



## MURRAY CITY MUNICIPAL COUNCIL COMMITTEE OF THE WHOLE

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The Murray City Municipal Council met as a Committee of the Whole on Tuesday, August 2, 2011, in the Murray City Center, Conference Room #107, 5025 South State Street, Murray Utah.

### Members in Attendance:

Jim Brass	Council Chair
Darren V. Stam	Council Member
Jared A. Shaver	Council Member

### Members Excused:

Jeff Dredge	Council Vice Chair
Krista K. Dunn	Council Member

### Others in Attendance:

Michael D. Wagstaff	Council Executive Director
Dan Snarr	Mayor
Jan Wells	Mayor's Chief of Staff
G. L. Critchfield	Deputy City Attorney
Janet M. Lopez	Council Office
Peri Kinder	Valley Journals
Doug Hill	Public Services Director
Russ Kakala	Public Services
Mike Pfeiffer	Engineering
Scott Stanger	Engineering
Bill Finch	Citizen
Jennifer Brass	Citizen
Tim Tingey	Comm ED Director
George Katz	Citizen
Sally Hoffelmeyer-Katz	Citizen
Juliette Dorsett	Police
Tyler Shelby	Hansen, Allen & Luce, Inc.
Greg Poole	Hansen, Allen & Luce, Inc.

Chairman Brass called the Committee of the Whole meeting to order at 5:35 p.m. and welcomed those in attendance. Mr. Dredge and Ms. Dunn were excused from the meeting. Mr. Dredge planned to be in attendance at the next meeting and Ms. Dunn would call in to the Council meeting from an out of state location.

### **Minutes:**

Mr. Brass asked for corrections or action on the minutes from the Committee of the Whole meeting held on July 12, 2011. Mr. Stam moved approval as written. Mr. Shaver seconded and the motion was approved 3-0.

### **Business Item #1: Storm Drainage Master Plan Update – Doug Hill**

Mr. Hill said that the timing of this is perfect with recent storm drain problems. All the areas where Murray has experienced issues are included in the master plan. Hansen and Luce have done a great job in identifying problem areas in the City. Greg Poole and Tyler Shelley will make the presentation for Hansen and Luce. The results of the master plan study will be presented. At the Council meeting on August 23, 2011, there will be a resolution for Council consideration to approve the master plan and authorize the City to move forward with a fee study, Mr. Hill explained.

The existing rates for storm water and impact fees for storm water will be analyzed. A consultant will help with that study. It is thought that the impact fees will be adjusted because they have not changed since 1976. For over 30 years almost nothing has been charged for storm water impact. The rate study will also likely have an adjustment.

Mr. Shaver said that there are many residents who feel strongly about those fees and he wondered if they will be given a chance to be prepared for that. Mr. Hill said that public meetings would be a part of the public process when the City gets to that point. The consultant would hold focus groups as have been done in water, sewer and storm water when it was created. It is important for the community to understand what is being done. Mr. Shaver said that certain people are very vocal and he asked if these folks would be contacted. Mr. Hill said that the City is not that far down the road yet and some people, particularly east of 900 East, are opposed to the storm water fee because there are no storm drains in that area. Historically it was handled by irrigation ditches. The City response has been that because of the problems the fee is charged so that improvements can be made through building infrastructure. Anyone who wants to make comments and understand the process is invited to do so, Mr. Hill emphasized.

Mr. Poole described the four purposes of the Master Plan update using a power point presentation. The last plan was prepared in 2000, so it has been over 10 years since an update.

- Provide storm water runoff models which predict how the storm drainage system responds to design storm runoff events including the annexed portion of Murray and newly developed areas.
- To identify flooding problems.
- To identify alternative solutions to those problems.
- Provide a capital improvement plan.

The next slide showed the study area map with different colors designating different major drainage basins within Murray City. (Figure I-1 in the booklet.) Mr. Poole pointed out the areas of Holladay, Midvale City and Salt Lake County that are tributaries into Murray City's drainage system. The sub-basin areas are places where a drop of rain falls and it follows out to the same focal point.

The criteria selected for the Master Plan update is the same as was used in the original Master Plan in 2000. It includes two major components. These are designated as the *initial storm drain system* and the *major storm drain system*.

The initial storm drain system criteria is a 10-year event or a storm that has a 10% chance of being equaled or exceeded in any given year. With that criterion we strive not to go over the top of the curb, which is generally six inches, Mr. Poole reported. That is the combination of the storm drain and gutter capacity.

During a major storm event, a 100-year storm, or a 1% chance storm, the key objective is to provide drainage so as not to flood buildings and to provide for major arterials so that emergency vehicles can get through. This is a rare event although we have had some in our area recently. What ends up happening is that the 1% chance is possible at any given location. If there are 100 locations it raises the probability that flooding will occur somewhere in the valley.

This criterion is used along with the storm drainage model. Shown is the rainfall depth figure from a study that was prepared a few years ago for the Salt Lake Valley. For a 10-year storm a 30-minute event has .72 of an inch of rain. The recent event had one inch in about one hour. That would exceed a 10-year event in Murray City. The 3-hour amount is 1.15 of an inch, and the 6-hour rainfall is 1.45 of an inch. Mr. Poole said that these different depth duration frequencies are applied consecutively in a model to perform a duration sensitivity analysis. We have found that, for the most part, areas that are not controlled by detention basins the peak is governed by a one-hour storm event above those basins. Small sub-basins show that 30-minute cloudbursts give the higher peak. This is based on standard storm data developed for the Wasatch Front, which simulates a typical cloudburst type storm that occurs over Murray City.

Mr. Shaver mentioned that the glossary listed detention basins and retention basins. He asked if Murray has any retention basins. Mr. Poole responded that there are no retention basins created on purpose. Retention is something that captures the water and only has evaporation as its outlet. The Great Salt Lake is a retention basin. Detention basins are used to reduce peak runoff flow rates and a number have been noted in Murray.

The drainage basin boundaries are broken up into sub-basins on the map in Figure II-2. Typically in an urban setting drainage sub-basins of about 20 to 30 acres maximum provide the information detail needed to find where the deficiencies are. The sub-basins characteristics of the model include the area of the sub-basin and the runoff characteristics of that sub-basin. One of the key inputs to that is impervious area. A great help in putting this model together was Murray City's GIS system, which is very robust and up to date. As a result it made the model much more accurate and usable.

Figure III-1 shows Murray City's existing storm drainage system. This includes the modeled storm drains, although there are other smaller drains not shown. These are the ones considered to be significant facilities.

Mr. Shaver pointed out that there are many areas that have no drains. Mr. Poole agreed mentioning specifically the east annexation area. The south west side shows very little, as well. Is this by plan because it drains effectively nothing is necessary, Mr. Shaver asked. Mr. Poole said that some areas are much older than current planning methods. Some are fairly close to major creeks. Big Cottonwood, Little Cottonwood and the Jordan River are all shown. Mr. Shelley stated that the map shows the major trunk conveyances and there are smaller storm

drains that are not on this map. Mr. Poole commented that in some cases the drainage is adequate because of the curb and gutter and the way the streets are laid out. He also jokingly offered his thought that the key purpose of a city street is to carry storm drains.

Mr. Shaver asked for an explanation of the statement on page 111-2, "Estimated capacities also do not consider allowable surcharging that might provide additional capacity." Mr. Poole remarked that the capacities of the existing system model assume that the friction slope of the water in the pipe is the same as the slope of the pipe. If you have a pipe that is four feet below surface, it would be possible to have water in a manhole up near the ground surface. Then you can have a steeper slope across that pipe. You never want to do that with a sanitary pipe, however, with a storm drain it is done quite often. Some pipes in the Murray system are currently laid at an opposite slope. One of the key ones is on Winchester that the City will be replacing.

Mr. Shelley pointed out the map (Figure IV-1) identifying the problem areas. There are about 50 problem cases. This is based on the model prepared with the peak flows at different sub-basins on the conveyances. Comparing those with the actual capacity of the conveyances determined the problem areas. Meeting with the City staff, discussing where they have seen actual problems and comparing what was revealed in the model helped to verify some of these areas. Some neighborhoods have no storm drains.

Mr. Shelley confirmed that although red problems are shown in certain areas, there may be flooding upstream from those sites.

One area shaded on the map is east of Van Winkle in Holladay and it is contributing to flooding and capacity issues in Murray City. The County had a storm water master plan that proposed a project extending up Van Winkle; however, it was never installed. Part of the recommendation is to complete that project and the presenters stated that they would like to see the County and Holladay City participate with Murray on this.

Mr. Hill commented that Murray is currently working on an interlocal agreement with Midvale City on a storm drain project on Winchester. Once this is completed the City intends to approach Holladay and the County to work on that area with a cost share plan.

Another project area pointed out by Mr. Shelley was along Winchester where a 48 inch CMP comes from 700 West and extends to the Jordan River. The condition and capacity are both compromised and in need of replacement. Along with that is 30 inch pipe that crosses under the highway, Union Pacific and FrontRunner and the proposal would be increasing the size and detention capacity. The solution for this project is out to bid today.

A project along Allendale was identified in the 2000 Master Plan and it has been completed. The remainder of the project involves Capri and still needs to be repaired.

Along 725 East a study has been completed to identify possible solutions for problems in that area.

A table is contained in the study booklet that identifies the problem areas with a description of each one. Meetings and workshops were held with Murray City personnel to identify possible alternatives for storm drainage improvements. The alternatives were analyzed and compared to determine the preferred solution. Cost estimates were considered in analyzing

the projects. Some areas had only a watch put on them, as the City has not seen flooding or issues to be concerned with at this time.

Table V-1 shows the capital improvements that have been recommended. The project along Van Winkle extends up to the County's existing storm drain. These are 3a and 3b. The table shows the cost estimates and this one is over \$2 million. It could have gone in before Van Winkle was constructed; but now it is a very expensive solution.

Priority A, B, or C was assigned to each of these projects suggesting a time frame for completion and the cost estimates. The capital improvements plan comes to a total of about \$32 million.

Mr. Hill emphasized that to put that in perspective, the current budget has about \$500,000 for storm drain improvement projects for the year. If you plan to do a \$2 million project then it is necessary to save for four years in order to do that one project. This all leads into the necessity of completing the rate and impact fee study. In working with the Mayor and Council, the department wishes to tackle some of these projects in an expeditious manner. State law requires that the City have a capital improvement plan prior to doing the impact and fee study.

Mr. Shaver asked about the alternatives and some places where no alternatives are available. Mr. Shelley pointed out on map V-1 where there are some alternatives identified in yellow. There are only two designated. The improvements are viable either way - not using both suggestions.

Mr. Hill took this opportunity to introduce some of the City personnel present that evening. They were Scott Stanger, City Engineer; Russ Kakala, Street and Storm Water Superintendent, and he will be the one outside at 1:00 a.m. standing knee deep in chest waders to attend to problems and assess storm waters. He and his crew provide an unrecognized value to Murray City during these storms. Mike Pfeiffer is in the engineering office and is the City expert on storm water issues.

Mayor Snarr pointed out that Murray is downhill from other areas and everything comes from around Murray City and enters our storm drain system. He does not want to lay blame on anybody and stated that it requires cooperation to solve the problems. He says it is fortunate that Midvale agreed to participate. It takes awhile to come up with the money to make improvements or the City can bond and then raise the fees to cover the bond obligations. The problems will always exist if they are not addressed. It is an education process to help people appreciate that it is a long term project for the City to take care of. He noticed in the recent storm that manholes had been blown up. It costs money to solve problems.

Mr. Shaver agreed that this information is so helpful in being able to explain situations to the residents and educate them on the long term plans of the City.

Mayor Snarr stressed that citizens should also understand that this is an enterprise fund and the money goes directly into solving the storm drain problems in the City.

Mr. Brass adjourned the meeting at 6:13 p.m.

Janet M. Lopez  
Council Office Administrator