



**Public Works Committee Agenda**  
Regular Meeting Wednesday April 17, 2013 – 6:30PM  
City Shop Conference Room

**MEMBERS**

Joseph A Klejka  
Council Rep.  
Term Expires  
11/2012

Frank Neitz  
Chair  
Term Expires  
12/2013

Jennifer Dobson  
Vice-Chair  
Term Expires  
12/2014

Bill Schreiner  
Committee Member  
Term Expires  
12/2013

Scott Guinn  
Committee Member  
Term Expires  
12/2014

Donna Lindsey  
Committee Member  
Term Expires  
12/2015

VACANT  
Committee Member  
Term Expires  
.

Chuck Willert  
Ex-Officio Member

Cheryl Roberts  
Secretary/Recorder

**AGENDA**

- I. CALL TO ORDER
- II. ROLL CALL
- III. PEOPLE TO BE HEARD – (15 Minute Limit)
- IV. APPROVAL OF MINUTES
  - A. Minutes from the previous two meetings of -  
February 27, 2013 and March 27, 2013.
- V. APPROVAL OF AGENDA
- VI. DIRECTOR'S REPORT - March & April's
- VII. UNFINISHED BUSINESS
  - A. Update - Closeout of 2 Outstanding Grants / ABC Loop
  - B. Update - 5 Year Plan/ RFP - Water & Sewer Master Plan
  - C. Update - Recycle Center
  - D. Update - Institutional Corridor - Feasibility Study
  - E. Update - RFP - Cost Analysis of the City of Bethel's Water & Sewer Utilities
  - F. Update - City Shop Floor
  - G. Update - New BNC/Swansons Complex Road Access
  - H. Update - Wind Generation 100kw per Public Building
  - I. Recommendation to Council in regards to Sewage Lagoon Rehabilitation Project
  - J. Update - H-Marker Lake Road
  - K. Update - TDX Avec Power Plant
- VIII. NEW BUSINESS
  - A. Water and Sewer Utilities Development Priorities
  - B. In accordance to Bethel Municipal Code 2.52.070 A. 6. Declaring Jeff Sanders' Committee Seat Vacant Having Received a Written Resignation Date 1-2-2013.
  - C. Dredge for Sale by the ANATHC
- IX. MEMBER COMMENTS
- X. ADJOURNMENT

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# City of Bethel, Alaska

## Public Works Committee Minutes

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February 27, 2013

Special Meeting

Bethel, Alaska

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### CALL TO ORDER

A special meeting of the Public Works Committee Meeting was held on February 27, 2013 at 6:25p.m. in the City Shop Conference Room, Bethel, Alaska was called to order by Committee Member Chair Frank Neitz.

### ROLL CALL

Present: Joseph Klejka, Frank Neitz, Jennifer Dobson, Bill Schreiner, Scott Guinn, Donna Lindsey

Excused absence(s): Chuck Willert

Unexcused absence(s): None

Also in attendance were the following:

Bill Arnold, in place of the Public Works Director

Cheryl Roberts, Public Works Admin, Recorder of Minutes

John Sargent, City of Bethel, Grant Manager

### Annual Election of Chair

<b>MOVED BY:</b>	J. Klejka	To Re-elect Frank Neitz to be the Chair for the Public Works Committee.
<b>SECONDED BY:</b>	J. Dobson	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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### Annual Election of Vice-Chair

<b>MOVED BY:</b>	J. Klejka	To Re-elect Jennifer Dobson to be the Vice-Chair for the Public Works Committee.
<b>SECONDED BY:</b>	D. Lindsey	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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### PEOPLE TO BE HEARD

None.

### TO MOVE JOHN SARGENT TO TOP OF AGENDA FOR UPDATES

<b>MOVED BY:</b>	B. Schreiner	To approve the minutes of the regular meeting of December 19, 2012 & January 16, 2013.
<b>SECONDED BY:</b>	J. Klejka	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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### APPROVAL OF AGENDA

<b>MOVED BY:</b>	J. Klejka	Motioned carried to approve the agenda.
<b>SECONDED BY:</b>	B. Schreiner	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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**APPROVAL OF MINUTES**

<b>MOVED BY:</b>	J. Klejka	To approve the minutes of the regular meeting of December 19, 2012 & January 16, 2013.
<b>SECONDED BY:</b>	S. Guinn	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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**DIRECTOR’S REPORT**

We are still working with CH2MHill for a contract, & CH2MHill is communicating with YKHC. CH2MHill has been getting information from YKHC about their water system & from what it looks like we can hook up to it, but it’s just a matter of how.

**UNFINISHED BUSINESS**

**Item A - Update - Closeout of 2 Outstanding Grants/ABC Loop**

The Construction Grant is closed out. The Pre-Planning Grant includes two PER/ER’s, one with the ABC Loop & the Sewage Lagoon Rehabilitation & other is on the Manhole which have already been approved. We are waiting on the final draft to be reviewed. And included in the grants we want to get the water pipes for ABC Loops replaced.

**Item B - Update - Sewer Lagoon**

Once the planning porting has been completed, we would like to move forward with USDA for funding for construction just in-case our funding doesn’t go through the State.

**Item C - Update - 5 Year Plan/ RFP - Water & Sewer Master Plan**

Our committee had a discussion to contact the City Manager & to have someone contact LCG daily & to update the Public Works Committee every week.

**To have someone call on the outstanding Grants daily**

<b>MOVED BY:</b>	J. Klejka	Motion to have someone call on a daily basis for an update on the Grants & to contact the Public Works Chair on a weekly basis.
<b>SECONDED BY:</b>	J. Dobson	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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**Item D - Update - Recycle Center**

Jennifer had a discussion with the City Manager & mentioned to him that we had a vested interest in what was submitted to the Budget Request & that the Public Works Committee would like to provide input in the process because whatever they request for budget would be effected by staffing, hours open, etc. The City Manager said he would be submitting the budget proposal & to send him feedback before he submits it if we would like feedback, but we wouldn’t have a chance to review the proposal before it was submitted to Council.

**To Review the Proposal before it goes to City Council**

<b>MOVED BY:</b>	B. Schreiner	Motion to review the Recycle Center Proposal before going to City Council and the money to run it.
<b>SECONDED BY:</b>	J. Klejka	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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**Item E - Institutional Corridor - Feasibility Study**

We’re waiting on the State to decide on what they will be doing.

**Item F - RFP - Cost Analysis of the City of Bethel's Water & Sewer Utilities**

Preliminary information was presented to Council on February 26, 2013. From this information, it seems that the City can really profit from this. The Analysis did not address the actual cost per gallon of water per mile to hauled or piped homes. Plus the depreciation of the trucks & the pipes, we have never had that done. Also, the people on piped water are not paying the cost of delivering water to us. Piped water customers are not paying enough & the customers on trucked are paying more than the cost of their water. On the Sewage side, it's paying for itself, for piped & trucked. Council & the Public Works Committee can expect to receive a follow-up report in four weeks.

**Item G - City Shop Floor - Chuck Willert**

Update from Bill Arnold – We're working with CH2MHill to get the RFP done, they promised they would have it to us by Friday (March 1<sup>st</sup>). The engineer has been out here & Bill has been talking with him & the engineer. We received a matrix of eight different ways to replace the floor, & Bill let him know what & how he wanted the floor to be done.

**Item H - New BNC / Swansons Complex Road Access**

They would like to get the Planning Director at our next meeting to get an update on the Road Access & get some drawings/plans on this.

**Item I - Wind Generation 100kw per Public Building**

Ok to get 100kw per Building. 85% of what is produced goes back into the grid. Grants? Why those rules? Who do we contact to get the rules changed?

**NEW BUSINESS**

**Item A - Recommendation to Council in regards to Sewage Lagoon Rehabilitation Project**

To add a third Cell, on City land, to have a shorter distance, only about one mile instead of three miles, & it's cheaper & easier. The Public Works Committee has not yet reviewed the PER-ER, so Bill will give a copy to Jennifer. John Sargent is asking for a recommendation to support it, but the committee needs to review the document first.

**Item B - Water and Sewer Utilities Development Priorities**

Keep on for next meeting as to no one remembers what this is in reference to.

**Item C - H-Marker Lake Road**

**Item D - TDX Avec Power Plant - Update**

John Sargent is unsure of the status with TDX, but we are still negotiating with BUC & it's been a very slow process.

**Item E - Rescheduling of Public Works Committee Meeting - BMC 2.52.130 - Requested by Chair**

**To Reschedule our March Public Works Meeting**

<b>MOVED BY:</b>	J. Klejka	Motion to reschedule our normal Public Works meeting from Wednesday, March 20, 2013 to Monday, March 18, 2013 @ 6:30pm.
<b>SECONDED BY:</b>	J. Dobson	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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**MEMBER COMMENTS**

**Joe** - I've got really no comments & was happy about the meeting & welcome aboard Donna. Thank you everybody for showing up I really love the dedication of this committee. I love your minutes, you always do good minutes, and everyone always knows what's going on.

**Jennifer** - I had a few comments on the rate study, but Joe very thoroughly covered anything I had thought of. No other comments.

**Bill** - I liked your direction today that we were working on more action items & trying to get more people to make deliverables, I think that's a great way to go. And welcome Donna, thanks for joining the committee.

**Scott** - I still have a question; Why is the City plowing & giving them access to the road they won't give us access to? They plow right up to it & let them go right in it. We are plowing right up to, near Polk's land, & then stopping. Bill Arnold stated it's a city road & we are required to maintain it.

**Donna** - Looks like I have a lot of learning to do, I hope I'm up to it.

**Frank** - We are so glad to have you, Donna.

**ADJOURNMENT**

<b>MOVED BY:</b>	S. Guinn	Motion to adjourn the meeting.
<b>SECONDED BY:</b>	D. Lindsey	

<b>VOTE ON MOTION</b>	Motion carried by unanimous voice vote.
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With no further business before the Committee, the meeting adjourned at 7:58 p.m.

APPROVED THIS \_\_\_\_\_ DAY OF MARCH, 2013.

\_\_\_\_\_  
Frank Neitz, Chair

\_\_\_\_\_  
Cheryl Roberts  
Recorder of Minutes

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# City of Bethel, Alaska

## Public Works Committee Minutes

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March 27, 2013

Regular Meeting

Bethel, Alaska

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### CALL TO ORDER

Secretary/Recorder, Cheryl Roberts, called the regular Public Works Committee Meeting of March 27, 2012 to order.

### ROLL CALL

Present: Donna Lindsey

Excused absence(s): Joseph Klejka, Frank Neitz, Jennifer Dobson, Bill Schreiner, Chuck Willert,  
Scott Guinn

Unexcused absence(s): None

Also in attendance were the following:

Cheryl Roberts, Recorder of Minutes

March 27, 2013 meeting adjourned due to lack of quorum.

APPROVED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ 2013.

\_\_\_\_\_  
Frank Neitz, Chair

\_\_\_\_\_  
Cheryl Roberts  
Recorder of Minutes

## **MEMORANDUM**

**DATE:** 3/1/2013

**TO:** Lee Foley, City Manager

**FROM:** Chuck Willert, Public Works Director

**SUBJECT:** Manager's Report –

### **Programs/Divisions**

#### **Public Works Director:**

We are working with CH2M Hill engineers in regards to getting a RFP out for the Public Works Shop floor this week, March 5, 2013.

We are working to get another RFP out for two truck chassis's and one stainless steel highway sander by next week, March 11<sup>th</sup>.

#### **Utility Maintenance:**

This month we responded to six after hour callouts. We also flushed three sewer lines this month in ASHA. We also had a glycol leak in BHWTP which was fixed immediately. There was four freeze ups in City Sub. We were able to thaw two of them. We also had a water leak at Tunista Inc. which was fixed by the owner. We also continue to blue tag overdue accounts for our Billing Department. We also continue to monitor our liftstations on a daily basis and rebuild sewer pumps when needed.

#### **Hauled Utilities:**

We've been trying to cut down on overtime. Because of attendance there is still quite a bit. Routes are getting done. Three drivers responded to a fire callout in Larson Sub on 2/9/2013. Training on the new guy seems to be going pretty good. In a couple of weeks we will have another guy on the roster. This will help out a lot.

#### **Property Maintenance:**

Buildings are being checked daily for heat and adjusted according to outside temperatures. Problem valves or pumps are replaced or something done with. Entrance ways, decks and stairs are being shoveled, ice chipped and sanded as needed. The hot and cold water is run through the systems to make sure everything is in good shape with the plumbing. We

have had some issues with the diesel fuel nozzles on our Fuel Delivery Building. We had bought some inexpensive equipment and found out the foreign made hardware is not worth the trade off. The stuff just does not hold up in extreme conditions or for that matter in any product we have to work with. Prior to Presidents Day we checked and changed hardware and flags in most locations.

We had Pioneer Door out here to inspect and adjust our overhead doors in all our buildings. A little preventative maintenance goes a long ways. I have been showing families Cemetery plots and having to clear snow off them. It is once again filling up and I will have to look at getting another section ready. We have been working on a room over at what we call the P.D. annex for the engineer that will be staying in town tracking the new Aquatic/Rec Center. I have been using Community Service Workers to assist me. We have lots of projects going on and they have been of tremendous help. I use them all the time. We will be getting some one out here soon I hope to look at our ventilation system at the Court House. He has been giving me lots of excuses and I will be looking for someone else soon if he does not show.

### **Road Maintenance:**

Streets and Roads have been working on widening roads of the snow berms that have been caused from drifting snow and plowing the roads during the blizzards. In between snow storms we have been working on widening the roads and moving back the rather large snow berms. Now that we've been working at a larger scale with all the berms we've been using two loaders steady to push the snow back and haul it off the roads. Also now we started to use the D5 dozer in pushing the snow off the road in places where the loaders cannot get to it or in areas that we cannot push it off the road. We windrow it to the center of the road with either the D4 or the graders and haul it off with the two loaders.

Streets and Roads have been digging the ice at the two water pump houses where the trucks fill up with the 420 backhoe when needed. This is from the water trucks over flowing when they fill up and freezing up on the ground causing a mountain of ice that takes the 420 backhoe to rip up the ice and dig it out.

Gary has been running the new Cat Excavator for the Port digging out the mouth of Brown Slough when they need him and plowing the roads when not working in Brown Slough. As of now it looks like the port is on hold for the dredging of the Slough.

**Vehicles and Equipment:**

Pretty much the same as last month, we have been going through the water and sewer trucks to make sure everything is in top working order such as the air system, breaks, and electrical system. We are short one mechanic and staying late for hauled utilities and going thru a lot of over time.

**Transit System:**

For February 2013, The Bethel Transit System transported a total of 893 passengers, 161 of those riders had a disability and 100 were elders. The cash fares totaled \$ 922.00 while the passes used totaled \$971.00 and monthly passes were \$273.00. There are three drivers, Brenda George who is a full time driver /Acting Manger, Jang Kim who is the Part time, Christina David who is an on-call driver.

These figures are from February 1 thru the 28<sup>th</sup> 2013.

**Staffing Issues/Concerns/Training:**

Sonny Venes will retire at the end of March, he is the Landfill Manager. Vince has two open positions in the Hauled Utilities Department.

**Budget/Financial:**

Will put in financial numbers next month.

## **MEMORANDUM**

**DATE:** 4/1/2013

**TO:** Lee Foley, City Manager

**FROM:** Chuck Willert, Public Works Director

**SUBJECT:** Manager's Report –

### **Programs/Divisions**

#### **Public Works Director:**

We are looking to ship the remaining Ford 150s and 250s, six in total, on the first barge of Northlands. We can bring them to the Northland Anchorage Terminal starting May 1<sup>st</sup> and May 9<sup>th</sup> which is the deadline for the first sailing.

We are gearing up for the annual thaw that is starting to take place every afternoon with the temperatures heating up and all the snow that has to melt in the next three to four weeks. The small steamer has been serviced and now the big steamer has to be gone through and serviced.

We had a farewell party for Sonny Venes March 28<sup>th</sup> as it was his last day of work before he retired. He was very grateful to work for the City of Bethel and for the comradery of all the co-workers. He will be missed as he was one of the best Landfill Managers that we have had that I can recall. I believe that Dave Stovner will do a great job filling Sonny's shoes at the Landfill.

67% of the fiscal year has elapsed with 63.3% expended

#### **Utility Maintenance:**

This month we had ten after hour callouts. We also helped with demolishing the old boardwalk behind BHWTP assisting Road Maintenance. We also continue to monitor our sewer lagoon. Last week we had a major water leak at the schools which drained our entire supply of potable water, causing no service to our piped water service system in

BHWTP. We also put the new police station sewer system on line. We continue to monitor our liftstations on a daily basis and rebuild pumps when needed.

Piped Water: 67% of the fiscal year has elapsed with 62% expended

BHWTP: 67% of the fiscal year has elapsed with 71.3% expended

CSWTP: 67% of the fiscal year has elapsed with 57.6% expended

Piped Sewer: 67% of the fiscal year has elapsed with 63.7% expended

Sewer Lagoon: 67% of the fiscal year has elapsed with 61.9% expended

### **Hauled Utilities:**

We do have a couple of new drivers. And they have been doing well with attendance and learning their jobs. Because of an incident a couple weeks ago, Jim Colonel will now be the weekend foreman. Routes are still getting done. John J and Shane have been busy fixing the water trucks. So with the extra trucks and drivers, we've been able to cut the routes to smaller routes and get them done earlier.

Hauled Refuse: 67% of the fiscal year has elapsed with 62.2% expended

Landfill Oper. : 67% of the fiscal year has elapsed with 82.4% expended

Hauled Water: 67% of the fiscal year has elapsed with 64.6% expended

Hauled Sewer: 67% of the fiscal year has elapsed with 57.6% expended

### **Property Maintenance:**

We continue to monitor the buildings for heat and plumbing issues through the changes in the weather. We are sometimes making adjustments and changing equipment daily to all our buildings, each day brings on a new challenge sometimes. We have been busy keeping icy decks, stairs and landings sanded.

Industrial Boiler and Controls Inc. were out here to help us with a technical problem with one of our Public Works boilers. We have a Ventilation Technician assisting us with upgrading our air handlers at the Court House. We are now finished somewhat at P.D. Annex with the remodel and will be back when we get more time. Thanks.

67% of the fiscal year has elapsed with 61.7% expended

## **Road Maintenance:**

Streets and Road did use the Cat Backhoe to loosen up a pile of gravel at the city shop and hauled some of the gravel to Ptarmigan, Ridgecrest, and Akakeek streets during the last two thaws. We used gravel to fill in the rough spots and to fill in the pot holes so that we could keep the road smooth as possible before it freezes. We also been working on widening roads of the snow berms on the sides of the roads in areas that snow drifts and to get ready for the big thaw that will happen in the next few weeks.

Streets and Roads put in two more helical piles with the 200 Hitachi Backhoe at the new police station for the fire sprayers system. The two helical piles were put down between the police station and the garage to run water pipe from the water tank to the fire sprayers.

Streets and Roads have been helping the Port in hauling the piles of mud that was dug out of Browns Slough. Now that Port got the go ahead to haul it away we have been helping in hauling it to the landfill before the big thaw. We are digging more material out of Browns Slough to make it a lot easier for the boats to navigate the slough this summer.

67% of the fiscal year has elapsed with 61.8% expended

## **Vehicles and Equipment:**

March 2013, we are currently servicing and maintaining all the water and sewer trucks. We have been performing extensive safety checks on all city vehicles. Our goal is to have the safest and well performing fleet of vehicles in Alaska. Our long term maintenance plan will save money on parts, and labor costs. Also this will help to keep the vehicles in our fleet for a longer life span. We have been doing extensive research for better quality parts to help combat our extreme weather conditions. Such as sealed air cans for the water trucks, and air dyers with bigger heating elements to keep them from freezing. We also have been reorganizing the shop to help us work with greater efficiency and safety. We are short on mechanics. Josh has been out of the shop for training purposes. Charles has been off due to a new addition to his family, a fine baby boy. Spirits are high as our team works together to improve our shop and the cities fleet.

67% of the fiscal year has elapsed with 59.8% expended

## **Transit System:**

Under the current bus schedule, routing, time and the increase in passenger fare, the ridership has decreased considerably. In March of 2012 there were 1451 riders, and in March of 2013 there were 413. During this same period the usage of the daily and monthly passes has almost doubled. In March of 2012 the Bethel Transit System had a Transit Manager, two full time bus drivers, two part-time drivers and one On-Call. Currently, March 29, 2013, we have a Transit Manager, one full time bus driver, one part-time, and one On-Call. The challenge will be to increase the ridership and at the same time maintain the current staffing. We may need to look at better passenger accommodations, bus stop changes, and an increase in the number of hours the buses run. Hopefully by the end of the summer we'll be able to show an increase in the ridership.

As the buses grow older and their miles increase (Bus 437-91,000+ miles, Bus 438-61,000+miles, and Bus 436 – 10,500+ miles) so does the maintenance problems. Bus 436 has been down for several months and may have some major engine problems. The mechanic says there were some metal flakes in the oil when he changed it and he needs to check it out. Bus 437 is having problems, on and off, with the passenger door not opening and/or closing. The maintenance shop has ordered a new circuit control board for it. The buses are **extremely** difficult to work on, and if and when new ones are ordered I'd suggest we work very closely with the Maintenance Department. DOT recommends that buses be replaced every four years or 100,000 miles.

For the Camai Festival the Bethel Transit bus #437 ran Friday evening, from 6:30pm - 12:30am, Saturday from 10:30am - 12:30am, and Sunday from 11:30am - 9:30pm. Brochures, showing the dates/route and time, were posted around town. We handed out additional brochures to the passengers on Thursday (March 21) and Friday (March 22). During the week-end there were 58 riders that rode the bus.

FTA (Federal Transit Administration and Alaska DOT is requiring all recipient's receiving FTA formula funding to develop a transit asset management plan. To help all Alaska Transit systems DOT&PF is providing a mandatory training March 26-27-28 and I was required to attend. The training provided the ground work for developing the "Capital Asset Management Plan" for the Bethel Transit System. This plan should be completed by the beginning of FY 2014.

If you have any questions or comments about what we are doing on a day to day basis, please call. I am always happy to answer questions, if I am able to.

67% of the fiscal year has elapsed with 54% expended

**Staffing Issues/Concerns/Training:**

Sonny Venes will retire at the end of March, he is the Landfill Manager, and we have hired his replacement, Dave Stovner.

Vince has one open position in the Hauled Utilities Department. Robert Wright, Rocky, will be retiring in May 2013.

**Budget/Financial:**

See each department.

**LCG** Inc

LARSEN CONSULTING GROUP

*Sewage lagoon rehabilitation  
information is highlighted.*

## **WATER LOOPS A, B & C AND WASTEWATER UPGRADES**

**BETHEL, ALASKA**

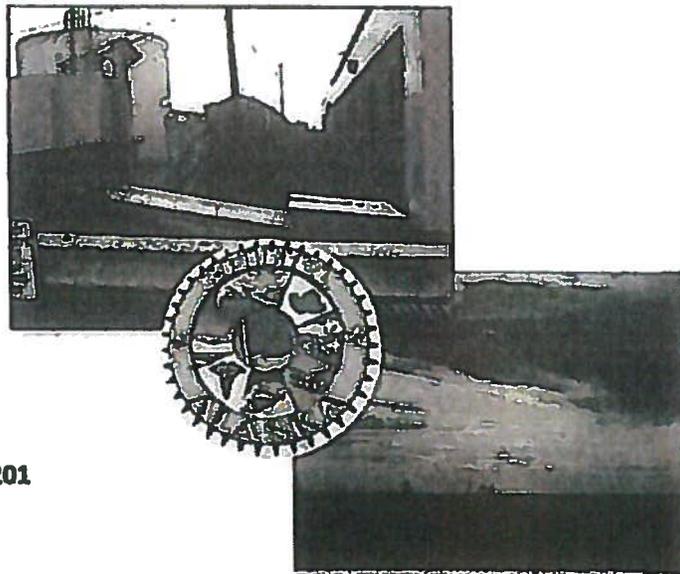
### **ENVIRONMENTAL REPORT**

**JUNE 2012**

**FINAL**

**PREPARED FOR:**  
CITY OF BETHEL  
PO Box 1388  
Bethel, AK 99559

**FOR SUBMITTAL TO:**  
USDA-RD  
**USDA** 800 W. EVERGREEN, STE. 201  
PALMER, ALASKA 99645



reduced callouts are estimated to be \$60,000 per year and \$12,000 per year, respectively. By converting Loop A into two loops, pumping will be reduced, resulting in an annual power and associated O&M cost savings.

## **2.3. WASTEWATER TREATMENT UPGRADES**

### **2.3.1. Project Need**

The existing wastewater lagoon treatment system consists of two facultative cells with a combined area of 61.6 acres. This volume is adequate for current municipal wastewater flow as well as for the 20-year planning horizon projection. However, these ponds are reaching their hydraulic capacity due to infiltration of surrounding groundwater and the accumulation of biosolids in Cell 1.

As noted in Section 3.4.3, water from the cells is pumped to the tundra twice each summer in order to create sufficient storage capacity to hold the winter wastewater load. Despite being pumped nearly in the fall, the cells must be pumped again before the spring thaw in order to prevent overflow and possibly collapse of the containment berm.

The City's end-of-pipe effluent quality data has, at times, exceeded the EPA's and State of Alaska's maximum levels for total suspended solids (TSS), biochemical oxygen demand (BOD) and fecal coliforms (FC) during both spring and fall pumping events.

Bethel does not have a current Alaska Pollution Discharge Elimination System (APDES) permit. Since the 1997 permit expired in 2002, it has been administratively extended. In 2008, an application was submitted but it was not executed, in part due to no mixing study model was ever completed.

A biosolids depth assessment conducted by LCG in 2010 found that Cell 1 has approximately 40,000 cubic yards of accumulation, reducing its hydraulic storage by 16 percent. Cell 2 biosolids accumulation was also measured and found operationally small.

In addition to the problem of insufficient storage volume, the effluent is presently discharged to the tundra north of the existing stabilization ponds into the Browns Creek drainage system that eventually makes its way to Brown's Slough, which runs through Bethel. A more controlled treatment scheme is warranted to provide a higher level of treatment that will comply with State requirements.

Also and issue of increasing concern is the lagoon baffle curtains and sheet piling around the hauled sewage area that are beginning to show signs of failure and are in need of replacement.

### **2.3.2. Project Alternatives**

Several wastewater treatment concepts have been evaluated in previous studies, including membrane bioreactor (MBR) treatment and a mechanically aerated lagoon system. These project costs have been estimated by others and have been included in this report and converted to 2012 dollars. This report considers an alternative gravity flow system involving a new holding cell and other measures to provide usable storage and a wetland treatment system to provide additional treatment of the effluent.

A summary of these alternatives and estimates of their costs are shown in Table 2.4-1. See Appendix E for a detailed cost estimate of the New Holding Cell and the Constructed Wetlands alternative and Appendix C for a figure of the preferred New Holding Cell alternative.

TABLE 2.4-1 Preliminary Evaluation of Wastewater Treatment Alternatives

Alternative	Environmental Impact	Capital Cost	Annual Costs	Life Cycle Cost (2030)	Advantages
					Disadvantages
Membrane Bioreactor	Effluent is discharged to river	\$20.65 (million)	\$0.93 (million)	\$36.29 (million)	High effluent quality
	APDES permit required				High vulnerability
Mechanical Aeration	High noise	\$18.19 (million)	\$0.59 (million)	\$28.15 (million)	Good effluent quality
	High energy requirement				Moderate vulnerability
	APDES permit required				
New Holding Cell	Uses existing discharge point	\$9.62 (million)	\$.01 (million)	\$9.70 (million)	Good effluent quality
	APDES permit required				No pumping requirements
					Low vulnerability
Constructed Wetland	Effluent discharged to constructed wetland	\$11.42 (million)	\$.05 (million)	\$12.26 (million)	Low to moderate effluent quality
	APDES permit required				Significant land area is required
					High Land acquisition requirements
					High vulnerability

Appendix D contains a life-cycle cost analysis for the project alternatives.

**2.3.3. Project Description**

Preliminary order-of-magnitude cost estimates indicate that the new holding cell alternative would be the most economical. The concept of a lined pond was not pursued because of the likely presence of permafrost and the settling and tearing of the liner that may occur in thaw-unstable soils. Also, incoming seepage can be controlled by maintaining fall water levels in Cell 1 and Cell 2. A summary of the design criteria for a new holding cell and wetland treatment are shown in Table 2.4-2.

TABLE 2.4-2 General Wastewater Design Criteria

2010 Population		6,080
2030 Design Population		7,300
Design Per Capita Wastewater Flow	gal / cap · day	50
Design Per Capita BOD Load	lbs BOD / cap · day	0.15
Design Wastewater Flow	gpd	365,000

**PURPOSE, NEED & ALTERNATIVES FOR PROJECTS**

Design BOD Load	lbs BOD / day	1,095
<b>Facultative Cell Sizing</b>		
Design BOD Load	lbs BOD / acre · day	20
Design Hydraulic Detention Time	days	9 months
Existing Total Cell Area	acres	61.7
Design Cell Area for 20 lb BOD/ac-d	acres	55
Design Usable Storage Volume	gal	133.2 million
Existing Cells Usable Volume	gal	171.6 million
Annual precipitation	gal	30.0 million
<b>Holding Cell Sizing</b>		
Eight Months Wastewater Flow	gal	133 million
Eight Months Precipitation	gal	20 million
Total Holding Cell	gal	153 million
<b>Wetland Treatment System Design Criteria</b>		
Design Hydraulic Load	gal / acre · day	Evaluate in design

Four potential site options for locating a new holding cell and wetland system are outlined in Table 2.4-3. See Drawing 5 in Appendix C for their relative locations.

**Table 2.4-3 Evaluation of Holding Cell and Wetland Treatment Sites**

Site Option	Environmental Impacts	Land Requirements	Advantages
			Disadvantages
Site Option 1	Land is presently subject to effluent discharge.	Land acquisition required	Located closest to existing cells. Minimal pumping distance. Effluent continues to discharge to Brown's Creek Slough
Site Option 2	Loss of natural tundra	Land acquisition required	Discharge drains away from City Discharge is more direct to river
Site Option 3	Loss of natural tundra	Land acquisition required.	Discharge drains away from City Located furthest from existing cells Requires an 8,000-foot force main Discharge is more direct to river.
Site Option 4	Some loss of natural tundra.	None. Located on City owned land.	All gravity transfer operation Increased detention time Allows for controlled summer discharge Cell 3 would be closer to housing

Holding Cell Alternative, Site Option 4 is the recommended wastewater treatment arrangement for the City of Bethel. A conceptual layout and hydraulic profile for this option is found in Appendix C, Site Option 4 Concept Plan. Although its initial capital cost is similar to other

options, the significantly lower cost to operate and overall utility of Option 4 make it unambiguous choice. Specifically, it:

- † Is located on the existing City lagoon property;
- † Utilizes gravity flow, requiring no pumping or other power equipment;
- † Removes accumulated biosolids from Cell 1;
- † Allows cascading water between ponds to improve aeration;
- † Maintains full level in Cell 1 (primary) Cell 2 (secondary);
- † Improves hydraulic detention time and facultative treatment;
- † Precludes groundwater seepage into cells 1 and 2;
- † Provides storage (Cell 3) of treated effluent for slow release during summer;
- † Allows slow release and polishing treatment through a constructed wetland;
- † Returns high quality effluent through an overland flow area to the point of discharge.

A potential concern for nearby residents is that this option places the holding cell closer to the community. It should be noted, however, that Cell 3 will only contain treated water. In addition, water quality in cells 1 and 2 will improve and thereby reduce the odor problems presently experienced. The proposed option can meet the City's wastewater treatment requirements with sufficient redundancy and flexibility to accommodate anticipated demands and at a considerably lower operational cost.

Constructed wetlands have performed well in the Lower 48 states for more than 30 years without signs of diminished treatment capability. Recent projects in Alaska are proving just as durable. In Alaska, constructed wetlands must cope with slower treatment rates due to the cooler and shorter summers. Nonetheless, wetland treatment systems can and do function in this environment, typically as an additional step associated with a stabilization pond. Construction is straightforward, utilizing organic mat and topsoil from cell 3 construction as the wetland topsoil base. This creates a root zone for cattails, softstem bulrush, calla lily, sedges, and other selected wetland plants indigenous to this region of Alaska.

In combination with a wetland treatment system, the improvement in effluent quality would be significant due to the longer retention time, improved aeration, and slow release. If the effluent quality can meet the States 18 AAC 70 discharge requirement for fecal coliform, an APDES permit could be obtained without the need for a mixing zone study. This would give the City flexibility in applying for and obtaining a future Permit.

#### **2.3.4. Scope and Cost Estimate**

The scope of this project includes a new holding Cell 3, rehabilitation of the existing lagoon treatment system and utilization of a wetlands treatment system.

For Options 1, 2 and 3, a new pump station would be required to transfer effluent to the wetland treatment area. Pumps would vary from 5 to 20 horsepower depending upon the site. Option 3 is furthest away and requires larger pumps and pumping energy. Stand-alone wind powered pumps and a utility interface system for wind powered pumps were investigated. However, the study found that wind turbine power generation was not cost effective compared to diesel powered pumps or electrical pumps powered by extension of the utility power supply. The pumps would be located near the existing discharge structure on the north dike of Cell 2.

Options 1 through 3 would require land acquisition—at least two of which are native allotments. Acquisition may be time-consuming and may ultimately be unsuccessful. Option 4 removes the need for pumping and land acquisition and allows the City to optimize the existing lagoon site.

A construction cost estimate for the Holding Cell Alternative at Site Option 4, based upon the site plan shown in Appendix C, is \$9,070,908. In addition, approximately \$544,254 has been estimated for bid phase services, construction administration and administrative costs. See Appendix E for more detailed cost estimates. Maintenance call outs for the lagoon will be lowest for this option and should also be reduced from the current system.

**2.4. SUMMARY OF OPERATIONS AND MAINTENANCE COSTS**

The operations and maintenance cost impacts of the proposed water and sewer projects are summarized in Table 2.4-1.

Table 2.4-1 Summary of Operations and Maintenance Costs

No.	Project Description	Annual O&M Cost Impact
6.1	Water Loop C	\$80,000
6.2	Water Loop A & B Replacement	\$72,000
6.3	Sewage Lagoon Upgrade - Site Option 4	\$5,000
	<b>TOTAL O&amp;M COST IMPACT</b>	<b>\$137,000</b>

The overall objective for the proposed projects is to reduce operations and maintenance costs for the City's water and sewer utilities.

**2.5. DESIGN CRITERIA AND REGULATORY REQUIREMENTS**

**Design Criteria:**

- + Design Year Population 2030 - 7298
- + Mean Annual Temperature 29.1° F
- + Mean Minimum Temperature - 0° F
- + 99% Design Temperature - minus 48° F
- + Mean Annual Precipitation - 16 inches
- + Mean Annual Snowfall - 55 inches
- + Design Thawing Index - 3,200 ° F -days
- + Design Freezing Index - 4,400 ° F -days
- + Design Wind Speed (3 sec gust) - 120 miles per hour
- + Seismic Load - Per current edition of International Building Code
- + Snow Load - 40 PSF
- + Active Layer Depth - 2 to 7 feet
- + Permafrost - Generally continuous



Frank NEITZ  
Chairman, Public Work, Comm.

01/02/2013

Dear Frank,

Effective JAN 1, 2013 I am  
resigning my position on Public Works  
Committee. Been a pleasure <sup>servicing</sup> with  
all of you.

Jeff

JEFF SANDERS

Rec'd Jan 2, 2013  
Frank Neitz

# CITY OF BETHEL

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## MEMORANDUM

April 16, 2013

From: Lee M. Foley, City Manager

To: Public Works Committee

Via: Chuck Willert, Public Works Director

Subj: Updates

In order to assist the Committee in addressing issues of concern, the following updates are provided:

- **Closeout of 2 Outstanding Grants** – 1 of these grants has been closed out, the other is being reviewed by USDA/RD for closeout purposes. All input from Larsen Construction and the City has been submitted and acknowledged as received. The Administration has updated Council on this issue.
  - **Recycle Center** – The proposed City Budget under consideration by the Council contains a recommendation to re-establish the Recycle Center with one full-time employee. The Recycle Center would be under the direction of the new Landfill Manager, David Stovner.
  - **Institutional Corridor** – Approximately \$7.5M approved by the Legislature for Phase I. Language to identify what Phase I will entail will be forthcoming in the Legislative Grant notification. The cost of the entire project is thought to be approximately \$16M.
  - **RFP, Cost Analysis of the City of Bethel's Water & Sewer Utilities** – Study completed by CH2MHill and will be briefed in person to the Council on Tuesday, April 23, 2013.
  - **City Shop Floor** – Salzbrun Services was the successful bidder followed by Kuqo Construction and BSI. Council will review and approve the contract to commence construction on Tuesday, April 23, 2013. The Administration has notified all bidders of the selection and have authorized Salzbrun Services to start ordering material for barge delivery.
-

- **Wind Generation 100kw per Public Building** – Currently, BUC will only allow the City to have one 100kw for the grid. Therefore, we have opted to include one 100kw wind turbine as part of the power source for the YK Regional Aquatic Center.
- **Update, TDX/AVEC Power Plant** – TDX is no longer a candidate for purchasing BUC. However, AVEC is a candidate and negotiations are in progress.

At this time, there are no updates for items B, I, and J, under Unfinished Business on the Committee's agenda for Wednesday, April 17, 2013.