

**Department of Environmental Management
Maui Wastewater Community Working Group Meeting X
Monday, September 13, 2010
Planning Department Conference Room**

**Meeting Notes
Final - October 12, 2010**

I. Welcome & Introductions

II. Agenda Review, Ground Rules and Housekeeping

- Leland Chang: CWG has covered a great deal of territory since October 2009 -- formulated guiding principles, identified criteria for strategies, prioritized and identified wastewater strategies to decrease usage and increase use; and consulted with constituents. At long last, we are beginning discussions of and searching for consensus on recommendations, so at end of this process, there will be a set of recommendations that the CWG can live by and support.

- Leland Chang: Housekeeping is where we normally bring out any concerns people have about the process. Was informed by project team about a meeting with the Mayor where concerns with CWG process were raised. Asking Kuhea to discuss this as she was present at the meeting with the Mayor.

- Kuhea Paracuelles: There was a request to meet with the Mayor, by Maui Tomorrow's Irene Bowie. Attendees were Robin Neubold, Everett Dowling, Jonathan Starr, and Irene. At the meeting, Irene voiced concerns about the CWG process. Maui Tomorrow feels the process is frustrating, that it is not talking about issues, and is wasting time; also that the community has not been given chance to input and the CWG does not know why injection wells should be phased out.

The Mayor put together CWG in the spirit of community input and collaboration. Representatives were chosen because of their connection to parts of the community and to share with constituents as to what is shared here; the public is invited and there is opportunity for community input. The group has had opportunities to discuss the process and how it might be improved. This is an open, transparent process; so let's put this on the table and discuss.

- Irene Bowie: There was a lot more to the meeting than the CWG. Did share that it was a slow process and at points people expressed questions about why injection wells should be phased out and the concern that there hasn't been discussion about degradation of reefs. Regarding the public, the process has not been inviting to the public when they can only input at the very end. When discussing the budget, people didn't stay until the end -- this wasn't best way to do it. Meetings were about other issues regarding Environmental Management. Would have been helpful to do subcommittees and do reports; there were some frustrations. I don't think I represented that this was everyone's feeling. There were a few from DIRE who have background in the issues, so there were frustrations. With DOH coming here, there was not much turn out for that.

- Irene Bowie: I would add that we weren't allowed to discuss an issue due to legal proceedings going on. The root of this was lack of information regarding Kahului replacement wells and finding out information later. If we're not talking about these things, where does it get discussed?

- Cheryl Okuma: When there are legal proceedings, our attorneys advise us that discussions cannot occur. Also, this CWG was convened to work on developing recommendations to increase reuse that the Department and Wastewater Reclamation Division can consider in its strategic plan. The workscope of CWG does not cover maintenance and operational matters.
- Gregg Kresge: Within our permit, we have certain things we have to comply with. Our wells need to be functional, and this (replacement wells) was an operational issue we needed to handle.
- Irene Bowie: I asked if the Kahului WTP wells were all operational and only found out at the time of the SMA exemption application that two wells were being replaced. We could have had a conversation about this earlier. Feels blind sided because we talked about a lot of other things in our meeting with the Mayor. We were discussing with the Mayor what occurred over a length of time.
- Kuhea Paracuelles: There were lots of other things that were discussed but I mention this issue as the only one that pertained to this group.
- Leland Chang: The reason for bringing this up is because of where we are -- as the CWG begins to search for consensus on recommendations, it is important that members have a modicum of comfort and confidence with the process. If people are on board with the process, we should be in a good place after the next three meetings.
- Kuhea Paracuelles: This is not the first time we have addressed these concerns about the process; they go back to when Jeff Schwartz was a member.

- Leland Chang: When Jeff Schwartz left, it was so DIRE could develop its own plan, which was to be ready before the November elections. The DIRE effort was to involve the general public while this process is really dedicated to supporting the work of the CWG. The project team thinks that if the results of DIRE's effort can benefit this process, we would welcome knowing what they have come up with. Does anyone know where is DIRE is with this?
- Irene Bowie: The DIRE process has really slowed and Jeff is moving to the mainland. Maui Tomorrow is moving forward on its own.

- Joie Taylor: I went to a conference and in a discussion on Virgin Islands coral reef decline, a major problem is sediment erosion due to construction. People didn't see any impact from injection wells. Wonder if there is a correlation between reef decline and construction.

- Pam Daoust: I wasn't part of the meeting with the Mayor but I have had frustrations with our direction, hopes, and expectations. Wanted to come from the standpoint of fixing coral reef problems -- from what I know about coral reefs, I don't think we have 10 years. I see that we are trying to focus but because we have kept our focus narrow, it will limit how we seek funding. It will limit us from seeking solutions from the aspect of cleaning our coastal waters. Our recommendations need to be saleable to the public. If you ask if people are willing to sacrifice to save our reefs vs. paying for infrastructure, we'll get more support if there is the emotional tug of saving our reef. We have a lot to lose if we don't fix the problems. The astronomical cost of fixing our problems needs to be connected to losing the reef.

- Leland Chang: Several CWG members attended Watson Okubo's presentation on staph and MRSA. His presentation will be posted on the website.

III. CWG IX Meeting Summary

- Pam Daoust: provided notes for three changes that will be made for the final draft of the summary.

IV. Draft Recommendations

Potential Reuse projects and related costs—DEM presentation

- Steve Parabolicoli: DEM looked at three main areas where we have the facilities; and looked at various expansions and new development such as pipelines, reservoirs, UV, land acquisition, and possible commercial properties that each expansion could serve. Looked at actual R1 use and potential potable water displacement and estimated construction costs (which is a moving target because it depends on where the economy is). Now might be a great time to get good bids. For S. Maui projects, looked at all kinds of expansions based on actual construction costs and engineering estimates. Used storage tanks based on latest studies by Fukunaga Associates at \$.../gallons. Cost of new UV channel is about \$1.4M. A lateral with meter box estimated at \$30K/lateral and that could change based on location. These are best guess estimates on cost. Actual usage: looked at acreage 6,000 gals/day. Some examples on page 2, have had a PER (Preliminary Engineering Report) done five years ago by Fukunaga & Associates which looked at running R1 to Monsanto in North Kihei and those numbers are higher than that now for potable water displacement of 500,000 gals/day. Actual potable water use is approximately 160-180,000/gals a day so that is a lot less than what is shown here. Project 9 under Kihei is based on DWS figures -- so have good numbers on actual water usage. Lahaina, unlike Kihei, does not have a good core distribution system. It is essential that it obtain storage so we can have a pressurized system. Central Maui does not currently have any reuse system; therefore, it will be much more expensive. Cost is approximately \$1,000/foot to place piping in the Kaahumanu Avenue corridor because of utility congestion, traffic considerations, and replacement of roadways, etc. Understand that working around R1 infrastructure is difficult -- like surgery and is not cheap.
- Scott Rollins: Goes over handout. Recycling projects shown are based on developments that are likely to go forward. Potential recycling projects are shown even though the cost of some may not be feasible (e.g., Project 4). This was done to indicate the kinds of decisions needed. Other costs are to normalize to compare projects one on one. Helps to compare apples to apples. Need to look at total costs like the Wailea project. Recycling is shown going from 20% to 40%, and what this would do to sewer bills if this was the only funding source. Some projects do not cost a lot, but when taken together, costs begin to add up in a hurry. This is presented as a menu of project options the County has looked at -- not to say that the County has to do these all of these projects.
- Steve Parabolicoli: These are construction costs. O & M costs are not reflected but we believe that pumping, energy, labor, etc. will roughly double the costs.
- Don Lehman: Recycled water will be paid for? That's not on this chart.
- Steve Parabolicoli: Yes, as we add more of debt service, it will drive up the price of R 1 and if we charged the actual cost, it will be expensive.
- Leland Chang: Revenue side is another part of the discussion.
- Steve Parabolicoli: The County does subsidize rates by 75% in sewer user rates.
- Leland Chang: Depending on how this discussion goes, more revenues may be coming in from other sources.
- Pam Daoust: Obama approved another round of stimulus money; how much would be shovel ready and how could this process facilitate that.
- Steve Parabolicoli: To be shovel ready we need to have construction plans ready to go. Maybe S. Maui is the closest to this scenario.
- Pam Daoust: How fast can we do this?
- Steve: We need CWG inputs, and this is a menu.

- Dave Taylor: First stimulus was three-quarters of a trillion dollars and our share was \$6.2 million of that. Obama is proposing this, it hasn't been approved by Congress and focuses on highway, rail and transportation infrastructure. Didn't see a focus on water/wastewater.
 - Pam Daoust: Perhaps energy would be a back door to explore other things like conversion to energy, which are hot buttons.
 - Dave Taylor: Federal government used existing programs to funnel money to counties. Such as SRF programs and principal forgiveness. Believe that this is how the money would come to local government.
 - Joie Taylor: There was a lot of money through grants.
 - Steve Parabolicoli: Bureau of Reclamation requires a 75% match, so County would need to come up with its own share to obtain these grants.
 - Joie Taylor: There are different structures in terms of distribution. RFP for energy efficiency, maybe back door for funding for energy efficiency applicable to one of these projects.

 - Leland Chang: CWG needs to be comfortable with buildup of recycling infrastructure and then the search for funding needs to occur.
 - Irene Bowie: Met with Hirono's office and surprised that we didn't apply for more money.
 - Cheryl Okuma: Have been in contact with congressional offices; there has been contact by the Mayor's and Managing Director's office and we have received funding for wastewater projects through congressional efforts.
 - Howard Hanzawa: What is the average residential bill on which the percent increases are based?
 - Scott Rollins: \$56/month.
 - Howard Hanzawa: Highest would be 10% increase.
 - Leland Chang: Is there point of diminishing returns? Are there some projects that should be done even if they are of high cost and relatively low benefit?
 - Russell Sparks: Wailea Project 9 -- over 1 M gpd of potable -- no cost to that, but if seeking that water, there would be a cost to getting it.
 - Leland Chang: What is the range of increase in terms biggest bang for the buck?
 - Scott Rollins: Second to last column shows reuse per day. First three projects for Kihei make sense; 4th project makes less sense; project 6 depends on getting right of way and there are lots of costs that go with that.
- Lahaina is a better area; have to complete project 10 first because it will allow us to pressurize the R-1 water distribution system that's \$21 plus per gallon but has to be done first before any of the other West Maui projects can be completed.
- Steve Parabolicoli: The advantage of projects 7, or 8 and 9 have is that we have a big user at the end of the pipe. Especially with 9 they can switch to R1 during the winter when we have excess R-1 water available and during the summer and diminishing R1 water availability, the golf course can switch back to brackish water. With this scenario, we potentially could use almost all the R1 water produced at the Kihei WWRF.
 - Dan Clegg: Regarding Russell's statement, it ranked as #5. Trying to figure out how heavily weighted is potable water displacement. Might be going for the wrong target. Goal is to figure out how to use R1 and all these things like injection wells is secondary. Seeing numbers, how critical is potable water displacement? If we achieve displacement, then what? Build more houses and create more wastewater. This is a good time to address whether this is really number five.
 - Steve Parabolicoli: When we talk about nutrients, it may help you decide.
 - Jeff Pearson: For new projects, there's a cost you are saving as you won't need a new source. That's not reflected here. Impossible to put a value on it. For existing projects, there will be additional potable water; where does it go?

- Russell Sparks: We don't have a high level person from water here to tell us what they will need to spend to get that new water.
- Leland Chang: There is a draft recommendation that DWS should pay for all R1 that displaces potable.
- Pam Daoust: Couldn't we prioritize? I thought I might prioritize Kihei and Wailea and look at Kahului in terms of other treatment because it will be very expensive. Maybe it's a wetland, energy conversion, etc. Wants Steve's input on where Lahaina falls out. Sees storage tanks as having high priority. But when comparing these three areas, we should prioritize to see what to do first.
- Steve Parabolicoli: Many Central Maui targets use non potable brackish water sources for irrigation which is of good quality, so we wouldn't save much potable water. In Lahaina there are projects that use potable water and if we have a pressurized system with elevated storage, we can replace with R1. Salinity challenges can be mitigated. Need ranked and prioritized menu; but need the information before making decisions.
- Dave Taylor: Water website submitted development plan draft to Council and it includes discussions of these different areas. Refers CWG to the website.
- Jeff Pearson: That's great, and it's not reflected in this chart because you wouldn't have the answers here.
- Dave Taylor: If the County doesn't get Na Wai Eha stream water, then reuse water may be cheaper; difficult because of legal arguments.
- Pam Daoust: Re. private systems like MCA's -- could use of civic improvement districts and earmarking of real property tax to upgrade their systems. Should be dedicated to your area. I don't believe this has been brought up.
- Howard Hanzawa: Pam expressed my thought that we need to prioritize the areas; but we need a lot more information. Lahaina has salinity problem; is that a separate project?
- Steve Parabolicoli: Have ongoing salt water intrusion projects, but the county doesn't control the laterals. There are different things that can be done -- design for salt tolerant plants and other methods like flushing with potable water. Seeing issues in Kihei even though low in salts, some areas are having issues and with drought it has exacerbated the salinity problem. There is no good, easy way to take salt out of the water other than reverse osmosis which is very expensive.
- Howard Hanzawa: For agriculture if salt is a problem, then it would not make sense to use this for ag.
- Dave Taylor: Most salt infiltration is happening in old laterals and under water. New pipes at high elevation with PVC aren't having the problem. This should get better with new development and higher elevation. Fixed everything we can, but should slowly get better with development.
- Steve Parabolicoli: Scott put together some information in Lahaina on this.
- Leland Chang: This represents a menu of what's possible in terms of projects. This is the 40% level of projects referred to in the first infrastructure recommendation. At the point that CWG says they are comfortable with this, then it becomes important to prioritize and deal with the question of diminishing returns.
- Howard Hanzawa: Even if all these projects are completed, will there still be the need for injection wells?
- Steve Parabolicoli: Need 100% backup for storage or some type of disposal via outfall or injection well.
- Howard Hanzawa: But this would reduce amount into injection wells.
- Felimon Sadang: What would labor costs be?

- Dave Taylor: Over 20 years, it would double. Construction is half and operations is about the same. 20 year operational cost can be 2 to 3 times more than construction costs. Rate increases might have to be twice that or there would have to be revenue from other sources.
- Pam Daoust: Need a discussion on comparisons of what you can do in place of injection wells, e.g., constructed wetlands or elevated storage tanks; what would be involved in their build out and maintenance costs.
- Russell Sparks: Some of these projects, e.g., irrigating pastures, can use every last bit of water and may need back up; but for all intents and purposes it does not get injected. Use injection wells very little.

Advanced Nutrient Removal

- Steve Parabolicoli: Will go through information prepared by Craig from B & C, who did a summary sheet to look at various levels of nitrogen in wastewater, raw, secondary treated. Maui wastewater contains about 30 mg/liter -- that's what we see. Secondary treatment removes some -- to about 15 mg/liter. Biological removal reduces nutrients to 7-10 mg/liter and the County has been doing this since 1996. Advanced nutrient removal involving denitrification process can get it down to 3-5 mg/liter. Won't ever be able to get it all out. Nitrogen removal at the County wastewater treatment plants falls into the 4-8 mg. per liter range.

Table 2: Explains what we've done. Table 3 provides level three (ANR) cost estimates for the island's three facilities.

The three graphs show the amount of nitrogen discharged over the last 48 years. 1960 was before treatment plants were built; following the Clean Water Act of 1972, treatment plants were built. With secondary treatment nitrogen discharge dropped dramatically. In the mid 1990's, County built reuse systems and biological nutrient removal. The nitrogen discharged shows a dramatic drop with these systems. In fact, West Maui nitrogen discharge of 50,000 pounds per year today is about the same level as it was in 1960. This raises the questions, should we spend a lot of money to reduce a little more nitrogen or use the money for other areas? Also, do we want to spend money on reuse systems where we aren't going to save potable water; or use it for sedimentation basins, etc.? Is it worth doing advanced nutrient removal at this cost?

- Joie Taylor: Do you have phosphorous data?
- Steve Parabolicoli: Haven't put that together, but it's around 2-3 mg/l. Seen a reduction in phosphorous due to biological nutrient removal.
- Russell Sparks: In looking at coral reefs, scientists tend to focus on nutrients. More speculation that it's the fresh water itself that is dramatically changing the hydrology of the ocean. Reefs evolved in absence of fresh water. Seeing reef caving in on itself. Don't want to focus just on nutrients but want to stop these other things.
- Robin Knox: There are other harmful constituents of wastewater. Other wastewater under NPDES has to pass toxicity test; then you get to see these other factors. Our discharges are not subjected to NPDES and can be causing damage that we don't know about because testing is not being done.
- Joie Taylor: How feasible would it be to have someone do a study to show coral reef decline on different islands? Learned from recent conference that main concern was sediment.
- Dave Taylor: Need to ask Russell that question.
- Russell Sparks: Priority is overfishing. DLNR deals with that. Land-based jurisdictions deal at high tide mark.
- Robin Knox: It is a larger picture and this falls to water quality branches of EPA/DOH and work with other agencies because of jurisdictional lines. County as a discharger has a

responsibility. Doesn't make me feel comfortable to say non point is the problem, although County will have responsibility for point sources. Storm water control -- this wasn't the direction of wastewater management. Becoming responsible stewards is part of our planning duty.

- Dan Clegg: CWG agreed this was so big, so we zoomed in on what we were invited to do. Goal was to help the County to come up with 100% reuse; so we are off point here because we aren't debating whether injecting is good or bad.

- Leland Chang: If Maui increases reuse to 40% will benefits be visible on these graphs?

- Steve Parabolicoli: Yes, the discharged nitrogen numbers would drop lower. If the focus is on the value of the water, the injection well and nitrogen issues take care of themselves.

- Sean O'Keefe: If we get 40 % reuse, it takes us from low end of the BNR to the mid to high end of ANR; so we accomplish the same goal by reducing the WW. When see \$57M to achieve the nutrient reduction goal, that \$57M is better spent on getting it recycled than treating to higher level.

- Jeff Pearson: Reduce amount of water down the injection wells and we reduce what goes into the reef.

- Howard Hanzawa: If nitrogen levels reduced to 3%, would we need add nitrogen to fertilize crops? Can you live with that?

- Dan Clegg: We add nitrogen for our corn crops; there's some value to what is in the water but it's not a perfect water source. It's wet.

- Steve Parabolicoli: Elleair golf course used to use secondary treated water without biological nutrient removal and used less fertilizer than usual; with biological removal, they complained that they needed to fertilize more often.

- Robin Knox: Agreed with balance in the watershed and looking at other ways. Farmers may need to add nitrogen so we need to control the total load that goes into the ocean; and way this played out everywhere else is that point sources gets controlled first. Everyone should be focused on lessening the load.

- Pam Daoust: When talking about 40% reuse, we are looking at the present level of development. This will change so 40% cannot be used as a standard. We can avoid talking nutrient levels but if EPA sets this level then everyone will be scrambling. It's not only point sources, it's now non point sources. Wetlands are one of the less expensive forms to prevent this from getting into ocean. Why shouldn't new development look at wetlands as the way to do this? There are filtering mechanisms that can be employed to lessen nutrient load. When standards come down, we're going to say we should have discussed it earlier.

- Robin Knox: Hawaii does have water quality numerical standards; so implementation may be faster here.

BREAK

Draft recommendations discussion

- Leland: Explained that the draft recommendations were compiled based on all CWG input and are to be used as a starting point for CWG discussions. This is baseline and there will be opportunities for other things to come up. Tried to identify items that would generate support from most of the CWG. Asked for overall reactions to the draft recommendations.

- Dan Clegg: Wants to be sure if this is what we think is a draft summary of concepts.

- Leland Chang: This will be part of finished product. The final report will reflect what led up to this.

- Dan Clegg: Had a positive reaction; liked that it ties back to what the group highlighted as its priorities. If at the end of the day there are different ideas, cannot be upset with that. It's tough to take all these ideas and put into three pages.
- Warren Watanabe: Same comments. Did seek consultation and was disappointed that only had one response.
- Joie Taylor: Looks pretty good, but given our BNR conversation, would question Item B under Policy and Planning.
- Howard Hanzawa: Tricky part is community buy in. Discussed with community planning group and had lots of areas where we needed more information. Have lots of things to think about, and for administration to think about for buy in from elected officials and public.
- Felimon Sadang: How we are really going to sell this product? About the overall.
- Robin Knox: Having trouble reconciling things referred to in terms of cost and fees, infrastructure and policy and planning. Wanted to hear more about Joie's concern; wants to talk about it more. Because would be the first to advocate TMDL; like answering questions of non point sources. Should be done earlier rather than later. Won't get priority unless we ask, or DOH is afraid of being sued.
- Irene Bowie: Looking forward to fleshing this out more.
- Leslie Wilkins: Good baseline and synthesis.
- Pam Daoust: Much that was good; two leapt out at her as ones that her constituents would not support; has some thoughts she will hold until ready for discussion.
- Russell Sparks: They are good points and build in what we talked about in terms of spreading of cost so it's not just rate payers. Throughout this process, see reducing injection wells but don't see goal of phasing it out; wants to see areas where we can do that. In certain areas it is doable.
- Don Lehman: Coherent summary in terms of different directions, so commendable. Missed last meeting and went through 12 page summary. There were lots of comments about what won't work, too expensive. No one said what's going to work and how. Like the draft because it's what will work.
- Sean O'Keefe: Generally good, but not sure where some items came from and don't know what they have to do with ww reduction. Ranking exercise got lost in this draft. Things have equal play; i.e., TMDL has nothing to do with wastewater reduction.
- Jeff Pearson: Great start to where we're going; and great end to where we've been and moving forward with consensus and discussion. Good for fleshing things out that aren't in perfect detail.

Leland Chang: By the time the group is done, we may not recognize this draft but the hope is that it will be even better. Begins discussion of draft recommendations.

Infrastructure:

- A. Item A
- B.
 - Russell Sparks: Why have sewer fee component here and not under financing?
 - Leland: The fee component is not duplicated under financing. CWG has been discussing connection between increasing to 40% reuse and the doubling of the sewer fee over ten years, so we kept these two components paired up; but we can move it.
 - Howard Hanzawa: 100% increase refers to doubling of rates for reclaimed water?
 - Leland \$60 to \$120 would cover the reuse projects and maintaining system but excludes O&M for the new recycling projects.
 - Dave Taylor: The baseline rate increase would be 5% per year over next 10 years (50% increase over next 10 years). Adding debt service to increase to 40% reuse would double this.

- Pam Daoust: Are we going to prioritize projects? Also concerned that going from 20 to 40%, doesn't account for growth and new development. This throws figures into doubt. We should come up with something we can agree on to include in this subset and see it prioritized and see what should come first.
- Leland Chang: The growth question needs to be accommodated. Need to get consensus from group to move to 40%; if no consensus on that then prioritization isn't germane.
- Robin Knox: Wants to see what's expressed broken out into separate bullets for maintenance of sewers and reuse; then address growth issues and look at pounds or flows instead of percents. Estimated 100% increase over 10 years?
- Dave Taylor: It's even increases but some things are outside of our control like power and labor costs due to union negotiations. Assumptions are in the rate model; council does approve or not approve for the year; and we may need to catch up in future requests. Intention is around 5% a year.
- Robin Knox: Our recommendations should be as clear as possible about what sewer user fees made up of. Be clear that when increasing reuse to 40%, sewer fee statement should reflect all the things that are in that fee which is more than just for increasing reuse.
- Leland Chang: Will move financing part and clarify what increases cover. Are people comfortable with the intended vector of moving to 40% reuse?
- Howard Hanzawa: Don't have a problem with moving to that percentage. It's clear.
- Leland Chang: Will also address issue of future growth.

Item B

No comments.

Item C

- Robin Knox: Likes it.
- Dan Clegg: Need to balance out storage needs; could we find users with alternative water sources that can be turned on and off to significantly reduce cost of storage. Lahaina system storage is different but imagining large storage areas. Maybe this doesn't belong here.
- Steve Parabolicoli: Concerns with mass storage when water is sitting there for prolonged periods.
- Dave Taylor: Water may have to be treated again.
- Russell Sparks: Throw tilapia in there.
- Leland: People were saying that storage during wet weather is a need.
- Steve Parabolicoli: Massive storage for several months at a time may create algae buildup and degradation.
- Dave Taylor: Craig Lekven did a study and determined we would need 2-3 months of storage; at a cost of \$1 billion to construct reservoirs.
- Sean O'Keefe: It costs \$2.65 per gallon to build?
- Steve Parabolicoli: Yes.
- Dave Taylor: These are costly reservoirs to construct.
- Pam Daoust: Maybe this is a good place to leave door open for other technologies; to continue researching alternative technologies that may be useful during wet weather.
- Steve Parabolicoli: If we prioritize projects, it might be more expensive now, but we can look for large users with alternative water sources; and free up potable water and reduce the need for costly reservoirs.
- Robin Knox: Concur with Steve; that there will be bio-fouling problem. Saying this all along -- whatever the use, need to look at water quality.
- Joie Taylor: Agree with Steve on stagnant water -- will see high bacteria growth.
- Leland Chang: Is the strategy the to minimize storage needs?

- Dan Clegg: Recognition that it needs to take into consideration cyclic nature. Double edge sword re. displacement of potable water -- there may be areas you cannot do that.
- Leland Chang: So need to look at how readily available storage is for a particular project.
- Robin Knox: And look at alternatives.
- Dan Clegg: This is an educational process. Looking at a cycle -- there will be peaks where it will be hard to figure out where the water should go.
- Robin Knox: This is recognized in the design of any relief valve and what can be permitted.

Item D

- Pam Daoust: Delighted to see this.
- Robin Knox: Do we want it so specific or do we want broader wording?
- Dan Clegg: There's difference between reuse and disposal. Do these feasibility studies talk about treatment methods or disposal methods.
- Pam Daoust: Constructed wetland is considered reclamation because it does recharge. Need feasibility study to consider what is out there. Siemens does this type of thing, about what alternatives there are.
- Dave Taylor: It would help if we mentioned the goals for any feasibility study, e.g., to reduce nitrogen or to create a park. What is the goal?
- Leland Chang: The thinking around Kahului WTF was to have another method of treatment because doing recycling up the Kaahumanu corridor is costly. This is where this came from.
- Joie Taylor: Make it more specific like Dave suggested. Feasibility study for pilot projects for reclamation, reuse and restoration.
- Pam Daoust: If we want to reduce nitrogen, wouldn't wetland reduce nitrogen (Robin?)
- Leland Chang: The task is to clarify the goal for any feasibility study that DEM would perform.
- Dave Taylor: We need to be able to put together a scope of work together with labor costs.
- Leland: Are we clear on the goal and what facilities we are addressing?
- Howard Hanzawa: If we are looking at Kahului, we should also get someone from HC & S involved because they are the big landowner and potential user.
- Joie Taylor: Conduct studies for alternative technologies for reclamation, reuse, restoration. Not sure why just Kahului.
- Robin Knox: Include alternatives to current treatment and disposal. Be clear on what we are seeking alternatives to.
- Irene Bowie: Wants to keep language of Kahului WTF here because there is no reuse.
- Dan Clegg: Starting with Kahului as an example. Paint a picture that if there is a problem with Lahaina's infrastructure, there may not have any takers.
- Russell Sparks: If you can go through the potential reuse we may be able to identify where this is not an issue because every last drop would be used. For Kahului, if certain things happened, we may use every drop. Maybe we're getting ahead of ourselves.
- Pam Daoust: Leave this as constructed wetland or other alternative technology.
- Jeff Pearson: Pam said constructed wetlands, which is fine. Alternative suggested by Robin -- not sure what this means; too vague.
- Robin Knox: Alternative technology to augment treatment.
- Jeff Pearson: Are you trying to treat effluent, store it, reclaim it, or reuse it?
- Robin Knox: Trying to phase out injection wells.
- Jeff Pearson: So it has to do with treatment.
- Robin Knox: Not adverse to blending if not dilution.
- Pam Daoust: The idea was that if it is too expensive to continue doing reclamation effort, this was something that could be done as an alternative to injection. There are different types of wetlands, so there is a lot of technology there.

- Leland Chang: So the proposal is a feasibility study to look at wetlands and other alternatives, around the Kahului Plant?
- Dave Taylor: Wastewater can either go into the ground, to an outfall, or on the ground. Now talking on the ground or into the ground for constructed wetland. Water coming out of the wetlands has to go into the ocean or into the ground. We need to ask for a focused deliverable.
- Joie Taylor: Big difference from putting it into the ground; and wetlands is a treatment process.
- Leland Chang: Email any proposed language on D to him.

V. Next Steps and Next Meetings

Next time, we will pick up with Financing section of the draft. Next meetings will be October 7th, October 21st and regular Nov. 4th meeting with the goal of consensus on recommendations at the Nov. 4 meeting.

VI. Comments from the Public

- Megan Powers: Last issue is not one or the other. Alternatives for treatment which may not cost as much may save money and enable dealing with effluent. Primary treatment options and alternative treatment options.
- Norman Nakata (UH Extension Service): Wetlands birds are an issue around airport. Has this been considered? Have you looked at leachate fields and the cost of that?
- Cole Santos: Wanted to reinforce water development plan for central. Central does not address Kahului.

VII. Adjourn: 4:30 p.m.