Vacelt

City of Brookings

WORKSHOP Agenda

CITY COUNCIL

Monday, December 6, 2010, 4:00pm
City Hall Council Chambers, 898 Elk Drive, Brookings, OR 97415

1. Call to Order

2. Roll Call

3. Topics

4. Council Member Requests for Workshop Topics

5. Adjournment

All public City meetings are held in accessible locations. Auxiliary aids will be provided upon request with advance notification. Please contact 469-1102 if you have any questions regarding this notice.

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: December 6, 2010

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: Oak Street Interceptor

Background/Discussion:
Action to authorize design engineering and going to bid on this project was delayed at the November 8 City Council meeting and the project was referred to a workshop. Attached is the Council Agenda Report from the November 8 City Council meeting.

Staff has obtained a cost estimated from the City Engineer to develop an infiltration and inflow (I/I) analysis of the Oak Street interceptor sewer service area at a cost of $6,000. A recent sewer cleaning of the area found substantial a need for pipe repair, replacement and relining. However, additional observations indicate that the I/I, most notably in the Pioneer Road and Fir Street areas, is from inflow rather than infiltration. This leads staff to believe that higher sewer flows are impacted by connections between the sewer system and the storm drain system, including parking lot drains, building downspouts and street drains. While substantial, the amount of I/I observed has not been quantified. The City has inserted a flow meter into the system to take readings on seasonal I/I, but there have been few rain events until recently that would serve to produce data, and the City has experienced technical difficulties in transferring data from the meter to a laptop.

Once the technical problems are resolved, the City staff plans to collect I/I data through the winter months and develop a strategy for abatement of inflow through a series of smoke/dye testing to verify suspected inflow sources and removing those connections to the sewer collection system.

The City Engineer and City Staff will be present at the workshop to discuss this matter.

Attachment(s):

a. Council Agenda Report and attachments from November 8, 2010, meeting

City of Brookings

Oct. 15, 2010.

18-Inch Interceptor (Project 18)

Rev. Oct. 18, 2010.

Project No. 145.00C

ENGINEER'S ESTIMATE

Item	Description	Unit	Quantity	Unit Price	Total
1	Constr. Facilities & Temp. Controls	LS	1	$60,000	$60,000
2	Demolition & Site Preparation	LS	1	$28,000	$28,000
3	Traffic Control	LS	1	$20,000	$20,000
4	24" Storm Drain Relocation	LF	70	$100	$7,000
5	60" Storm Drain Manhole	EA	1	$4,000	$4,000
6	6" Waterline Relocation	LF	30	$60	$1,800
7	Foundation Stablization	CY	200	$50	$10,000
8	Rock Excavation	CY	200	$150	$30,000
9	6" PVC Sewer Lateral - Class C Backfill	LF	0	$50	$0
10	6" Sewer Lateral Cleanout	EA	0	$400	$0
11	Service Lateral Connections - Type 3	EA	0	$2,000	$0
12	18" Gravity Sewer Line - Class III Backfill	LF	2,850	$80	$228,000
13	18" Gravity Sewer Line - Class IV Backfill	LF	200	$140	$28,000
14	60" Manhole, 8 to 12 Feet	EA	12	$5,000	$60,000
15	8" Sewer Lining	LF	0	$50	$0
16	Service Lateral Reinstatements	EA	0	$300	$0
17	Manhole Field Connections	EA	4	$1,000	$4,000
18	AC Pavement R&R (trench)	LF	3,000	$35	$105,000
19	Landscaping	LS	1	$4,000	$4,000

Total Construction Cost	$589,800
Contingency	$70,000
Engineering	$106,000
Legal & Admin	$15,000
Total Project Cost	**$780,800**

Notes

1. This estimate includes the portion of the interceptor that was to be placed as part of the Downtown Street Improvement Project. That portion of the sewerline is being rerouted down Oak Street to Railroad Street.

2. 8" Lining is not included in this estimate.

3. Due to the poor condition of the pavement on Railroad Street, no overlay has been included in conjunction with the new sewer interceptor construction.

TASK ORDER 22
City of Brookings
Oak Street Sewer Interceptor Improvements

SCOPE OF WORK: The City plans to construct a new 18-inch sewer interceptor along portions of Oak Street, Railroad Street and Wharf Street. The project will entail placing approximately 3,050 lineal feet of 18-inch diameter sewer line, 12 new manholes, ac pavement trench resurfacing and related work items. In addition to the new 18-inch interceptor, an additive alternate project that involves lining approximately 450 lineal feet of existing 8-inch sewer line on Railroad Street (between Willow and Oak Street) will be included.

FOUNDATION: This new interceptor is part of the recommended improvements (Project No. 18) in the Wastewater Facilities Plan and is needed to provide adequate capacity for growth in the northeast portion of Brookings as well as accommodate increased future flows from Harbor Sanitary District. The existing 8-inch sewer line on Railroad Street between Willow Street and Oak Street was recently inspected by television and is in deteriorated condition that warrants repair.

SCOPE OF ENGINEERING SERVICES

The City requires engineering services for the design, bidding documents and construction administration for the new 18-inch sewer interceptor and lining an existing 8-inch sewer line. Engineering services include:

Design Period Services

- Coordinate with City staff and affected utilities.
- Conduct design review meetings with City staff.
- Conduct field survey of the project area.
- Perform final engineering design required for the project improvements.
- Prepare preliminary drawings and cost estimates for City review and comment.
- Prepare construction documents to include drawings and specifications.
- Provide final estimated costs for construction and an estimated time line for construction.
- Submit documents to City for review and approval.

Bidding Period Services

- Prepare bidding documents including bidding requirements and contract documents.
- Prepare advertisement for bids and send to City-approved publications (City to pay advertising expense).
- Reproduce bidding documents and distribute to plan exchanges and interested bidders.

- Respond to bidder questions and prepare addendums, if needed.
- Review bids and recommend contract award based on public contracting rules.
- Prepare construction contracts with City Attorney review for execution.
- Issue Notice of Intent to Award, Notice of Award and Notice to Proceed.

Construction Administration

- Conduct preconstruction conference.
- Administer construction contract. Prepare necessary pay requests and change orders. Notify City staff immediately of potential construction problems and recommend a cost effective remedy in order to not delay the construction.
- Tabulate payment quantities and recommend payments to the contractor.
- Provide resident inspector, 420 hours maximum, to observe construction.
- Coordinate daily with affected businesses and the public.
- Prepare daily inspection reports for City.
- Provide final inspection, punch list and back check of corrective work.
- Prepare final pay request and review with City.
- Prepare record drawings. One electronic copy in Auto-CAD format and two paper copies will be provided.

Proposed Fee

Services will be performed and billed on a time and materials basis, in accordance with the conditions of the Professional Services Agreement, dated April 15, 2008, attached Estimate of Man Hours and Costs and rates listed in Attachment A. The fee for these services is a not to exceed maximum of $118,000.00 including all professional services and reimbursable expenses.

PAYMENT METHOD: Monthly Billing

City of Brookings	The Dyer Partnership Engineers & Planners, Inc.
_____	_____
Gary Milliman, City Manager	Michael W. Erickson, Sr. V.P.
Date:_____	Date:_____

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: December 6, 2010

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: North Bank Chetco River Road Wastewater Feasibility Analysis

Background/Discussion:
The City contracted with The Dyer Partnership for the preparation of an analysis of wastewater system improvements needed to serve the Urban Growth Boundary along North Bank Chetco River Road.

This study was prompted by recent annexation inquires through which questions arouse as to the capacity of the City's system to handle increased sewer discharge from this area, and what improvements would be needed to accommodate build-out of the sewage collection system in this area.

The City Engineer will be present to discuss this report with the Council.

Attachment(s):

a. North Bank Chetco River Road Wastewater Feasibility Analysis

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: December 6, 2010

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: Five Year Street Major Maintenance Program

Background/Discussion:
The Council has previously discussed developing a street improvements program at a spending level of approximately $250,000 annually based upon the 2008-09 Pavement Management System.

Following the last Council review of the proposed five year list of street improvements, staff again reviewed the list and the criteria for prioritization of streets for improvement.

Attachment(s):

a. Revised Major Maintenance Project List

MAJOR MAINTENANCE PROJECT LIST – updated 11-4-10

Year	Name	From	To	Cost	Subtotal/ Year
1	Valley Street	Hillside Drive	Chetco Avenue	78,000	
1	Woodland	Del Norte	culdesac	13,660	
1	Ross Road	Elk Drive	Chetco Avenue	53,000	
1	Alder Street	Pine Street	Redwood Street	15,000	
1	Ransom Avenue	Chetco Avenue	Pioneer	97,000	
				Subtotal	$ 256,660
2	5th Street	Elk Drive	Easy Street	157,489	
2	Fir Street	Oak Street	Old County Road	148,000	
				Subtotal	$ 305,489
3	Old County Road	Pacific Avenue	Rosichelli Lane	176,000	
3	Mill Beach Road	Allen Lane	Macklyn Cove Dr	2,745	
3	Memory Lane	Railroad Street	Tanbark Road	57,617	
				Subtotal	$ 236,362
4	Richard Street	Easy Street	Richard Street	6,974	
4	Hassett Street	Pioneer	Seventh Street	221,000	
				Subtotal	$ 227,974
5	Sandy Lane	Macklyn Cove Drive	culdesac	42,118	
5	7th Street	Pioneer Lane	Meadow Lane	21,627	
5	Mendy Street	Pacific Avenue	termination	24,102	
5	Kevin Place	Hassett Street	Ransom Avenue	44,586	
5	1st Street	Ransom Avenue	Easy Street	31,847	
5	Easy Manor Drive	Easy Street	Easy Street	80,355	
5	Hub Street	Arnold Lane	culdesac	7,470	
				Subtotal	$ 252,105

Updated 11-4-10

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: December 6, 2010

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: Household Hazardous Waste Management Plan and Intergovernmental Agreement

Recommendation: Review proposed agreement.

Background/Discussion:
This matter was last discussed at the City Council meeting if December 14, 2009. At that time, CTR management raised a number of questions concerning the plan (see attached), several key jurisdictions had not yet acted on the intergovernmental agreement (IGA), and there was concern that if the major cities did not participate (Coos Bay and North Bend) it could result in higher than anticipated rate increases to support the overall program. Please see the CAR from December 14, 2009, and the DEQ responses to the questions raised by CTR.

A key concern by the City Council was the method by which the proposed $3.27 per ton surcharge would be levied and administered. The Agreement proposed at that time provided for the estimated $3.27 surcharge, but that amount was subject to increase upon the approval of the new IGA Board if some of the jurisdictions opted not to participate in the program; thus setting up a situation where a higher-than-acceptable-to-Brookings fee might be established and the City would not be able to withdraw from the IGA for a period of five years. City staff requested revised language dealing with this matter and declined to bring the matter back to the City Council until the Agreement was revised accordingly.

A revised IGA has been prepared (attached) which includes a provision that the initial rate of $3.27 may be increased annually by a "consensus of all voting members of the Steering Committee." The Agreement provides that each party to the Agreement may appoint one representative to the Steering Committee. Thus, the rate cannot be increased unless the Brookings representative votes to approve the increase.

The following actions have been taken on the Agreement by the local agencies in Coos and Curry Counties:

Coos County	-	Approved
Curry County	-	Approved
North Bend	-	Hearing, No action taken
Coos Bay	-	Approved
Myrtle Point	-	Approved
Gold Beach	-	Approved
Bandon	-	Approved
Port Orford	-	Approved

Powers	-	Disapproved
Lakeside	-	Disapproved
Brookings	-	No action

Craig Filip with the Oregon Department of Environmental Quality (DEQ) will attend the workshop to answer questions.

Attachment(s):

a. December 14, 2009, CAR.
b. Emails from Craig Filip, DEQ, dated December 17, 2009 & August 10. 2010
c. Emails from Jerry Herbage, Curry County Counsel, dated May 11 and January 13, 2010
d. Emails from Cheryl Westgaard, Coos County Counsel, one dated December 15, 2009, two dated November 24, 2010.
e. Letter from Coos Bay City Manager Rodger Craddock, dated October 12, 2010
f. DEQ letter to Westgaard dated 11-22-10
g. Revised intergovernmental agreement

CITY OF BROOKINGS

COUNCIL AGENDA REPORT

Meeting Date: December 14, 2009

Originating Dept: City Manager

Subject: Intergovernmental Agreement for Household Hazardous Waste Plan

Recommended Motion:
Authorize the Mayor to execute an Intergovernmental Agreement for the implementation of the Coos and Curry Counties Household Hazardous Waste Management Plan and appoint a City delegate to the steering committee.

Financial Impact:
See below.

Background/Discussion:
Coos and Curry counties, in partnership with the Oregon Department of Environmental Quality (DEQ), have recently produced a plan for management of common household products known as household hazardous waste. This type of waste is often found in household cupboards, garages, or basements and includes such items as pesticides, poisons, corrosive cleaners, fuels, paints, used oil, antifreeze or even mercury-containing items like thermostats, thermometers and florescent bulbs. If not managed properly, these hazardous waste products can endanger public health, contaminate the environment and threaten public and private drinking water supplies.

Development of the Household Hazardous Waste Management Plan (HHWMP) was conceived by the Bay Area Rotary Club and supported by a DEQ grant. Following months of review by a joint county planning committee, the HHWMP was adopted by the Coos County Board of Commissioners in March, 2008, and the Curry County Board of Commissioners in July, 2008. The City Council reviewed the plan at its May, 2009 workshop.

Under the HHWMP, Coos and Curry Counties, in partnership with the 10 cities and waste haulers located within these counties, will manage hazardous waste from households and businesses that generate less than 220 pounds of hazardous waste per month. Proper management of household hazardous waste in Coos and Curry counties will help protect critical resources and ensure a healthy and safe environment for residents. In turn, this can help reduce long-term regional costs associated with environmental compliance, improve worker and community safety, and avoid contamination.

The HHWMP calls for construction of a permanent facility for drop-off and processing of household hazardous waste at the Beaver Hill Disposal Site located on Highway 101 between Bandon and Coos Bay. The plan also calls for each county to hold up to four collection events for household and small business hazardous waste disposal each year. Promotion of existing

services for recycling used motor oil, antifreeze, automotive and other batteries, as well as used paint will also be expanded to help keep overall costs down.

In order to implement the plan, Cities are being asked to enter into an Intergovernmental Agreement (IGA) between the counties and cities. The IGA designates Coos County as the lead agency for this regional service, and includes representatives from all signed parties as voting members. Execution of the IGA must take place to create a steering committee to oversee the program and address long-term funding. The decision to enter into the agreement must be made by participating cities not later than December 20th. If approved, Mayor will need to appoint a voting delegate to the steering committee. This delegate can be a Council or staff member.

No fees will be charged for dropping off household hazardous waste at Beaver Hill or satellite collection events. Businesses may pay market rates for disposal of their hazardous waste, depending on the determined fee structure. Funding sources include DEQ grant funds for facility construction and an increase in disposal fees of $3.27 per ton of waste disposed at Beaver Hill and transfer stations in the two counties.

The impact on garbage rates will depend on container size and service levels, but the average increase will only be about 28 cents per household waste container, per month, or $3.40 per year. Commercial customers will pay an additional rate of 39 cents per waste container yard, per month. These amounts will cover the increase in estimated disposal fees. Actual rates will depend on program participation and volume of waste collected.

Attachment(s):
- Letter from Cheryl Westgaard
- Intergovernmental Agreement

Gary Milliman

From: FILIP Craig [Filip.Craig@deq.state.or.us]
Sent: Thursday, December 17, 2009 12:57 PM
To: George Rhodes; petes@wcnx.org
Cc: BELYEA David; CONLEY Maggie; Gary Milliman; Cheryl Westgaard; FULLER Brian
Subject: FW: IGA

Dear Commissioner Rhodes and Mr. Smart,

Thank you both very much for your time this morning. In an effort to minimize confusion over the comments attributed to Mr. Smart by Brookings City Manager Gary Milliman (see below), I am including my responses to these comments below. I am working with Mr. Milliman and Coos Bay Interim City Manager Roger Craddock on answers to questions from their councilors and plan to attend their next city council meetings where plan adoption will be taken up again. Please read the original comments at the bottom, then my responses which follow:

1) Not exactly – it is my understanding that they tied 3-3 in voting on this issue and that it will be revisited pending additional information. I subsequently sent the City information on the HHW collection event held in Coos Bay obtained from Clean Harbor's Alan Ranf showing wastes and quantities collected.
2) Only true for HHW, not for CEG waste, which still must be characterized and handled appropriately. And, landfills always fail. It is my understanding that Lane Co. only has an HHW collection facility because of a court order requiring them to build and operate one which resulted from a lawsuit against the county over operation of the landfill. Lane County has a strong incentive to keep such wastes out of their landfill because they own it, along with the liability. This is similar to the situation in Coos County for the Beaver Hill Disposal Site.
3) Not exactly. The state reimburses Lane Co. $3K/yr., as partial payment for collection of out-of-county waste. It is not certain how long the county will take a loss on this service now that they are losing disposal fees due to the economic downturn.
4) Maybe. I need to investigate these costs further. They take fewer materials than DEQ events (no fluorescent lights, for example), and are far pickier in general on what they're willing to take. Also, the haulers in Jackson County amended their franchise agreements to incorporate the costs of hosting these annual one day HHW collection events. These are now held at Rogue Disposal's headquarters in White City. This company also has a strong incentive to keep such wastes out of the Dry Creek Landfill because they own it (and the liability). The Jackson and Josephine events also charge $5/vehicle.
5) Again, maybe. To my knowledge, no research has been done by anyone on this option. Also, the plan contains publicly run "non-profit" cost estimates. Holding one-day collection events only was an option the planning committee had already reviewed during the alternatives analysis phase of the planning process and rejected in favor of a hybrid system with a permanent facility and satellite collection events, which is what the final plan entails.

Two other important points must be made here:

1) DEQ is forecasting a shortfall in our solid waste operating budget for the balance of this biennium. This will likely mean a suspension of state-sponsored HHW collection events for 2010 (along with our solid waste grant program). Gold Beach had been in the "queue" for such an event next year, which is now unlikely to occur.
2) Due to this situation, facility grants for construction of HHW management facilities of the kind in the adopted Coos/Curry HHW management plan will also be suspended, <u>except for those counties currently moving forward with their adopted plans</u>. In other words, if not used now, these funds will most likely be used for other purposes. This would be an unfortunate culmination to a process that has taken 6 years and $25,000 in public funding.

Please let me know if any of you have comments of questions.

Best Regards,

Craig C. Filip
Solid Waste Reduction Analyst
DEQ - Eugene, (541) 686-7868
filip.craig@deq.state.or.us

From: Gary Milliman [mailto:gmilliman@brookings.or.us]
Sent: Tuesday, December 15, 2009 8:25 AM
To: Cheryl Westgaard
Subject: IGA

Good morning. The City Council did not approve the IGA last night. CTR General Manager Pete Smart appeared at the meeting and raised the following issues:

1. The City of Coos Bay has declined to participate in the IGA. This means that the rate increase necessary to support the HHW program will be substantially higher than the amount now proposed.
2. There is no State requirement for diversion of HHW from landfills. Existing landfills were constructed to handle HHW. (Essentially, Smart was representing that there is no regulatory need for the program).
3. Curry County residents can dispose of their HHW in Lane County for "free."
4. The waste hauler in Jackson County has implemented a HHW program with regular collection events in Grants Pass and Medford (I recognize that Grants Pass is not in Jackson County) at a lower cost than is proposed in this plan.
5. CTR can do it cheaper by implementing a Curry County-only program.

The matter was continued pending further review of the above. Additionally, the Council requested that Section 6.1 of the IGA be changed to include a provision whereby members could withdraw from the IGA without waiting five years if the City member determines that the initial rate is unacceptable. This relates to the concern that some of the larger agencies may not participate in the program. The Council also wanted to know what alternatives were available to Brookings residents if the City does not participate in the program.

We need to resolve the above issues by January 4 if I am to place this matter back on the City Council agenda for the January 11 City Council meeting (the next meeting). It would also be good to have someone involved in developing the proposal in attendance at that meeting.

Gary Milliman
City Manager
City of Brookings
898 Elk Drive
Brookings, OR 97415
(541) 469-1101
(541) 469-3650
gmilliman@brookings.or.us

Gary Milliman

From: FILIP Craig [Filip.Craig@deq.state.or.us]
Sent: Wednesday, August 11, 2010 2:15 PM
To: cityoflakeside@charterinternet.com; cityofpowers@msn.com; gbcityadmin@charterinternet.com; Gary Milliman; janw@uci.net; cityofmyrtlepoint@yahoo.com; citymanager@ci.bandon.or.us; mmurphy@portorford.org; rcraddock@coosbay.org; toconnor@cityofcoquille.org
Cc: Cheryl Westgaard; ABTS Martin; GRAYBILL Mike; sandy@scdcinc.org; Young, Tim; den_wise@verizon.net; coosswcd@aol.com; harry@currywatersheds.org; Jon Souder; liesl.coleman@oacd.org; mmchugh@wildblue.net; tlbp@presys.com
Subject: Implementation of the Coos and Curry Counties HHW Management Plan
Attachments: Coos-Curry HHW Final Plan 3-28-08.pdf; BACKGROUND ON THE COOS AND CURRY COUNTY HOUSEHOLD HAZARDOUS WASTE MANAGEMENT PLAN.doc; image001.png

Importance: High

Dear City Administrators, Managers and Mayors,

As you may recall, the joint Coos and Curry County Household Hazardous Waste (HHW) Management Plan (full plan and summary attached) sets out a system to safely and responsibly manage this wastestream within these two jurisdictions. It calls for construction of a permanent HHW management facility at the Beaver Hill Disposal Site and for 4 one-day HHW collection events in each county annually, all for a projected cost of less than a penny a day for the average resident. The Plan was adopted by the Coos County Board of Commissioners in March 2008, by the Curry County Board of Commissioners in July 2008, and by the Cities of Bandon, Coquille, Gold Beach, Myrtle Point and Port Orford in 2009.

At the time this plan was adopted, DEQ was offering $100,000 in grant money towards construction of the permanent HHW management facility. This money is still available through a competitive grant application process, but has since been reduced (due to State budget constraints) to $95,000. Only wastesheds with adopted HHW management plans are eligible for apply for this funding. **The application window –now open – is from August 1 through October 15, 2010.**

This Plan is designed to serve the counties and 10 incorporated cities of Coos and Curry Counties. This grant funding is crucial to keeping the cost of implementing the Plan within the projected budget, which would also be funded through an increase in the tipping fees at Beaver Hill and all transfer stations in both counties in the amount of $3.27 per ton of waste disposed. Implementation of the Plan would be overseen by a Steering Committee comprised of representatives of both counties and each incorporated city. An intergovernmental agreement (IGA) must be finalized to establish the responsibilities of all parties involved in Plan implementation.

In order qualify to apply for these grant funds, the Cities of Brookings, Coos Bay, Lakeside, North Bend and Powers must now decide to adopt the Plan as well. Without the full support of all cities in the two counties this grant funding cannot be secured and the Plan likely not implemented – meaning this opportunity could be lost for several years if not more. Now is the time to act in order to meet the grant application deadline of October 15, 2010. After this application is submitted, work on the organizational and funding mechanisms of Plan implementation, i.e., passage of the tipping fee increase and finalizing the IGA, would need to be completed no later than May 15, 2011.

Please plan on discussing this issue with your City Councils. I am available to meet with them at their convenience to answer any questions.

Sincerely Yours,

Craig C. Filip | Solid Waste Reduction Analyst
165 E. 7th Ave., Ste. 100, Eugene, OR 97401 | filip.craig@deq.state.or.us
☎ 541.686.7868 | 800.844.8467 x7868 (in Oregon)

Gary Milliman

From: Jerry Herbage [HerbageG@co.curry.or.us]
Sent: Tuesday, May 11, 2010 1:16 PM
To: Gary Milliman
Cc: !Commissioners; Colleen Carpenter; Jerry Herbage
Subject: RE: worksession on February 9th

I placed a call to the Coos County Counsel Office regarding this topic on May 6th, and I have not heard back yet on any particulars. I will follow up on that, and let you know what I find out. The concern is that we received a rate adjustment request from CTR.

From: Gary Milliman [mailto:gmilliman@brookings.or.us]
Sent: Tuesday, May 11, 2010 11:38 AM
To: Jerry Herbage
Subject: RE: worksession on February 9th

Jerry...Any update on this? Still in a holding pattern here; did not hear any outcome from Coos Bay.

From: Jerry Herbage [mailto:HerbageG@co.curry.or.us]
Sent: Wednesday, January 13, 2010 10:54 AM
To: Gary Milliman; George Rhodes
Cc: Colleen Carpenter
Subject: FW: worksession on February 9th

From: Joanna Lyons-Antley [mailto:jlyons@CO.COOS.OR.US]
Sent: Wednesday, January 13, 2010 10:28 AM
To: Jerry Herbage
Cc: Cheryl Westgaard
Subject: FW: worksession on February 9th

Jerry –

FYI --The City of Coos Bay HHW worksession has changed to 2/18th at 6 pm.

Joanna
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Joanna Lyons-Antley, Assistant County Counsel
Coos County Office of Legal Counsel
250 N. Baxter Street; Coquille, OR 97423
phone 541-396-3121 ext. 215; fax 541-396-3651
web address http://www.co.coos.or.us
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From: Rodger Craddock [mailto:rcraddock@coosbay.org]
Sent: Wednesday, January 13, 2010 9:39 AM

Gary Milliman

From: Jerry Herbage [HerbageG@co.curry.or.us]
Sent: Wednesday, January 13, 2010 10:53 AM
To: Gary Milliman
Cc: George Rhodes; Colleen Carpenter
Subject: RE: Coos Curry HHW

Gary, I've had a discussion on this topic with Joanna Lyons-Antley. As far as she is concerned, the City of Brookings can wait to see what the City of Coos Bay does. At this point the agreement has not been further modified. I will continue to follow the developments as they occur, and feel free to E Mail me when you have questions.

From: Gary Milliman [mailto:gmilliman@brookings.or.us]
Sent: Tuesday, January 12, 2010 4:37 PM
To: Jerry Herbage
Subject: RE: Coos Curry HHW

Thanks. Are they going to modify the agreement in accordance with the second paragraph in Lyons-Antley memo? Can we wait and see what Coos Bay does?

Gary Milliman
City Manager

From: Jerry Herbage [mailto:HerbageG@co.curry.or.us]
Sent: Tuesday, January 12, 2010 2:04 PM
To: Gary Milliman
Cc: !Commissioners
Subject: FW: Coos Curry HHW

Gary, this is for your information.

From: Joanna Lyons-Antley [mailto:jlyons@CO.COOS.OR.US]
Sent: Tuesday, January 12, 2010 10:21 AM
To: Jerry Herbage
Cc: Cheryl Westgaard
Subject: Coos Curry HHW

Jerry – here's the update from Cheryl Westgaard:

> Last Friday, I talked with Rodger Craddock of the City of Coos Bay. He brought the IGA up to the city council on last Tuesday to see if they would like to revisit the HHW IGA. The council voted to have a worksession (4-2) on February 9th at 6 pm to discuss this.
>
> I would like to hold the rate steady and only provide HHW services to the extent we have funds to do so as you described.

Anyway, I think we are all on the same page. HHW services will be provided to the extent that we have funds to do it.

Joanna

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Joanna Lyons-Antley, Assistant County Counsel
Coos County Office of Legal Counsel

250 N. Baxter Street; Coquille, OR 97423
phone 541-396-3121 ext. 215; fax 541-396-3651
web address http://www.co.coos.or.us
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This message has been scanned for viruses and dangerous content by **MailScanner**, and is believed to be clean.

Gary Milliman

From: Cheryl Westgaard [cherylw@co.coos.or.us]
Sent: Tuesday, December 15, 2009 10:47 AM
To: Gary Milliman
Cc: Filip.Craig@deq.state.or.us
Subject: RE: IGA

Hi Gary,
We are planning on going back to the city of Coos Bay regarding this matter. We plan to have a work session with the city council members in the near future. Can you just put this on hold until after we have had time to have this work session with Coos Bay? We are waiting on our one commissioner to get back in town to set up the work session.
Thanks so much,
Cheryl

From: Gary Milliman [mailto:gmilliman@brookings.or.us]
Sent: Tuesday, December 15, 2009 8:25 AM
To: Cheryl Westgaard
Subject: IGA

Good morning. The City Council did not approve the IGA last night. CTR General Manager Pete Smart appeared at the meeting and raised the following issues:

1. The City of Coos Bay has declined to participate in the IGA. This means that the rate increase necessary to support the HHW program will be substantially higher than the amount now proposed.
2. There is no State requirement for diversion of HHW from landfills. Existing landfills were constructed to handle HHW. (Essentially, Smart was representing that there is no regulatory need for the program).
3. Curry County residents can dispose of their HHW in Lane County for "free."
4. The waste hauler in Jackson County has implemented a HHW program with regular collection events in Grants Pass and Medford (I recognize that Grants Pass is not in Jackson County) at a lower cost than is proposed in this plan.
5. CTR can do it cheaper by implementing a Curry County-only program.

The matter was continued pending further review of the above. Additionally, the Council requested that Section 6.1 of the IGA be changed to include a provision whereby members could withdraw from the IGA without waiting five years if the City member determines that the initial rate is unacceptable. This relates to the concern that some of the larger agencies may not participate in the program. The Council also wanted to know what alternatives were available to Brookings residents if the City does not participate in the program.

We need to resolve the above issues by January 4 if I am to place this matter back on the City Council agenda for the January 11 City Council meeting (the next meeting). It would also be good to have someone involved in developing the proposal in attendance at that meeting.

Gary Milliman
City Manager
City of Brookings
898 Elk Drive
Brookings, OR 97415
(541) 469-1101
(541) 469-3650
gmilliman@brookings.or.us

Gary Milliman

From: Cheryl Westgaard [cherylw@co.coos.or.us]
Sent: Tuesday, December 15, 2009 12:39 PM
To: Gary Milliman
Subject: RE: IGA

Bandon and Port Orford have approved the plan and given the names that will be put on the IGA. In talking with Coquille and Myrtle Point city managers, they do not see any problems with approving the plan. I am still talking with Jan Willis of North Bend. We might also have a work session with the North Bend city councilors – we may combine Coos Bay and North Bend together. I just need to wait for our liaison commissioner to set up the meeting.
Cheryl

From: Gary Milliman [mailto:gmilliman@brookings.or.us]
Sent: Tuesday, December 15, 2009 12:28 PM
To: Cheryl Westgaard
Subject: RE: IGA

I will put this on hold until I hear from you further. Have any of the agencies approved the agreement?

Gary Milliman
City Manager

From: Cheryl Westgaard [mailto:cherylw@co.coos.or.us]
Sent: Tuesday, December 15, 2009 10:47 AM
To: Gary Milliman
Cc: Filip.Craig@deq.state.or.us
Subject: RE: IGA

Hi Gary,
We are planning on going back to the city of Coos Bay regarding this matter. We plan to have a work session with the city council members in the near future. Can you just put this on hold until after we have had time to have this work session with Coos Bay? We are waiting on our one commissioner to get back in town to set up the work session.
Thanks so much,
Cheryl

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Sent: Tuesday, December 15, 2009 8:25 AM
To: Cheryl Westgaard
Subject: IGA

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Gary Milliman
City Manager
City of Brookings
898 Elk Drive
Brookings, OR 97415
(541) 469-1101
(541) 469-3650
gmilliman@brookings.or.us

From: Cheryl Westgaard <cwestgaard@co.coos.or.us>
Date: Wed, 24 Nov 2010 13:52:41 -0800
To: rcraddock@coosbay.org<rcraddock@coosbay.org>; city of<myrtlepoint@yahoo.com>; toconnor@cityofcoquille.org<toconnor@cityofcoquille.org>; citymanager@ci.bandon.or.us<citymanager@ci.bandon.or.us>; ebarnes@goldbeachoregon.gov<ebarnes@goldbeachoregon.gov>; mmurphy@portorford.org<mmurphy@portorford.org>; HerbageG@co.curry.or.us<HerbageG@co.curry.or.us>
Cc: janw@uci.net<janw@uci.net>; gmilliman@brookings.or.us<gmilliman@brookings.or.us>; Oubonh White<owhite@co.coos.or.us>; FILIP Craig<Filip.Craig@deq.state.or.us>
Subject: Household Hazardous Waste (HHW) - IGA

Good Morning,

Attached, please find the final HHW-IGA for all cities that have approved the Coos-Curry HHW Management Plan and agreed to sign on with the IGA.

Oubonh White – Coos County Assistant County Counsel has revised the IGA to include

1.) First paragraph incorporates all the cities and counties who have approved the HHW plan
2.) Section 2:10 revised the definition of parties to include cities or agencies who may wish to join later
3.) Section 6:10 revised the increase of disposal rate set at $3.27/ton and deleted approximate pass through costs to each user since these amounts vary. (The franchise hauler and transfer stations will set their prices accordingly at the $3.27/ton using the formula that they always use for setting prices. We just took out the $0.28 per 1-32 gallon can since the garbage companies have so many different sizes of containers.)
   Also in paragraph 2 of section 6:10 – added the approval of the governing body of each party in addition to the consensus of the Steering Committee for any decrease or increase in the initial rate
4.) Section 8 revised to include a fee set by the Steering Committee for residents of cities or agencies who are not parties to the IGA for the use of the permanent facility and collection events. Also added is sentence permitting other agencies to enter into the agreement by amendment at a later time.
5.) Signature page

I would like to move forward on getting signatures on this HHW-IGA as soon as possible. We will have one original IGA – so I will need to set dates and times with all of you to obtain your signatures. I will then need to get this agreement back to the Boards of Commissioners for their signatures and then file with the County Clerk.

Also this is just a reminder that we all will need to increase our franchise fee schedules no later than May 1, 2011. The franchise haulers will set the fees according to the $3.27 tipping fee.
We have applied for a $95,000 grant to help with construction to build the HHW facility at Beaver Hill. We will need to make sure that we have the IGA signed and the increase in fees set in place to be eligible for being awarded the grant monies.
Thank you for your support in this project.
Wishing you and your families a wonderful Thanksgiving Day.
Cheryl

****

Cheryl Westgaard
Business Operations Manager
Solid Waste Department
Coos County
250 N. Baxter
Coquille, OR 97423
1-541-396-7310
cherylw@co.coos.or.us
http://www.co.coos.or.us/solidwaste.dwt

From: Cheryl Westgaard <cwestgaard@co.coos.or.us>
Date: Wed, 24 Nov 2010 16:37:21 -0800
To: City of Myrtle Point<cityofmyrtlepoint@yahoo.com>; Rodger Craddock<rcraddock@coosbay.org>; City of Bandon<citymanager@ci.bandon.or.us>; Terrence O'Connor<toconnor@cityofcoquille.org>; City of Gold Beach<gbcityadmin@charterinternet.com>; City of Port Orford<mmurphy@portorford.org>; HerbageG@co.curry.or.us<HerbageG@co.curry.or.us>
Cc: janw@uci.net<janw@uci.net>; City of Brookings<gmilliman@brookings.or.us>; Oubonh White<owhite@co.coos.or.us>; FILIP Craig<Filip.Craig@deq.state.or.us>
Subject: HHH Grant

Good Afternoon,

Great News!!!

Today we received word from DEQ that our HHW grant application has been approved for $95,000 to build a HHW facility at Beaver Hill.

One of the conditions that we must complete prior to the contract being finalized between DEQ and Coos County is to get all relevant cities and counties to approve the IGA and rate increase. So hopefully we can move quickly on getting the signatures.

Again, have a wonderful Thanksgiving.
Cheryl

****

Cheryl Westgaard
Business Operations Manager
Solid Waste Department
Coos County
250 N. Baxter
Coquille, OR 97423
1-541-396-7310
cherylw@co.coos.or.us
http://www.co.coos.or.us/solidwaste.dwt

Attn: Craig Filip

City of Coos Bay

Office of the City Manager

500 Central Avenue, Coos Bay, Oregon 97420 • Phone 541-269-8912
Fax 541-267-5912 • http://www.coosbay.org

October 12, 2010

Cheryl Westgaard
Coos County Solid Waste
250 N. Baxter
Coquille, OR 97423

RE: Household Hazardous Waste Management Plan

Greetings,

This letter serves to confirm our City's support of the Household Hazardous Waste Management Plan. As you know, this matter came before the Coos Bay City Council on several occasions. During the last such occasion, March 16, 2010, the Council approved the plan and to allow staff to sign the Intergovernmental Agreement (IGA) subject to some minor revisions of the IGA. I am happy to report that your County Commissioners and our City Attorney have agreed upon revised wording, and I am ready to sign the IGA upon receiving it.

I look forward to working with you as the Household Hazardous Waste Program is implemented.

Sincerely,

Rodger Craddock,
City Manager

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Headquarters
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
FAX (503) 229-6124
TTY (503) 229-6993

November 22, 2010

Cheryl Westgaard
Coos County
250 N. Baxter
Coquille, OR 97423

Congratulations! Your household hazardous waste (HHW) grant application is approved for funding by the DEQ HHW Program. Your request for $95,000 to build a HHW facility will receive full funding.

Before preparing the grant contract between DEQ and Coos County, the following conditions must be met by Coos County. These conditions must be met no later than June 1, 2011.

1. Update the plan to indicate how paint will be managed under the HHW program since PaintCare has started. This should include whether you plan to collect paint at your facility and events. If you collect paint, discuss whether you will collect both latex and oil based paint and how it will be managed.
2. If you choose to have PaintCare manage paint, update the plan's budget to reflect any changes to disposal or facility cost.
3. Update all budget figures from 2006 costs to 2010 costs.
4. Get all relevant cities and counties to approve the IGA and rate increases.

After these conditions are met, Craig Filip in DEQ's Eugene Office will contact you to set up a meeting to prepare your grant contract with DEQ. The contract will describe your project's scope of work, budget, schedule, deliverables, and reporting requirements. Craig will also work with you during the grant period to provide guidance on your project's implementation, help you with report preparation, and answer your questions. You can contact Craig at 541-686-7898.

Again, congratulations on receiving DEQ Household Hazardous Waste grant funding. We look forward to working with you. We will do everything we can to ensure that your grant project will be successful.

Sincerely,

Loretta Pickerell

Loretta Pickerell, Manager
Solid Waste Policy and Program Development

Cc: Craig Filip, DEQ, Eugene
Maggie Conley, DEQ, HQ

INTERGOVERNMENTAL AGREEMENT FOR IMPLEMENTATION OF THE COOS AND CURRY COUNTIES HOUSEHOLD HAZARDOUS WASTE MANAGEMENT PLAN

This Intergovernmental Agreement is made and entered into on the date last set forth below by and between Coos and Curry Counties, political subdivisions of the State of Oregon acting by and through their respective Board of Commissioners and the Cities of Bandon, Coos Bay, Coquille, Gold Beach, Myrtle Point, and Port Orford acting by and through their respective elected officials, city managers or administrators; collectively referred to herein as "Cities."

Recitals

WHEREAS, it is in the interest of public health, safety and the environment to provide alternatives to disposal of hazardous waste generated by households, conditionally exempt small quantity generators (CEGs); and

WHEREAS, Coos County and Curry County and Cities jointly prepared, and, subsequently each County adopted in the year 2008, a Household Hazardous Waste Management Plan; and

WHEREAS, the State of Oregon has declared it a matter of statewide concern to promote intergovernmental cooperation for the purpose of furthering economy and efficiency in local government; and

WHEREAS, counties and cities have the authority pursuant to ORS chapter 190 to enter into intergovernmental agreements to provide services and facilities through the joint and cooperative exercise of powers, privileges and authority; and

WHEREAS, these Counties and Cities desire to enter into an agreement regarding their respective rights and obligations as between themselves; and

WHEREAS, Coos County and Curry County, and the individual Cities desire to enter into this Intergovernmental Agreement for the purpose of setting forth their mutual agreements and undertakings by which they will cooperatively undertake to finance, acquire, construct and operate the Household Hazardous Waste Program;

NOW, THEREFORE, in consideration of mutual undertakings and agreements contained herein, the Parties hereto agree as follows:

1. PURPOSE. The purpose of this Intergovernmental Agreement (IGA) is to establish and implement a workable program to provide for the collection and proper management of common hazardous wastes from households and CEGs,

and agricultural activities, collectively referred to as "HHW Collection", throughout the cities and counties of the Parties.

2. DEFINITIONS OF TERMS. For the purposes of this Intergovernmental Agreement, all other terms used in this Agreement, future contracts and Steering Committee decisions shall have the meanings as specified in the Household Hazardous Waste Management Plan, dated March 28, 2008 and adopted by Coos County and Curry County in the year 2008.

2.1 Administrative Expenses means expenses reasonably incurred by the Lead Agency as a consequence of fulfilling its responsibilities, authorities and duties described in this Agreement. Examples include staff time, legal expenses, contractor expenses, copying/duplication, and other necessary services associated with activities including development of this Agreement, selection of contractors, construction management/oversight, and contract management.

2.2 Collection Facilities means the occupied area, buildings, roadways, parking lots, temporary and permanent structures, fences, gates, drainage facilities and related appurtenances constructed and used exclusively for the collection and storage of hazardous waste from households and conditionally exempt generators, as well as agricultural pesticide wastes, prior to collection and final disposition by a Household Hazardous Waste Contractor(s).

It also includes any reference to "permanent collection facility" and "satellite collection event" as referenced in the adopted Household Hazardous Waste Management Plan and this Agreement.

2.3 Construction Costs means the actual or anticipated costs, including designs therefore, for construction of a permanent collection facility, including but not limited to permitting and acquiring other regulatory approvals, clearing, grading, paving, preparing access roads and parking areas, concrete work and foundations, buildings, roofing, fencing, signs, phone, electrical, landscaping, rubbish containers, security alarm, and other appurtenances thereof.

2.4 Household Hazardous Waste Contractor(s) means a licensed and permitted waste management firm(s) hired under contract to construct and/or operate Collection Facilities, provide collection services, and/or properly manage, transport and/or dispose of the collected wastes.

2.5 Household Hazardous Waste Management Plan (Plan) means the Plan, dated March 28, 2008, that has been adopted by Coos County and Curry County, and Cities.

2.6 Household Hazardous Waste Program means the services described

in the adopted Household Hazardous Waste Management Plan, including the provision of a permanent collection facility and satellite collection events for household hazardous waste, hazardous waste from conditionally exempt generators, and waste agricultural pesticides.

2.7 Household Hazardous Waste Program Fund means a dedicated fund, managed by the Lead Agency, from which monies may only be used for the implementation of the Household Hazardous Waste Program.

2.8 Member means a representative of a Party to this Agreement, who serves on the Steering Committee and has an official vote.

2.9 Operating Costs means the actual or anticipated costs incurred in the operation of Collection Facilities, subsequent to the construction of said facilities, including but not limited to: site attendance, clerical work, administration, auditing, facilities maintenance, advertising and publicity, insurance, bonding, utilities, electrical, payments to contractors, disposal fees and costs for Household Hazardous Wastes or any other wastes, and any other operational purposes.

2.10 Parties mean Coos County, Curry County, Cities of Bandon, Coos Bay, Coquille, Gold Beach, Myrtle Point, Port Orford, and any City or Municipality that may enter into this Agreement by written amendment at a later date. Party means any one of the Parties to this Intergovernmental Agreement.

3. LEAD AGENCY. Coos County will assume the role as Lead Agency for the management and implementation of this Plan. The Lead Agency will provide a voting Member of the Steering Committee.

3.1 Responsibilities of Lead Agency. Coos County, through its designated representative, shall be responsible for the day-to-day administration of the Household Hazardous Waste Program, with advice by the Steering Committee.

3.2 Authority and Duties of the Lead Agency. The Lead Agency will be responsible for the following:

(a) Determining processes for selecting contractors and conducting public procurement processes.

(b) Negotiating contracts and/or leases for services (including both construction of facilities and operations).

(c) Administering the contracts for services, including oversight of the contractor(s) to ensure full compliance.

(d) Reviewing contractors' invoices, paying the contractors, and settling any disagreements regarding compensation.

(e) Maintaining accounting records of revenues, expenses and funds available.

(f) Managing the development of an annual budget.

(g) Managing the hiring, training and maintenance of staff and volunteers.

(h) Keeping required records.

(i) Coordinating meetings of the Steering Committee and providing a Chair of the Steering Committee.

(j) Obtaining advice from the Steering Committee for the annual program budget, any limits on program participation, decisions regarding the implementation and requirements of pre-registration for collection services, scheduling and location of collection services, any user fees charged to residents desiring to use collection facilities at times other than regularly-scheduled collection events, and of other classes of users desiring to participate in collection services in excess of participation limits imposed for the purposes of annual budgeting.

(k) Coordinating the education and outreach activities either directly or overseeing the activities of the contractor.

(l) Requiring that the contractors comply with all relevant regulations.

(m) Maintaining ownership of the collection facility through the initial five years of operation.

(n) Being responsible for applying for and administering current and future grants and other funding sources for the Household Hazardous Waste Program.

3.3 Contract Authorization. Coos County, as Lead Agency, advised by the Steering Committee, is hereby authorized to enter into contracts for the provision of regional services, as described in the Household Hazardous Waste Management Plan, on behalf of all Parties. The contract(s) shall include provisions for the construction of a permanent collection facility and for HHW Collection. Such contract(s) shall include, at a minimum:

(a) The contractor must indemnify and hold harmless all IGA Parties against liability for the provision of all services including operation of the

collection facility and events, storage, transportation, and off-site processing and/or disposal of all materials;

(b) Insurance requirements, including that the Contractors' certificates of insurance must name each Party of this IGA as an additional insured;

(c) Requirements for storage, transportation, manifesting, waste removal, waste disposition, and record keeping, including that all waste be transported by licensed transporters to permitted processing and/or disposal facilities;

(d) Identification of the waste "generator" (responsible for signing manifests) of all hazardous wastes accepted by the Contractor at the site(s);

(e) Standards for accounting, billing, compensation, and reporting, including the development of an annual program report and a requirement that the Contractor supply complete manifest documentation for all hazardous wastes received and transported through and including final disposal;

(f) Contractor not assign any rights nor subcontract any of his/her obligations without the prior written consent of the Lead Agency; and

(g) Contractor will perform any agreement as an independent contractor with complete control over his/her employees, agents and operations.

4. COMPENSATION FOR LEAD AGENCY.
Lead Agency administrative expenses will be reimbursed from the Household Hazardous Waste Fund. The administrative expenses will be reimbursed at the rate of 10% of total annual Household Hazardous Waste Funds collected.

5. STEERING COMMITTEE ESTABLISHED. A Steering Committee shall be established to make recommendations to the Lead Agency and advise on the implementation of the Plan. Each Party to this Agreement may designate a representative to serve as their voting Member of the Steering Committee.

In addition, the Steering Committee shall contain one representative from the Oregon Department of Environmental Quality (DEQ) as a non-voting member.

5.1 Responsibilities of the Steering Committee. Responsibilities shall include:

(a) Establish bylaws and procedures.

(b) Participate in contractor selection.

(c) Review and advise the annual program budget. This may include recommendations regarding how much money to maintain in reserve/contingency funds, as well as any limits on the number of household, CEG, and/or agricultural pesticide users, if needed in order to control costs. The Steering Committee may also recommend to shift educational efforts and/or impose participation limits if program evaluation reveals that certain categories of users are "over-using" the system and inequities (for example, between counties) are developing.

(d) Review and advise regarding pre-registration requirements, hours and days of operations, and coordination of promotional activities.

(e) Review and advise user fees (if any) charged to waste generators who use the facilities in-between regularly-scheduled collection days, or who desire to use collection services in excess of participation limits established by the Steering Committee and/or described in the Household Hazardous Waste Management Plan.

(f) Review the contractor's annual report and reimbursement schedules.

5.2 Recommendations of the Steering Committee. Recommendations made by the Steering Committee regarding review and approval of program budgets, participation limits (if any), pre-registration standards, scheduling of services, and approval of user fees are to advise the Lead Agency.

5.3 Steering Committee Chair. The Steering Committee shall be chaired by the representative of the Lead Agency. The Chair shall be the principal officer of Steering Committee. The duties and powers of the Chair shall include:

(a) Scheduling Committee meetings;

(b) Preserving order at Committee meetings;

(c) Enforcing the rules of the Steering Committee;

(d) Determining the order of business for the Committee;

(e) The right to require written motions prior to Committee consideration; and,

(f) Keeping or causing to be kept permanent records of all Committee proceedings, including minutes of all meetings of the Steering Committee, as well as all official documents, resolutions, and actions of the Committee. Minutes of that meeting shall be distributed to the Committee

as soon as practicable.

5.4 Steering Committee Vice-Chair. At the Steering Committee's first meeting, the Committee shall elect a Vice-Chair from among the Members of the Committee. The Vice-Chair shall assume the duties and powers of the Chair in the Chair's absence.

5.5 Steering Committee Meetings. The Steering Committee shall meet regularly, at least two (2) times each year. Special meetings may be called by the Chair or by a majority of the Members of the Steering Committee.

(a) Written notice of all meetings shall be served on all Members of the Committee not less than twenty-four (24) hours prior to the meeting, and shall contain the time and place of meeting and an agenda of subjects to be considered. A facsimile or email notice shall be accepted as appropriate written notice of all meetings.

(b) All meetings shall be conducted in accordance with Public Meetings law.

(c) A quorum shall consist of a majority of the voting Members of the Committee. If neither the Chair nor Vice-Chair is present at a meeting, there shall be no quorum. No action of the Steering Committee shall be valid or binding unless adopted by the affirmative vote of a majority of the voting Members present, provided there is at least a quorum present.

6. IMPLEMENTATION. As Parties to this IGA, the Parties agree to the following commitments:

6.1 Increase in Disposal Rates. Coos County, Curry County, and the Cities agree to increase disposal rates on waste originating from each respective County and City to fund construction, operation and administrative costs of the Household Hazardous Waste Program as described in the Household Hazardous Waste Management Plan and approved by the Steering Committee. In 2011, the Disposal Rate Increase shall be $3.27 per ton. This rate was calculated based on the waste generated by all residents in Coos County and Curry County. Coos County, Curry County and the Cities agree to increase collection rates, without regard to where the waste is disposed. The Disposal Rate Increase, and any associated incinerator rates, landfill rates, transfer station rates, and/or garbage collection rates, must be effective no later than May 1, 2011.

Thereafter, on an annual basis the Steering Committee shall review the disposal rate increase to determine if the current rates provide sufficient funding to meet the demands of the Program. Only upon the consensus of all voting members of the Steering Committee, and the approval of the

governing body of each Party, will the disposal fees be increased or decreased from the initial disposal rate increase indicated herein. If the Steering Committee cannot reach a consensus the fees will remain as set and program services adapted to meet current funding levels.

6.2 Use of Funds Collected From Disposal Rate Increase. All money collected from the Disposal Rate Increase will be deposited in a dedicated fund, administered by Coos County and called the Household Hazardous Waste Management Fund. Except for administrative expenses, monies in this fund are to be used only for the implementation of regional activities described in the Household Hazardous Waste Management Plan as may be amended. If the budget does not meet expectations, the Lead Agency shall notify the Steering Committee, but in no event shall the Lead Agency be responsible for funding any portion of the Household Hazardous Waste Program with its own funds.

6.3 IGA Party Commitments. All Parties hereby agree to pass through this Hazardous Waste Program Disposal Rate Increase by increasing incinerator rates, landfill rates, transfer station rates, and/or garbage collection rates accordingly, to become effective no later than May 1, 2011. This provides for the disposal rate increase to be passed back to all users of the system, regardless of whether they have subscription collection or self-haul to the transfer stations, landfills or incinerator.

6.3.1 Payment Schedule. Each Party agrees to either pay, where the Party is directly collecting the Disposal Rate Increase or require the collector, where the Party does not collect the Disposal Rate Increase, to pay the Disposal Rate Increase into the Household Hazardous Waste Management Fund. For waste disposed at Coos County's Beaver Hill or Joe Ney sites, payment shall be made monthly and the County will deposit the Disposal Rate Increase received in the Household Hazardous Waste Fund.

For all other waste generated within Coos County, Curry County, and Cities and disposed at sites other than Coos County's Beaver Hill or Joe Ney sites, payment shall be made on the following schedule:

Period	**Payment Due**
May 1 – July 31	August 15
August 1 – October 31	November 15
November 1 – January 31	February 15
February 1 – April 30	May 15

6.3.2 IGA Party Reports. Each Party agrees to either submit reports or

require the collector to submit reports along with the Disposal Rate Increase to the Lead Agency that documents the tonnage of waste generated within the Party's own jurisdiction.

6.3.3 IGA Party Breach. Failure by the Parties to pass or approve the Household Hazardous Waste Program Disposal Rate Increase or to pay the Disposal Rate Increase according to the schedule in 6.3.1 will result in a breach of this Agreement.

6.4 Satellite Collection Events. Only citizens living in Coos and Curry County and participating cities will be able to drop off waste at the satellite collection events or at the permanent collection facility. Satellite collection events will be scheduled according to the HHW Plan. In the event that the Household Hazardous Waste Management Fund is insufficient for all of the scheduled satellite collection events, the Lead Agency, advised by the Steering Committee, will select the satellite collection events to best serve the Parties.

The Parties agree to the following commitments for providing satellite collection events:

6.4.1 Coos County. Coos County will manage the provision of services at satellite collection events held in Coos County and Curry County including staffing, collection and transportation services. Coos County will coordinate with Curry County, Cities, and solid waste franchisees to promote and conduct these events.

6.4.2 Availability of Funds. When sufficient start up funds are available in the Household Hazardous Waste Management Fund to provide the goods and services provided as discussed below in 6.4.3, the Steering Committee will determine location of events. For Curry County, if the County and at least one city located in Curry County participates in this IGA, at least one event per year will be held in Curry County if funding is sufficient. For Coos County, if Coos County and at least one city located in Coos County participates in this IGA, at least one event per year will be held in Coos County if funding is sufficient.

6.4.3 Participating Counties and Cities. Coos County, Curry County, and Cities shall be responsible for the following related to satellite collection events held within its own jurisdiction:

a. Promotion of the event. This may include public service announcements in the media, website if available, and announcements at public meetings. The Lead Agency through the Household Hazardous Waste Management Fund will provide participating counties and cities flyers and a reasonable number of

copies.

b. Provision of volunteers/staff to direct traffic at the event. The Lead Agency and/or the contractor will provide training to volunteers and staff.

c. Provision of a suitable, paved location to hold the event.

d. Provision of traffic cones/barricades to ensure proper traffic flow at the event. If participating counties and cities do not have sufficient cones and barricades, the Lead Agency through the Household Hazardous Waste Management Fund will provide the necessary cones and barricades.

e. Provision of signage directing citizens to the event. The Lead Agency through the Household Hazardous Waste Management Fund will provide signage to be used at these events.

f. Provision of drop boxes for waste and cardboard recycling for the event. Participating counties and cities will coordinate with their franchise provider to provide such drop boxes. Lead Agency through the Household Hazardous Waste Management Fund will reimburse the franchise provider for the drop boxes, if requested. Any waste generated by preparing and conducting the event, or waste incidental to HHW, shall be disposed of by the participating county or city and the cost of disposal shall be reimbursed by the Household Hazardous Waste Management Fund.

g. Provision of restroom or portable toilet facilities for staff at the event. The Lead Agency will reimburse the participating county or city out of the Household Hazardous Waste Management Fund for cost of portable toilet facilities, if nearby restrooms are unavailable or were not donated.

h. Provision of safety vests for volunteers and others assisting at the event will be provided by the Lead Agency. The safety vests will be purchased out of the Household Hazardous Waste Management Fund and loaned to the participating counties and cities for the event.

i. Keeping accurate vehicle counts of participants at each event.

j. Coordinate provision of a safety orientation to all volunteers and staff working at the event. The Contractor will provide a safety orientation for the volunteers.

k. Provision of a table and volunteer/staff at the reuse location, if a product reuse opportunity is provided. Contractor will assist with making the decision if product is to be allowed for reuse.

l. Distribution of any customer surveys or educational handouts specific to each County and/or City. The Lead Agency will provide the customer surveys or educational handouts. These handouts will be paid for from the Household Hazardous Waste Management Fund.

7. SHARING OF LIABILITY AND INDEMNIFICATION

7.1 Contractor Requirements. Section 3.3 of this Agreement describes the Lead Agency's responsibilities to require insurance of the Lead Agency's contractor(s) as well as indemnification by the Lead Agency's contractor(s) of all Parties of this Agreement. These requirements are intended to protect the Parties from liability arising out of the provision of hazardous waste collection services.

7.2 Procedure to Assign Liability. In the event that liability does arise out of HHW Collection activities conducted under this Agreement, including but not limited to any and all liability imposed by State or Federal law or regulation, such as fines, penalties, clean up expenses, legal fees and other costs and expenses resulting from any such action or any such proceeding by virtue of any Federal or State law or regulation, the following procedure shall apply:

(a) A Party shall be liable for any damages, penalties, costs or attorney fees arising out of that Party's activities, and shall indemnify, defend and hold harmless all other Parties.

(b) Liability not attributable to Contractor or a Party shall be shared jointly by all Parties of this Agreement. Parties shall share liability equally for all fines, penalties, costs, expenses and reasonable attorney's fees.

7.3 Liability of Lead Agency. Notwithstanding Section 7.2 of this Agreement, any liabilities incurred by the Lead Agency shall be based on the negligence of the Lead Agency and the Lead Agency shall not be liable for damages incurred solely due to its designation as Lead Agency. All liability not directly attributable to the Lead Agency's negligence shall be shared in the manner set forth in Section 7.2 (b).

7.4 Survival of Obligations. The obligations under this section shall survive the termination of this Agreement.

8. ADDITIONAL USERS. The Parties anticipate other municipalities or agencies (such as other cities, counties, or Native American tribes) may desire to participate in the Household Hazardous Waste Program. The Lead Agency may, with the approval of the Steering Committee, allow the disposal of HHW at the permanent facility or at collection events by residents of municipalities or agencies who are not a party to this Agreement, upon payment of a disposal fee set by the Steering Committee.

Other agencies may at later time become a party to this Agreement by execution of a written amendment; provided that the agency agrees to be bound by the terms and conditions of this agreement, and assume all associated additional

costs of their participation and any associated liability.

9. INSPECTION OF PREMISES AND RECORDS.

9.1 Inspection of Premises. The officials of any Party may inspect the Household Hazardous Waste sites and facilities during hours when the facilities are open for business, or at such other times as the Lead Agency or Contractor(s) may allow.

9.2 Inspection of Records. The officials of any Party may examine any records relating to the Household Hazardous Waste facility and Program, upon reasonable request to the Committee and at a time convenient to the Lead Agency without unreasonable delay. The examination shall be allowed promptly. Such examination shall be made at the expense of the examining Party. Such examination of any of the Household Hazardous Waste Contractor's records shall be in accordance with the terms and conditions of the contractor's agreement with the Lead Agency.

10. TERM OF AGREEMENT; TERMINATION; WITHDRAWAL OF PARTIES

10.1 Term of Agreement. This IGA becomes effective upon the last date at which all parties have signed this agreement. It shall remain in full force and effect for five (5) consecutive calendar years in which services at the permanent collection facility are provided or until June 30, 2016 whichever is later. Thereafter, unless terminated as provided herein, the Agreement shall automatically renew annually.

10.2 Terminating Agreement. By affirmative vote of a majority of the Parties to the Agreement at the time of the vote, this Agreement may be terminated for any reason after five (5) consecutive calendar years of services at the permanent collection facility are provided or after June 30, 2016, whichever is later. The termination date shall be at the conclusion of any calendar year (January 1 to December 31) in which the vote is taken.

10.3 Withdrawal of Parties. After five (5) consecutive calendar years of services at the permanent collection facility are provided or after June 30, 2016, whichever is later any Party may terminate at the end of any calendar year its participation in the Household Hazardous Waste Program and this Agreement, by giving notice to the Steering Committee at least one hundred eighty (180) days prior to the end of such calendar year. Any amount paid or owed to the Household Hazardous Waste Program Fund will remain in the fund.

10.4 Withdrawal of Lead Agency. In the event that Coos County chooses to terminate their participation in this Agreement after June 30, 2016 or after five (5) consecutive calendar years of services at the permanent

collection facility are provided then the entire Agreement will be terminated, as described in Section 10.6.

10.5 Disposition of Program Property and Funds. In the event of termination of this Agreement the lead agency shall:

(a) Administer and monitor any closure or sale of the permanent collection facility; including any related costs to the extent of the remaining funds available in the Household Hazard Waste Fund.

(b) Pay all outstanding obligations.

(b) Within 30 days of termination, cease the collection of revenues through the disposal rate increase levied on waste from affected jurisdictions.

(c) Terminate any outstanding contracts for service that name the Parties, or amend such contracts to remove reference to the Parties.

(d) Prepare an accounting of all Administrative Expenses incurred by the Lead Agency as a result of termination of this Agreement.

(e) Once the preceding actions have been completed, but no more than 12 months following termination of the Agreement, the Lead Agency will distribute any remaining assets in the Household Hazardous Waste Program Fund as follows. All remaining monies will be distributed to Parties in amounts proportional to the population of each Party divided by the population of all Parties, using populations contained in the Household Hazardous Waste Management Plan. Similarly, if the Household Hazardous Waste Program's debts exceed assets, Parties will share obligations by the same proportionality.

11. MODIFICATION. This Agreement shall not be modified or amended in any manner except by an instrument in writing and signed by all the Parties participating at that time.

12. ASSIGNMENT. No Party to this Agreement shall assign its right or obligations under this Intergovernmental Agreement.

13. SEVERABILITY. If any provision of this Agreement shall be declared illegal, void or unenforceable, the other provisions shall not be affected, but shall remain in full force and effect.

14. GOVERNING LAW. This Agreement shall be governed by federal law and the laws of the State of Oregon. Venue shall be within Coos County, Oregon.

15. NOTIFICATION. All notices required to be given or authorized to be given hereunder shall be in writing and either personally delivered or sent by certified United States mail to the other Party at the address shown below.

Coos County:
Cheryl Westgaard, Business Operations Manager, Solid Waste Department
250 N. Baxter
Coquille, OR 97423

City of Coquille:
Terence O'Connor, City Manager
851 N. Central Blvd.
Coquille, OR 97423

Curry County:
M. Gerard Herbage, County Counsel
Curry County Office of Legal Counsel
P.O. Box 746
Gold Beach, Oregon 97444

City of Gold Beach:
Ellen Barnes, City Administrator
29592 Ellensburg Ave.
Gold Beach, OR 97444

City of Bandon:
Matt Winkel, City Manager
P.O. Box 67
Bandon, OR 97411

City of Myrtle Point:
John Walsh, City Manager
424 Fifth Street
Myrtle Point, OR 97458

City of Coos Bay:
Roger Craddock, City Manager
500 Central Avenue
Coos Bay, OR 97420

City of Port Orford:
Michael Murphy,City Administator
P.O. Box 310
Port Orford, OR 97465

IN WITNESS WHEREOF, the Parties have executed this Intergovernmental Agreement.

COOS COUNTY
BOARD OF COMMISSIONERS

_____
Chair

_____
Commissioner

_____
Commissioner

Date:_____

CURRY COUNTY
BOARD OF COMMISSIONERS

_____
Chair

_____
Commissioner

_____
Commissioner

Date: _____

*****SIGNATURES CONTINUED ON NEXT PAGE*****

City of Bandon

_____ Date:_____
Signature

_____
Print Name, Title

City of Brookings

_____ Date: _____
Signature

_____
Print Name, Title

City of Coos Bay

_____ Date: _____
Signature

_____
Print Name, Title

City of Coquille

_____ Date: _____
Signature

_____
Print Name, Title

City of Gold Beach

_____ Date: _____
Signature

_____
Print Name, Title

*****SIGNATURES CONTINUED ON NEXT PAGE*****

City of Myrtle Point

_____ Date: _____

Signature

_____

Print Name, Title

City of Port Orford

_____ Date: _____

Signature

_____

Print Name, Title

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: December 6, 2010

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: Health District Annexation

Background/Discussion:
The Curry Health District has requested that the City Council request that Curry County place a measure on the May, 2011, ballot regarding annexation of the City of Brookings to the Curry Health District (CHD). The City is not currently within the boundaries of the CHD. The CHD is seeking to have the County place a measure on the May 2011 ballot which would, if approved, annex all property not currently within the CHD into the District, including those properties within the City of Brookings. Voters within the existing District would also vote on the annexation. Approval would require a majority vote of those voting who currently reside within the District and a majority vote of those voting who reside in the area proposed for annexation, which includes the City of Brookings and the unincorporated areas of Harbor, Pistol River and north of Gold Beach.

According to a memorandum from CHD Administrator Bill McMillan, the current CHD property tax rate of $0.7425 per $1,000 of assessed valuation would be applied within the City if the annexation is approved.

The CHD is currently developing a clinic in Brookings and plans to seek authorization from the State of Oregon to operate a 24-hour emergency room within this facility. According to McMillan, revenue generated from the annexation of the City into the District is needed to support the operation of the emergency room.

The CHD initially provided a draft Resolution requesting that the Curry County Commissioners place an annexation measure on the ballot, and that Resolution also expressly stated that the City Council supported the annexation. City staff has modified the Resolution to remove the "support" language and insert language which provides that the measure must contain language requiring the CHD to operate a 24-hour Emergency Department at the new clinic 365 days per year so long as the CHD received property tax proceeds from within the City of Brookings. County Counsel will draft the final measure.

Attachment(s):

a. Draft Resolution.
b. Memorandum from Bill McMillan

CITY OF BROOKINGS

RESOLUTION 10-R-___

A RESOLUTION CALLING UPON THE CURRY COUNTY BOARD OF COMMISSIONERS TO PLACE A MEASURE ON THE MAY, 2011 BALLOT TO ANNEX THE CITY OF BROOKINGS INTO THE TERRITORY OF THE CURRY HEALTH DISTRICT.

WHEREAS, the Curry Health District (CHD) is a health district duly formed pursuant to ORS 440.305-440.420; and

WHEREAS, CHD has continuously provided services to the City of Brookings (the City) and surrounding areas since its inception in 1983; and

WHEREAS, CHD has stated that, once the new facility currently under construction at 500 Fifth Street in the City of Brookings is completed, CHD will file an application with the Oregon Office of Health Care Licensure and Certification seeking the required licensure of the aforementioned CHD facility, to include an Emergency Department, and that same will continue to operate as a department of Curry General Hospital as it currently does at its 585 Fifth Street location; and

WHEREAS, CHD desires to annex the territory within the city limits of the City into CHD for the purpose of providing health services pursuant to ORS 198.850-198.860; and

WHEREAS, CHD has proposed that its current property tax rate of $_____ per $1,000 assessed valuation shall be applied to the area to be annexed, including all taxable property within the City of Brookings; and

WHEREAS, CHD management has stated that the proceeds of said tax are essential to fund the operation of a 24-hour Emergency Department; and

WHEREAS, CHD has adopted two Resolutions, No. _____ and _____, proposing annexation of the City to the District; and

WHEREAS, such annexation is consistent with the City's Comprehensive Plan, Goal 9, Economy, in which the City has adopted an implementation strategy in its comprehensive plan, specifically Implementation Measure 20, that it will "facilitate the development of a hospital facility in Brookings;" and

WHEREAS, the annexation proposal of CHD should be placed before the voters of Brookings for them to decide if it is in the best interests of the citizens of the City and is consistent with the timely and efficient provision of health services to its citizens:

NOW THEREFORE BE IT RESOLVED;

1. That pursuant to ORS 198.835(3), the City approves the submission of the annexation proposal to the County for hearings and election as provided by law; and

2. The ballot measure providing for the annexation of lands within the City of Brookings to the CHD shall clearly provide that the CHD shall operate a 24-hour Emergency Department at the 500 Fifth Street location 365 days per year so long as the CHD receives property tax proceeds from within the City of Brookings.

3. That a certified copy of this resolution shall be filed with the Curry County Board of Commissioners.

Approved and adopted by the Brookings City Council on _____, 2010.

Attest:

_____
Mayor Larry Anderson

_____
City Recorder Joyce Heffington

CURRY *We're All About Caring*
General Hospital Health Network
94220 Fourth Street, Gold Beach OR 97444 541.247.3000

MEMORANDUM

TO: Garry Milliman

FR: Bill McMillan

RE: Curry Health District

Gary, I have prepared the following information for Council's review.

Background

Curry Health District is constructing a health care facility at 500 Fifth Street in Brookings for the benefit of Brookings Harbor residents. Brookings is not in the Health District and the Health District would Brookings to join the District to better support the provision of a 24 hour Emergency Department, Medical/Surgical and ancillary services.

2004 Critical Access Hospital Feasibility Study

Brookings is the largest city in Oregon without a hospital. In 2004 the City of Brookings, in conjunction with Curry Health District and Asante Health System commissioned a Hospital Feasibility Study. In summary the findings were:

1. 82% of survey respondents in Brookings felt a hospital should be located in Brookings

2. 9 of 10 survey respondents said they would go to a facility that offered 24 hour emergency care, imaging and lab services and basic medical/surgical care.

3. 30% of respondents were willing to have property taxes increased to support the health facility.

4. Half the respondents said they would support formation of a tax district.

5. The Study Steering Committee supported investigation of two options

a) City of Brookings works independently to develop a Critical Access Hospital (CAH) in Brookings

b) Brookings to collaborate with Curry Health District in establishing a CAH in Brookings.

6. The Study set forth an "Initial Collaborative Position" supported by the study's Steering Committee

a) Services
- 24 hour emergency department with 4-6 hour observation capability
- Imaging Services
- Ambulatory Care
- Minor surgical procedures

b) Location

- mutually agreed on
- Will enable expansion to accommodate future inpatient care

c) Timeframe

- Operational in 12-18 months from decision to move forward

d) Financing

- Share construction costs

e) Structure

- Operating structure to be mutually agreed on.

Physician Shortage

In 2008 the District completed a physician demand analysis for the county, confirming the anecdotal position that there was a provider deficit in the area, particularly in Brookings, This analysis is provided below.

Physician Demand Analysis--Curry County 6/08

Population

2006	21,365
2011	24,078

Specialty	Current FTEs	Low Ratio	High Ratio	2006 Demand		2006 Surplus (Deficit)		2006 Mean Surplus (Deficit)	2011 Demand		2011 Surplus (Deficit)		2011 Mean Surplus (Deficit
Primary Care													
FP	10.20	3,500	4,000	6.10	5.34	4.10	4.86	4.48	6.88	6.02	3.32	4.18	3.75
Internal Medicine	4.50	3,500	4,000	6.10	5.34	(1.60)	(0.84)	(1.22)	6.88	6.02	(2.38)	(1.52)	(1.95)
Pediatrics	1.00	7,194	9,600	2.97	2.23	(1.97)	(1.23)	(1.60)	3.35	2.51	(2.35)	(1.51)	(1.93)
Medical Specialties													
Allergy	0.00	88,000	107,000	0.24	0.20	(0.24)	(0.20)	(0.22)	0.27	0.23	(0.27)	(0.23)	(0.25)
Cardiology	0.50	15,515	30,000	1.38	0.71	(0.88)	(0.21)	(0.54)	1.55	0.80	(1.05)	(0.30)	(0.68)
Dermatology	0.50	31,948	35,000	0.67	0.61	(0.17)	(0.11)	(0.14)	0.75	0.69	(0.25)	(0.19)	(0.22)
Endocrinology	0.00	80,000	119,000	0.27	0.18	(0.27)	(0.18)	(0.22)	0.30	0.20	(0.30)	(0.20)	(0.25)
Gastroenterology	0.00	28,571	43,000	0.75	0.50	(0.75)	(0.50)	(0.62)	0.84	0.56	(0.84)	(0.56)	(0.70)
Medical Oncology	0.15	27,000	39,800	0.79	0.54	(0.64)	(0.39)	(0.51)	0.89	0.60	(0.74)	(0.45)	(0.60)
Nephrology	0.05	55,000	80,000	0.39	0.27	(0.34)	(0.22)	(0.28)	0.44	0.30	(0.39)	(0.25)	(0.32)
Neurology	0.60	31,000	55,866	0.69	0.38	(0.09)	0.22	0.06	0.78	0.43	(0.18)	0.17	(0.00)
Physical Medicine	0.36	48,100	69,444	0.44	0.31	(0.09)	0.04	(0.03)	0.50	0.35	(0.15)	0.00	(0.07)
Psychiatry	1.60	13,000	17,452	1.64	1.22	(0.04)	0.38	0.17	1.85	1.38	(0.25)	0.22	(0.02)
Pulmonary Medicine	0.00	57,000	76,923	0.37	0.28	(0.37)	(0.28)	(0.33)	0.42	0.31	(0.42)	(0.31)	(0.37)
Rheumatology	0.00	75,188	100,000	0.28	0.21	(0.28)	(0.21)	(0.25)	0.32	0.24	(0.32)	(0.24)	(0.28)
Surgical Specialties													
Cardiac Surgery	0.00	80,000	100,000	0.27	0.21	(0.27)	(0.21)	(0.24)	0.30	0.24	(0.30)	(0.24)	(0.27)
General Surgery	0.60	10,400	14,970	2.05	1.43	(1.45)	(0.83)	(1.14)	2.32	1.61	(1.72)	(1.01)	(1.36)
Neurosurgery	0.00	80,000	100,000	0.27	0.21	(0.27)	(0.21)	(0.24)	0.30	0.24	(0.30)	(0.24)	(0.27)
Obstetrics/GYN	1.00	7,800	9,463	2.74	2.26	(1.74)	(1.26)	(1.50)	3.09	2.54	(2.09)	(1.54)	(1.82)
FP/OB	0.55	7,800	9,463	2.74	2.26	(2.19)	(1.71)	(1.95)	3.09	2.54	(2.54)	(1.99)	(2.27)
Ophthalmology	1.97	20,000	21,231	1.07	1.01	0.90	0.96	0.93	1.20	1.13	0.77	0.84	0.80
Orthopedic Surgery	1.10	16,333	21,000	1.31	1.02	(0.21)	0.08	(0.06)	1.47	1.15	(0.37)	(0.05)	(0.21)
Otolaryngology	0.05	30,000	32,333	0.71	0.66	(0.66)	(0.61)	(0.64)	0.80	0.74	(0.75)	(0.69)	(0.72)
Plastic Surgery	0.05	45,045	60,000	0.47	0.36	(0.42)	(0.31)	(0.37)	0.53	0.40	(0.48)	(0.35)	(0.42)
Urology	0.62	31,000	34,965	0.69	0.61	(0.07)	0.01	(0.03)	0.78	0.69	(0.16)	(0.07)	(0.11)
Hospital Based													
Anesthesia	1.00	30,000	32,333	0.71	0.66	0.29	0.34	0.31	0.80	0.74	0.20	0.26	0.23

Emergency	0.80	45,045	60,000	0.47	0.36	0.33	0.44	0.38	0.53	0.40	0.27	0.40	0.33
Hospitalists	0.00	10,000	30,000	2.14	0.71	(2.14)	(0.71)	(1.42)	2.41	0.80	(2.41)	(0.80)	(1.61)
Radiology	1.00	31,000	34,965	0.69	0.61	0.31	0.39	0.35	0.78	0.69	0.22	0.31	0.27

The Health District began to recruit those types of providers that the Demand Analysis indicated there was a deficit of at least 1 FTE, or opportunity for a full time practice.

From 2008 through current the Health District has recruited the following providers:

- A family practice doctor that does OB
- An Ob/Gyn
- An internal medicine provider, with a second internal medicine doctor slated to join the District in the fall of 2010
- An Orthopedic surgeon
- A General Surgeon who will start on August 30, 2010
- A Psychiatrist.

Planning for a Brookings Medical Center

Subsequent to the 2004 study Asante withdrew from the planning process, Curry Health District explored facility development options, purchasing, then selling the property now occupied by Oil Can Henry's and in 2008 reigniting the planning process for a Brookings health facility.

In the interim, the Centers for Medicare and Medicaid (CMS), the agency that directs health policy for the Federal Government changed the rules governing CAHs. CAHs , (which receive enhanced Medicare reimbursement to enhance their feasibility are limited to no more than 25 beds and must be located more than 30 miles from the nearest hospital. As of December 2007 no new CAH designations would be permitted by the CMS. This created two challenges for any CAH Hospital development in Brookings. First, Brookings is within 30 miles of both Sutter Coast hospital in Crescent City, CA, and Curry General Hospital in Gold Beach, thus making a CAH designation for a Brookings facility not possible. Secondly, a new CAH designation for a Brookings facility is prohibited under the new CMS regulations that came into effect in December 2007.

However, CMS does permit a new CAH designation if the applicant can prove a substantial planning effort was underway prior to the December 2007 regulation change. Curry Health District demonstrated that "Significant Development" prior to 1/1/2008 had been done, and was permitted by CMS to develop an off campus provider based entity.

In planning for a new Brookings facility the District wanted to create a medical center that could support all of the newly recruited providers, and host visiting providers such as cardiology, oncology, neurology etc. The District also wanted to provide a comprehensive array of diagnostic services including CT scanning, MRI, Nuclear Medicine, Mammography, X-Ray, a comprehensive diagnostic laboratory, infusion and chemotherapy and to provide 24 hour Emergency Services.

With an eye to the future, as per the recommendations of the 2004 CAH feasibility study, the District also wanted to have any new facility meet the facility construction requirements for

hospitals (I occupancy) if/when the provision of inpatient services became feasible from a regulatory and financial aspect.

Accordingly the District planned and financed a 34,000 sq ft medical center on 8 acres of land adjacent to Brookings City Hall. The facility has 21 exam rooms and space for 8 doctors working concurrently. There is a procedure room for minor surgery, an infusion room for chemo therapy and other infusion services, complete imaging services, and a 4 bed emergency department / infirmary capable of admitting patients for observation up to the limit allowed by CMS (24 hours)

The District owns sufficient land that would permit an expansion of the current building to support full inpatient and surgical services, thus delivering the CAH anticipated in the 2004 study. Because CMS has permitted the project already, the embargo on new CAH is not applicable.

The District agrees with the 2004 feasibility study that the most feasible approach to developing a Brookings hospital is to provide the scope of care anticipated in the facility being built and expand into full inpatient services as finances allow.

Health Districts are permitted by regulation to serve individuals residing out of the District, and to own and operate facilities not in the District. However, just as the tax revenues in the existing District provide a "safety net" for the current operations, the District would like a similar "safety net" for the Brookings facility if we are to operate a 24 hour Emergency Department and build towards local inpatient services, thus the move to expand the District's territory to cover the entire county.

Annexation

The District's Board wants to put the issue of annexation before Curry County voters. In order to do that, governance of incorporated areas not in the District (Brookings) must pass a resolution in favor of annexation. The County Commissioners must do the same for unincorporated areas, as well as permitting the issue to be placed before the voters in an election. The District has provided a model resolution for the Brookings City Council to consider. Voters currently residing in the District would also have to vote in favor of annexation.

Were annexation to be approved the District would use the current assessment rate of $0.7425 per $1,000 of assessed value. Assuming a property tax assessment of $200,000, additional taxes would be $148.50 per year.

Were there a 24 hr Emergency Department in Brookings, residents needing a 911 ambulance transport would save a significant amount on the transport because of the reduced mileage. Currently ambulance transports travel 25 miles to Sutter Coast or 28 miles to Curry General in Gold Beach. Additionally, residents would save critical minutes on the transport time.

The District asks that the Brookings City Council pass a resolution supporting the City's joining Curry Health District.

City of Brookings
Curry County, Oregon

NORTH BANK CHETCO RIVER ROAD WASTEWATER FEASIBILITY ANALYSIS

November 2010

The Dyer Partnership
Engineers & Planners, Inc.

1330 Teakwood Avenue
Coos Bay, Oregon 97420
(541) 269-0732 ◘ Fax (541) 269-2044
www.dyerpart.com

Project No. 145.19

City of Brookings
Curry County, Oregon

North Bank Chetco River Road Wastewater Feasibility Analysis

November 2010

Project No. 145.19

Expires: 12/31/11

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Introduction

Section 1

Introduction

1.1 Scope

This report provides a review of projected wastewater flow volumes, analyzes force main and gravity sewer routes and develops project costs for wastewater collection contemplated along the currently unserved area along both sides of North Bank Chetco River Road (NBCRR) which is north and east of Highway 101. This report addresses the feasibility and relative costs of sewage collection and transport alternatives as far north as the Tribble Development. The costs include initial project engineering and construction costs, annual operation and maintenance costs for pump stations, gravity lines and force mains as well as the total present worth costs of these alternatives. The improvement alternatives considered include those which are sized to provide capacity for only the near term future service area and for those which would provide flow through capacity for long-term development of locations further north along NBCRR. In the cases of alternatives sized to accommodate only the near term future sewer flows, a "penalty" consisting of the present worth cost of the additional force main which would be required in the future, in lieu of flow-through capacity, is added to the present worth cost of the short-term alternatives so that a decision may be made to select the most cost-effective alternative.

1.2 Purpose

The area of development within the Brookings urban growth boundary (UGB) on the east side of the City along North Bank Chetco River Road is not currently provided with a public sewage collection system. As development density increases and new development occurs, the adequacy and suitability of on-site septic systems decreases. It is also the case that over time, existing septic systems fail, and the need for a reliable community wide sewage collection system becomes apparent. It is the desire of the City of Brookings to determine the feasibility of providing public sewage collection services to this area to determine which alternatives may provide this service, and the costs of those alternatives. A key question to answer is whether it is more cost-effective to construct the near term future improvements with pass through capacity (including pumping capacity) adequate to carry the flow from the long- term development anticipated north of the Tribble Development, or if it would be more cost-effective for the flow from the long-term future to be conveyed to the Brookings sewer system via a separate force main which would be constructed at that future time.

1.3 Background

The proposed developments on the east or riverside of NBCRR and north of Highway 101 identified as the Tidewater Property and the Tribble Development are anticipated to create 209

wastewater equivalent dwelling units (EDUs). Currently, there are estimated to be 58 existing EDUs associated with the Riverside RV Resort and the Chetco River Resort, served by both communal and individual septic systems. In both of these two latter locations, further development is limited by the required drainage areas necessary to provide sewage treatment and disposal and, in both cases, additional development could be accommodated if a public sewer system was available.

On the west side of NBCRR and north of Highway 101, there are estimated to be 75 existing EDUs in the locations identified as the Lundeen Road Area and the Thompson Road Area.

This study primarily addresses the feasibility and alternatives for providing service for the areas on both sides of the NBCRR as identified above.

Flows from other areas must also be identified. Although they are not part of the scope of improvements proposed by this study, they have an impact on and limit the available carrying capacity of the existing sewer lines into which the proposed improvements would necessarily discharge wastewater flow. The discharge capacity restriction of primary concern is the City/Harbor Sanitary District (HSD) interceptor. This interceptor would also receive flow from the proposed improvements discussed in this report. Its capacity is 3,370 gpm. The agreement between the City and the HSD allocates 34% (1,146 gpm) to the City and 66% (2,224 gpm) to the HSD. The Harbor Sanitary District's main pump station currently has a maximum pump rate of 2,070 gpm representing 93.1 % of HSD's share.

The existing areas now discharging into the City/HSD interceptor include the Constitution Way Area, which currently has a 270 gpm pump station, as well as the Pacific Terrace Drive and Old County Road areas, currently served by existing gravity sewers, all of which ultimately drain into the City/Harbor Sanitary District (HSD) interceptor.

On the south side of Highway 101 and along the west bank of the Chetco River is the Bridge Street Area, estimated to have now or shortly require provision for 46 wastewater EDUs. As of this date, an additional 18-inch line is in the process of being designed and will run parallel with the existing City/HSD interceptor, providing relief and additional capacity. This line will be in service prior to improvements being constructed along NBCRR.

1.4 Location and Characteristics of Study Zones and Areas

A subset of the entire study area, Zone 1, includes the area of proposed sewer improvements generally defined as the unserved development along both sides of North Bank Chetco River Road (NBCRR), north of Highway 101, from the Tidewater Property to the Tribble Development. This zone includes the Tidewater Property, Riverside RV Resort, Chetco River Resort, Tribble Development, Thompson Road Area and Lundeen Road Area.

Another subset of the study area, Zone 2, includes those locations which contribute or will contribute flow to the City/HSD interceptor, including the Bridge Street Area, Constitution Way Area, Pacific Terrace Drive and Old Country Road. This zone is significant in that flows from it

impact the carrying capacity of the interceptor now and in the near term future, and potentially limit the amount of flow contribution allowable from Zone 1 improvements.

The last subset of the study area, Zone 3, includes those locations further north of the Tribble Development along NBCRR. Though not developed significantly now, the area may develop in the future. Flow from this zone would be pumped through a force main southward along NBCRR and could potentially be discharged into the system improvements investigated for Zone 1. Alternately, future flows from this area would be conveyed through a force main to a location near or south of the intersection of Highway 101 (Chetco Avenue) and Oak Street in order to be discharged into a gravity line with adequate capacity to handle this additional sewage contribution.. The service area locations comprising a portion of Zone 1 and Zone 3 are subdivided as Future Growth Areas 1 through 7.

Figure 1 shows the zone location boundaries and identification of the service areas referenced above.

Section

2

Existing Facilities

Section 2

Existing Facilities

2.1 Potential Discharge Locations to Existing System

The nearest available discharge locations for wastewater collected in the study area are a number of 8-inch lines in the area north of Chetco, east of Oak and west of NBCRR (or Old County Road as it transitions to on the west side of Azalea State Park). These lines all drain westward intersecting with the 15-inch line on Oak St. which then drains southward across Chetco, becoming an 18-inch line running to the plant. Other potential discharge locations are the existing Constitution Way Pump Station and the intersection of Oak Street and Chetco Avenue.

With regard to the carrying capacity of the 15-inch sewer main on Oak Street between Fir Street and Chetco Avenue, a review of Figure 6.1 West Side Interceptor and Extensions North from the *Wastewater Facilities Plan* of March 10, 2008 by HGE, Inc. indicates approximately 188 acres served by this main sewer line from the intersection of Oak Street and Chetco Avenue northward. Assuming for planning purposes a density of 4 EDUs per acre, a flow of 169,792 gpd may be estimated. This would produce a peak flow of 457 gpm not including I/I. A memo prepared October 12, 2009 by Dyer Partnership, indicated that I/I for this basin was estimated to be 134 gpm. This would result in a total existing flow of approximately 600 gpm. The carrying capacity, without surcharge, of a 15-inch gravity sewer at minimum slope is 1123 gpm. This would leave 523 gpm of capacity remaining for additional new flow.

Note that the maximum carrying capacity of 8-inch lines, without surcharge, under minimum slope conditions is 312 gpm. No flow monitoring has been conducted regarding the actual current flow rates in these sewer lines. For purposes of this study, estimates have been made. The specific available proposed discharge locations, relevant issues and their available capacities were investigated with the following results:

1. End of 8-inch sewer line at Fir Street/ Old County Road intersection – The new force main would follow NBCRR around the south side of Azalea State Park and then continue northward along Old County Road to intersection with this discharge point. Based on approximately 45 equivalent lots served by this 8-inch line (assuming each lot represents 1 EDU), the current maximum load would be estimated as 6,570 gpd with a peak rate of 27 gpm, not including inflow and infiltration (I/I). Assuming 20% I/I, the existing flow is estimated to be 32 gpm. This would allow 280 gpm capacity for additional flow. This discharge location would not require that private property be crossed to make the connection. However, the elevation of this location is approximately 200 feet. This will prove to be problematic for use of submersible pumps anticipated at the new pump station wet wells expected to have elevations of approximately 10 feet. The sum of the static head and the dynamic head loss (resulting from transport through the force mains)

will be greater than pumps of this type and flow range are able to overcome. This is not a viable discharge location due to the high head required to pump to it.

2. End of 8-inch sewer line at Pine Street/Myrtle Street intersection - The force main would follow NBCRR around the south side of Azalea State Park and then, at the transition to Old County Road, be routed west along a lot line to intersection with this discharge point. Based on approximately 24 equivalent lots served by this line (assuming each lot represents1 EDU), the current maximum load would be estimated as 3,500 gpd, with a peak rate of 15 gpm, not including I/I. Assuming 20% I/I, the existing flow is estimated to be 18 gpm. This would allow a 294 gpm capacity for additional flow. This route would require that easements be obtained to cross private property to make this connection. While a viable discharge location, the elevation of is 174 feet. This elevation produces head conditions near the approximate limit for submersible pumps of the flow range under consideration.

3. End of 8-inch sewer line located in easement between and parallel to Redwood Street and Chetco Avenue terminating at a southward extension of Myrtle Street - Based on approximately 18 equivalent lots served by this line (assuming each lot represents1 EDU), the current maximum load would be estimated as 2,628 gpd with a peak rate of 11 gpm, not including I/I. Assuming 20% I/I, the existing flow is estimated to be 13 gpm. However, this location currently receives the discharge from the CWLS (rated at 270 gpm) through a 4-inch force main. This is not a viable discharge location due to the small amount of remaining capacity.

4. End of 8-inch sewer line located on Lunden Road - The force main would leave NBCRR on the northeast side of Azalea State Park on Lunden Road to intersection with this discharge point. Based on approximately 24 equivalent lots served by this line (assuming each lot represents1 EDU), the current maximum load would be estimated as 7,300 gpd, with a peak rate of 30 gpm, not including I/I. Assuming 20% I/I, the existing flow is estimated to be 36 gpm. This would allow a 276 gpm capacity for additional flow. This route would require that easements be obtained to cross private property to make this connection. The elevation of this discharge location is 210 feet. This will prove to be problematic for use of submersible pumps anticipated at the new pump station wet wells expected to have elevations of approximately 10 feet. The sum of the static head and the dynamic head loss (resulting from transport through the force mains) will be greater than pumps of this type and flow range are able to overcome. This is not a viable discharge location due to the high head required to pump to it.

5. Constitution Way Pump Station – Discharge of flow from the new service area to the Constitution Way Pump Station is viable for flows of less than 229 gpm. This is based on the 270 gpm discharge capacity of the CWPS less its predicted long term local service area contribution of 41 gpm. In order to remain within this discharge limit, some alternatives require provision of pump station "cut-outs" to allow only a limited number of pump stations to discharge to CWPS at the same time. The elevation of this discharge location is 120 feet. This is a viable discharge location for those alternatives with low enough discharge flow.

6. Oak Street / Chetco Avenue Intersection - As noted previously, the City's capacity share of the existing City/Harbor Sanitary District (HSD) interceptor, which continues southward from Oak Street and Chetco Avenue to the treatment plant, is 1,146 gpm. Six hundred gpm is already or would be contributed from the existing service area from the north, leaving a capacity of only 546 gpm for new development along NBCRR. The new parallel interceptor would remove the HSD flow allocation in the amount of 2,224 gpm from the existing interceptor. The relieved interceptor, with a capacity of 3,370 gpm and with 600 gpm already allocated or utilized, will have a remaining capacity 2,770 gpm for the proposed immediate improvements, and for the long-term future improvements north of the Tribble Development along NBCRR. The elevation of this discharge location is 155 feet. Discharge to this location is most feasible for alternatives which route the force main south and parallel to Chetco via horizontal directional drilling.

2.2 Issue Regarding Waterlines

The location of other existing utilities, especially the location of waterlines, will impact the selection of proposed collection system elements, in particular the location of proposed force mains on NBCRR. The new wastewater force mains must be separated from water mains by a horizontal distance of at least 10 feet unless the new wastewater lines are laid at least 18 inches lower than the water main. In that case, a horizontal distance of at least 5 feet is required. The existing waterlines will complicate the installation of wastewater force mains and gravity sewer lines along NBCRR. A 14-inch waterline runs along the road from the water treatment plant to the proposed future new transmission booster pump station which will be just to the north of the Chetco River Resort. A 10-inch waterline continues south along NBCRR around the south side of Azalea Park and then continues north on Old County Road, with a 16-inch line also running along the road in the vicinity of the proposed booster station for a short distance before branching off to Lundeen Road to the west.

Design Data

Section

3

Section 3

Design Data

3.1 Capacity of Potential Receiving Locations

Shown below in Table 3.1.1, are the wastewater receiving capacities of potential discharge points in the existing sewer system for additional wastewater to be transported from various alternatives investigated. The available capacity reflects basic carrying capacity of the particular gravity sewer line or pump station as discussed in Section 2, less the current peak demand already being transported from or through this location. These capacities are presented to identify discharge receiving limitations which will be pertinent with regard to the development of viable alternatives subsequently in this report.

Table 3.1.1
Capacity Summary of Wastewater Receiving Locations

Location	Dia. Inches	Capacity GPM	Current GPM	Available GPM
Fir Street - Old County Rd to Oak	8	312	32	280
Pine Street - Myrtle Wood to Oak	8	312	18	294
Between Redwood and Chetco - Myrtle Wood to Oak	8	312	283	29
Lunden Road to Oak	8	312	36	276
Constitution Way Pump Station	WW*	270	41	229
Oak Street - Fir Street to Chetco Avenue	15	1,123	600	523
City/Harbor Sanitary District (HSD) interceptor Chetco to Plant - Existing	18	1,146 **	600	546
City/Harbor Sanitary District (HSD) interceptor Chetco to Plant – after HSD flow removed to new 18" line	18	3,370	600	2,770

* WW = Wet Well
** City's share of capacity

3.2 Gravity Sewer and Force Main Design Limitations

Shown below in Table 3.2.1, are the wastewater carrying capacities of various sizes of gravity sewer lines (without experiencing surcharging) based upon the minimum slopes (and drops per 1000 feet) for each pipe size required to achieve a proper scour velocity of at least 3 feet per second. These capacities and slopes are presented to aid with selection of sewer sizes required with regard to the development of viable alternatives subsequently in this report.

In like manner, Table 3.2.2 identifies the acceptable flow ranges for wastewater force mains such that velocities remain above the solids transport minimum of 3 feet per second and below the reasonable maximum of 7 feet per second. The maximum velocity limit is based upon a "rule of thumb" regarding development of excessive head loss for velocities greater than 7 feet per second. These capacities and slopes are presented to aid with selection of force main sizes required with regard to the development of viable alternatives subsequently in this report.

Table 3.2.1
Design Capacity of Gravity Sewers

Dia. Inches	Min. Slope	Drop/ 1000 ft. *	Max. GPM
8	0.0033	3.90	312
10	0.0025	3.10	492
12	0.0020	2.60	715
15	0.0015	2.10	1123
18	0.0011	1.70	1564
21	0.0009	1.50	2134
24	0.0008	1.40	2872

* To provide 3'/sec velocity

Table 3.2.2
Recommended Force Main Flow Ranges

Force Main Size	Min. Req'd GPM*	Max. Recom. GPM **
3"	67	155
4"	115	275
6"	265	620
8"	470	1100
10	735	1730
12	1060	2500
3.0 * for scour to 7.0** feet per second		

Section

4

Development of Alternatives

Section 4

Development of Alternatives

4.1 Alternative Descriptions

Alternatives 1.A and 1.B address short-term future improvements using only 2 new pump stations. The pump stations are arranged such that Pump Station # 2 pumps to Pump Station #1 and only Pump Station #1 transfers wastewater to the selected discharge location. For the short-term future improvements with 2 new pump stations and for discharge north of Chetco, only Constitution Way Pump Station was considered since this pump station has adequate receiving capacity and requires the least force main length for locations not precluded by elevation constraints. Alternative 1.B considers discharge to Oak and Chetco via a route

Alternatives 2.A and 2.B address short-term future improvements using 4 new pump stations. Discharge to the existing Constitution Way Pump Station was considered for Alternative 2 proposals, but ruled out after determining that the remaining capacity of the Constitution Way Pump Station would require that only 2 of the 4 new pump stations could discharge at the same time. While possible to arrange by telemetry, this would result in a poorly designed system which would be prone to overflow should all pump stations need to pump at the same time. Alternatives 3.A and 3.B address long-term future improvements using only 2 new pump stations. Note that alternative 3.A is determined to be infeasible due to receiving gravity sewer and/or Constitution Way Pump Station limitations, leaving only the option of discharge to Oak and Chetco. Alternatives 4.A and 4.B address long-term future improvements using 4 new pump stations. Note again that alternative 4.A is determined to be infeasible due to limitations of any of the 8" receiving gravity sewers and/or Constitution Way Pump Station, again leaving only Oak and Chetco as an alternative. The following charts discuss each alternative in greater detail. Detailed cost estimate are located in the appendix.

Alt. 1A – Short-term Future Improvements Only – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to CW Pump Station	
Notes: This alternative provides for service to currently unserved area along both sides of North Bank Chetco River Road (NBCRR) as far north as the Tribble Development only. These improvements would not be sized to serve the long-term future development north of Tribble. This alternative would include only 2 pump stations; the force mains from these stations would run in the same trenches as proposed gravity lines to the extent possible to avoid impacting NBCRR as much as possible. Force mains would be installed by horizontal directional drilling (HDD), except where able to lay with gravity sewer lines. Flow from the new service area would be discharged into the Constitution Way Pump Station via Pump Station 2. See Figure 2.	
(1) Collection/transportation method	Combination of gravity sewers and force with 2 new pump stations and utilizing 1 existing pump station.
(2) Collection/transportation sizing	**Peak flow Recv'd**: PS 2 (Tribble) 40 gpm, PS 1 (Tidewater) 210 gpm; CW Pump Station 245 gpm. **Discharge**: PS 1 w/ 4" FM @ 210 gpm, PS 2 w/ 3" FM @ 70 gpm. CW Pump Station 270 gpm. Receiving sewer capacity downstream: OK
(3) System advantages, disadvantages, and reliability.	This alternative would minimize traffic disruption and pavement damage to NBCRR. It would be sized to handle only the immediate development between Tribble and Tidewater properties. Having 3 pump stations for transport (including the Constitution Way Pump Station) provides a more reliable system than alternatives with a greater number of pump stations and a less reliable system than alternatives with fewer pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.
(4) Special problems associated with alternative.	Further development north of Tribble would not be able to discharge into this proposed system and would in the future, require a force main along NBCRR running all the way to Oak St. and Chetco. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.

Alt. 1A – Short-term Future Improvements Only – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to CW Pump Station – (Cont.)	
(5) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 70 and 210 gpm PS - 52 hrs per year and 6 hrs per year training each.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby-power and alarm systems providing notification of high-wet well levels and equipment malfunction
(6) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 70 gpm PS - 72 hours per year For 210 gpm PS – 90 hours per year
(7) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp meters.
(b) Skills required.	Mechanical, electrical – operator level.
(c) Man-hours required.	See operation man-hours above
(d) Reports and forms required.	Same as existing pump stations for two additional pump stations.
Total Project Cost	$3,863,000

Alt. 1.B – Short-term Future Improvements Only – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to Oak and Chetco via FM south Along Chetco	
Notes: This alternative provides for service to currently unserved areas along both sides of North Bank Chetco River Road (NBCRR) as far north as the Tribble Development only. These improvements would not be sized to serve the long-term future development north of Tribble. This alternative would include only 2 pump stations and the force mains from these stations would run in the same trenches as proposed gravity lines to the extent possible to avoid impacting NBCRR as much as possible. Flow from the new service area would be discharged into 20-inch interceptor at Oak and Chetco via a force main running parallel and south of Chetco from the south side of the Tidewater property and under the Highway 101 bridge. Force mains would be installed by horizontal directional drilling (HDD) except where able to lay with gravity sewer lines See Figure 2.	
(1) Collection/transportation method.	Combination of gravity sewers and force main with 2 new pump stations.
(2) Collection/transportation sizing	**Peak flow Recv'd** : PS 2 (Tribble) 40 gpm, PS 1 (Tidewater) 210 gpm **Discharge**: PS 1 w/ 4" FM @ 210 gpm, PS 2 w/ 3" FM @ 70 gpm. Receiving sewer capacity downstream: OK
(3) System advantages, disadvantages, and reliability.	This alternative would minimize traffic disruption and pavement damage to NBCRR. It would be sized to handle only the immediate development between Tribble and Tidewater properties. Having only 2 pump stations provides a more reliable system than alternatives with a greater number of pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.
(4) Special problems associated with alternative.	Further development north of Tribble would not be able to discharge into this proposed system and would, in the future, require a force main along NBCRR running all the way to Oak and Chetco. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.

Alt. 1.B – Short-term Future Improvements Only – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to Oak and Chetco via FM south Along Chetco – (Cont.)	
(5) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 70 and 210 gpm PS - 52 hrs per year and 6 hrs per year training each.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby power and alarm systems providing notification of high wet well levels and equipment malfunction.
(6) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 70 gpm PS - 72 hours per year For 210 gpm PS – 90 hours per year
(7) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp. meters.
(b) Skills required.	Mechanical, electrical – operator level.
(c) Man-hours required.	See operation man-hours above
(d) Reports and forms required.	Same as existing pump stations for two additional pump stations.
Total Project Cost	$4,018,000

Alt. 2A – Short-term Future Improvements Only – 4 New Pump Stations – FM along NBCRR to PS 1, gravity sewer route, south under 101 Bridge. Discharge to Oak & Chetco Gravity Line	
Notes: This alternative provides for service to currently unserved area along both sides of North Bank Chetco River Road (NBCRR) as far north as the Tribble Development only. These improvements would not be sized to serve the long-term future development north of Tribble. This alternative would include 4 pump stations, and the force mains from these stations would discharge into a single 4-inch and 6–inch FM along NBCRR. Flow from the new service area would be discharged into the Constitution Way Pump Station. See Figure 3.	
(1) Collection/transportation method.	Combination of gravity sewers and force main with 4 new pump stations and utilizing 1 existing pump station.
(2) Collection/transportation sizing	**Peak flow Recv'd:** PS 1 (Tidewater) 91 gpm; PS 2 (Riverside RV) 12 gpm; PS 3 (Chetco River Resort) 26 gpm; PS 4 (Tribble) 46 gpm; CW Pump Sta. (35 + 115 + 67 gpm) 217 gpm. **Discharge**: PS 1 w/ 4" FM @ 120 gpm. PS 2 thru 4 w/3" FM @ 70 gpm each. Pump stations pump to Oak and Chetco via a single 4-inch and 6-inch force main at a maximum flow rate of 330 gpm. Receiving sewer capacity downstream: OK
(3) System advantages, disadvantages, and reliability.	This alternative would simplify system development and allow pump stations to be staged as required. Disruption and pavement damage to NBCRR would be a disadvantage. This alternative would be sized to handle only the development between Tribble and Tidewater properties. Five pump stations for transport (including the Constitution Way Pump Station) provides a less reliable system than alternatives with fewer pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.

Alt. 2A – Short-term Future Improvements Only – 4 New Pump Stations – FM along NBCRR to PS 1, gravity sewer route, south under 101 Bridge. Discharge to Oak & Chetco Gravity Line – (Cont.)	
(4) Special problems associated with alternative.	Further development north of Tribble would not be able to discharge into this proposed system and would, in the future, require a separate force main along NBCRR running all the way to Oak St. and Chetco Ave. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.
(5) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 70 and 210 gpm PS's - 52 hrs per year and 6 hrs per year training each.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby power and alarm systems providing notification of high wet well levels and equipment malfunction.
(6) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 70 gpm PS - 72 hours/year each of 3 Pump Stations. For 210 gpm PS – 90 hours per year
(7) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp meters.
(b) Skills required.	Mechanical, electrical – operator level.
(c) Man-hours required.	See operation man-hours above.
(d) Reports and forms required.	Same as existing pump stations for four additional pump stations.
Total Project Cost	$4,860,000

Alt. 2B – Short-term Future Improvements Only – 4 New Pump Stations – FM on NBCRR. Discharge to 8-inch sewer at Pine & Myrtle	
Notes: This alternative provides for service to currently unserved area along both sides of North Bank Chetco River Road (NBCRR) as far north as the Tribble Development only. These improvements would not be sized to serve the long-term future development north of Tribble. This alternative would include 5 pump stations and the common 4" force main from these stations would generally run along NBCRR. Flow from the new service area would be discharged into end of an 8" sewer at the intersection of Fir and Old County Rd. See Figure 3.	
(1) Collection/transportation method.	Combination of gravity sewers and force with 4 new pump stations.
(2) Collection/transportation sizing	**Peak flow Recv'd** : PS 1 (Tidewater) 91 gpm; PS 2 (Riverside RV) 12 gpm; PS 3 (Chetco River Resort) 26 gpm; PS 4 (Tribble) 46 gpm. **Discharge**: Must provide controls for interruption so that only 3 of 4 upstream pump stations can pump to 8" sewer line via a common 6" FM at the same time. PS 1 w/ 4" FM @ 120 gpm. PS 2 thru 4 w/3" FM @ 70 gpm each. Max. of 3 stations at same time would result in 260 gpm. Receiving sewer capacity downstream: OK
(3) System advantages, disadvantages, and reliability.	This alternative would simplify system development and allow pump stations to be staged as required. Disruption and pavement damage to NBCRR would be a disadvantage. This alternative would be sized to handle only the immediate development between Tribble and Tidewater properties. Having 4 pump stations for transport provides a less reliable system than alternatives with fewer pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.

Alt. 2B – Short-term Future Improvements Only – 4 New Pump Stations – FM on NBCRR. Discharge to 8-inch sewer at Pine & Myrtle – (Cont.)	
(4) Special problems associated with alternative.	Interruption of pumping via SCADA control would decrease reliability and would increase the change of overflows. Further development north of Tribble would not be able to discharge into this proposed system and would in the future, require a separate force main along NBCRR running all the way to Oak and Chetco. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.
(5) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 70 and 120 gpm PS - 52 hrs per year and 6 hrs per year training each.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby power and alarm systems providing notification of high wet well levels and equipment malfunction
(6) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 70 gpm and 120 gpm PS - 72 hours/year each of 4 Pump Stations.
(7) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp meters.
(b) Skills required.	Mechanical, electrical – operator level.
(c) Man-hours required.	See operation man-hours above
(d) Reports and forms required.	Same as existing pump stations for four additional pump stations.
Total Project Cost	$5,020,000

Alt. 3A – Long-term Future Improvements – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to CW Pump Station or Discharge to Fir and Old County Rd.
Notes: Not feasible due to limitation of CW Pump Station Capacity and 8" sewer capacity from Fir and Old County Rd.

Alt. 3.B – Long-term Future Improvements – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to Oak and Chetco via FM south along Chetco	
Notes: This alternative provides for service to currently unserved areas along both sides of North Bank Chetco River Road (NBCRR) and long-term development areas farther north. These improvements would be sized to serve the long-term future development north of Tribble. This alternative would include only 2 pump stations, and the force mains from these stations would run in the same trenches as proposed gravity lines to the extent possible to avoid impacting NBCRR as much as possible. Flow from the new service area would be discharged into the 20" interceptor at Oak St. and Chetco Ave. via a force main running parallel to and south of Chetco Ave. from the south side of the Tidewater property and under the Highway 101 bridge. Force mains would be installed by horizontal directional drilling (HDD) except where able to lay with gravity sewer lines See Figure 4.	
(1) Collection/transportation method.	Combination of gravity sewers and force main with 2 new pump stations.
(2) Collection/transportation sizing	**Peak flow Recv'd:** PS 1 (Tidewater) 775 gpm; PS 2 (Tribble) 593 gpm. **Discharge**: PS 1 w/ 8" FM @ 775 gpm. PS 2 w/ 6" FM @ 600 gpm. Receiving sewer capacity downstream: OK
(3) System advantages, disadvantages, and reliability.	This alternative would minimize traffic disruption and pavement damage to NBCRR. It would be sized to handle only the immediate development between Tribble and Tidewater properties and future development along NBCRR to the north. Having only 2 pump stations provides a more reliable system than alternatives with a greater number of pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.
(4) Special problems associated with alternative.	Pump stations would require that wet wells and pump spaces and piping be sized to accommodate future development north of Tribble. Initially pumps would be sized for short-term future development but would need to be upsized in the future for additional development. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.

Alt. 3.B – Long-term Future Improvements – 2 Pump Stations – Avoid FM on NBCRR as practical. Discharge to Oak and Chetco via FM south along Chetco – (Cont.)	
(5) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 600 and 775 gpm PS - 52 hrs per year and 8 hrs per year training each.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby-power and alarm systems providing notification of high-wet well levels and equipment malfunction
(6) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 600 gpm and 775 PS - 110 hours/year each.
(7) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp meters.
(b) Skills required.	Mechanical, electrical – operator level.
(c) Man-hours required.	See operation man-hours above
(d) Reports and forms required.	Same as existing pump stations for two additional pump stations.
Total Project Cost	$4,475,000

Alt. 4A – Long-term Future Improvements – 4 New Pump Stations – FM on NBCRR. Discharge to CW Pump Station or Discharge to Fir and Old County Rd.
Notes: Neither discharge location feasible due to limitation of CW Pump Station capacity and 8" sewer capacity from Fir and Old County Rd.

Alt. 4B – Long-term Future Improvements – 4 New Pump Stations – FM on NBCRR. Discharge to Oak and Chetco via FM south along Chetco	
Notes: This alternative provides for service to currently unserved area along both sides of North Bank Chetco River Road (NBCRR) as far north as the Tribble Development with provision to serve the long-term future development north of Tribble. This alternative would include 4 pump stations and the force mains from these stations would generally run along NBCRR. The force main would leave NBCRR and be routed along the Tidewater Property, then south under the 101 bridge, and then west along the south side of Chetco Ave. to be discharged into the interceptor at Oak St. and Chetco Ave. See Figure 5.	
(1) Collection/transportation method.	Combination of gravity sewers and force with 4 new pump stations.
(2) Collection/transportation sizing	**Peak flow Recv'd** : PS 1 (Tidewater) 91 gpm; PS 2 (Riverside RV) 21 gpm; PS 3 (Chetco River Resort) 43 gpm; PS 4 (Tribble) 590 gpm. **Discharge**: PS 1 w/ 4" FM @ 120 gpm. PS 2 & 3 w/3" FM @ 70 gpm each. PS 4 w/ 6" FM @ 600 gpm. Common 8" FM @ 860 gpm. Receiving sewer capacity downstream: OK
(2) System advantages, disadvantages, and reliability.	This alternative would simplify system development and allow pump stations to be staged as required. Traffic disruption and pavement damage to NBCRR would be a disadvantage. This alternative would be sized to handle the immediate development between Tribble and Tidewater properties with capacity for long-term development further north. Having 4 pump stations for transport provides a less reliable system than alternatives with fewer pump stations. The pump stations require standby generators to achieve reliability satisfactory to regulatory authority.
(3) Special problems associated with alternative.	Pump stations would require that wet wells, pump spaces and piping be sized to accommodate future development north of Tribble. Initially pumps would be sized for short-term future development but would need to be upsized in the future for the additional further development. Design will require that pump stations and manhole elevations be designed with flood plain elevation of the Chetco River in mind.

Alt. 4B – Long-term Future Improvements – 4 New Pump Stations – FM on NBCRR. Discharge to Oak and Chetco via FM south along Chetco – (Cont.)	
(4) Operation requirements.	
(a) Training required.	Instruction by vendor regarding O&M for new pump station components during start-up.
(b) Duties and man-hours required.	For 70 and 120 gpm PS's - 52 hrs per year and 6 hrs per year training each. For 600 gpm PS – 52 hrs per year and 8 hrs per year training.
(c) Emergency or malfunction impacts to users.	Overflow of wastewater into the Chetco River is possible. The risk is minimized through provision of standby power and alarm systems providing notification of high wet well levels and equipment malfunction.
(5) Maintenance requirements.	
(a) Routine maintenance.	Lubricate and clean
(b) Man-hours required.	For 70 and 120 gpm PS – 72 hours/year each. For 600 gpm PS - 110 hours/year.
(6) Testing and monitoring.	
(a) Facilities, tests, and equipment required and available.	All test equipment currently available to City. Includes ohm, volt, amp meters.
(b) Skills required.	Mechanical, electrical – operator level
(c) Man-hours required.	See operation man-hours above.
(d) Reports and forms required.	Same as existing pump stations for five additional pump stations.
Total Project Cost	$5,539,000

4.2 Comparison of Alternatives

Included below in Tables 4.2.1 through 4.2.10, is information used to develop and differentiate the alternatives listed in section 4.1, preceding. EDU density information was provided by the City of Brookings. Flow values were derived from this data.

Table 4.2.1
Near Term Alternative Wastewater – 2 Pump Station Option

Location	EDU	GPD	Peak GPM	PS 2 GPM	PS1 GPM
Tidewater Property	150	21900	91	0	91
Bridge Street Area	46	6716	28	0	0
Chetco River Resort	36	5256	22	0	22
Constitution Way Area	58	8468	35	0	0
Lundeen Road Area (1/4 to PS1)	52	7592	32	0	8
Old County Road	60	8760	37	0	0
Pacific Terrace Drive	22	3212	13	0	0
Riverside RV Resort	19	2774	12	0	12
Thompson Road Area: 1/4 to PS2, 3/4 to PS1	23	3358	14	4	10
Tribble Development	59	8614	36	36	0
PS 2 to PS 1					67
Totals	525	76650	319	40	210

Table 4.2.2
Near Term Alternative Wastewater – 4 Pump Station Option

Location	EDU	GPD	Peak GPM	PS 1 GPM	PS 2 GPM	PS 3 GPM	PS 4 GPM
Tidewater Property	150	21900	91	91	0	0	0
Bridge Street Area	46	6716	28	0	0	0	0
Chetco River Resort	36	5256	22	0	0	22	0
Constitution Way Area	58	8468	35	0	0	0	0
Lundeen Rd Area: 1/4 to PS2, 3/4 to 15" S	52	7592	32	0	8	0	0
Old County Road	60	8760	37	0	0	0	0
Pacific Terrace Drive	22	3212	13	0	0	0	0
Riverside RV Resort	19	2774	12	0	12	0	0
Thompson Road Area: 1/4 to PS4, 3/4 to PS3	23	3358	14	0	0	10	4
Tribble Development	59	8614	36	0	0	0	36
Sub total	525	76650	319	91	20	32	40
PS1 to FM				115	0	0	0
PS2 to FM				0	67	0	0
PS3 to FM				0	0	67	0
PS4 to FM				0	0	0	67

Table 4.2.3
Long-Term Alternative Wastewater – 2 Pump Station Option

Location	EDU	GPD	Peak GPM	PS 2 GPM	PS1 GPM
Tidewater Property	150	21900	91	0	91
Bridge Street Area	46	6716	28	0	0
Chetco River Resort	56	8176	34	0	34
Constitution Way Area	68	9928	41	0	0
Lundeen Road Area	62	9052	38	0	9
Old County Road	75	10950	46	0	0
Pacific Terrace Drive	32	4672	19	0	0
Riverside RV Resort	34	4964	21	0	21
Thompson Road Area	43	6278	26	6	20
Tribble Development	59	8614	36	36	0
Map 1	102	14892	62	62	0
Map 2	116	16936	71	71	0
Map 3	150	21900	91	91	0
Map 4	122	17812	74	74	0
Map 5	168	24528	102	102	0
Map 6	164	23944	100	100	0
Map 7	84	12264	51	51	0
PS 2 to PS 1					600
Totals	1531	223526	931	593	775

Table 4.2.4
Long-Term Alternative Wastewater – 4 Pump Station Option

Location	EDU	GPD	Peak GPM	PS 1 GPM	PS 2 GPM	PS 3 GPM	PS 4 GPM
Tidewater Property	150	21900	91	91	0	0	0
Bridge Street Area	46	6716	28	0	0	0	0
Chetco River Resort	56	8176	34	0	0	34	0
Constitution Way Area	68	9928	41	0	0	0	0
Lundeen Road Area	62	9052	38	0	0	0	0
Old County Road	75	10950	46	0	0	0	0
Pacific Terrace Drive	32	4672	19	0	0	0	0
Riverside RV Resort	34	4964	21	0	21	0	
Thompson Road Area	43	6278	26	0	0	9	3
Tribble Development	59	8614	36	0	0	0	36
Map 1	102	14892	62	0	0	0	62
Map 2	116	16936	71	0	0	0	71
Map 3	150	21900	91	0	0	0	91
Map 4	122	17812	74	0	0	0	74
Map 5	168	24528	102	0	0	0	102
Map 6	164	23944	100	0	0	0	100
Map 7	84	12264	51	0	0	0	51
Subtotal	1531	223526	931	91	21	43	590
PS 1 to 8" FM via 4"				115			
PS 2 to 8" FM via 3"					67		
PS 3 to 8" FM via 3"						67	
PS 4 to 8" FM via 6"							590

Table 4.2.5
Summary of Pump Station Costs

70 GPM PUMP STATIONS 10 HP		
Initial Capital Cost	$	345,255
O&M Annual Cost	$	5,941
Present Worth	$	429,698
120 GPM PUMP STATIONS 40 HP		
Initial Capital Cost	$	422,425
O&M Annual Cost	$	8,795
Present Worth	$	547,427
120 GPM PUMP STATIONS 50 HP		
Initial Capital Cost	$	434,225
O&M Annual Cost	$	9,613
Present Worth	$	570,846
120 GPM PUMP STATIONS 60 HP		
Initial Capital Cost	$	442,925
O&M Annual Cost	$	10,330
Present Worth	$	589,739
210 GPM PUMP STATIONS 40 HP		
Initial Capital Cost	$	437,025
O&M Annual Cost	$	9,950
Present Worth	$	578,438
210 GPM PUMP STATIONS 60 HP		
Initial Capital Cost	$	442,925
O&M Annual Cost	$	10,330
Present Worth	$	589,739
600 GPM PUMP STATIONS 15 HP		
Initial Capital Cost	$	476,800
O&M Annual Cost	$	10,637
Present Worth	$	627,976
600 GPM PUMP STATIONS 60 HP		
Initial Capital Cost	$	542,600
O&M Annual Cost	$	13,476
Present Worth	$	734,130
775 GPM PUMP STATIONS 60 HP		
Initial Capital Cost	$	528,227
O&M Annual Cost	$	13,539
Present Worth	$	720,648

Table 4.2.6
Summary of Line Costs

8" Gravity Sewer in Roadway	$188
8" Gravity Sewer Not in Roadway	$114
12" Gravity Sewer in Roadway	$211
12" Gravity Sewer Not in Roadway	$137
3" Force Main in Roadway	$109
3" Force Main Common w/ Gravity Sewer	$63
3" Force Main Not in Roadway	$51
4" Force Main in Roadway	$118
4" Force Main Common w/ Gravity Sewer	$72
4" Force Main Not in Roadway	$60
6" Force Main in Roadway	$127
6" Force Main Common w/ Gravity Sewer	$81
6" Force Main Not in Roadway	$69
8" Force Main in Roadway	$136
8" Force Main Common w/ Gravity Sewer	$90
8" Force Main Not in Roadway	$77
10" Force Main Increase in Roadway	$156
10" Force Main Common w/ Gravity Sewer	$103
10" Force Main Not in Roadway	$89
HDD 8" Cost per Foot (100%)	$138
HDD 6" Cost per Foot (95%)	$131
HDD 4" Cost per Foot (90%)	$124
HDD 3" Cost per Foot (85%)	$117

Table 4.2.7
Summary of Pump Station Costs for Each Alternative

ALT.	70 GPM 10 HP	120 GPM 40 HP	120 GPM 50 HP	120 GPM 60 HP	210 GPM 40 HP	210 GPM 60 HP	600 GPM 15 HP	600 GPM 60 HP	775 GPM 60 HP	INITIAL COST	O&M ANNUAL	TOTAL PW
1 A	1	0	0	0	1	0	0	0	0	$ 782,280	$ 15,891	$ 1,008,136
1 B	1	0	0	0	0	1	0	0	0	$ 788,180	$ 16,271	$ 1,019,437
2 A	0	0	3	1	0	0	0	0	0	$ 1,745,600	$ 39,168	$ 2,302,278
2 B	0	1	2	1	0	0	0	0	0	$ 1,733,800	$ 38,351	$ 2,278,859
3 A	NA											
3 B	0	0	0	0	0	0	1	0	1	$ 1,005,027	$ 24,176	$ 1,348,624
4 A	NA											
4 B	0	3	0	0	0	0	0	1	0	$ 1,809,875	$ 39,862	$ 2,376,411

Table 4.2.8
Summary of Force Main /Gravity Sew. Line Costs for Each Alternative

ALTERN.		INIT. COST	O&M ANNUAL	TOTAL PW
1	A	$3,095,694	$2,939	$3,137,468
1	B	$3,298,913	$3,154	$3,343,739
2	A	$3,457,215	$3,170	$3,502,268
2	B	$3,576,139	$3,263	$3,622,518
3	A	N/A	NA	
3	B	$3,442,262	$3,154	$3,487,088
4	A	N/A	NA	
4	B	$3,809,196	$3,263	$3,855,575

Table 4.2.9
Calculation of Present Worth Future Force Main To be Added to Short-term Alternatives*

Additional Force Main Length - feet	7436
Diameter – inches	8
Road Bore length - feet	90
HDD Length - feet	3000
Total Surface Installation - feet	4346
Asphalt Surface C&R - feet	3500
Flow Rate – GPM**	550 to 750
Construction Cost	$772,433
O&M Annual Cost	$1,041
Present Worth of Future Int. Cost	**$461,052**
Present Worth of Future O&M Costs	**$8,830**
Total PW	**$469,882**

* Based on installation of a force main to Oak Street and Chetco Avenue generally via NBCRR 15 years in the future to carry long-term development area future wastewater. Add present worth costs to short-term alternatives.

** Flow rate depends on future pump station configuration in long-term development areas.

Table 4.2.10
Summary of Total Alternative Costs

ALTERN.		INIT. COST	O&M ANNUAL	O&M Present Worth	Additional PW for Alt. 1.A thru 2.B	TOTAL PW
1	A	$3,862,902	$18,831	$267,629	$ 469,882	$4,600,413
1	B	$4,018,300	$19,425	$276,083	$ 469,882	$4,764,265
2	A	$4,859,512	$42,077	$598,013	$ 469,882	$5,927,407
2	B	$5,019,983	$41,404	$588,450	$ 469,882	$6,078,315
3	A	Not viable	NA	NA	NA	NA
3	B	$4,475,452	$27,330	$388,423	NA	$4,863,875
4	A	Not viable	NA	NA	NA	NA
4	B	$5,539,020	$42,915	$609,928	NA	$6,148,948

Section

5

Recommended Alternative

Section 5

Recommended Alternative

5.1 Short-term Future Improvement

The alternative recommended for Brookings is **1.A "Short-term Future Improvements – 2 Pump Stations"**. This alternative will provide two pump stations. Pump Station 2 would be located at the Tribble Property and would be sized to handle a peak flow of 40 GPM and pump at 70 GPM. Pump Station 1 would be located between the Tidewater Property and Riverside RV Park and would be sized to handle and pump 210 GPM (including the discharge from PS 2). Pump Station 1 would discharge to the Constitution Way (CW) Pump Station. Total peak flow received at the CW pump station would be 245 GPM including the flow from PS 1 and the CW service area. CW pump station has a capacity of 270 GPM. The receiving sewer capacity downstream is adequate for this flow rate.

The initial capital project cost of this recommended alternative is approximately $3,863,000. This alternative's present worth cost includes the "penalty" of the future installation and O&M of a separate force main from the north end of the Tribble Property running along North Bank Chetco River Road (NBCRR) to Oak and Chetco estimated to be installed 15 years in the future. This additional future force main is estimated to cost $772,433 in current dollars and to have an annual O&M cost of $1,041. The present worth cost of this additional force main, including both capital and O&M costs, is $469,900. The present worth cost of Alternative 1.A is approximately $4,600,000. This figure includes estimated O&M for pump stations, force mains and gravity lines as well as the present worth cost of the future additional force main.

5.2 Long-term Future Improvement

The most cost-effective long-term future alternative is 3.B **"Long-term Future Improvements – 2 Pump Stations"**. It is designed to handle flow received from the long- term future development area north of the short-term future service area at the north end of the Tribble Property and convey this flow through the improvements proposed for immediate construction. Pump Station 2 would be located at the Tribble Property and be sized to handle a peak flow of 593 GPM and pump at 600 GPM. Pump Station 1 would be located between the Tidewater Property and Riverside RV Park, and would be sized to handle and pump 775 GPM (including the discharge from PS 2). Pump Station 1 would discharge to an interceptor near Oak Street and Chetco Avenue. The receiving sewer capacity downstream will be adequate for this flow rate after construction of a new 18-inch or larger interceptor from this location to the wastewater treatment plant.

This long-term alternative has a capital project cost of approximately $4,475,000. The present worth cost of this alternative is approximately $4,864,000, including estimated O&M for pump stations, force mains and gravity lines. This alternative does not include the "penalty" of the future installation and O&M of a separate force main along North Bank Chetco River Road (NBCRR).

5.3 Recommended Improvement

Long-term future Alternative 3.B has a present worth cost $264,000 greater than short-term future Alternative 1.A The analysis indicates that even though the installation of the future force main on NBCRR will be disruptive of traffic and may be difficult to construct, the present worth cost of this expense does not warrant construction of immediate improvements sized to accommodate the long-term service area. This is based on the assumptions made regarding routing, costs, interest of 3.5%, and on the assumption that the future service area force main will not be required for 15 more years. The present worth cost advantage would still favor Alternative 1.A over 3.B until such time as the future force main requirement north of Tribble Development was less than 3 years in future.

We therefore conclude that Alternative 1.A is the most cost effective, recommended alternative. The discharge head conditions for this alternative provide for reasonably efficient pump selection

5.4 Allocation of Costs

For alternative 1.A, the capital costs of the recommended project are allocated to the various service areas based upon their estimated flow contributions as shown in Table 5.4.1 below.

Table 5.4.1
Cost Allocation of Recommended Project

LOCATION	EDU	% of Use	Cost Allocation
Tidewater Property	150	50.0	$1,931,451
Chetco River Resort	36	12.0	$463,548
Lunden Road Area	13	4.3	$167,392
Riverside RV Resort	19	6.3	$244,650
Thompson Road Area	23	7.7	$296,156
Tribble Development	59	19.7	$759,704
Subtotal	300	100.0	$3,862,902
Cost per EDU			$12,876

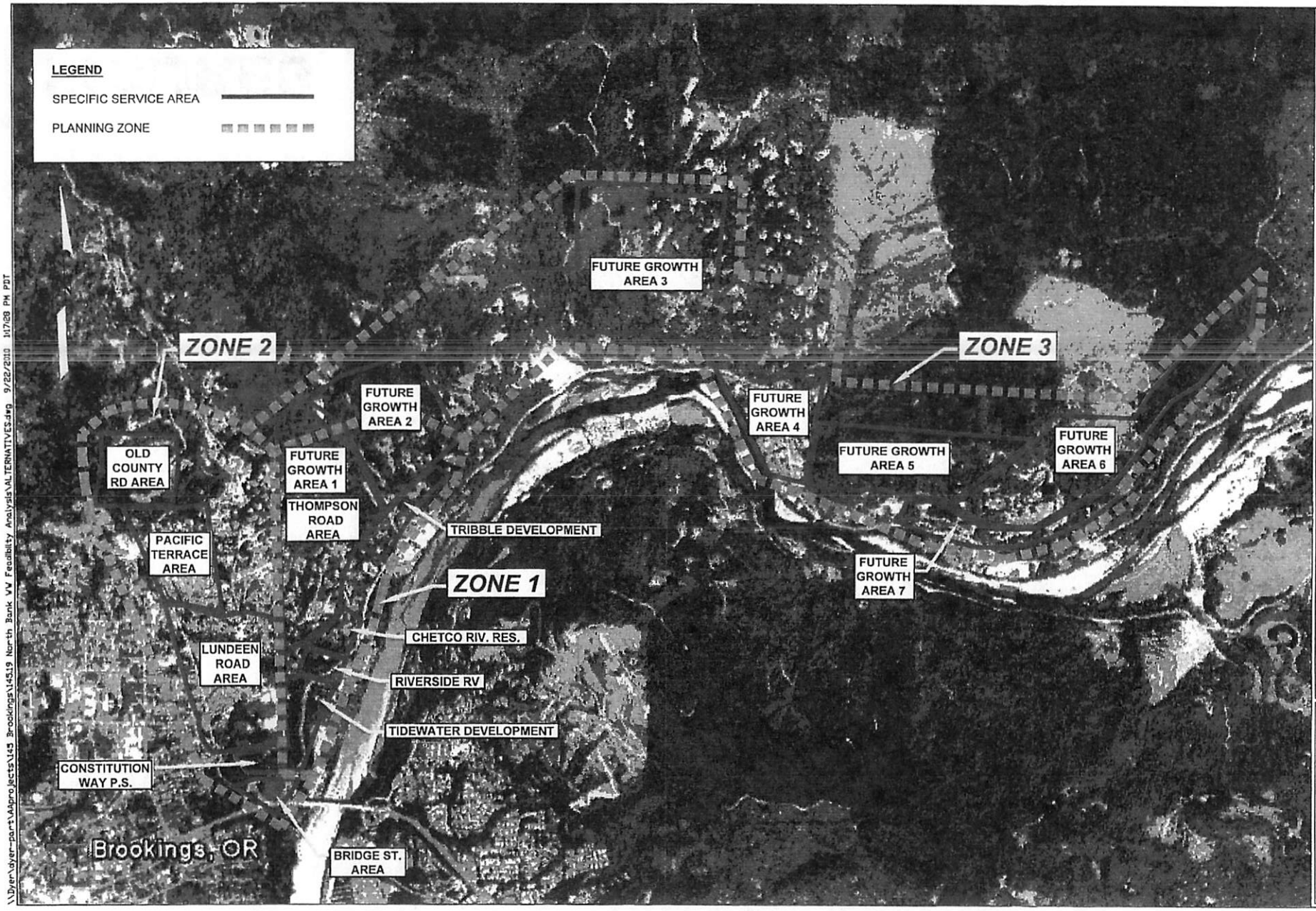
Note that the above allocation method simply divides the recommended alternative's project cost by the number of EDU's (i.e. flow contribution) located in each area. This is but one method of cost allocation. This method does not reflect the cost variation of the local collector gravity sewers and the area's portion of gravity truck lines, pump stations and force main utilization for each service area. It is the case that provision of gravity collector lines to the Lunden Road and Thompson Road areas requires more line length per service connection than is required for the riverside areas such as Tidewater Property, Chetco River Resort, Riverside RV Resort and Tribble Development. Housing density is less on the higher ground locations. However, it may

also be that case that exclusion of locations west and north of NBCRR (higher ground) in an LID might cause the remaining locations east and south of NBCRR (river side) to higher per EDU costs than if the high ground locations were included. This is because pump station and force main sizes could be likely be reduced due to flow velocity requirement constraints. Exclusion of the higher ground locations would leave fewer customers over which to distribute the basic costs.

Differentiation of allocated costs to a greater decree may be performed during the development of a Local Improvement District (LID) Study which is the logical next step if the City concurs with the general project alternative recommendations of the present study and wishes to proceed.

In the LID study, various methods of cost allocation (such as lot areas served, frontage of property served, anticipated flow contribution as well as combinations of these factors at various ratios) can be investigated and a determination made based upon consensus of the City and the participating parties regarding the logic and equity of the allocation method chosen.

FIGURES



NBCRR WW FEASIBILITY ANALYSIS

STUDY AREA

FIGURE NO. 1

THE DYER PARTNERSHIP ENGINEERS & PLANNERS

DATE: OCTOBER 2010

PROJECT NO.: 145.19

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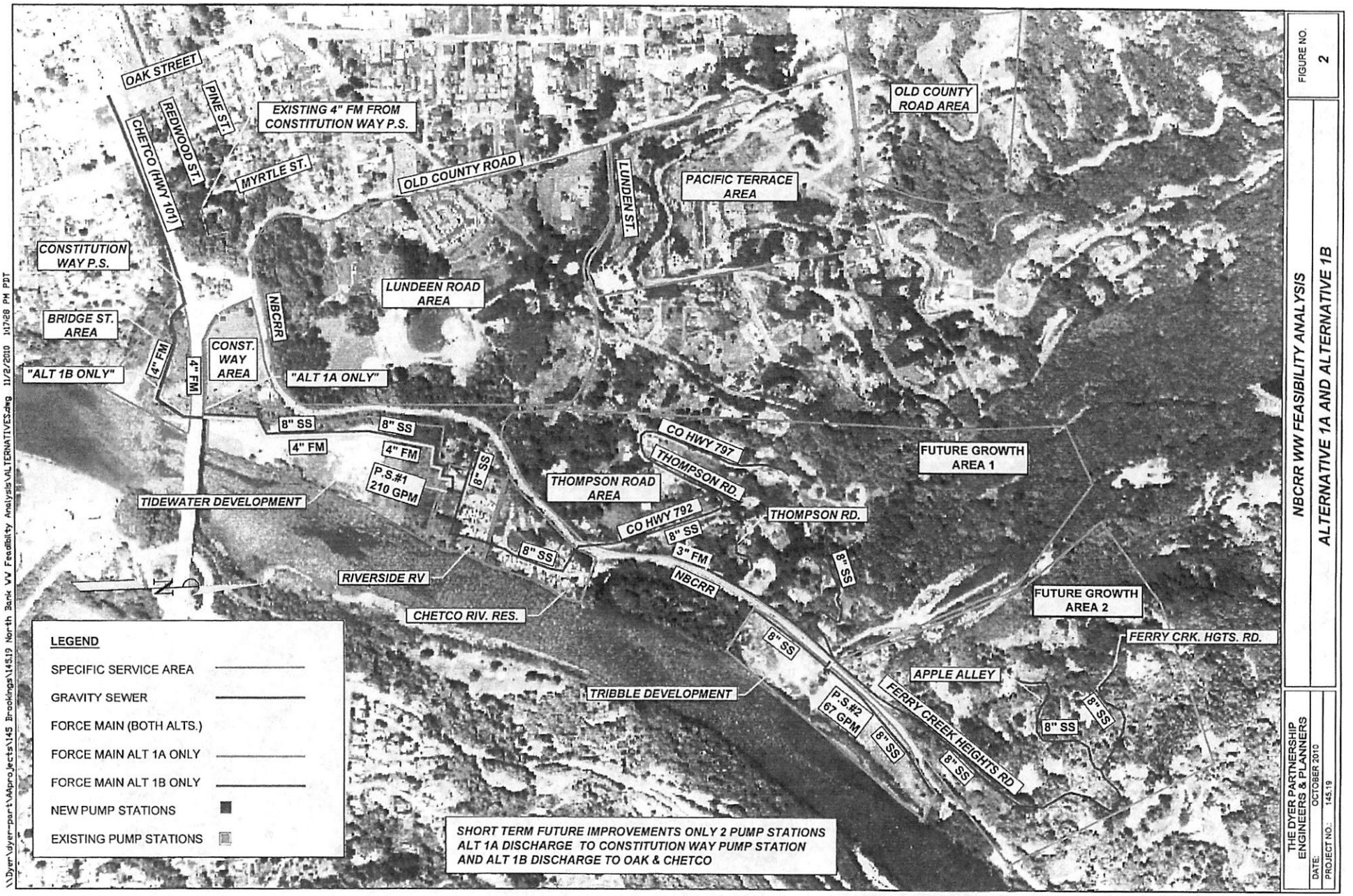
OAK STREET
PINE ST.
REDWOOD ST.
CHETCO (HWY 101)
MYRTLE ST.
EXISTING 4" FM FROM CONSTITUTION WAY P.S.
OLD COUNTY ROAD
LUNDEN ST.
OLD COUNTY ROAD AREA
PACIFIC TERRACE AREA
CONSTITUTION WAY P.S.
LUNDEEN ROAD AREA
NBCRR
BRIDGE ST. AREA
CONST. WAY AREA
"ALT 1B ONLY"
"ALT 1A ONLY"
4" FM
4" FM
8" SS
8" SS
4" FM
4" FM
P.S.#1 210 GPM
8" SS
TIDEWATER DEVELOPMENT
CO HWY 797
THOMPSON RD.
THOMPSON ROAD AREA
FUTURE GROWTH AREA 1
CO HWY 792
THOMPSON RD.
8" SS
3" FM
8" SS
8" SS
NBCRR
RIVERSIDE RV
CHETCO RIV. RES.
FUTURE GROWTH AREA 2
FERRY CRK. HGTS. RD.
8" SS
APPLE ALLEY
TRIBBLE DEVELOPMENT
P.S.#2 67 GPM
FERRY CREEK HEIGHTS RD
8" SS
8" SS
8" SS
8" SS
8" SS
LEGEND
SPECIFIC SERVICE AREA
GRAVITY SEWER
FORCE MAIN (BOTH ALTS.)
FORCE MAIN ALT 1A ONLY
FORCE MAIN ALT 1B ONLY
NEW PUMP STATIONS
EXISTING PUMP STATIONS
SHORT TERM FUTURE IMPROVEMENTS ONLY 2 PUMP STATIONS
ALT 1A DISCHARGE TO CONSTITUTION WAY PUMP STATION
AND ALT 1B DISCHARGE TO OAK & CHETCO
N
NBCRR WW FEASIBILITY ANALYSIS
ALTERNATIVE 1A AND ALTERNATIVE 1B
FIGURE NO. 2
THE DYER PARTNERSHIP ENGINEERS & PLANNERS
DATE: OCTOBER 2010
PROJECT NO.: 145.19
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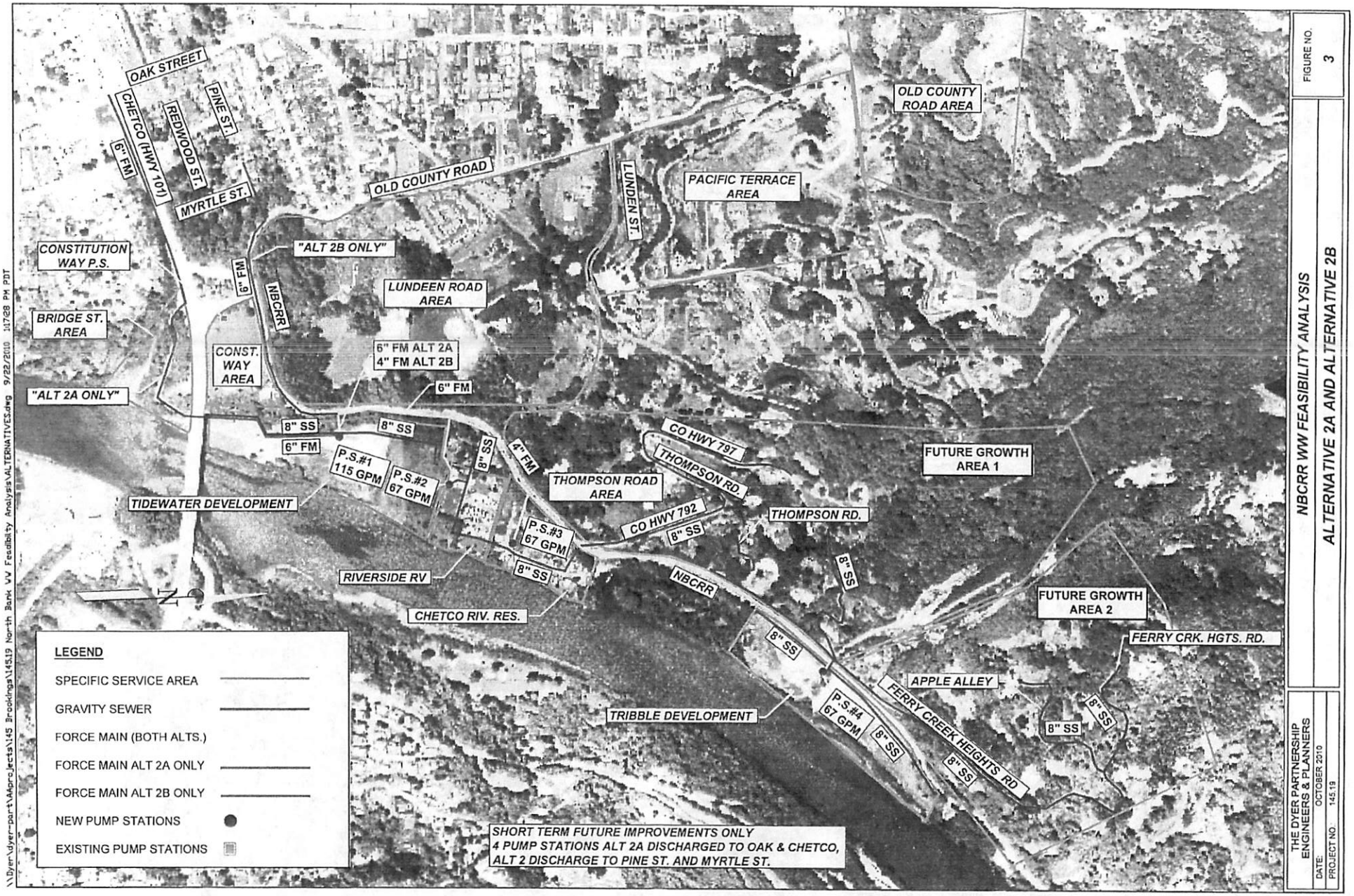

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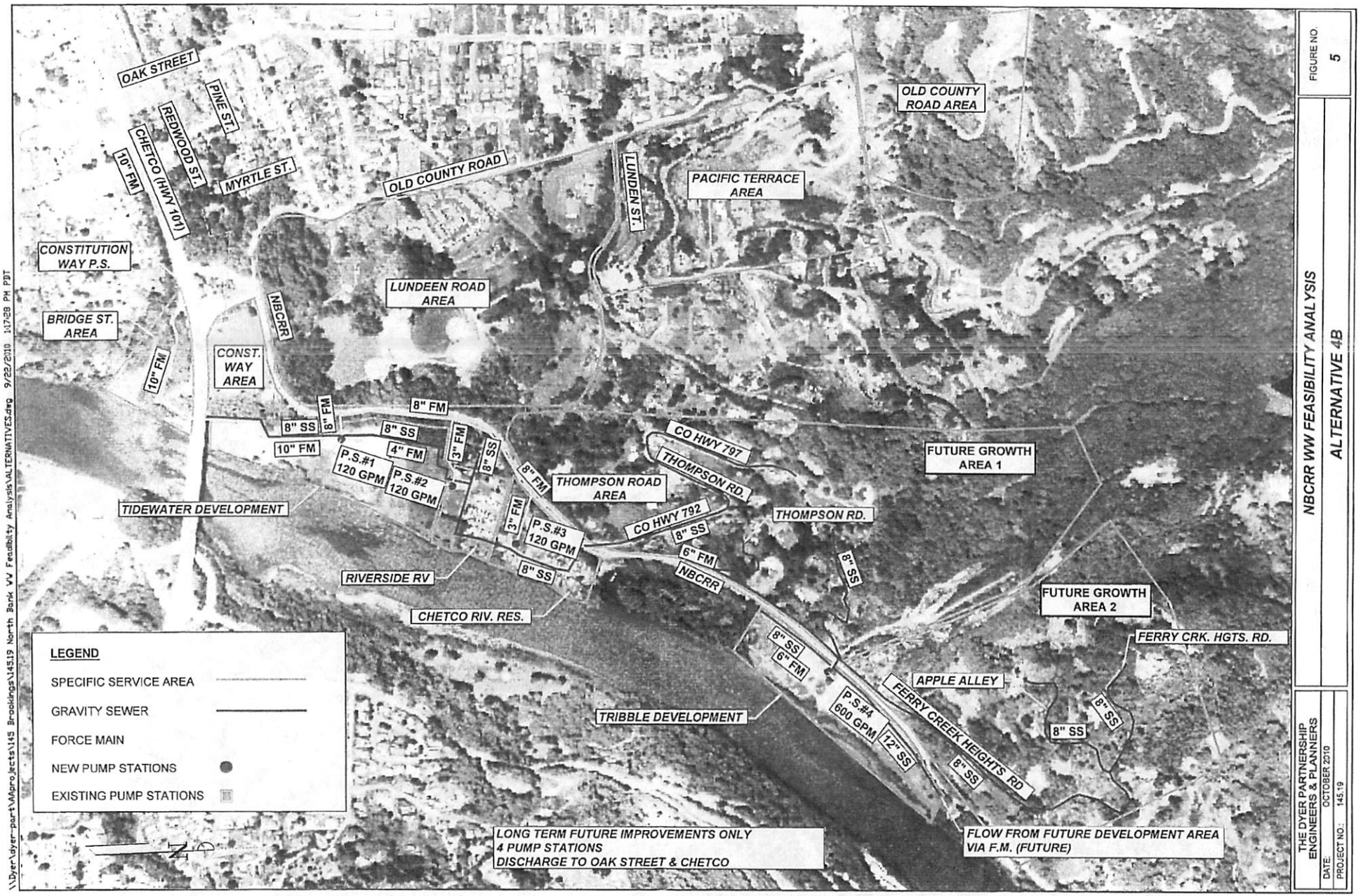
THE DYER PARTNERSHIP ENGINEERS & PLANNERS
DATE: OCTOBER 2010
PROJECT NO. 145.19

NBCRR WW FEASIBILITY ANALYSIS

ALTERNATIVE 2A AND ALTERNATIVE 2B

FIGURE NO. 3

THE DYER PARTNERSHIP ENGINEERS & PLANNERS	NBCRR WW FEASIBILITY ANALYSIS	FIGURE NO.
DATE: OCTOBER 2010	ALTERNATIVE 3B	4
PROJECT NO.: 145.19		


OAK STREET
PINE ST.
REDWOOD ST.
CHETCO (HWY 101)
10" FM
MYRTLE ST.
OLD COUNTY ROAD
LUNDEN ST.
OLD COUNTY ROAD AREA
PACIFIC TERRACE AREA
CONSTITUTION WAY P.S.
LUNDEEN ROAD AREA
NBCRR
BRIDGE ST. AREA
CONST. WAY AREA
10" FM
8" FM
8" SS
8" SS
8" FM
10" FM
4" FM
3" FM
8" SS
P.S.#1 120 GPM
P.S.#2 120 GPM
8" FM
THOMPSON ROAD AREA
CO HWY 797
THOMPSON RD.
FUTURE GROWTH AREA 1
TIDEWATER DEVELOPMENT
3" FM
P.S.#3 120 GPM
CO HWY 792
8" SS
THOMPSON RD.
6" FM
NBCRR
8" SS
RIVERSIDE RV
8" SS
CHETCO RIV. RES.
FUTURE GROWTH AREA 2
FERRY CRK. HGTS. RD.
8" SS
6" FM
APPLE ALLEY
FERRY CREEK HEIGHTS RD
P.S.#4 600 GPM
12" SS
8" SS
8" SS
8" SS
TRIBBLE DEVELOPMENT
LEGEND
SPECIFIC SERVICE AREA
GRAVITY SEWER
FORCE MAIN
NEW PUMP STATIONS
EXISTING PUMP STATIONS
LONG TERM FUTURE IMPROVEMENTS ONLY
4 PUMP STATIONS
DISCHARGE TO OAK STREET & CHETCO
FLOW FROM FUTURE DEVELOPMENT AREA VIA F.M. (FUTURE)
N
NBCRR WW FEASIBILITY ANALYSIS
ALTERNATIVE 4B
FIGURE NO. 5
THE DYER PARTNERSHIP ENGINEERS & PLANNERS
DATE: OCTOBER 2010
PROJECT NO.: 145.19
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APPENDIX

COSTS

Appendix

A

70 GPM PUMP STATION
Tribble to Gr Sew @ Checto Riv. Res.
TDH = 84'
Pumps & Motors 25.77% eff. Q = 70 gpm; HP = 10
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 21,600	$ 21,600
2	Contractor Temp Facilities	LS	1	$ 10,800	$ 10,800
3	Structural excavation and backfill	CY	66	$ 30	$ 1,980
4	Wet well 6' Dia 12' Deep	CY	8	$ 1,600	$ 12,800
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 2,000	$ 4,000
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 10 HP	EA	2	$ 8,900	$ 17,800
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 3" D.I. discharge piping	LF	20	$ 120	$ 2,400
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 3" valves	EA	2	$ 500	$ 1,000
15	Discharge line check swing 3" check valve	EA	2	$ 800	$ 1,600
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	900	$ 3.75	$ 3,375
19	Electrical power cable and pump cable disconnect box	LS	1	$ 4,100	$ 4,100
20	Pump control panel w/ MCC.	EA	1	$ 10,000	$ 10,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 45,000	$ 45,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 5,500	$ 5,500
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 247,955
	Contingency 15%				37,200
	Pre-Design Report				7,500
	Survey and Design				31,000
	Construction Management				7,400
	Construction Inspection				11,200
	Legal, Admin				3,000
				INITIAL CAPITAL COST	$ 345,255

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	72	$ 28	$ 2,016	
6	Misc. Parts - annual repair	LS	1	$ 2,000	$ 2,000	
7	Elec. Power	KWH	3,768	$ 0.08	$ 301	
	OPERATIONS AND MAINTENANCE COSTS				$ 5,941	$ 84,443

	Annual	PW
Initial Capital Cost		$ 345,255
Operations and Maintenance Cost	$ 5,941	$ 84,443
PRESENT WORTH COST OF ALTERNATIVE		$ 429,698

Static	Dynamic	TDH	GPM
60	24	84	70
Hrs/Day	KwH/Year	EFF.	HP
2.4	3,768	0.26	5.8

Find	Given	Given	Given
P	A	n	i
$ 84,443	$ 5,941	20	0.035

120 GPM PUMP STATIONS
Alt 2B PS1; Alt 4B PS 1, 2 & 3
TDHL range 163' to 185'. TDHL ave. = 174'
Pumps & Motors ave 16% eff. Q = 120 gpm; HP = 40
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 26,500	$ 26,500
2	Contractor Temp Facilities	LS	1	$ 13,200	$ 13,200
3	Structural excavation and backfill	CY	70	$ 30	$ 2,100
4	Wet well 6' Dia 13' Deep	CY	9	$ 1,600	$ 14,400
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 2,800	$ 5,600
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 40 HP	EA	2	$ 25,000	$ 50,000
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 4" D.I. discharge piping	LF	20	$ 140	$ 2,800
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 4" valves	EA	2	$ 700	$ 1,400
15	Discharge line check swing 4" check valve	EA	2	$ 1,250	$ 2,500
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,100	$ 4	$ 4,125
19	Electrical power cable and disconnect box	LS	1	$ 6,000	$ 6,000
20	Pump control panel w/ MCC.	EA	1	$ 14,000	$ 14,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 50,000	$ 50,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 6,000	$ 6,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 304,625
	Contingency 15%				45,700
	Pre-Design Report				7,500
	Survey and Design				38,100
	Construction Management				9,100
	Construction Inspection				13,700
	Legal, Admin				3,700
	INITIAL CAPITAL COST				$ 422,425

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	72	$ 28	$ 2,016	
6	Misc. Parts - annual repair	LS	1	$ 3,000	$ 3,000	
7	Elec. Power	KWH	26,941	$ 0.08	$ 2,155	
	OPERATIONS AND MAINTENANCE COSTS				$ 8,795	$ 125,002

	Annual	PW
Initial Capital Cost		$ 422,425
Operations and Maintenance Cost	$ 8,795	$ 125,002
PRESENT WORTH COST OF ALTERNATIVE		**$ 547,427**

Static	Dynamic	TDH	GPM
NA	NA	174	120
Hrs/Day	KwH/Year	EFF.	HP
3	26,941	0.16	33.0

Find	Given	Given	Given
P	A	n	i
$ 125,002	$ 8,795	20	0.035

120 GPM PUMP STATIONS
Alt 2A PS1-3; Alt 2B PS 2-4
TDHL range 201' to 250'. TDHL ave. = 225'
Pumps & Motors ave 15% eff. Q = 120 gpm; HP = 50
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 27,200	$ 27,200
2	Contractor Temp Facilities	LS	1	$ 13,600	$ 13,600
3	Structural excavation and backfill	CY	70	$ 30	$ 2,100
4	Wet well 6' Dia 13' Deep	CY	9	$ 1,600	$ 14,400
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 2,800	$ 5,600
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 50 HP	EA	2	$ 28,000	$ 56,000
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 4" D.I. discharge piping	LF	20	$ 140	$ 2,800
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 4" valves	EA	2	$ 700	$ 1,400
15	Discharge line check swing 4" check valve	EA	2	$ 1,250	$ 2,500
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,100	$ 4	$ 4,125
19	Electrical power cable and disconnect box	LS	1	$ 6,500	$ 6,500
20	Pump control panel w/ MCC.	EA	1	$ 15,000	$ 15,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 50,000	$ 50,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 6,000	$ 6,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 313,225
	Contingency 15%				47,000
	Pre-Design Report				7,500
	Survey and Design				39,200
	Construction Management				9,400
	Construction Inspection				14,100
	Legal, Admin				3,800
				INITIAL CAPITAL COST	$ 434,225

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	72	$ 28	$ 2,016	
6	Misc. Parts - annual repair	LS	1	$ 3,000	$ 3,000	
7	Elec. Power	KWH	37,160	$ 0.08	$ 2,973	
	OPERATIONS AND MAINTENANCE COSTS				$ 9,613	$ 136,621

	Annual	PW
Initial Capital Cost		$ 434,225
Operations and Maintenance Cost	$ 9,613	$ 136,621
PRESENT WORTH COST OF ALTERNATIVE		$ 570,846

Static	Dynamic	TDH	GPM
NA	NA	225	120
Hrs/Day	KwH/Year	EFF.	HP
3	37,160	0.15	45.5

Find	Given	Given	Given
P	A	n	i
$ 136,621	$ 9,613	20	0.035

120 GPM PUMP STATIONS
Alt 2A PS4
TDHL = 275'
Pumps & Motors 14.77% eff. Q = 120 gpm; HP = 60
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 27,800	$ 27,800
2	Contractor Temp Facilities	LS	1	$ 13,900	$ 13,900
3	Structural excavation and backfill	CY	70	$ 30	$ 2,100
4	Wet well 6' Dia 13' Deep	CY	9	$ 1,600	$ 14,400
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 2,800	$ 5,600
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 60 HP	EA	2	$ 30,000	$ 60,000
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 4" D.I. discharge piping	LF	20	$ 140	$ 2,800
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 4" valves	EA	2	$ 700	$ 1,400
15	Discharge line check swing 4" check valve	EA	2	$ 1,250	$ 2,500
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,100	$ 4	$ 4,125
19	Electrical power cable and disconnect box	LS	1	$ 7,000	$ 7,000
20	Pump control panel w/ MCC.	EA	1	$ 16,000	$ 16,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 50,000	$ 50,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 6,000	$ 6,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 319,625
	Contingency 15%				48,000
	Pre-Design Report				7,500
	Survey and Design				40,000
	Construction Management				9,600
	Construction Inspection				14,400
	Legal, Admin				3,800
				INITIAL CAPITAL COST	$ 442,925

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	72	$ 28	$ 2,016	
6	Misc. Parts - annual repair	LS	1	$ 3,000	$ 3,000	
7	Elec. Power	KWH	46,125	$ 0.08	$ 3,690	
	OPERATIONS AND MAINTENANCE COSTS				$ 10,330	$ 146,814

	Annual	PW
Initial Capital Cost		$ 442,925
Operations and Maintenance Cost	$ 10,330	$ 146,814
PRESENT WORTH COST OF ALTERNATIVE		$ 589,739

Static	Dynamic	TDH	GPM
145	130	275	120
Hrs/Day	**KwH/Year**	**EFF.**	**HP**
3	46,125	0.1477	56.5

Find	Given	Given	Given
P	A	n	i
$ 146,814	$ 10,330	20	0.035

210 GPM PUMP STATIONS
Alt 1A PS1
Assumed Head 110 ' static & 63' Dynamic. TDHL = 173'
Pumps and Motors 26.02% eff. Q = 210 gpm; HP = 40
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 28,000	$ 28,000
2	Contractor Temp Facilities	LS	1	$ 7,000	$ 7,000
3	Structural excavation and backfill	CY	70	$ 30	$ 2,100
4	Wet well 6' Dia 13' Deep	CY	14	$ 1,600	$ 22,400
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 4,000	$ 8,000
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 60 HP	EA	2	$ 25,000	$ 50,000
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 4" D.I. discharge piping	LF	20	$ 140	$ 2,800
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 4" valves	EA	2	$ 700	$ 1,400
15	Discharge line check swing 4" check valve	EA	2	$ 1,250	$ 2,500
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,100	$ 4	$ 4,125
19	Electrical power cable and disconnect box	LS	1	$ 6,000	$ 6,000
20	Pump control panel w/ MCC.	EA	1	$ 14,000	$ 14,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Intstall level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 55,000	$ 55,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 6,000	$ 6,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 315,325
	Contingency 15%				47,300
	Pre-Design Report				7,500
	Survey and Design				39,400
	Construction Management				9,500
	Construction Inspection				14,200
	Legal, Admin				3,800
				INITIAL CAPITAL COST	$ 437,025

O&M ESTIMATE - ANNUAL						
Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	90	$ 28	$ 2,520	
6	Misc. Parts - annual repair	LS	1	$ 3,500	$ 3,500	
7	Elec. Power	KWH	28,825	$ 0.08	$ 2,306	
				OPERATIONS AND MAINTENANCE COSTS	$ 9,950	$ 141,413

	Annual	PW
Initial Capital Cost		$ 437,025
Operations and Maintenance Cost	$ 9,950	$ 141,413
PRESENT WORTH COST OF ALTERNATIVE		$ 578,438

Static	Dynamic	TDH	GPM
110	63	173	210
Hrs/Day	KwH/Year	EFF.	HP
3	28,825	0.26	35.3

Find	Given	Given	Given
P	A	n	i
$ 141,413	$ 9,950	20	0.035

210 GPM PUMP STATIONS
Alt 1B PS1
Assumed Head 145 ' static & 106' Dynamic. TDHL = 251'
Pumps and Motors 26.02% eff. Q = 210 gpm; HP = 60
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 29,300	$ 29,300
2	Contractor Temp Facilities	LS	1	$ 7,300	$ 7,300
3	Structural excavation and backfill	CY	70	$ 30	$ 2,100
4	Wet well 6' Dia 13' Deep	CY	14	$ 1,600	$ 22,400
5	Grout Bottom to shape slope to pumps	LS	1	$ 600	$ 600
6	Install rail system and bottom elbow	EA	2	$ 4,000	$ 8,000
7	Vault hatch and frame S.S.	EA	1	$ 2,800	$ 2,800
8	Construct top reinf. conc. slab 6' Dia. X 8" thick	CY	1	$ 1,200	$ 1,200
9	Submersible pumps 60 HP	EA	2	$ 30,000	$ 60,000
10	Buried pre-cast conc. valve value 6' x 6' x 6'	EA	1	$ 6,400	$ 6,400
11	Double vault hatch and frame S.S.	EA	1	$ 3,200	$ 3,200
12	New 4" D.I. discharge piping	LF	20	$ 140	$ 2,800
13	Connection to FM	LS	1	$ 300	$ 300
14	Discharge line isolation gate 4" valves	EA	2	$ 700	$ 1,400
15	Discharge line check swing 4" check valve	EA	2	$ 1,250	$ 2,500
16	Air release valve	EA	1	$ 600	$ 600
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,100	$ 4	$ 4,125
19	Electrical power cable and disconnect box	LS	1	$ 7,000	$ 7,000
20	Pump control panel w/ MCC.	EA	1	$ 16,000	$ 16,000
21	Lift cable and hardware	LS	1	$ 900	$ 900
22	Intstall level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 55,000	$ 55,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 6,000	$ 6,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 329,925
	Contingency 15%				49,500
	Pre-Design Report				7,500
	Survey and Design				41,200
	Construction Management				9,800
	Construction Inspection				14,800
	Legal, Admin				4,000
	INITIAL CAPITAL COST				$ 456,725

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	6	$ 28	$ 168	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	90	$ 28	$ 2,520	
6	Misc. Parts - annual repair	LS	1	$ 3,500	$ 3,500	
7	Elec. Power	KWH	41,821	$ 0.08	$ 3,346	
	OPERATIONS AND MAINTENANCE COSTS				$ 10,990	$ 156,189

	Annual	PW
Initial Capital Cost		$ 456,725
Operations and Maintenance Cost	$ 10,990	$ 156,189
PRESENT WORTH COST OF ALTERNATIVE		$ 612,914

Static	Dynamic	TDH	GPM
145	106	251	210
Hrs/Day	KwH/Year	EFF.	HP
3	41,821	0.26	51.2

Find	Given	Given	Given
P	A	n	i
$156,189	$ 10,990	20	0.035

600 GPM PUMP STATION
Alt 3B PS 2
Assumed Head 60 ' static & 11' Dynamic. TDHL = 71'
Pumps & Motor 80.23% eff. Q = 600 gpm; HP = 15
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 30,000	$ 30,000
2	Contractor Temp Facilities	LS	1	$ 15,000	$ 15,000
3	Structural excavation and backfill	CY	110	$ 30	$ 3,300
4	Wet well 8' Dia 15' Deep	CY	21	$ 1,600	$ 33,600
5	Grout Bottom to shape slope to pumps	LS	1	$ 800	$ 800
6	Install rail system and bottom elbow	EA	2	$ 6,600	$ 13,200
7	Vault hatch and frame S.S.	EA	1	$ 3,250	$ 3,250
8	Construct top reinf. conc. slab 8' Dia. X 8" thick	CY	2	$ 1,200	$ 2,400
9	Submersible pumps 15 HP	EA	2	$ 14,000	$ 28,000
10	Buried pre-cast conc. valve value 6' x 6' x 8'	EA	1	$ 7,800	$ 7,800
11	Double vault hatch and frame S.S.	EA	1	$ 3,700	$ 3,700
12	New 6" D.I. discharge piping	LF	20	$ 160	$ 3,200
13	Connection to FM	LS	1	$ 400	$ 400
14	Discharge line isolation gate 6" valves	EA	2	$ 950	$ 1,900
15	Discharge line check swing 4" check valve	EA	2	$ 1,600	$ 3,200
16	Air release valve	EA	1	$ 700	$ 700
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,800	$ 4	$ 6,750
19	Electrical power cable and disconnect box	LS	1	$ 5,200	$ 5,200
20	Pump control panel w/ MCC.	EA	1	$ 11,500	$ 11,500
21	Lift cable and hardware	LS	1	$ 1,500	$ 1,500
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 70,000	$ 70,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 9,000	$ 9,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 344,400
	Contingency 15%				52,000
	Pre-Design Report				7,500
	Survey and Design				43,000
	Construction Management				10,300
	Construction Inspection				15,500
	Legal, Admin				4,100
				INITIAL CAPITAL COST	$ 476,800

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	8	$ 28	$ 224	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	110	$ 28	$ 3,080	
6	Misc. Parts - annual repair	LS	1	$ 5,000	$ 5,000	
7	Elec. Power	KWH	10,962	$ 0.08	$ 877	
	OPERATIONS AND MAINTENANCE COSTS				$ 10,637	$ 151,176

	Annual	PW
Initial Capital Cost		$ 476,800
Operations and Maintenance Cost	$ 10,637	$ 151,176
PRESENT WORTH COST OF ALTERNATIVE		$ 627,976

Static	Dynamic	TDH	GPM
60	11	71	600
Hrs/Day	**KwH/Year**	**EFF.**	**HP**
3	10,962	0.8023	13.4

Find	Given	Given	Given
P	A	n	i
$151,176	$ 10,637	20	0.035

600 GPM PUMP STATION
Alt 4B PS 4
Assumed Head 145 ' static & 61' Dynamic. TDHL = 206'
Pumps & Motor 54.93% eff. Q = 600 gpm; HP = 60
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 33,800	$ 33,800
2	Contractor Temp Facilities	LS	1	$ 16,900	$ 16,900
3	Structural excavation and backfill	CY	110	$ 30	$ 3,300
4	Wet well 8' Dia 15' Deep	CY	21	$ 1,600	$ 33,600
5	Grout Bottom to shape slope to pumps	LS	1	$ 800	$ 800
6	Install rail system and bottom elbow	EA	2	$ 6,600	$ 13,200
7	Vault hatch and frame S.S.	EA	1	$ 3,250	$ 3,250
8	Construct top reinf. conc. slab 8' Dia. X 8" thick	CY	2	$ 1,200	$ 2,400
9	Submersible pumps 60 HP	EA	2	$ 33,000	$ 66,000
10	Buried pre-cast conc. valve value 6' x 6' x 8'	EA	1	$ 7,800	$ 7,800
11	Double vault hatch and frame S.S.	EA	1	$ 3,700	$ 3,700
12	New 6" D.I. discharge piping	LF	20	$ 160	$ 3,200
13	Connection to FM	LS	1	$ 400	$ 400
14	Discharge line isolation gate 6" valves	EA	2	$ 950	$ 1,900
15	Discharge line check swing 4" check valve	EA	2	$ 1,600	$ 3,200
16	Air release valve	EA	1	$ 700	$ 700
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	1,800	$ 4	$ 6,750
19	Electrical power cable and disconnect box	LS	1	$ 7,000	$ 7,000
20	Pump control panel w/ MCC.	EA	1	$ 16,000	$ 16,000
21	Lift cable and hardware	LS	1	$ 1,500	$ 1,500
22	Install level/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chain Link 14' double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Launcher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 70,000	$ 70,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 9,000	$ 9,000
36	Misc. hardware and construction items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 394,400
	Contingency 15%				58,200
	Pre-Design Report				7,500
	Survey and Design				48,600
	Construction Management				11,700
	Construction Inspection				17,500
	Legal, Admin				4,700
				INITIAL CAPITAL COST	$ 542,600

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	8	$ 28	$ 224	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	110	$ 28	$ 3,080	
6	Misc. Parts - annual repair	LS	1	$ 5,000	$ 5,000	
7	Elec. Power	KWH	46,453	$ 0.08	$ 3,716	
	OPERATIONS AND MAINTENANCE COSTS				$ 13,476	$ 191,530

	Annual	PW
Initial Capital Cost		$ 542,600
Operations and Maintenance Cost	$ 13,476	$ 191,530
PRESENT WORTH COST OF ALTERNATIVE		$ 734,130

Static	Dynamic	TDH	GPM
145	61	206	600
Hrs/Day	KwH/Year	EFF.	HP
3	46,453	0.5493	56.9

Find	Given	Given	Given
P	A	n	I
$ 191,530	$ 13,476	20	0.035

775 GPM PUMP STATIONS
Alt 3B PS 1
Assumed Head 145 ' static & 41' Dynamic. TDHL = 186'
Pumps & Motors 63% eff. Q = 775 gpm; HP = 60
COST ESTIMATE

Item	Description	Unit	Qty	Unit Cost	Total Cost
1	Mobilization, Demob., Ins. Bonds.	LS	1	$ 37,000	$ 37,000
2	Contractor Temp Facilities	LS	1	$ 18,300	$ 18,300
3	Structural excavation and backfill	CY	145	$ 30	$ 4,350
4	Wet well 10' Dia 15' Deep	CY	26	$ 1,600	$ 41,600
5	Grout Bottom to shape slope to pumps	LS	1	$ 800	$ 800
6	Install rail system and bottom elbow	EA	2	$ 6,600	$ 13,200
7	Vault hatch and frame S.S.	EA	1	$ 3,250	$ 3,250
8	Construct top reinf. conc. slab 10' Dia. X 8" thick	CY	3	$ 1,200	$ 3,000
9	Submersible pumps 60 HP	EA	2	$ 35,000	$ 70,000
10	Buried pre-cast conc. valve value 6' x 8' x 10'	EA	1	$ 10,500	$ 10,500
11	Double vault hatch and frame S.S.	EA	1	$ 4,000	$ 4,000
12	New 8" D.I. discharge piping	LF	20	$ 190	$ 3,800
13	Connection to FM	LS	1	$ 450	$ 450
14	Discharge line isolation gate 8" valves	EA	2	$ 1,250	$ 2,500
15	Discharge line check swing 8" check valve	EA	2	$ 2,100	$ 4,200
16	Air release valve	EA	1	$ 700	$ 700
17	4" Above ground emergency FM pump connection w/GV	LS	1	$ 2,500	$ 2,500
18	D.I.Fittings	LBS	2,300	$ 4	$ 8,625
19	Electrical power cable and disconnect box	LS	1	$ 7,000	$ 7,000
20	Pump control panel w/ MCC.	EA	1	$ 17,000	$ 17,000
21	Lift cable and hardware	LS	1	$ 1,500	$ 1,500
22	Install leval/alarm floats and transducers	LS	1	$ 2,000	$ 2,000
23	Alarm equipment and strobe light	LS	1	$ 1,800	$ 1,800
24	Foundation Stabilization	CY	20	$ 50	$ 1,000
25	Aggregate Base (1"-0")	TN	160	$ 30	$ 4,800
26	Chain Link Fence - 6' high	LF	150	$ 50	$ 7,500
27	Chani Link 14'double gate	EA	1	$ 1,200	$ 1,200
28	Storm Drain Piping	LF	50	$ 25	$ 1,250
29	Pig Laucher Piping & Valves	LS	1	$ 9,500	$ 9,500
30	Exterior Electrical Conduit	LF	150	$ 25	$ 3,750
31	Generator Building	SF	225	$ 200	$ 45,000
32	Generator Materials, Electrical, and Mechanical	EA	1	$ 70,000	$ 70,000
33	Louvers and Dampers	LS	1	$ 3,000	$ 3,000
34	Landscaping	LS	1	$ 2,000	$ 2,000
35	Dewatering	LS	1	$ 10,000	$ 10,000
36	Misc. hardware and constrution items	LS	1	$ 2,000	$ 2,000
37	Final clean-up	LS	1	$ 1,500	$ 1,500
38	Close out documents	LS	1	$ 1,200	$ 1,200
	Construction Total				$ 421,775
	Contingency 15%				63,300
	Survey and Design				52
	Pre-Design Report				7,500
	Construction Management				12,300
	Construction Inspection				18,400
	Legal, Admin				4,900
				INITIAL CAPITAL COST	$ 528,227

O&M ESTIMATE - ANNUAL

Item	Description	Unit	Qty	Unit Cost	Total Cost	PW
1	Operational Training labor	HRS	8	$ 28	$ 224	
2	Operational Inspection/Testing labor	HRS	52	$ 28	$ 1,456	
3	Maintenance/Repair labor	HRS	110	$ 28	$ 3,080	
6	Misc. Parts - annual repair	LS	1	$ 5,000	$ 5,000	
7	Elec. Power	KWH	47,237	$ 0.08	$ 3,779	
	OPERATIONS AND MAINTENANCE COSTS				$ 13,539	$ 192,421

	Annual	PW
Initial Capital Cost		$ 528,227
Operations and Maintenance Cost	$ 13,539	$ 192,421
PRESENT WORTH COST OF ALTERNATIVE		$ 720,648

Static	Dynamic	TDH	GPM
145	41	186	775
Hrs/Day	**KwH/Year**	**EFF.**	**HP**
3	47,237	0.63	57.8

Find	Given	Given	Given
P	A	n	i
$ 192,421	$ 13,539	20	0.035

O&M Costs for Gravity Sewer and Force Mains

Force Main Item	Manhours	Manhour Cost/Hr	Material Multiplier	Base Length Ft	Year Interval	Annual Cost/Ft
Line Pigging FM	4	28	1.15	5000	5	$0.01
Valves Maintenance	6	28	20	2000	20	$0.08
Leak Repair	10	28	1.3	20000	2	$0.01
Street Repair	10	28	15	70000	2	$0.03
					Total	$0.13
Gravity Line Item						
Sew. Flushing & Cleaning	10	28	2	5000	3	$0.04
Manhole Repair	4	28	1.8	350	12	$0.05
Leak Repair	10	28	4	20000	2	$0.03
Street Repair	10	28	15	70000	2	$0.03
					Total	$0.14

8" Gravity Sewer in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$9,400.00	$9,400
2	Temporary Protection and Direction of Traffic	All	LS	$4,000.00	$4,000
3	Flaggers	150	HR	$50.00	$7,500
4	Misc. Demolition and Site Preparation	All	LS	$4,000.00	$4,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	50	CY	$100.00	$5,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	8" Sewerline - 8'-10' Class IV Backfill	1000	LF	$80.00	$80,000
9	Manholes 8'-10'	3	Each	$2,000.00	$6,000

Total Construction Cost	$134,400
Engineering	$24,192
Contingency	$23,824
Legal & Administration	$6,000
Total Project Cost	**$188,416**
Cost per Foot	**$188**

8" Gravity Sewer Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$5,800.00	$5,800
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$4,000.00	$4,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	8" Sewerline 8'-10' - Class III Backfill	1000	LF	$60.00	$60,000
7	Manholes 8'-10'	3	Each	$2,000.00	$6,000

Total Construction Cost	$82,800
Engineering	$14,904
Contingency	$14,691
Legal & Administration	$2,000
Total Project Cost	**$114,395**
Cost per Foot	**$114**

12" Gravity Sewer in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$10,500.00	$10,500
2	Temporary Protection and Direction of Traffic	All	LS	$4,000.00	$4,000
3	Flaggers	150	HR	$50.00	$7,500
4	Misc. Demolition and Site Preparation	All	LS	$4,000.00	$4,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	50	CY	$100.00	$5,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	12" Sewerline - 8'-10' Class IV Backfill	1000	LF	$95.00	$95,000
9	Manholes 8'-10'	3	Each	$2,100.00	$6,300

Total Construction Cost	$150,800
Engineering	$27,144
Contingency	$26,727
Legal & Administration	$6,000
Total Project Cost	**$210,671**
Cost per Foot	**$211**

12" Gravity Sewer Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$6,900.00	$6,900
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$4,000.00	$4,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	12" Sewerline 8'-10' - Class III Backfill	1000	LF	$75.00	$75,000
7	Manholes 8'-10'	3	Each	$2,100.00	$6,300

Total Construction Cost	$99,200
Engineering	$17,856
Contingency	$17,593
Legal & Administration	$2,000
Total Project Cost	**$136,649**
Cost per Foot	**$137**

3" Force Main in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$5,400.00	$5,400
2	Temporary Protection and Direction of Traffic	All	LS	$3,000.00	$3,000
3	Flaggers	120	HR	$50.00	$6,000
4	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	20	CY	$100.00	$2,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	3" Forcemain Class IV Backfill	1000	LF	$40.00	$40,000

Total Construction Cost	$76,900
Engineering	$13,842
Contingency	$13,646
Legal & Administration	$5,000
Total Project Cost	**$109,388**
Cost per Foot	**$109**

3" Force Main Common w/ Gravity Sewer

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,000.00	$3,000
2	Temporary Protection and Direction of Traffic	All	LS	$0.00	$0
3	Flaggers	0	HR	$50.00	$0
4	Misc. Demolition and Site Preparation	All	LS	$0.00	$0
5	Foundation Stabilization	0	CY	$50.00	$0
6	Rock Excavation	0	CY	$100.00	$0
7	AC Pavement Removal & Replacement	0	LF	$20.00	$0
8	3" Forcemain Class IV Backfill	1000	LF	$40.00	$40,000

Total Construction Cost	$43,000
Engineering	$7,740
Contingency	$7,646
Legal & Administration	$5,000
Total Project Cost	**$63,386**
Cost per Foot	**$63**

3" Force Main Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$2,600.00	$2,600
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	8" Sewerline 8'-10' - Class III Backfill	1000	LF	$25.00	$25,000

Total Construction Cost	$36,600
Engineering	$6,588
Contingency	$6,513
Legal & Administration	$1,500
Total Project Cost	**$51,201**
Cost per Foot	**$51**

4" Force Main in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$5,800.00	$5,800
2	Temporary Protection and Direction of Traffic	All	LS	$3,000.00	$3,000
3	Flaggers	120	HR	$50.00	$6,000
4	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	20	CY	$100.00	$2,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	4" Forcemain Class IV Backfill	1000	LF	$46.00	$46,000

Total Construction Cost	$83,300
Engineering	$14,994
Contingency	$14,779
Legal & Administration	$5,000
Total Project Cost	**$118,073**
Cost per Foot	**$118**

4" Force Main Common w/ Gravity Sewer

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,500.00	$3,500
2	Temporary Protection and Direction of Traffic	All	LS	$0.00	$0
3	Flaggers	0	HR	$50.00	$0
4	Misc. Demolition and Site Preparation	All	LS	$0.00	$0
5	Foundation Stabilization	0	CY	$50.00	$0
6	Rock Excavation	0	CY	$100.00	$0
7	AC Pavement Removal & Replacement	0	LF	$20.00	$0
8	4" Forcemain Class IV Backfill	1000	LF	$46.00	$46,000

Total Construction Cost	$49,500
Engineering	$8,910
Contingency	$8,797
Legal & Administration	$5,000
Total Project Cost	**$72,207**
Cost per Foot	**$72**

4" Force Main Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,000.00	$3,000
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	4" Sewerline 8'-10' - Class III Backfill	1000	LF	$31.00	$31,000

Total Construction Cost	$43,000
Engineering	$7,740
Contingency	$7,646
Legal & Administration	$1,500
Total Project Cost	**$59,886**
Cost per Foot	**$60**

6" Force Main in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$6,200.00	$6,200
2	Temporary Protection and Direction of Traffic	All	LS	$3,000.00	$3,000
3	Flaggers	120	HR	$50.00	$6,000
4	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	20	CY	$100.00	$2,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	6" Forcemain Class IV Backfill	1000	LF	$52.00	$52,000

Total Construction Cost	$89,700
Engineering	$16,146
Contingency	$15,912
Legal & Administration	$5,000
Total Project Cost	**$126,758**
Cost per Foot	**$127**

6" Force Main Common w/ Gravity Sewer

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,900.00	$3,900
2	Temporary Protection and Direction of Traffic	All	LS	$0.00	$0
3	Flaggers	0	HR	$50.00	$0
4	Misc. Demolition and Site Preparation	All	LS	$0.00	$0
5	Foundation Stabilization	0	CY	$50.00	$0
6	Rock Excavation	0	CY	$100.00	$0
7	AC Pavement Removal & Replacement	0	LF	$20.00	$0
8	6" Forcemain Class IV Backfill	1000	LF	$52.00	$52,000

Total Construction Cost	$55,900
Engineering	$10,062
Contingency	$9,929
Legal & Administration	$5,000
Total Project Cost	**$80,891**
Cost per Foot	**$81**

6" Force Main Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,500.00	$3,500
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	6" Sewerline 8'-10' - Class III Backfill	1000	LF	$37.00	$37,000

Total Construction Cost	$49,500
Engineering	$8,910
Contingency	$8,797
Legal & Administration	$1,500
Total Project Cost	**$68,707**
Cost per Foot	**$69**

8" Force Main in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$6,700.00	$6,700
2	Temporary Protection and Direction of Traffic	All	LS	$3,000.00	$3,000
3	Flaggers	120	HR	$50.00	$6,000
4	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
5	Foundation Stabilization	30	CY	$50.00	$1,500
6	Rock Excavation	20	CY	$100.00	$2,000
7	AC Pavement Removal & Replacement	850	LF	$20.00	$17,000
8	8" Forcemain Class IV Backfill	1000	LF	$58.00	$58,000

Total Construction Cost	$96,200
Engineering	$17,316
Contingency	$17,062
Legal & Administration	$5,000
Total Project Cost	**$135,578**
Cost per Foot	**$136**

8" Force Main Common w/ Gravity Sewer

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$4,400.00	$4,400
2	Temporary Protection and Direction of Traffic	All	LS	$0.00	$0
3	Flaggers	0	HR	$50.00	$0
4	Misc. Demolition and Site Preparation	All	LS	$0.00	$0
5	Foundation Stabilization	0	CY	$50.00	$0
6	Rock Excavation	0	CY	$100.00	$0
7	AC Pavement Removal & Replacement	0	LF	$20.00	$0
8	8" Forcemain Class IV Backfill	1000	LF	$58.00	$58,000

Total Construction Cost	$62,400
Engineering	$11,232
Contingency	$11,080
Legal & Administration	$5,000
Total Project Cost	**$89,712**
Cost per Foot	**$90**

8" Force Main Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$3,900.00	$3,900
2	Temporary Protection and Direction of Traffic	All	LS	$500.00	$500
3	Misc. Demolition and Site Preparation	All	LS	$2,000.00	$2,000
4	Foundation Stabilization	30	CY	$50.00	$1,500
5	Rock Excavation	50	CY	$100.00	$5,000
6	8" Sewerline 8'-10' - Class III Backfill	1000	LF	$43.00	$43,000

Total Construction Cost	$55,900
Engineering	$10,062
Contingency	$9,929
Legal & Administration	$1,500
Total Project Cost	**$77,391**
Cost per Foot	**$77**

10" Force Main in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$7,705.00	$7,705
2	Temporary Protection and Direction of Traffic	All	LS	$3,450.00	$3,450
3	Flaggers	138	HR	$50.00	$6,900
4	Misc. Demolition and Site Preparation	All	LS	$2,300.00	$2,300
5	Foundation Stabilization	34.5	CY	$50.00	$1,725
6	Rock Excavation	23	CY	$100.00	$2,300
7	AC Pavement Removal & Replacement	977.5	LF	$20.00	$19,550
8	8" Forcemain Class IV Backfill	1000	LF	$66.70	$66,700

Total Construction Cost	$110,630
Engineering	$19,913
Contingency	$19,619
Legal & Administration	$5,000
Total Project Cost	**$155,162**
Cost per Foot	**$155**

10" Force Main Common w/ Gravity Sewer

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$5,060.00	$5,060
2	Temporary Protection and Direction of Traffic	All	LS	$0.00	$0
3	Flaggers	0	HR	$50.00	$0
4	Misc. Demolition and Site Preparation	All	LS	$0.00	$0
5	Foundation Stabilization	0	CY	$50.00	$0
6	Rock Excavation	0	CY	$100.00	$0
7	AC Pavement Removal & Replacement	0	LF	$20.00	$0
8	8" Forcemain Class IV Backfill	1000	LF	$66.70	$66,700

Total Construction Cost	$71,760
Engineering	$12,917
Contingency	$12,737
Legal & Administration	$5,000
Total Project Cost	**$102,413**
Cost per Foot	**$102**

10" Force Main Not in Roadway

No.	Description	Quantity	Unit	Unit Cost	Item Cost
1	Construction Facilities And Temporary Controls	All	LS	$4,485.00	$4,485
2	Temporary Protection and Direction of Traffic	All	LS	$575.00	$575
3	Misc. Demolition and Site Preparation	All	LS	$2,300.00	$2,300
4	Foundation Stabilization	34.5	CY	$50.00	$1,725
5	Rock Excavation	57.5	CY	$100.00	$5,750
6	8" Sewerline 8'-10' - Class III Backfill	1000	LF	$49.45	$49,450

Total Construction Cost	$64,285
Engineering	$11,571
Contingency	$11,413
Legal & Administration	$1,500
Total Project Cost	**$88,770**
Cost per Foot	**$89**

HDD

Item	Description	Unit	Quantity	Unit Price	Total
1	Ductile Iron Pipe Fittings	LBS	600	$5.00	$3,000
2	8" C900 PVC HDD Installed Pipe	LF	839	$115.00	$96,485
3	12" Cut-in sleeve	EA	1	$1,165.00	$1,165
4	12" Gate Valve	EA	1	$2,900.00	$2,900
5	Demolition & Site Preparation	LS	1	$2,500.00	$2,500
6	Hydro Seeding	LS	1	$600.00	$600
7	Site Restoration & Final Cleanup	LS	1	$900.00	$900
8	Construction Facilities & Temporary Controls	LS	1	$8,000.00	$8,000
	TOTAL BASIC BID				$115,550

HDD 8" Cost per Foot (100%)	**$138**
HDD 6" Cost per Foot (95%)	**$131**
HDD 4" Cost per Foot (90%)	**$124**
HDD 3" Cost per Foot (85%)	**$117**

SUMMARY

8" Gravity Sewer in Roadway	$188
8" Gravity Sewer Not in Roadway	$114
12" Gravity Sewer in Roadway	$211
12" Gravity Sewer Not in Roadway	$137
3" Force Main in Roadway	$109
3" Force Main Common w/ Gravity Sewer	$63
3" Force Main Not in Roadway	$51
4" Force Main in Roadway	$118
4" Force Main Common w/ Gravity Sewer	$72
4" Force Main Not in Roadway	$60
6" Force Main in Roadway	$127
6" Force Main Common w/ Gravity Sewer	$81
6" Force Main Not in Roadway	$69
8" Force Main in Roadway	$136
8" Force Main Common w/ Gravity Sewer	$90
8" Force Main Not in Roadway	$77
10" Force Main in Roadway	$155
10" Force Main Common w/ Gravity Sewer	$102
10" Force Main Not in Roadway	$89
HDD 8" Cost per Foot (100%)	$138
HDD 6" Cost per Foot (95%)	$131
HDD 4" Cost per Foot (90%)	$124
HDD 3" Cost per Foot (85%)	$117

Two Pump Station Alternatives (1&3)	Total Length	Road Bore	HDD Length	Surf. Inst. Length	Com. w/ Gr. Sew.	Asphalt Surf C&R	Near Future GPM	Far Future GPM	Near Future Dia. "	Far Future Dia. "	Near Future Cost	Far Future Cost	O&M Annual Costs	O&M PW
Gravity Sewer														
Grav. Sew. Tidewater - south from PS 1	1513	0	0	1513	0	0	91	91	8	8	$173,079	$173,079	$212	$3,010
Grav. Sew. River Side Resort - north from PS 1	594	0	0	594	0	130	119	629	8	12	$77,573	$90,792	$83	$1,182
Grav. Sew. Lunden Rd. Area to River Side Resort Grav. Sew.	214	0	0	214	0	75	8	8	8	8	$30,032	$30,032	$30	$426
Grav. Sew. thru Chetco Riv. Res.	764	0	0	764	0	540	99	636	8	12	$127,369	$144,372	$107	$1,520
Grav. Sew. Thompson Rd. to Chetco Riv. Res. Grav. Sew.	2606	60	0	2546	0	2546	10	20	8	8	$490,507	$490,507	$365	$5,185
Grav. Sew. Thompson Rd.Area Grav. Sew. 2	487	0	0	487	0	487	5	10	8	8	$91,758	$91,758	$68	$969
Grav. Sew. Thompson Rd.Area Grav. Sew. 3	971	0	0	971	0	971	5	15	8	8	$182,952	$182,952	$136	$1,932
Grav. Sew. Thompson Rd.Area Grav. Sew. 4	1478	0	0	1478	0	1478	4	20	8	8	$278,479	$278,479	$207	$2,941
Ferry Creek Heights Lower Grav. Sew.	2143	0	0	2143	0	2143	10	20	8	8	$403,775	$403,775	$300	$4,264
Ferry Creek Heights Upperr Grav. Sew.	1360	0	0	1360	0	1360	10	20	8	8	$256,245	$256,245	$190	$2,706
Apple Alley Grav. Sew.	770	0	0	770	0	770	10	10	8	8	$145,080	$145,080	$108	$1,532
Grav. Sew. along highway - Thompson Rd Area to PS 2 .	1023	60	0	963	0	80	4	4	8	8	$126,884	$126,884	$143	$2,036
Grav. Sew. along highway - Apple Alley Area to Grav. Sew.	332	0	0	332	0	40	10	10	8	8	$40,940	$40,940	$46	$661
Grav. Sew. Tribble Prop. - south from PS 2	1783	0	0	1783	0	0	18	18	8	8	$203,966	$203,966	$250	$3,548
Grav. Sew. Tribble Prop. - north from PS 2	1063	0	0	1063	0	0	18	570	8	12	$121,601	$145,258	$149	$2,115
Sub-Total	15588	120	0	15468	0	10620					$2,577,161	$2,631,040	$2,182	$31,016
Force Mains														
Alt 1A only FM PS 1 to Const. Way PS	*2430*	*0*	*583*	*1847*	*1513*	*0*	*210*	*N/A*	*4*	*N/A*	*$201,514*	*N/A*	$316	$4,490
Alt 1B & 3B FM PS 1 to Oak St. & Chetco Ave.	*4082*	*0*	*2120*	*1962*	*1513*	*100*	*210*	*762*	*4*	*8*	*$404,732*	*$468,275*	$531	$7,542
All Alt 1&3 FM PS 2 to Chetco Riv. Res. Grav. Sew.	1763	60	376	1327	963	120	70	600	3	6	$141,477	$169,868	$229	$3,257
										Alt A	$3,093,231	*N/A*	$2,939	$41,774
										Alt B	$3,296,449	$3,442,262	$3,154	$44,826

Four Pump Station Alternatives (2&4)	Total	Road	HDD	Surf. Inst.	Com. w/	Asphalt Surf	Near Future	Far Future	Near Future	Far Future	Near Future	Far Future	O&M Annual	O&M
Gravity Sewer	Length	Bore	Length	Length	Gr. Sew.	C&R	GPM	GPM	Dia. "	Dia. "	Cost	Cost	Costs	PW
Grav. Sew. Tidewater - south from PS 1	760	0	0	760	0	0	45.5	45.5	8	8	$86,940	$86,940	$106	$1,512
Grav. Sew. Tidewater - north from PS 1	750	0	0	750	0	0	45.5	45.5	8	8	$85,796	$85,796	$105	$1,492
Grav. Sew. River Side Resort - north from PS 2	580	0	0	580	0	130	29	29	8	8	$75,972	$75,972	$81	$1,154
Grav. Sew. Lunden Rd. Area to River Side Resort Grav. Sew.	214	0	0	214	0	75	8	8	8	8	$30,032	$30,032	$30	$426
Grav. Sew. thru Chetco Riv. Res.to PS 3	764	0	0	764	0	540	44	44	8	8	$127,369	$127,369	$107	$1,520
Grav. Sew. Thompson Rd. to Chetco Riv. Res. Grav. Sew.	2606	60	0	2546	0	2546	10	10	8	8	$490,507	$490,507	$365	$5,185
Grav. Sew. Thompson Rd.Area Grav. Sew. 2	487	0	0	487	0	487	5	10	8	8	$91,758	$91,758	$68	$969
Grav. Sew. Thompson Rd.Area Grav. Sew. 3	971	0	0	971	0	971	5	15	8	8	$182,952	$182,952	$136	$1,932
Grav. Sew. Thompson Rd.Area Grav. Sew. 4	1478	0	0	1478	0	1478	4	20	8	8	$278,479	$278,479	$207	$2,941
Ferry Creek Heights Lower Grav. Sew.	2143	0	0	2143	0	2143	10	20	8	8	$403,775	$403,775	$300	$4,264
Ferry Creek Heights Upperr Grav. Sew.	1360	0	0	1360	0	1360	10	20	8	8	$256,245	$256,245	$190	$2,706
Apple Alley Grav. Sew.	770	0	0	770	0	770	10	10	8	8	$145,080	$145,080	$108	$1,532
Grav. Sew. along highway - Thompson Rd Area to PS 4 .	1023	60	0	963	0	80	4	4	8	8	$126,884	$126,884	$143	$2,036
Grav. Sew. along highway - Apple Alley Area to Grav. Sew.	332	0	0	332	0	40	10	10	8	8	$40,940	$40,940	$46	$661
Grav. Sew. Tribble Prop. - south from PS 4	1783	0	0	1783	0	0	18	18	8	8	$203,966	$203,966	$250	$3,548
Grav. Sew. Tribble Prop. - north from PS 4	1063	0	0	1063	0	0	18	570	8	12	$121,601	$145,258	$149	$2,115
Sub-Total	17084	120	0	16964	0	10620					$2,748,295	$2,771,952	$2,392	$33,993
Force Mains														
Alt 2A only FM common to Oak St. & Chetco Ave. 4"	*2930*	*120*	*1400*	1410	*925*	*600*	*240*	*N/A*	*4*	*N/A*	*$325,880*	*N/A*	$381	$5,414
Alt 2A only FM common to Oak St. & Chetco Ave. 6"	*4043*	*120*	*1300*	2623	*850*	*740*	*480*	*N/A*	*6*	*N/A*	*$485,188*	*N/A*	$526	$7,470
Alt 2B only FM along NBCRR to Pine. & Myrtle St.4"	*2930*	*120*	*1400*	1410	*925*	*600*	*240*	*N/A*	*4*	*N/A*	*$325,880*	*N/A*	$381	$5,414
Alt 2B only FM along NBCRR to Pine. & Myrtle St.6"	*2520*	*0*	*1700*	820	*850*	*820*	*240*	*N/A*	*6*	*N/A*	*$287,378*	*N/A*		
Alt 4B only FM common to Oak St. & Chetco Ave. 8"	*2400*	*60*	*630*	1710	*925*	*785*	*N/A*	*840*	*N/A*	*8*	*N/A*	*$286,978*		
Alt 4B only FM common to Oak St. & Chetco Ave. 10"	*3340*	*60*	*1700*	1580	*0*	*1580*	*N/A*	*960*	*N/A*	*10*	*N/A*	*$528,015*		
All Alt 2&4 FM Tidewater PS 1 to Main FM - NBCRR	120	60	0	60	0	20	115	115	4	4	$15,557	$15,557	$16	$222
All Alt 2&4 FM FM Riverside RV PS 2 to Main FM - NBCRR	455	60	0	395	0	20	67	67	3	4	$32,188	$35,619	$59	$841
All Alt 2&4 FM FM Chetco Riv. Res. PS 3 to Main FM - NBCRR	404	60	0	344	0	20	67	67	3	4	$29,577	$32,565	$53	$746
All Alt 2&4 FM FM Tribble PS 4 to Main FM - NBCRR	65	60	0	5	0	5	67	600	3	6	$11,347	$11,434	$8	$120
										Alt A	$3,162,844	*N/A*	$2,908	$41,335
										Alt B	$3,322,152	$3,682,120	$3,053	$43,391

Lines

ALTERN.	INIT. COST	O&M ANNUAL	O&M PW	Total PW
1 A	$3,093,231	$2,939	$41,774	$3,135,004
1 B	$3,296,449	$3,154	$44,826	$3,341,275
2 A	$3,162,844	$2,908	$41,335	$3,204,179
2 B	$3,322,152	$3,053	$43,391	$3,365,543
3 A	NA	NA	NA	NA
3 B	$3,442,262	$3,154	$44,826	$3,487,088
4 A	NA	NA	NA	NA
4 B	$3,682,120	$3,053	$43,391	$3,725,511

PS

ALTERN.	INIT. COST	O&M ANNUAL	O&M PW	Total PW
1 A	$ 782,280	$ 15,891	$ 225,856	$ 1,008,136
1 B	$ 788,180	$ 16,271	$ 231,257	$ 1,019,437
2 A	$ 1,745,600	$ 39,168	$ 556,678	$ 2,302,278
2 B	$ 1,733,800	$ 38,351	$ 545,059	$ 2,278,859
3 A	NA	NA	NA	NA
3 B	$ 1,005,027	$ 24,176	$ 343,597	$ 1,348,624
4 A	NA	NA	NA	NA
4 B	$ 1,809,875	$ 39,862	$ 566,536	$ 2,376,411

Total

ALTERN.	INIT. COST	O&M ANNUAL	O&M PW	Total PW
1 A	$3,875,511	$18,831	$267,629	$4,143,140
1 B	$4,084,629	$19,425	$276,083	$4,360,712
2 A	$4,908,444	$42,077	$598,013	$5,506,457
2 B	$5,055,952	$41,404	$588,450	$5,644,402
3 A	NA	NA	NA	NA
3 B	$4,447,289	$27,330	$388,423	$4,835,712
4 A	NA	NA	NA	NA
4 B	$5,491,995	$42,915	$609,928	$6,101,922