the various departments determine what should be spent and how to keep within revenue.

Mr. Hatch quickly outlined the *tax division* that is involved with the cities in terms of tax planning for RDAs, CDAs, and other taxing entities.

Mr. Dredge adjourned the meeting at 6:31 p.m.

Janet M. Lopez
Council Office Administrator