

**CITY OF SCAPPOOSE
CITY COUNCIL
MONDAY, AUGUST 21, 2017**

**WORK SESSION ~ 6:00 PM
SCAPPOOSE DRAINAGE DISTRICT**

Mayor Burge opened the Work Session at 6:00 p.m.

Present ~

City Council: Mayor Scott Burge, Councilor Rich Riffle, Councilor Patrick Kessi, Councilor Megan Greisen, Councilor Natalie Sanders, and Councilor Joel Haugen.

Staff: City Manager Michael Sykes, Public Works Director Dave Sukau, and City Recorder Susan Reeves.

Also Present: Members of the Scappoose Drainage Improvement Company (SDIC) ~ Manager Jack Richards, Len Waggoner, Laurie Mapes, and Geoff Wenker. Also present Marie Gadotti and Bob Short.

City Manager Sykes explained we have some members of the Scappoose Drainage Improvement Company who would like to share a number of items with the City. He explained they are here to give the City an update.

Len Waggoner explained he submitted a document and the conversation is multiple. He explained the Drainage District is obviously responsible for evicting storm water out of this region, and he says region because it is not just the farm area or the City, it's the road systems, and everything that is impervious that goes into the ground - that water comes back to the Drainage District. He explained as most of us realize the community is well protected by the dike that was constructed years ago, and reconstructed by the Corp of Engineers, and the SDIC has been in the process of the certification of that dike for about ten years caused by Federal Government rules that basically said you have to go out and find private resources to do something that the Government used to do. He explained they have also been involved with an elevation analysis, the whole water level process and the interior drainage and it becomes more and more complicated as we add more impervious surfaces to the community and we look at the mining issue and at things going on at the airport. He explained he talked to the City Planner and there is no particular landscaping requirement for those developments around the airport. He explained the question is will there be on site or off site drainage. He explained they are having a meeting with their interior drainage analysis people and hopefully people with OTAK to talk about that and discuss the analysis. He explained they have some schematics from OTAK showing that they proposed a large drainage collection area on the Wagner property, which is on the east side of the airport, some 25 acres, and the elevation is seven to eight feet of excavation to make that drainage. He stated now the question is what does that mean and where is it going to go. He stated they are in the constant process of trying to figure out what the Drainage District can do and how much of a load. He stated when you look at 270 acres that is a million cubic feet

of water in a one inch rain event and that is a lot of water. He stated that is something that really does deserve paying attention to and he thinks the four of them are here to basically talk about the community and talk about what they can do together, because this is a joint effort. He stated we are two political bodies that have the same purpose in mind which is to make it a healthier and safer community.

Geoff Wenker explained they have met with Council over the years to make sure everyone understands what they do.

Geoff Wenker went over the handout ~

August 21, 2017

Members of the Council:

Scappoose Drainage Improvement Company

53466 E. Honeyman Rd.

Scappoose, Oregon 97056

(503) 543-2064

The Scappoose Drainage Improvement Company thanks you for the opportunity to meet with you this evening. We have three subjects to discuss with you. First, we would like to update you on our progress to achieve accreditation of our levee and drainage system from the Federal Emergency Management Agency. Second, we would like to discuss our mutual interest in planning for increased storm water runoff from new development. Third, we will provide updated numbers on the cost of the accreditation process and ask that the city continue its financial partnership with the SDIC by again contributing 25% of the costs SDIC has incurred since it last received support from the city.

1. Accreditation Status

For several years, SDIC has been working toward accreditation of its levee and drainage system by FEMA. Accreditation of a levee and drainage system requires several different types of engineering studies to investigate whether the levee is high enough and strong enough to provide protection in a 100-year flood event, and to determine how much water the drainage canals and pumps can expel from the interior during a 100-year flood event. Accreditation by FEMA is critically important because, without accreditation, FEMA would treat SDIC lands as if the levee did not exist. FEMA's flood insurance rate maps likely would show SDIC lands largely under water in a 100-year flood event, including portions of the City of Scappoose. Development permits would be severely restricted or curtailed, lenders would require expensive flood insurance as a requirement of financing homes and businesses, and property values likely would drop, perhaps substantially. For these reasons, SDIC's board concluded years ago that accreditation must be pursued despite its expense, and it has worked diligently to achieve that goal through a process that turned out to be much more time consuming and expensive than it first appeared.

The U.S. Army Corps of Engineers is performing for SDIC all but one of the studies that is required for accreditation. The Corps broke down its work into several phases. It has begun the last phase of its work and expects to complete it by the end of September. At the end of each phase, SDIC has received feedback from the Corps about its findings. To date, the reports from

the Corps have been positive and reassuring. SDIC is responding to certain changes requested by the Corps, including updates to manuals and emergency plans, but to date SDIC has not been informed of any issues that would prevent FEMA from accrediting our levee system once it receives the formal application and study results.

The one study the Corps was unable to perform is called an "Interior Drainage Analysis," which we refer to as the "IDA." The purpose of the IDA is to identify areas of land that would be expected to be under one foot or more of water in a 100-year flood event, despite the levee and drainage system. Because the reality is that - even with the levee and three sets of pumps that purge water over the levee and into the Multnomah Channel - more water will flow into the interior of the levee during a 100-year flood than those pumps can expel. One reason for this is Jackson Creek. Jackson Creek flows from the hills and under Highway 30 down by Johnson Landing Road. Most of the time, it gravity flows south to the county line and out to the Multnomah Channel through a flood gate in the levee. SDIC does not have to pump any Jackson Creek water normally. But when the water in the channel gets to a certain point- a point it almost reached last winter with the heavy rains - the flood gate closes, the water from Jackson Creek is diverted into Santosh Slough, and all that water adds to the burden at SDIC's main pumping station.

In addition to all the extra water that would flow into the district during a 100-year flood event, the topography of the district would cause water to pool to a depth of one foot or more in some areas. There are low spots in the district where water pools even in an ordinary winter. Plus, there are many wetlands and ditches that hold water year around. Thus it is no surprise that the drainage system is not expected to purge all surface water from the district at any point in time, and certainly not during a 100-year flood event.

The main purpose of the interior drainage analysis that FEMA requires in the accreditation process is to end up with a map of the areas of land predicted to be under one foot or more of water in a 100-year flood event. The map may be used by FEMA when it updates the Flood Insurance Rate Map for the Scappoose area, so that map may have great significance to the City of Scappoose as well as all landowners within SDIC. To make the map, engineers create a "hydraulic model" that takes into account many factors, including the topography within SDIC boundaries, the topography outside SDIC in drainage basins that flow into SDIC, ditch contours, structures such as culverts and bridges that can obstruct water flow, and pump locations and capacities. The model also takes into account the extent of development within SDIC boundaries and in areas to the west that flow into SDIC, because impermeable surfaces created by development cause water to flow faster and prevent it from being absorbed into the ground. Once the computer model is created, the engineers can "plug in" any sort of rainfall event to produce a map of the areas that would be under water.

The private engineering firm SDIC hired for the IDA have almost finished their work. The draft map of areas predicted to be under one foot or more of water has been made. The map shows substantial areas of land under water in a 100-year flood event that are not predicted to be under water in the current Flood Insurance Rate Map. It is unclear why the draft map the IDA produced differs so substantially from the current FEMA flood map, although we understand that the technology used to produce the maps today differs from the technology used years ago to produce the current maps.

It is imperative that the potential collection of storm water from the 300 plus acre airport development be included in the final IDA. The potential impervious land mass, in excess of 270 acres will generate almost 1,000,000 cubic feet of water in a 1" rain event. Because the rain events in the region historically compounds, meaning day after day of rain that 1,000,000 cubic feet becomes 2,000,000 cubic feet then 3,000,000 cubic feet, well beyond any storage capacity proposed. If the IDA identifies the requirement for pumping to meet the excess outflow then the airport development or the City will need to develop funding for the construction of additional pumping facilities.

We understand that FEMA may or may not rely upon the IDA map when it updates the Flood Insurance Rate Map for our area. If it does, lands that formerly were not subject to development restrictions because they were outside the 100 year floodplain, will become subject to those restrictions. Landowners who, to date, have not been required to purchase flood insurance as a condition of financing, may be required to buy flood insurance. The eventual impact of this interior drainage analysis is not yet clear.

What we do know is that the studies required for accreditation are nearly complete. We expect that the Corps will ask SDIC to address certain issues, such as unpermitted encroachments on the dike, but there are no known barriers to accreditation at this time. We appreciate the financial partnership from the city that has helped us reach this point. Later in this session, we will bring you up to date on the costs of the studies and ask for your continued partnership with those costs.

2. Planning for the Future

Regardless of whether FEMA uses the IDA flood map to update its flood maps, the IDA map is informative. What it shows is that, with the facilities and pumping capacity that SDIC has today, there will be some land under water in a substantial storm. And the amount of water SDIC takes on is on the increase. Each new roof and paved street create impermeable surface that increases runoff into SDIC ditches. The development planned for the airport area is of particular interest to SDIC because the impacts likely will be large and, to our knowledge, they have not yet been calculated.

We understand that the city may be considering detention ponds for storm water related to new development and perhaps other surface water alterations for runoff or discharge. We want to impress upon you the need for proper analysis of any proposal that would alter surface water or impact groundwater. The water table in SDIC lands is not far below the surface. It can travel in unpredictable ways that could prove detrimental to the SDIC as a whole or to particular landowners. In other words, it isn't just surface runoff that impacts SDIC, but also changes to groundwater.

When we came before you in January of last year, we noted that eleven years ago, Jon Hanken, who was city manager at the time, warned this body of the potential for city development to increase runoff to SDIC facilities to the point of overwhelming them. He urged the council to address the city's storm water plans and make SDIC an integral part of storm water discussions. We welcome that opportunity, and are here tonight as part of an effort to work with the city toward sound and practical planning for drainage that does not simply send more water to SDIC for SDIC to figure out how to purge.

Again, as we already knew and the IDA map makes clear, SDIC has a finite capacity to pump water with its current facilities. Those facilities were expensive to install, and were installed with hundreds of thousands of dollars of federal assistance that likely would be unavailable today. As an example, there are four pumps at the main pump station, installed in the 1970s with help from the Corps of Engineers. To replace just one of those pumps would cost in excess of \$750,000.00. SDIC's total annual budget the past few years has been about \$350,000. As you can see, any idea that the SDIC could easily increase its pumping capacity to deal with additional water the city directs its way is not realistic.

The specific task we would like the city to undertake is an updated storm water analysis. That analysis should take into account, first, current development. It should take into account where the city sends its runoff, and whether pipes and culverts are adequate to convey the water. It should investigate whether those facilities are in good repair. For example, the IDA identified the Santosh Slough culvert under Columbia Avenue as a "choke point" in a 100-year flood; it would back up water on its south end by several inches. In addition, we discovered last winter that the culvert has partially failed. As a result, the water on the south inlet end of the culvert was almost two feet higher than on the outlet end during heavy rains earlier this year. Columbia is a county road at that point, and SDIC has been working with the county- unsuccessfully so far - to get the county to replace the culvert. Meanwhile, the city has continued to send more runoff from new development, for example from the Bi Mart property, into drainages that feed the Santosh south of Columbia Avenue, adding to the backup of water south of Columbia Avenue. We respect the city's obligation to accommodate the development desires of its residents and landowners, but the SDIC is forced to take on more and more water as a result.

The SDIC has had no control over the additional water sent its way, and no control over facilities it does not own such as the culvert under Columbia Avenue.

Second, an updated storm water analysis should call for thorough study of any proposed development and adequate quantification of the additional runoff it will cause, where it will go, and its impact on other properties and SDIC facilities. The cost of this should be borne by the proponent of the development. Then, when the true impact of the development on drainage has been predicted, SDIC should be brought into the city's decision making in a meaningful way. This is something that has not happened to date.

In sum, SDIC and the city have clear, mutual interest in adequate planning for current and future drainage needs. We hope that the city will work with us to ensure that the interests of both entities are represented in the process.

3. Request for Assistance with Accreditation Costs

The City of Scappoose has been contributing 25% of the costs of accreditation studies. SDIC thanks the city again for its continued support. Last year, when the city contributed \$11,258.07, we anticipated that we would at some point ask the city for somewhere between \$46,000 and \$65,000 more toward the remaining costs of engineering studies. We have had a few bits of good news since then. One, the Port of St. Helens contributed \$30,000 toward the interior drainage analysis; SDIC applied for that money last year and received it in June of this year. This \$30,000 partnership from the Port is in addition to the \$50,000 grant SDIC got from the Oregon Infrastructure Finance Authority. Two, we had estimated that the cost of the IDA might be as

high as \$175,000, and it appears that the final cost will be several thousand dollars less than that; we should have the final bill soon. Three, the Corps has indicated that its final bill may be less than they quoted.

In short, very soon we expect to be in a position to ask the city for one last contribution to accreditation costs, and we expect the request to be just over \$40,000, although we do not have final numbers yet.***

***The city has paid 25% of the accreditation costs SDIC paid through late 2015, when SDIC sent USACE a payment for \$60,832.30. The city paid \$11,258.07 in 2016. The calculation for the city's payment was this:

\$60,832.30 (USACE payment late 2015)
- \$15,800 (amount of IFA grant money that was applied to this USACE payment)
 $\$60,832.30 \times 25\% = \$15,208.07$

Note that \$15,800 of the \$50,000 IFA grant was applied to the USACE payment, not the whole \$50,000. (I can explain why if anyone wants to know.) The remaining IFA grant money of \$34,200 needs to be taken into account when calculating the remaining amount to request from the city. The approximate amount requested from the city should be, based on current information:

Final cost of the IDA (approximately \$165,000)
+ \$60,000 SDIC payment to USACE May 2017
+ anything else USACE or FEMA will charge SDIC (?)
- any refund from USACE
- \$34,200 IF A grant money
- \$30,000 Port of St. Helens award

\$160,800 (using figures above)
 $\times 25\% + \$40,200$ City of Scappoose participation

The City of Scappoose and the S.D.I.C. are political bodies with parallel responsibilities and services provided to a significant and growing portion of the City as well as the farm properties located on the lower grade level that depend on both drainage and water for irrigation.

Planning for storm water events in the future should be a joint effort between the City and the S.D.I.C. There is significant value in the sharing of data and the analysis of what services are going to be necessary to meet those needs.

*****End of memo*****

Geoff Wenker explained the map that they showed the Council is the result of pretty much getting through the end of the accreditation process. He explained in 2007 the Corp of Engineers (Corp) informed them that they need to step up the whole game on an existing wall. He explained there has been a push for having better information for the people who are protected so they really understand what they have. He explained there are 100,000 miles of levees in the Country. He stated only 15,000 of them are anything like Scappoose, that were built by Federal

Government and maintained. He explained the Dike District was formed in the 1929 and then the Corp of Engineers came in during the period when they were doing several projects all over the Country in 1934 and then they raised it. He explained it has been improved by the Corp at least five times since 1934. He explained they have been trying to get accreditation for ten years, and several hundred thousand dollars later they are still working on it. He explained the contract to finish the accreditation process with the Corp of Engineers ends September 30, and until late last week the Corp was telling them they were going to make it, so they have some concerns that they are still working on. He explained the Corp has reviewed the interior advantage analysis. He stated if you think about the dike and the Dike District and what they do you kind of have to think about two things ~ the river is filled by water that comes from who knows where, all over the place. He stated there is a river coming up and soaking and putting pressure on the dike, then you have the water that comes into the District either by the rain landing on it, or a big part oddly is what is called Jackson Creek and there is a watershed there, and when it rains real hard a bunch of water comes down under a culvert under Highway 30 and right into their District. He explained most of the year it gravity flows south to the county line and out to the Multnomah Channel through a flood gate in the levee. SDIC does not have to pump any Jackson Creek water normally. But when the water in the channel gets to a certain point- a point it almost reached last winter with the heavy rains - the flood gate closes, the water from Jackson Creek is diverted into Santosh Slough, and all that water adds to the burden at SDIC's main pumping station. He stated there are four great big pumps and they eject the water. He explained it is sized a lot to deal with the water from the Santosh and any other sources that come into the Dike District, but that is the big one, and of course rain that lands on the 5,700 acres, and ditches. Then there are five lift pumps that takes care of the flow east of the Santosh and then it has to be lifted, because basically the Dike District is flat, then it goes into the Santosh. He explained all the pumps lift water and water gets added to it, then it pumps out. He explained there was a survey on all the ditches and culverts, over three hundred. He explained of the \$164,000 to find out where the water flows, \$90,000 was for surveying. He explained the SDIC hired a private firm for the certification process which is a 100 year storm event, 1% annual chance. He explained the purpose of the Dike District is to drain water and when it was created Scappoose was a little tiny thing, so that has grown a lot, and now has paved roads and streets that are all impervious surfaces. He stated imagine a big rainstorm ~ it is all coming at them and flowing along and getting pumped out. Until it gets pumped out it is in there (he pointed on a map) and it is backing up until the pump setting that it is at says pump out. So it raises up enough to be pumped and then it shuts off. He stated if it is raining hard enough these areas (pointing to a map) during the peak 72 hours have a foot of standing water on them.

Councilor Haugen stated when he called the Corp of Engineers for the transportation information they told him that the original dike was built between 1926 and 1928 by local interests and then it was raised by the Corp of Engineers in 1936, and then again in 1966. He asked what was the original height of the dike before the levy went in?

Geoff Wenker replied he is not exactly sure what the original height was, he thinks it was probably 28 or 29 feet. He stated it is now 32 feet on average.

Geoff Wenker explained the next step after the phase that ends September 30 is for the Corp of Engineers to put all the information together and submit it to FEMA. He explained they have no idea how long FEMA will take. He stated there haven't been that many that get this far, out of

this office. He stated assuming FEMA approves it then it would be accredited, and that just means the dike rating stays like it is.

Councilor Riffle asked once it is accredited how long does that last?

Geoff Wenker replied it used to be every five years and now FEMA changed it to ten.

Geoff Wenker explained as development happens they receive information from the City, if it is within their border, asking what they think. He explained usually the effect of any one thing isn't that big of a deal to them but as the City grows that needs to be considered because water is flowing into their system in a lot of ways. He stated the big way is ground water. He explained the ground water seeps into the network of ditches, which they are pumping out right now.

Councilor Haugen asked if they have any data on if there has been any impact on the water table from the gravel extraction?

Geoff Wenker replied that is a good question. He stated gravel companies have hired a couple different hydrology firms who submitted a bunch of data trying to address the Scappoose Drainage Improvement Company's concerns about seepage. Scappoose Drainage Improvement Company was concerned that it is causing more pumping for them. He stated they think the gravel mining leads to more pumping, but they sure can't figure out how to prove it. He stated they are pretty sure that is what happens, but on the other hand how much that is.

Councilor Haugen replied you don't have any hard data then on the water table fluctuation.

Geoff Wenker replied yes they do, from the monitoring. He explained part of the approval of the gravel mine, which has been updated, they have to provide monitoring for them annually.

Laurie Mapes replied what they have been told, is it is really hard to come to figure for extra pumping, if there is indeed some because their pumping is effected by a whole bunch of factors; the rainfall, the river level, what level they are keeping different ditches at, and the District hasn't historically had flow meters on their pumps. She explained without controlling for all these different influences like the river level, like the rainfall, like the saturation in the ground, and having flow meters on the pumps, we can't compare the proper data to figure that out. She explained they don't have records of how many gallons of water they pump on any one day.

Geoff Wenker replied they certainly don't know what it was like before they started mining, which was a long time ago. He explained they track when they turn the pump on, when they turn it off, and what the level was when they turned it on. He explained with the development they kind of have a concern. He explained the study doesn't really answer the question of how much of their capacity is used by infiltration at the City and surface run off during a storm, and the reason was that it is an average by its nature, and is approximated by a computer program. He explained Wes contacted the City and confirmed that the City's stormwater system is designed to a 25 year flood, not a 100 year. He explained the systems in the City built to the City's specs are just all over the place, are just running right over when they are full. He explained they are designed to satisfy the 25 year storm, but one that is four times more is overwhelming, so it is washing right over everything. So they took those 50 foot squares and assigned a factor to them in their judgment of equipment. He stated when the City does the master plan he hopes there is

some way to tie these two things together. He stated there is a little bit of an unknown for them and they are concerned when any of the storm systems are gathering water and putting that water into their ditches, as opposed to infiltration. He stated they know if it overwhelms the system, it spills, through a ditch or pipe that runs into their system. He stated another thing we need to think about is backup systems.

Councilor Haugen stated it sounds like you are more or less comfortable with the pumping capacity.

Geoff Wenker replied it has been working for a long time.

Councilor Kessi asked what is the status on the Storm Water Master Plan?

City Manager Sykes explained first we are going to finish the Wastewater Master Plan, then the Water Master Plan, and then we will work on the Storm Water Master Plan.

Councilor Riffle stated with all the development going on around airport it was mentioned that we don't have any guides for landscaping.

City Manager Sykes replied the application with the airport is under consideration at this point and time by the Planning Commission and actually there has been a delay because the Drainage District asked for additional time to review the report.

Mayor Burge stated once the accreditation is done does it make sense to bump it back down or to save money for future needs.

Geoff Wenker replied they have expenses.

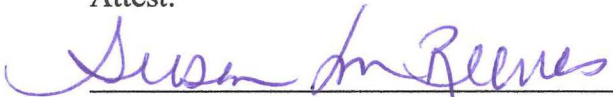
City Manager Sykes explained we do intend to include the Scappoose Drainage Improvement Company as part of the Storm Water Master Plan process.

Mayor Burge adjourned the Work Session at 6:58 p.m.



Mayor Scott Burge

Attest:



City Recorder Susan M. Reeves, MMC