

**CITY OF BELLEVUE  
ENVIRONMENTAL SERVICES COMMISSION  
MEETING MINUTES**

Thursday  
September 3, 2009  
6:30 p.m.

Conference Room 1E-112  
Bellevue City Hall  
Bellevue, Washington

**COMMISSIONERS PRESENT:** Chair Szablya, Commissioners Carter, Mach, Mahon, Roberts, Swenson

**COMMISSIONERS ABSENT:** Vice-Chair Helland

**OTHERS PRESENT:** Councilmember Davidson, Nav Otal, Tony Marcum, Bill Heubach, Mike Jackman, Pam Maloney, Randy Thompson, Lacey Madche, Anne Weigle

**MINUTES TAKER:** Laurie Hugdahl

**1. CALL TO ORDER:**

The meeting was called to order by Chair Szablya at 6:30 p.m. Ms. Otal introduced and welcomed Laurie Hugdahl, the new minute's taker.

**2. ORAL COMMUNICATIONS:**

None.

**3. APPROVAL OF AGENDA**

It was noted that item 11, the second Executive Session, could be struck from the agenda.

**Motion made by Commissioner Mahon, seconded by Commissioner Roberts, to approve the agenda as amended. Motion carried unanimously (6-0).**

**4. EXECUTIVE SESSION**

*The Commission recessed into Executive Session at 6:32 p.m. for approximately 10 minutes to discuss potential litigation. The Commission reconvened into the regular meeting at 6:45 p.m.*

**5. APPROVAL OF MINUTES**

A. Verbatim Public Comments 2009 NPDES

Commissioner Roberts commented that the responsibility for the situation in the Phantom Lake community lies with that community's homeowners association and the Commission should not be addressing that at this point. Chair Szablya agreed and noted that the comments regarding Phantom Lake were not relevant to NPDES.

**Motion made by Commissioner Roberts, seconded by Commissioner Carter, to approve the Verbatim Public Comments 2009 NPDES. Motion carried unanimously (6-0).**

B. June 4, 2009 - Regular Meeting Minutes

Mr. Roberts referred to page 15 and noted that in the second paragraph from bottom the word *needs* should be corrected to *need*.

**Motion made by Commissioner Ticson, seconded by Commissioner Roberts, to approve minutes of the June 4, 2009 Meeting Minutes as presented. Motion passed unanimously (6-0).**

**6. FOLLOW-UP QUESTIONS/ANSWERS**

None.

**7. REPORTS & SUMMARIES**

A. ESC Calendar/Council Calendar

Ms. Otal reviewed the Tentative Environmental Services calendar and the Tentative Council calendar.

Mr. Roberts remarked that October, November and December have very light agendas for the ESC. Ms. Otal agreed that there was not much scheduled for the next few months. She explained that the Storm and Surface Water Comprehensive Plan will be the next major item being brought to the Commission. She stated that October may be a very brief meeting, but may include a shoreline plan update by the Planning Department. Mr. Roberts suggested that they could use that time to get an update on ongoing projects. Ms. Otal indicated that staff might be able to provide a CIP projects update at that meeting.

B. Desk Packet Material(s)

Conservation & Outreach Events & Volunteer Opportunities Calendar for September and October

C. Asset Management/Failures & Claims Program Update

Ms. Otal introduced the topic and welcomed Tony Marcum, Manager for Projects and Programs, and Bill Heubach, Senior Utilities Engineer. Mr. Heubach indicated that he would be discussing the Asset Management portion and Mr. Marcum would be addressing the Failures & Claims portion of the presentation.

Mr. Heubach reviewed the Asset Management program by providing an overview of the program, activities and accomplishments, current activities and future plans. The City of Bellevue follows the EPA's model framework which defines ten core processes for asset management.

Asset management is the process of managing infrastructure assets so that service level goals can be met while costs are optimized and risks are minimized. The objectives of the program are to collect, organize and analyze information so that policy makers and Utilities staff can make well-informed decisions. The information is also used to estimate future resource requirements.

A major objective is to prevent a situation such as that which is occurring in Houston. Mr. Heubach played a recent news clip from Texas discussing the enormous problems with water lines in Houston. He stated that the age of the Houston system is not much older than the Bellevue system. They do have unique problems with their clay soil, but there are some similarities.

Over the last year in Bellevue, staff has been able to consolidate the sewer closed-circuit television (CCTV) condition assessment data. This allows staff to more easily access the data. The Pipeline Assessment and Certification Program (PACP) standard condition ratings have been calculated and added to the data base for each pipeline.

Future data augmentation and integration activities that will occur include:

- Consolidation of the stormwater pipeline video database
- Synchronization of the two watermain databases
- Continuation of efforts to complete missing storm line and sewer pipeline database information

Integration of the different types of asset data (e.g., asset condition data, O&M failure/cost data, and reports/photos/videos) so that all data on an asset can be accessed from links at a single site such as a GIS map

The sewer and stormwater pipeline CCTV condition assessment programs continued. 8½% percent of the sewer lines were videoed in 2008. Over the last 16 years, 60% of the sewer pipelines have been videoed. Critical lines are videoed more often than less critical lines so some lines have been videoed more than once.

Mr. Heubach then showed a video taken by a camera in a sewer main of a side sewer that was blocked by roots. He commented that Bellevue is responsible for maintaining the side sewers from the main line to the right-of-way boundary. The side sewers are difficult to maintain but there are root cutters being developed that may be able to travel up the side sewers. The City is also considering herbicides that are able to kill just the roots; the herbicides would not harm the trees. He also showed a video from an auxiliary camera that traveled up the side sewer to reveal a root blockage located several feet up the side sewer.

He noted that in addition to sewer main videos, 2% of the storm lines were video-inspected in 2008. Aging corrugated metal storm pipelines are a concern. He displayed a video of a corrugated metal pipe that had rusted along the bottom. The bottom of the pipe had completely corroded away in some areas. He also showed a video of a corrugated metal pipe that had lost most of its conveyance capacity because it had been dented in from above.

Each year about 70 miles of the water mains are tested for leaks. Last year 22 leaks were identified and repaired, which resulted in water savings of almost 11 million gallons. Last year the Commission recommended and Council approved an increase in the watermain replacement capital program. Consequently, the rate of asbestos cement watermain replacement is being accelerated over the next several years from 1.5 miles per year to 5 miles per year. Coordinating main replacement with the City's street overlay & CIP program will continue. Ramping up the replacement rate will also allow risk to be incorporated more into replacement decisions.

Mr. Heubach displayed a map showing condition-related asbestos cement watermain failures in the Bellevue service area. The map showed that it is not feasible to immediately replace all asbestos cement watermains in a neighborhood if a failure occurs, due to funding constraints. The funding ramp-up for this program is critical to help us 'catch up' main replacement at known failure locations.

Mr. Heubach briefly mentioned the 19 miles of sewer lake lines along Lake Washington and Lake Sammamish. These lake lines are on shore or near shore. In 2011, construction is scheduled to start on replacing 1100 feet in Meydenbauer Bay in conjunction with development of Meydenbauer Beach Park. Condition assessment of the remaining Lake Washington lake lines will begin this year. Afterwards, the condition of the newer Lake Sammamish lake lines will start.

Pipeline criticality (consequence of failure) and failure probability are being refined for all three utilities. Pipe criticality includes system importance and proximity to critical facilities (police, fire, hospitals, etc.) and sensitive areas (parks, wetlands, etc.). Mr. Heubach showed a sewer pipeline criticality map as an example.

Performance indicators and service levels are currently being developed for the asset management program. The number of watermain breaks per 100 miles of main per year is an example of a performance indicator.

Mr. Heubach stated that formal life-cycle cost analyses are being used by Bellevue Utilities to help evaluate project alternatives. A standard life-cycle analysis template is being developed. Triple bottom line analysis of economic, environmental and social costs will be incorporated.

Tony Marcum presented an update on the latest Failures and Claims Analysis. The analysis focused on piped infrastructure from 1997 to 2008. The data included number, date, location, system component, and causes of failure.

#### Failures:

Water main failures: Mr. Marcum reviewed water main breaks by type, noting that the 4 and 6-inch asbestos concrete (AC) main pipes have a disproportionate failure rate compared to all other materials. They account for nearly 70% of all water main failures even though they make up only 28% of the system. The 4-inch AC pipe really stands out, accounting for 34% of all system failures while it makes up only 3% of the system. He compared the City's water main failure rates versus national and local failure rates. Overall, the City of Bellevue has a much lower water main failure rate than the national average with the exception of 4-inch AC pipe.

Service Line failures: He explained that the service line is the part from the main to the water meter that the city is responsible for. Over half of the system failures are related to service lines. In 2008 the City spent over \$200,000 responding to service line failures.

Waste water failures: Main lines account for 51% of all failures, but make up 76% of the overall system. Laterals and lake lines account for a

disproportionate number of wastewater failures (49%) when they only make up 25% of the overall system. Lake lines in particular have a disproportionate rate of failure with 16% of the overall failures while making up only 4% of the system. Commissioner Carter asked if there was a difference in failure rates between lines in the water and those out of water. Staff indicated that it had not been tracked in that way. It was noted that most of the failure of lake lines is due to pipe deterioration and not external factors such as boat anchor.

**Wastewater failures:** The main causes of mainline failures include roots, grease, debris and low slopes, bellies, and joint problems. Root blockages are the single-largest problem for wastewater mainline failures.

**Stormwater failures:** The main cause of storm water failures is leaves and debris clogging grates. Failure rates are closely related to a given year's weather conditions with a strong correlation to precipitation.

#### Claims:

4% of all failures resulted in claims. The overall average for the 12-year period was 13 claims per year with an average cost of \$250,000 per year.

**Water claims and costs:** There is an increasing trend in the number of claims and dollar amounts. 4 and 6-inch AC pipe failures accounted for 62% of all water claims paid and accounted for 56% of the total cost.

**Wastewater claims and cost:** Wastewater claims are mostly associated with some type of blockage with roots being the biggest factor. Preventative maintenance is being emphasized.

**Stormwater claims and cost:** Stormwater failures are rare because most of the system is an open system, but they do have the potential to be catastrophic.

There are two approaches to mitigate the number of failures and claims – procedures in place to mitigate failures when they do occur and programs to reduce the number of failures. For reducing water failures and claims there is the AC Main Replacement Program; Saddle and Service Line Replacement Program; Leak Detection Program; and Comprehensive Risk Assessments. For reducing wastewater failures and claims they now have a repair crew; jet cleaning program; video inspection program; root sawing program; manhole survey program; telemetry monitoring, CIP and comprehensive risk assessment. For reducing surface water failures and claims they have a mainline and catch basin cleaning program; street sweeping program; video inspection program; root sawing program; routine surveillance and forecast monitoring; telemetry; CIP and comprehensive risk assessment.

## Trends:

There are no strong overall trends in water main failures. This is likely due in part to the 4-inch AC replacement program. They are also concerned that some of the older 6-inch AC may be nearing the end of its useful life. In addition, service line failures are trending up. There are no strong overall trends in stormwater failures other than the direct tie to heavy precipitation events. In wastewater they are seeing an increase in pipeline blockage failures, especially due to root blockages. In stormwater, there are no trends seen, but infrequent catastrophic failures can occur. He summarized that the infrastructure is aging and failures and claims will continue to occur.

Key areas of focus will be:

- Water - 4 and 6-inch AC mains

- Wastewater - lake lines and laterals and ramping up repairs with new repair crew

- Stormwater – continue to focus on storm event preparation to clean known problem areas before the rains hit

Once the new version of Maximo asset management software is implemented the ability to collect additional and more accurate information may impact future trend lines.

Commissioner Roberts asked if there is something that homeowners could dump into the sewer system to help dissolve roots. Mr. Marcum replied that he was not aware of anything homeowners could use that would be environmentally friendly.

Commissioner Mahon asked about the continuing trend of the aging infrastructure and if it was known when the failure rate would peak. Mr. Heubach said it depends on the pipe material and the replacement rate. Ms. Otal stated that we do have a theoretical model based on the pipe material and age. That data indicates almost a sine curve and we are at the beginning of it. There will be a peak, which is estimated to be approximately 40 years in the future. Mr. Heubach added that one uncertainty is that we don't know how long AC pipes will last. 4-inch AC pipes are replaced with 8-inch ductile iron pipes. In response to a question, Mr. Thompson indicated that replacement with the larger diameter pipe does not significantly reduce normal system operating pressures.

Chair Szablya commented that about 6 years ago there were many questions coming up about asset management. He commended the detail and the breakdown provided in this presentation. He thanked everyone involved in pulling all of this data together.

Mr. Mach asked about a slide referring to asbestos cement water main failures that they have not repaired yet. Mr. Heubach explained that there are some areas where there have been failures of AC main pipes, but they have not been able to get in to replace the pipes because of lack of manpower and money. Ms. Ota commented that they have already spent the entire 2010 budget on repairing failures.

Mr. Mach asked if there is good communication between departments within the city. Mr. Heubach affirmed that not only is there good communication interdepartmentally, but there is also very good coordination between city of Bellevue, Medina, and Hunts Point.

Mr. Roberts commented that it is amazing how much coordination they do. He commended the work that staff had done, and how far the program has evolved over the last several years.

**8. New Business**

None

**9. Director's Office Report**

None

**10. Continued Oral Communications**

None

**11. Adjournment**

**Motion made by Commissioner Mahon, seconded by Commissioner Roberts, to adjourn the meeting at 7:43 p.m. Motion carried unanimously (6-0).**