EXECUTIVE SUMMARY

PREPARED FOR
WYOMING WATER DEVELOPMENT COMMISSION
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CHEYENNE, WYOMING 82002
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DECEMBER 2013
EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

INTRODUCTION

GENERAL

The Big Horn Canal lies in both Big Horn and Washakie Counties in the Big Horn Basin of north­central Wyoming, as shown in the project area map (Figure 1). The Big Horn Canal diverts water from the Big Horn River approximately nine miles southwest of Worland and extends north along the west side of the river about 50 miles, at which point it discharges into a tributary of the Greybull River, just south of the town of Greybull. The canal was constructed in the early 1900’s and provides irrigation water to most of the crop producers on the west side of the Big Horn River.

STUDY AREA

This study was conducted on the portion of the Big Horn Canal that borders the limits of the Town of Basin, a length of approximately 1.5 miles, from just south of Big Horn Avenue to Wyoming State Highway 30. The canal is situated on a bench above and just west of the town; many residential lots are directly adjacent to the toe of the eastern canal embankment. The general trend of the topography is gently sloping to the east over a couple of terraces, from the canal to the Big Horn River. The canal is operated and managed by the Big Horn Canal District.

In addition to the canal study, Phase II of this study was to prepare a water supply master plan for the Town of Basin, Wyoming. The Town of Basin is located on the west side of the Big Horn Mountains and has a current population of approximately 1,292 residents.

CLIMATE

The climate in the project area is arid. The average precipitation is about 6.5 inches annually, with about 60% of that occurring in the spring and summer months as rainfall. The average annual lake evaporation is approximately 42 inches. The normal frost-free period is around 135 days. These factors combine to make irrigation essential to crop production, which accounts for a large portion of the area’s economy.

PURPOSE

This two-part study is an updated Level II Feasibility Analysis of rehabilitative needs on the Big Horn Canal and a water supply master plan for the Town of Basin, Wyoming. Residents had reported basement and crawl-space flooding in the spring and summer months, correlating with the filling of the canal. The previous study recommended a lining project on the portion of the Big Horn Canal that passes through the Town of Basin and installation of groundwater drainage facilities under certain streets in the town. Town of Basin officials chose not to move forward with the project at the time. The current Town of Basin administration wished to revisit the recommendations and, as a result, the Wyoming Water Development Commission chose to fund a study to readdress the problem with conceptual cost estimates and, additionally, to provide a municipal water system master plan for the Town of Basin including a geographic information system, computer modeling, leak detection, and recommendations for upgrades. For the purposes of this executive summary the project has been divided into Phase I (Canal Rehabilitation) and Phase II (Water System Master Plan).
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BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

PHASE I - CANAL REHABILITATION

STUDY RESULTS

• EXISTING INFORMATION

In the 1990 WWDC study by CCI, the need for groundwater table restoration in the Town of Basin was established by door to door interviews and questionnaires mailed to residents. There were also several backhoe pits excavated and logged at various locations around the town to identify soil types and groundwater levels. It was determined that during the months of operation of the Big Horn Canal, basements and crawlspaces in close proximity to the canal and irrigated fields were experiencing flooding.

Two courses of action were recommended by CCI. The first was to line the portion of the canal that lies parallel to Basin, with four inch thick, unreinforced concrete. The second recommendation was to install a phased system of perforated PVC sewer pipe under several gravel streets to convey groundwater to the Big Horn River. Level III funding was not sought for either project.

The Town of Basin has indicated that they still observe flooding in select basements and crawl spaces, road damage due to groundwater, excessive amounts of infiltration into the sewer collection system, and road under drains that convey water throughout the year, even in dry months. Fields along the west edge of town are flood irrigated under active water rights, which is a contributing factor to localized groundwater fluctuations.

• STUDY FINDINGS

Nelson Engineering staff performed field inspections of the canal near the end of its operating season in the early fall of 2012. At that time flows were measured at three different points along the channel with a Gurley 622 Price Current Meter mounted to a top-set wading rod. Based on the information recorded the maximum flow rate was calculated to be 75.72 cfs near the upstream end of the project area and showed a loss in flow of 5.50 cfs near B Street.

A seepage estimate was made, based upon the flow loss from the uppermost location to the lowest location. The estimated seepage loss from the section of the canal between Big Horn Avenue and B Street is 7.8 cfs/mile, a very significant seepage loss of up to 3,500 gpm or over 700,000,000 gallons over the course of a 5 month irrigation season.

Geological investigations conducted during our investigation concluded three fill areas, bridging recent alluvium where the canal crosses natural drainages, were identified as areas exhibiting high seepage loss characteristics. Another area suspected of probable seepage is a 1,000 foot stretch of the canal that flows through a terrace remnant, consisting of highly permeable sand and gravel. Geologic evidence would indicate that the majority of the canal seepage is located at the locations identified in Figure 2.
FIGURE 2
CANAL LINING OVERVIEW MAP
BASIN, WYOMING
EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

Further flow gauging was conducted at locations identified as probable areas of high seepage loss. Flows were measured at Stations 18+00 to 21+00, 34+00 to 37+50, 41+00 to 50+00, and 64+00 to 69+00. All the areas demonstrated a seepage loss across the measured length. The four areas combined total 3.5 cfs of loss. This loss accounts for 65% of the total loss over the entire study length.

REHABILITATION PLAN AND RECOMMENDED METHODS

Taking the above findings into consideration and analyzing the most cost effective and maintenance beneficial approach, it is recommended that reshaping the channel and applying a 4 mil Polyethylene Geocomposite Membrane lining under 3 inches of shotcrete cover to line the portions of the Big Horn Canal as indicated in Figure 2. It is also recommended that the seven irrigation turnout (head gate) structures be replaced in order to eliminate probable leaking of the gates themselves and around the deteriorating concrete headwalls.

PROJECT COSTS AND FINANCING
Canal Rehabilitation and Lining Phase I STA 17+00 to STA 22+00

Construction Cost:
- Canal cleaning and re-contouring $3,000.00
- Canal Lining Polyethylene Geocomposite Membrane $9,000.00
- Canal shotcrete cover 3 inches thick $48,075.00
- Trucking and misc expenses $7,500.00
- SUBTOTAL CONSTRUCTION COSTS $68,075.00

- Final Design (10%) $6,807.50
- Right of Way/Construction Easement (5%) $3,403.75
- Legal Fees (5%) $3,403.75
- SUBTOTAL DESIGN AND LEGAL $13,615.00

- Construction Engineering Fee (10%) $6,807.50
- SUBTOTAL OF ENGINEERING AND CONST. $74,882.50

- Contingency = Subtotal of E&C X 15% $11,232.38
- TOTAL CONSTRUCTION COST $86,114.88

- TOTAL PROJECT COST (Rounded) $99,800.00

Canal Rehabilitation and Lining Phase II STA 31+00 to STA 38+00

Construction Cost:
- Canal cleaning and re-contouring $4,200.00
- Canal Lining Polyethylene Geocomposite Membrane $13,300.00
- Canal shotcrete cover 3 inches thick $67,305.00
- Trucking and misc expenses $7,500.00
- SUBTOTAL CONSTRUCTION COSTS $92,305.00
EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

- Final Design (10%) $9,230.50
- Right of Way/Construction Easement (5%) $4,615.25
- Legal Fees (5%) $4,615.25
- SUBTOTAL DESIGN AND LEGAL $18,461.00

- Construction Engineering Fee (10%) $9,230.50
- SUBTOTAL OF ENGINEERING AND CONST. $101,535.50

- Contingency = Subtotal of E&C X 15% $15,230.33
- TOTAL CONSTRUCTION COST $116,765.83

- TOTAL PROJECT COST (Rounded) $135,300.00

Canal Rehabilitation and Lining Phase III STA 41+00 to STA 50+00

Construction Cost:
- Canal cleaning and re-contouring $5,400.00
- Canal Lining Polyethylene Geocomposite Membrane $17,100.00
- Canal shotcrete cover 3 inches thick $86,535.00
- Trucking and misc expenses $7,500.00
- SUBTOTAL CONSTRUCTION COSTS $116,535.00

- Final Design (10%) $11,653.50
- Right of Way/Construction Easement (5%) $5,826.75
- Legal Fees (5%) $5,826.75
- SUBTOTAL DESIGN AND LEGAL $23,307.00

- Construction Engineering Fee (10%) $11,653.50
- SUBTOTAL OF ENGINEERING AND CONST. $128,188.50

- Contingency = Subtotal of E&C X 15% $19,228.28
- TOTAL CONSTRUCTION COST $147,416.78

- TOTAL PROJECT COST (Rounded) $170,800.00

Canal Rehabilitation and Lining Phase IV STA 63+00 to STA 69+50

Construction Cost:
- Canal cleaning and re-contouring $3,900.00
- Canal Lining Polyethylene Geocomposite Membrane $12,350.00
- Canal shotcrete cover 3 inches thick $62,497.50
- Trucking and misc expenses $7,500.00
- SUBTOTAL CONSTRUCTION COSTS $86,247.50

- Final Design (10%) $8,624.75
EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

- Right of Way/Construction Easement (5%) $4,312.38
- Legal Fees (5%) $4,312.38
- SUBTOTAL DESIGN AND LEGAL $17,249.50

- Construction Engineering Fee (10%) $8,624.75
- SUBTOTAL OF ENGINEERING AND CONST. $94,872.25

- Contingency = Subtotal of E&C X 15% $14,230.84
- TOTAL CONSTRUCTION COST $109,103.09

- TOTAL PROJECT COST (Rounded) $126,400.00

Canal Rehabilitation and Lining Phase V Canal Turnout Replacement 7 Structures

Construction Cost:
- Removal of Existing Structures $10,500.00
- Replacement Structure with Head Gate $35,000.00
- Trucking and misc expenses $7,000.00
- SUBTOTAL CONSTRUCTION COSTS $52,500.00

- Final Design (10%) $5,250.00
- Right of Way/Construction Easement (5%) $2,625.00
- Legal Fees (5%) $2,625.00
- SUBTOTAL DESIGN AND LEGAL $10,500.00

- Construction Engineering Fee (10%) $5,250.00
- SUBTOTAL OF ENGINEERING AND CONST. $57,750.00

- Contingency = Subtotal of E&C X 15% $8,663.00
- TOTAL CONSTRUCTION COST $66,413.00

- TOTAL PROJECT COST (Rounded) $76,950.00

Rate Increase Needed to Support Canal Lining

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<th>Project</th>
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<th>4% 20 Year Annual Payment</th>
<th>Monthly Payment Per Customer</th>
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<td>Canal Lining</td>
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<td>Canal Lining</td>
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<td>$0.95</td>
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EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

CONCLUSIONS

In funding this project the Town of Basin would have to partner with the Big Horn Canal District in their application to line the canal.

There is no question that the Town of Basin has a detrimentally high groundwater table, even during the winter months in certain areas. It is also evident that the Big Horn Canal channel is seeping at a high rate as it travels through highly permeable geologic formations on the bench above Basin. The groundwater levels in some parts of the Town demonstrate a direct correlation with the summer irrigation season, as evidenced by a combination of tactics from the 1990 study and this one. As a result, it can be inferred that seepage from the Big Horn Canal is influencing groundwater levels in Basin and, therefore, the proposed lining and rehabilitation project would be a viable method of regulating groundwater levels around town, especially in the areas near the canal. As a bonus the water savings from abating the seepage losses would be a benefit to irrigators, including users on the Town of Basin raw water supply.

PHASE II – WATER SYSTEM MASTER PLAN

INTRODUCTION AND PROJECT DESCRIPTION

The Town of Basin requested assistance from the Wyoming Water Development Commission (WWDC) to develop a Water Master Plan as part of their level II study. The town operates both a municipal drinking water distribution system and a raw water distribution system.

Historically, the Town of Basin operated its own water treatment facility on the east edge of town, from a Big Horn River diversion. This facility was decommissioned when the regional rural water system began supplying the Town of Basin. The Town, currently, has potable water delivery contracts with the Big Horn Regional Joint Powers Board (BHRJPB) and the South Big Horn Water Supply Joint Powers Board (SBHWSJPB). The two boards have constructed a fairly vast system of regional and rural water transmission lines that serve Basin and several of the surrounding towns and unincorporated areas. The system of transmission lines delivers water to two points on the Town of Basin System. This transmission system extends from Worland north to Greybull. The Town of Basin system is made up of distribution piping in a range of diameters and materials and in varying ages as shown on Plate 1 (GIS MAP).

Water is supplied to the Town of Basin from several wells in the Eastern Big Horn Basin. These wells include the Worland No. 1 and No. 3, the Wild Horse No. 1 and No. 2, and the Shell Valley No. 1 Well. The majority of the water supplied to the Town of Basin is conveyed from the Wild Horse Well Field. Table 1, below, describes the wells and their production capacity.

<table>
<thead>
<tr>
<th>Well</th>
<th>Permit No.</th>
<th>Depth (ft.)</th>
<th>Casing Dia. (in.)</th>
<th>Aquifer</th>
<th>Production (gpm)</th>
<th>Adjudicated Yield (gpm)</th>
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<tbody>
<tr>
<td>Wild Horse No.1</td>
<td>UW 179084 ENL</td>
<td>5430</td>
<td>7 - 10</td>
<td>Madison-Big Horn</td>
<td>190</td>
<td>270</td>
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<tr>
<td>Wild Horse No.2</td>
<td>UW 100870</td>
<td>5351</td>
<td>7 - 10</td>
<td>Madison-Big Horn</td>
<td>86</td>
<td>150</td>
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<td>Worland No.1</td>
<td>UW 179083 ENL</td>
<td>4210</td>
<td>10-18</td>
<td>Madison</td>
<td>2500</td>
<td>3465</td>
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<td>Worland No.3</td>
<td>UW 179082 ENL</td>
<td>2334</td>
<td>12</td>
<td>Madison</td>
<td>6000</td>
<td>3465</td>
</tr>
<tr>
<td>Shell Valley No.1</td>
<td>UW 75584</td>
<td>3041</td>
<td>10 - 18</td>
<td>Madison</td>
<td>180</td>
<td>300</td>
</tr>
</tbody>
</table>

Table 1
POPCULATION GROWTH AND WATER DEMAND PROJECTIONS

As shown by 2010 U.S. Census data, obtained through the Wyoming Department of Administration and Information Economic Analysis Division, the population growth rate for the Town of Basin is essentially flat. In recent years, however, the Town of Basin has experienced a modest growth trend. Data shows an average increase of approximately 50 citizens for each of the last two census periods. If that trend continues the twenty year population projection for Basin would be about 1,400 citizens. The estimated 2030 population of Basin from the results of the Big Horn Regional Groundwater Level II Study was 1,403. An increase of this magnitude would have a minimal impact in the amount of water used in the Town of Basin and would just surpass the historical peak population of 1,349 in 1980. The Lamax and Basin Housing Additions to the Town of Basin are largely undeveloped and have water infrastructure in place. The combination of these two additions should be more than sufficient to handle projected 20-year growth.

SYSTEM CAPACITY

As stated previously, the Town of Basin no longer operates its own water treatment facility and is supplied through two regional water transmission systems. A 1,000,000 gallon tank, located on the hill just west of town, is filled to an overflow height of 15.5 feet. The storage tank is used to supplement flows during high demand times in the system and is remotely controlled by a computer system utilizing SCADA technology. Based upon the hydraulic modeling of the system, and the slow growth rate of the area; the tank and PRV are sufficient for the needs of the Town of Basin for the foreseeable future. At 1,000,000 gallons the tank offers plenty of capacity for peak demand times, aided by the fact that lawn watering is carried out by the raw water system. Hydraulic modeling shows that the range of pressure settings afforded by the PRV adequately control pressures throughout the system.

GEOGRAPHIC INFORMATION SYSTEM

ESRI ArcGIS software was utilized to catalog and map the water distribution system within the Town of Basin. All known information was included in the data tables for the features logged during the survey. Separate GIS layers and layer groups were created for each feature type. For example, Water Main Valves are included on an exclusive layer under the Municipal Water Features Layer Group. The line-based (pipe) features include length, diameter, and material. Point-based features (valves, etc.) include geographic position (x,y, and z), and a description in the layer title. Polygon features (storage tank, etc.) include geographic position of the center of the element, the area of the feature’s footprint, and other pertinent information, such as the function or volume of the element. Photographs of major system elements are also included in the feature attributes. A map depicting the existing Town of Basin Water Distribution System was created from the GIS layers and can be seen in Plate 1.

HYDRAULIC MODEL OF THE EXISTING SYSTEM

A computer-operated hydraulic model of the entire Town of Basin Water Distribution System, including distribution pipes, fire hydrant nodes, the Basin Tank, and regional transmission lines.
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BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

The software used to generate the model was EPANET 2.0. Average day demands, maximum day demands, and peak hour demands for the system were calculated using billing records obtained from the Town of Basin and from discussions with Mike Dellos, Town of Basin Water Operator. The map of this system is represented by Plate 2 in this summary.

Average residential demands are 115,000 gallons per day, while maximum residential demands are 181,000 gallons per day, based on historic metered data. There are 667 services in the town, which has a population of 1,292 (2012 estimated population). This equates to approximately 2 residents per household and a usage of 92 gallons per person, per day, or 183 gallons per day, per service for average day residential demand. Maximum day residential demand was computed the same way yielding approximately 287 gallons per day, per service (0.199 gallons per minute). Using a peak hour factor of 3.0 the peak hour demand comes out to 377 gallons per minute.

LEAK DETECTION

As part of this study, a leak detection survey of the entire Town of Basin domestic water distribution system was completed by Utility Services Associates (USA), of Burien, Washington. The leak detection survey was incorporated for two reasons: one, to determine if leakage from the distribution system was contributing to groundwater issues; and two, to help assess the condition of the distribution network. Upon completion of the leak detection two (2) leaks were identified and repaired within the system. The first, located at the intersection of 3rd Street and Holdredge Ave. was estimated at 1.0 gallons per minute (gpm), or 43,800 gallons per month. The second leak was found at the corner of 6th Street and Richardson Ave. was producing an estimated 0.5 gpm, or 21,900 gallons per month. With a combined, estimated loss of 65,700 gallons per month, these leaks could account for a large amount of water that the Town of Basin paid for, but was unable to collect fees on.

REPLACEMENT RECOMMENDATIONS

After reviewing the information gathered in the inventory and leak surveys, and in discussions with the public works department, a schedule of replacement was developed over the next 20 years that addresses the water system replacement needs.

Suggested Replacement Schedule:

2013-2104: Town of Basin crews repair or replace inaccessible and inoperable water service curb stop and box assemblies.
2014-2020: Contract the replacement of 975 lineal feet of cast iron water distribution main, with 8” PVC, in East Wyoming Ave.
2020-2026: Contract the replacement of 1,930 lineal feet of cast iron water distribution main, with 8” PVC, in North 8th Street.
2026-2033: Contract the replacement of 3,189 lineal feet of cast iron water distribution main, with 8” PVC, in South 5th Street.
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BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

COST ESTIMATES:

WATER DISTRIBUTION REPLACEMENT COST ESTIMATES

**Schedule 1 Wyoming Ave 975 LF Using 3% Inflation Rate:**

<table>
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<th>Cost</th>
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<tr>
<td>Engineering Design (8.5%)</td>
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<td>Construction Engineering (10%)</td>
<td>$12,688.00</td>
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<tr>
<td>Construction:</td>
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<tr>
<td>Furnish and Install Pipe and Fittings</td>
<td>$85,541.00</td>
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<td>Furnish and Install 6&quot; base and AC Patch</td>
<td>$39,330.00</td>
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<td>Dewatering</td>
<td>$3,000.00</td>
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<td>Construction Subtotal</td>
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<td>Construction Contingencies (Sub x 15%)</td>
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<td>Construction Total Cost</td>
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Project Total Cost (rounded): **$175,085.00**

**Schedule 2 North 8th Street 1,930 LF Using a 3% Inflation Rate:**

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<td>Permitting &amp; Legal Fees (2%)</td>
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<td>Land Acquisition</td>
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Project Total Cost (rounded): **$384,366.00**
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BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

Schedule 3 South 8th Street 3,189 LF Using a 3% Inflation Rate:

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Project Total Cost (rounded): $687,386.00

WATER SYSTEM FINANCING

System Economic Analysis
There are a total of 667 active services within the Basin System. All of these services are billed on a monthly basis. Additionally there are a number of inactive services billed at lower rates. Total monthly billing for active services is $22,126.20, and the total monthly billing for inactive services per month is $720.94 or an average of $22,847.14 per month, based on 2012 data.

Basin Water Revenues
Basin has the following water rates (based on 2012 and 2013 information)
Tap Fees:
¾ inch new service $125.00 plus material and labor.

Rates: $19,348.98
Monthly Payment:

The Basin water system provides water service to:
- 615 ¾ inch Taps base rate $28.24
- 34 1 inch Taps base rate $37.66
- 7 1.5 inch Taps base rate $63.96
- 4 2 inch Taps base rate $100.47
- 4 3 inch Taps base rate $204.84
- 2 4 inch Taps base rate $530.42
- 1 6 inch Tap base rate $768.36

Residential and small business (taps ¾ to 1 inch) $19,348.98
Business and schools/public entities (taps 1.5 to 6 inch) $3,498.16
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A comparison of rates provided by the Town of Greybull indicates that the Town of Basin is billing comparably to other communities on the regional system.

**Rates needed to support water system costs**

Based on historical data from 2009 to 2012 the yearly water revenue is $312,781.98/year. Expenditures for the water system include all equipment, manpower, supplies, payments and miscellaneous expenses needed to fund and operate the Town of Basin System. The total average cost of water system expenditures based on historical data from 2009 to 2012 is $297,002.96/year, giving a total net difference of $15,779.02 per year. The Town of Basin currently pays $9,400.32 monthly or $112,803.84 per year to the BHRJPB. If we include an emergency fund (reserves) to address unforeseen breaks etc of 1.5% of the operating budget totaling a rounded figure of $1,500.00, we can conclude that the Town of Basin is sufficiently covering the costs of operating their current water system.

**Funding of Improvement Projects:**

Nelson Engineering recommends that the table listed below be used as a guideline for seeking funding for the recommended projects (schedule 1-3). All of the projects are eligible for funding through the USDA RD grant loan program. Additional funding sources may be sought through the State Lands and Investments Board (SLIB) to supplement the USDA RD grant and loan. Due to the variation in monies available through the SLIB Board we have calculated the grant and loan amounts based on the USDA RD grant and loan program.

The table below shows the projects in their priority order. The grant and loan amounts associated with each project are shown as well.

<table>
<thead>
<tr>
<th>WWDC- Basin Level II Study</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Financing</td>
<td>Funding Source for Schedules 1-3</td>
</tr>
<tr>
<td></td>
<td>USDA RD Grant and Loan</td>
</tr>
<tr>
<td>Project Ranking</td>
<td>Project Description</td>
</tr>
<tr>
<td>1</td>
<td>Schedule 1</td>
</tr>
<tr>
<td>2</td>
<td>Schedule 2</td>
</tr>
<tr>
<td>3</td>
<td>Schedule 3</td>
</tr>
<tr>
<td>4</td>
<td>Project Totals</td>
</tr>
</tbody>
</table>

**Impact on Current Rates**

As shown above, Basin’s current rates cover all payments and maintenance costs associated with their water system. If the recommended projects were constructed for the total 20 yr annual payment of $66,260.04 the Town of Basin would have a short fall of $8.28 per service to satisfy all loans and costs associated with their water system, if debt was incurred at one time.
EXECUTIVE SUMMARY
BASIN-BIG HORN CANAL REHABILITATION PROJECT, Level II

The table below shows the water rate increase per service that would be required to pay on each loan based on the recommended implementation schedule.

Rate Increase Needed to Support Schedules 1-3

<table>
<thead>
<tr>
<th>Project Ranking</th>
<th>Project Description</th>
<th>Estimated Total Project Cost</th>
<th>4.5% 20 Year Annual Payment</th>
<th>Loan Payment Per Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schedule 1</td>
<td>$175,085.00</td>
<td>$9,304.44</td>
<td>$1.17</td>
</tr>
<tr>
<td>2</td>
<td>Schedule 2</td>
<td>$384,366.00</td>
<td>$20,426.16</td>
<td>$2.56</td>
</tr>
<tr>
<td>3</td>
<td>Schedule 3</td>
<td>$687,386.00</td>
<td>$36,529.44</td>
<td>$4.57</td>
</tr>
<tr>
<td>4</td>
<td>Project Totals</td>
<td>$1,246,837.00</td>
<td>$66,260.04</td>
<td>$8.28</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Although the Town’s water distribution system has proven to be largely reliable and well operated, some areas have been identified for improvement. Hydraulic modeling based upon current and projected demands show that the water supply is adequate for the distribution of both current and future water use. The leak detection survey showed that, for the time being, the Town’s infrastructure is sound, but it did reveal some minor shortcomings in operation in the form of two leaks discovered. The regional water supply that delivers drinking water to the Town of Basin has proven to be reliable and adequate in size and distributes water that meets EPA standards for municipal supply. Some problem areas have been identified through discussions with Town of Basin personnel and a prioritized schedule for replacement projects has been proposed in the system evaluation section of this report.

The proposed upgrades to the water distribution system would be beneficial to the Town of Basin and are relatively modest in scope and phase-able. They are projects that should be financially feasible by the Town of Basin, over the course of the next twenty years. It is recommended that the findings of this study be accepted and the Town gives consideration to seeking funding for the proposed upgrades to the water distribution system.