

# the MWPAAC REPORT

Metropolitan Water Pollution Abatement Advisory Committee  MEMBER PACKET

September 2007

## MEMBERS:

*Alderwood Water and Wastewater District*  
*City of Algona*  
*City of Auburn*  
*City of Bellevue*  
*City of Black Diamond*  
*City of Bothell*  
*City of Brier*  
*City of Carnation*  
*Cedar River Water and Sewer District*  
*Coal Creek Utility District*  
*Cross Valley Water District*  
*Highlands Sewer District*  
*City of Issaquah*  
*City of Kent*  
*City of Kirkland*  
*City of Lake Forest Park*  
*Lakehaven Utility District*  
*City of Mercer Island*  
*Midway Sewer District*  
*Northeast Sammamish Sewer District*  
*Northshore Utility District*  
*Olympic View Water & Sewer District*  
*City of Pacific*  
*City of Redmond*  
*City of Renton*  
*Ronald Wastewater District*  
*Sammamish Plateau Water and Sewer District*  
*City of Seattle*  
*Skyway Water and Sewer District*  
*Soos Creek Water & Sewer District*  
*Southwest Suburban Sewer District*  
*City of Tukwila*  
*Val Vue Sewer District*  
*Vashon Sewer District*  
*Woodinville Water District*

## NOTICE OF MEETING

A General MWPAAC Meeting and Members' Meeting are scheduled for Wednesday, September 5, 2007, in Building H, Room 103 at Renton Technical College located at 3005 NE 4th Street, Renton, Washington. Renton Technical College is located near I-405. Take Exit 4 and the campus is located between NE 3rd Street and NE 4th Street at Monroe Avenue NE. The General Meeting is from 10:30 a.m. – 12:00 p.m. followed by the Members' Meeting at 12:30 p.m. - 2:00 p.m.

All MWPAAC members are encouraged to attend the General Meeting and the Members' Meeting that follows. Lunch will be served promptly at 11:30 a.m. Luncheon is Grilled Rosemary Lemon Chicken and the alternative dish is Baked Canneloni. There will be no cost for representatives, alternates or guests. Please RSVP to Valerie Garza at 206-263-6070 or [valerie.garza@kingcounty.gov](mailto:valerie.garza@kingcounty.gov) by 09/04/07.

### AGENDA FOR SEPTEMBER 5, 2007

#### **10:30 AM – 12:00 PM MWPAAC General Meeting**

1. Chair's Report Dave Christensen  
MWPAAC Chair
2. WTD Director's Report Christie True  
WTD Division Director
3. MWPAAC Website Jamie Foulk  
WTD Staff
4. Report on Discussions with Individual Local Agencies Christie True  
WTD Division Director

#### **12:30 PM – 2:00 PM MWPAAC Members' Meeting**

1. Subcommittee Reports
2. E&P Subcommittee Recommendation for CSI Program

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**Members, Alternatives****& Guests Present:**

Arden Blackledge  
Walt Canter  
Mark Cassell  
Dave Christensen  
Joyce Clark  
Don Davidson  
Roger Eberhart  
Gary Hajek  
Vicky Henderson  
Don Henry  
Neil Jensen  
Larry Jones  
Wes Jorgenson  
Mark Lampard  
Andrew Lee  
Erin Leonhart  
Arne Lind  
Pam Martin  
Steve Moye  
Joyce Nichols  
Steve Ohlenkamp  
Bill Pelozo  
Randy Reece  
Ron Sheadel  
Mary Shustov  
Lorraine Snyder  
Karen Steeb  
Laura Szentes  
Bill Tracy  
Art Wadekamper  
Fanny Yee

**King County Staff:**

Mark Buscher  
Bob Hirsch  
Mark Lampard  
Jeff Lundt  
Christie True  
Laura Wharton

# AUGUST MEETING MINUTES

**Chair's Report – Dave Christensen**

The meeting was called to order, introductions were made and the June 6, 2007, meeting minutes were approved. Dave announced MWPAAC would begin work with the County on the 2009 wastewater and capacity charge rates.

**WTD Director's Report – Christie True**

Christie reviewed the meeting agenda. She thanked the E&P subcommittee for reviewing the CSI program recommendation and coming up with recommendations on the policy provisions. The Brightwater Marine Outfall is the first county outfall under an alternative project delivery method — design-build. Christie mentioned that WTD has submitted expenses from last December's storm to FEMA and was awarded \$705K to cover costs; the county will continue to recoup additional monies. Both WTD treatment plants received the platinum peak performance award from the National Association of Clean Water Agencies, in recognition of five consecutive years of 100% compliance with effluent discharge limits. She attributed the treatment plants' success to plant employees, the Industrial Waste Program and to the local agencies for running their systems so well that WTD can meet their discharge limits. She is planning to report back in September on what she's heard from the local agencies and also to share with the committee her recommendations. WTD plans on working with MWPAAC on the following: the 2009 sewer rate; communication plan that would explain the county's sewer rate and capacity charge program to the public and ratepayers. Christie plans to continue the dialogue with MWPAAC on a process to conduct contract negotiations.

**Conveyance System Improvement Program Recommendation – Mark Lampard**

Program Update Objectives: identify regional conveyance improvements necessary to meet the County's 20-year peak flow storm design standard, and then clearly document why there is a specific conveyance need, what is needed to correct it, when that needs to occur, and its estimated cost over time. The program update as a whole was the result of two years of work to develop a list of prioritized projects that will be implemented over the next forty-five years. This list of projects was the result of input from within and across WTD and some fairly extensive work with MWPAAC E&P subcommittee and the individual agencies. Specific MWPAAC input over the two years was development of the prioritization criteria and planning assumptions that went into developing the needs and

projects. Meetings lead to the conclusion that WTD needs to start pre-design on a few highest priority projects and begin implementation on those. The remaining high- and medium-priority projects will get additional monitoring, modeling, and field-verification of data to show they are true needs and that they are level of performance from a capacity standpoint, as models are showing. Policy recommendations that will be used as a guide for planning conveyance capacity in the future are field verification prior to design (enhanced monitoring and post-storm inspection), site monitoring where the system is under capacity (based on modeling and existing monitoring), and decennial flow monitoring (monitors will be placed in the system coincident with the census) against assumptions for growth (where it's occurring and the rate it's occurring relative to assumptions); and a five-year program update starting in 2013. E&P recommended an additional policy recommendation that was incorporated, which was to evaluate demand management alternatives including I/I reduction, water conservation and/or reclaimed water as part of planning and determine how that complements the comprehensive plan-

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ning for wastewater conveyance facilities. The recommendation to the Executive is to identify the two highest priority planned projects for implementation: Sunset/Heathfield Pump Station system and Bellevue Pump Station influent trunk; continue monitoring the high- and medium-priority projects and implement policy recommendations through the proposed ordinance.

**Question:** During the last meeting that we had, I recommended that a business case economic evaluation be done prior to the policy recommendations. Was that incorporated?

**Answer:** That was the demand management alternatives basically being able to consider other options including providing capacity, including water conservation, etc.

**Question:** Did you send out the final policy language?

**Answer:** Yes, we did send those out after the revisions were incorporated. We attempted to work that into some of the existing changes that we were doing and ended up with a fourth new recommendation on conveyance policies. It incorporated looking at alternatives as we moved forward in later stages of planning and design forecasts.

Next steps: transmit the policy recommendations and update to the Council via the Executive. Then field verification will begin for the high- and medium-priority projects. Local agencies involved with monitoring will be contacted. WTD will begin an internal review using existing staff resources and moving ahead, starting the field verification process and formalizing the process.

#### Use of Design Build for Delivery of the Brightwater Marine Outfall – Jeff Lundt

The marine outfall is a ~\$44M project (the maximum contract award amount for both design and construction). The 5,420 foot long pipe was originally envisioned between a 58"-84" diameter pipe, either a single pipe or twin pipes that would equal 84" in diameter. The 500 feet long diffuser will provide good dilution and minimize the plume rise to protect beaches and aquatic life. A portion of the outfall is buried in the near-shore reach minus out to 80 feet mean low water with the remainder laid on the bottom. The pipe then goes through a 700 feet deep trough (below mean low water) and up to a flat plateau in the Sound. The construction site will be shared with the West Tunnel contractors who will be starting their tunnel portal from that point; they will also build the micro-tunnel underneath the Point Wells site. One restriction is the local eel grass and how to keep it in place and replace it in areas where it will be removed for construction. Permit conditions restrict the amount of time spent in water and in certain areas, and limit impact paddle-driving. There are 68 pages of conditions as part of the permit application that the contractor must abide by. Project delivery methods are the design-bid-build method, where the owner hires the designer to put the documents together and the contractor tries to put a bid together and then build it. WAC 39.10 authorizes three other methods: the general contractor/construction manager (GC/CM) method, which is what the County is using on the treatment plant; design-build, which the County is using for the outfall; and work-order contracting, which is used for small works. In going to design-bid-build, the County was looking at procurement options that would result in better service, products and prices. They looked at doing two different contracts as part of the Brightwater project with an alternative method. Outfalls are very dependent on the contractor, their equipment, their materials and the methods that they will use for construction. Since design-build depends upon the contractor and designer to be together and come up with a plan as to what they want to do, it was a natural split to use design-build for the outfall.

**Question:** Why did you put materials on that process? **Answer:** They all seem to have different pipes that they prefer to use and they all seem to have different equipment that they want to lay it down with. When we started the project in predesign there were three different methods considered. One is the segmental way, which has been

<p><b>CONTACT INFORMATION:</b> <b>Wastewater Treatment Division</b> <b>Mark Lampard, Engineer IV</b> <b>mark.lampard@kingcounty.gov</b> <b>206-263-3162</b></p>
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used for outfalls in the past, where you get a chunk of pipe and drop it from a barge, mate it up with the pipe that's already there, and then you move the barge on and drop the next section of pipe. There's the controlled submergence method, where they build the pipe off someplace else, drag it into place and in a very controlled manner, sink it and lay it on the bottom in one long piece. Then they also can do a bottom drag method where they build it in chunks on land and then just hook a barge or tug to it and pull it out and leave it in place, pulling it along the bottom as they go. Every contractor seems to prefer different methods. Of the four outfalls that I'm aware of that the County has had installed and the old Metro, since 1984-1985 one of them has done the way the designer has said it should be done in terms of materials and methods, the other three came in with 'this is a nice design but we would like to do it differently.' It seems that every time that we have done a design-bid-build, the contractors have had other ideas on how it should go together. Rather than try and design variations on the theme that would add a lot to the procurement process and try to make an even split, we decided it was better to go with a design-build method and let the contractor run the show from the beginning, within certain guidelines.

**Question:** Which one worked the best or are they all the same? **Answer:** It still would work, you just have to have enough room on a site to put it a together and a big enough tug to pull it all out. There's nothing wrong with any one of them, all three of them work. It's a matter of experience; some contractors have picked up experience with the controlled submergence method and in their book that's the only way to fly. Others have had a lot of experience with the segmental way and guiding or using robotics to hold up sections and that's their way to go.

**Question:** Is any one method proven better than the other?

**Answer:** No, I think there are different opinions about materials. It's all very site-specific. If you have a different kind of site, a very rocky site, one type of pipe may be much better. The site that we are dealing with has glacial soils overlaid by some sediments that could move in the future. That is not to say that one is better than the other, it's just to say they're all different and they all fit differently.

**Question:** What's the size of the pipe, have you mentioned that?

**Answer:** We're looking at somewhere around 72-74 inches. Some proposals are talking about 65 inch OD and about a 58 inch ID pipe out of polyethylene.

**Question:** Can you tell them what ID and OD is?

**Answer:** ID is inside diameter and OD is outside diameter. If you have steel pipe, which is very strong, your wall thickness is fairly small, so there's not a whole lot of difference there maybe 5/8 inch quarter thick or maybe a 1-inch thick wall. If you look at polyethylene or some of the other plastics, they are not as strong as compared to steel so they end up with a much thicker wall to achieve the same strength for bending or pulling actual loads.

**Question:** Could you talk a little bit more about the \$44M? Is that a fixed price?

**Answer:** Yes. The project was estimated in the predesign three or four years ago now, and we have escalated that price for some changes that have happened in the design and the significant changes in the marketplace, and that is not a fixed price that was our target price. We needed to establish a maximum contract award amount and tell the designer-builders that this is the money that we have to spend and if you submit a proposal with a cost that is more than \$44M you will be considered unresponsive. That is a number that has a little bit of padding built into it to make sure that we are covering all of our bases. I haven't actually seen the prices as far as the proposal. We're in the procurement process now, so we don't know exactly what our costs will be.

**Question:** When the contractors sign – it's a fixed price? **Answer:** That's right, once we sign the contract they have to guarantee that they will design it and build it for that price.

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**Question:** What's the timing on that when you decide on that?

**Answer:** We advertised in November 1, 2006 for RFP/RFQ and we are now getting our best and final offers in the next week from our proposers. We plan on getting them a notice to proceed October 1 of this year for design, with construction starting in spring 2008 or 2009 depending on their design.

A key elements in using design-build is a predesign that is very accurate in criteria and very complete in scope. The designer and contractor work together with very limited information in the beginning and decide: design costs, what to design and costs to build. If they don't have the complete picture at the beginning, then the result is change orders. You can limit changes if you know what you want. If you end up changing flow rates, pressure, location — all the things that could happen in the normal design scheme of things, the method can't work. Preliminary geotechnical studies need to be complete for the designer-builder to characterize the soils, and they will have an opportunity for additional geotechnical work. That worked very well for the marine outfall. If there's a lengthy permit process for studies that need to be completed for environmental reasons as there were for the marine outfall, they need to be completed beforehand. The site needs to be selected and you have to figure out if staff or a consultant is going to be used to prepare the design-build RFP.

**Question:** When they design it, are you talking about 60-inch ID. How is that going out?

**Answer:** This is what we have given them, we divide it into two parts — performance criteria and prescriptive criteria/specifications, and we said that the outfall needs to handle between 8-170 MGD with a 20 pull increase. The pipe was originally permitted around 58-inch ID because of some changes we have grown that to 84-inch. So we've allowed either a single pipe or twin pipes to accommodate that. We are looking at an 84-inch diameter pipe buried and anywhere between a 60-76-inch diameter pipes in the offshore reach. We didn't put minimum velocity criteria in there. There was a minimum Froude number that allows us to have a minimum amount of velocity at the orifice, which keeps the system full of effluent rather than getting backwash with seawater. We did prescribe a maximum velocity of 18 fps. We also told them the driving head could only be 48 feet at 170MGD. We said that they had to measure that at extreme tide plus an assumed sea level rise, with a design life of 75 years and they had to work within this.

**Question:** What did you assume for a sea level rise? **Answer:** Somewhere between 9" to 12".

**Question:** On the number that you're using here, 177 MGD for your outfall, you're looking at a 3.5-inch surcharge on the plant as far as your outfall. Where does water reuse and effluent being used out of the plant come into play? That's a pretty significant peaking factor, given that this is supposed to be a zero-discharge plant.

**Answer:** Remember the reason that we have such a high flow is wet-weather flows that come in. Traditionally here when we have wet weather, it will only be the industrial reuse that is going to be continuing. Irrigation and other things will not be needed during our wet-weather period. We can't count on reuse taking away some of that water off the feed. We would like to, but it doesn't make much sense. The pipe basically is only going to be put in once, so it's designed for the ultimate wet-weather peak flows.

Prescriptive items: where the pipeline was to be installed; contractor choice of two different pipes, polyurethane-lined or coated steel. The first 900 feet would be buried and require shoring to 30-foot mean low water. A 500-foot long diffuser, the limited in-water work windows and other permit restrictions. Advantages in using design-build for infrastructure include: means and methods are in the contractor's domain, the design-build method ties the choice of materials, better coordination and easier working conditions. Generally speaking, infrastructure projects are straightforward in their design, and that focuses the contractor. This is the ultimate in teaming opportunities to get the designer on board with the contractor. There's a single point of responsibility. Depending upon the project there are cost and time savings.

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**Question:** Sounds to me like the County is laying off the construction risk onto to the contractor, and as a result you expect to pay a little more, since they are taking the risk. Did you make any estimates about this?

**Answer:** We have had a lot of discussions with our staff, our prosecuting attorney staff, and procurement staff about risk and our terms and conditions. We have had discussions with the individual teams about risk also. We have tried to put risk where risk belongs and where people are best able to deal with that risk. We'll talk about something that we are doing geotechnically in terms of risk, which is probably the biggest risk that people say. There are other items that are in the contractor's realm to handle. It's a sharing and we may be paying something for that but 'pay me now or pay me later' is the contractor's attitude.

**\*Question:** The selected materials that you have identified – do they have the same projected life?

**Answer:** The coated steel pipe is also equipped with an impressed current system for corrosion prevention. The Duwamish Head outfall for the South Plant has a similar corrosion prevention system and has been in service over 20 years. Regular inspection of this outfall indicate that it will have a long life and we so no problem with meeting and exceeding the 75-year design life for the Brightwater Marine Outfall if steel pipe is used. HDPE pipe is very inert and does not degrade or wear in the proposed application. Recent studies of corrugated HDPE pipe under different amounts of deformation show a 570+ year life for a 7.5% deflection, 900+ years at 6% deflection and close to 2,900 years at 5% deflection. If we got 20% of the above amounts with our extremely thick solid walled pipe, we will greatly exceed our required design life.

We have incentives for environmental and safety compliance – we have a project labor agreement.

**Question:** Do you have incentives for performance? **Answer:** No performance incentives in the traditional, early completion style. The project has three construction seasons available and will need only two by any of the proposed methods. Since the facilities can easily be completed prior to the completion of the rest of the treatment and conveyance facilities, it was decided to not have the early completion incentives. We do have environmental and safety incentives which are similar to those on other Brightwater Projects.

**Question:** Are there penalty clauses? **Answer:** There is a two stage milestone and substantial completion deadline and associated liquidated damages. The DB must have completed their operations on the Point Wells land side by mid October 2009 to allow the West Tunnel contractor to have access for site restoration work that is in that contract. Work on the water that does not require access from the Point Wells property can continue after October 2009 as long as it is within the time constraints of the various project permits. The project must be hydraulically complete by mid-October 2010 to be ready for the testing, start-up and commissioning of the rest of the Brightwater facilities.

**Question:** Are there shared profits? **Answer:** The Contract contains a value engineering clause and an understanding of what will fall under shared savings and what is part of the DB design evolution. The conformed contract will have the major elements of the DB Proposal outlined to be sure the County gets what was advertised or is otherwise compensated.

A portion is state revolving funds and owner and owner control insurance program that this falls under; we paid it to all. The RFQ/P was prepared by KC staff with review and input from the Construction Management team and their outfall experts. The initial RFQ listed proposal requirements, outfall performance and technical requirements and permit conditions. Reference documents included: geotechnical studies, pre-design report, permit applications and conditions, outfall studies. Accident prevention information was given out to all teams to

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**Question:** How many proposals did you receive?

**Answer:** We received 5 SOQs. We received 4 proposals and BAFOs.

Design is scheduled to start in October 2007 – construction at Point Wells could start as early as May 2008.

**Question:** How many of these from the five you kept were from a foreign country?

**Answer:** All contractors were US and had a local (Oregon & Washington) presence. One designer was based in Great Britain but was replaced in the proposal phase. A couple of specialty designers or consultants are foreign companies.

**Question:** Do you ever get a consultant to help you out on the engineering?

**Answer:** It is one way of preparing the SOQ/P but the County did most of the work on this one. We did depend on a group of outfall experts on our Construction Management team for review and advice.

**Question:** Are there other agencies that used design build?

**Answer:** Yes, several.

**Question:** You mentioned – so curious if there are other agencies that have used this?

**Answer:** WSDOT uses it a lot, University of Washington, City of Seattle on some of the water treatment facilities at Tolt and Lake Young, Port of Seattle

**CONTACT INFORMATION:**  
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## SUBCOMMITTEE REPORTS

### **Engineering & Planning Subcommittee - Scott Thomasson, Chair**

The subcommittee discussed the Conveyance System Improvement Program Recommendation. A motion to approve the Conveyance System Improvement Program Recommendation and write a letter of support failed. It was decided by the committee that they would review and discuss the Program Recommendation once more at their next meeting. The committee would then come back to the General Meeting to discuss whether or not MWPAAC would write a letter of support to the County.

### **Contracts Subcommittee - Ron Speer, Chair**

Please contact Ron Speer for details on the current contract negotiations with King County.