Executive Summary
for the
City of Sheridan - VA Medical Center Water Project
Level II Study
December 2005

Prepared for:
Wyoming Water Development Commission
Cheyenne, Wyoming

Prepared by:
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Sheridan, Wyoming
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City of Sheridan – VA Medical Center Level II Study

Executive Summary

Table of Contents

1.0 INTRODUCTION
   1.1 Background .......................................................... 1
   1.2 Purpose of Study .................................................. 1
   1.3 Study Area .......................................................... 2
   1.4 Project Input ....................................................... 2

2.0 EXISTING FACILITIES
   2.1 VAMC ................................................................. 2
   2.2 City of Sheridan .................................................... 3

3.0 PROJECT AREA INFORMATION
   3.1 Area Geology ....................................................... 4
   3.2 Permitting Issues ................................................ 4
   3.3 Community Planning and Growth Issues ................. 5
   3.4 Land Ownership ................................................ 5
   3.5 Irrigation with Raw Water .................................... 5
   3.6 Regulations ........................................................ 6

4.0 PRELIMINARY ENGINEERING
   4.1 Design Criteria ................................................... 6
   4.2 Options ............................................................. 7
   4.3 Benefits of Expanded Project ................................. 7
   4.4 Operation and Maintenance ................................. 8

5.0 ECONOMIC ANALYSIS
   5.1 Water Rate Considerations ................................. 8
   5.2 Cost Estimate ..................................................... 9
   5.3 Possible Funding Sources .................................. 9

6.0 SUMMARY OF RECOMMENDATIONS ..................... 10

Figure 1: Study Area and Recommended Improvements .................Back of Report
1.0 INTRODUCTION

1.1 Background

The City of Sheridan and the Veteran’s Affairs Medical Center (VAMC) have been working together on water supply issues for over 100 years, since shortly after Fort MacKenzie was established. In November 1903 the Sheridan Town Council granted Fort MacKenzie three cubic feet per second (cfs) of its territorial water right. In 1905 the diversion facilities at the edge of the Big Horn Mountains 12 miles west of Sheridan and a pipeline to Fort MacKenzie, were constructed. Shortly thereafter, the City of Sheridan relocated their diversion to this same site. This is the current site of the diversion and pretreatment facilities (Intake site) for the City of Sheridan and Sheridan Area Water System. In 1993 the City of Sheridan, Sheridan Area Water Supply Joint Powers Board (SAWSJPB) (the Regional Water System) and the VAMC teamed up to construct a $9.5 million 30-inch raw water transmission main (RWTM). This pipeline delivers water to the Big Goose Water Treatment Plant (WTP), Sheridan WTP (SWTP) and the VAMC WTP.

The VAMC has maintained pretreatment or treatment facilities at their site on West 5th Street since about 1905. Their current treatment plant was built at this site in 1987, and has been providing treated water to the VAMC since that time.

1.2 Purpose of Study

The primary purpose of this study is to: “evaluate the feasibility of connecting the VAMC to the Sheridan treated water system.” In other words, is it more cost-effective for the VAMC to continue to treat and supply their own water to the Medical Center, or will they save money by having the City provide them treated water?

Other purposes for this study include:

- Evaluate the condition of the VAMC’s three primary existing water facilities – their open reservoir, elevated tank, and the transmission main connecting these two facilities.
- Identify possible improvements needed to these three primary facilities to maintain their continued service in either their current role or a changed role.
- Evaluate the VA’s raw water system for irrigation and possible improvements to this system, should the City provide treated water.
- Conduct a preliminary evaluation of the feasibility for an expanded raw water system for larger green areas in the northwest Sheridan.
- If it is feasible for the City to provide treated water to the VAMC, determine what improvements are required in the City water system to allow this to take place.
- Prepare preliminary engineering designs, a sharing plan based on benefits received, and a funding plan for recommended improvements.
- Determine environmental, permitting and local planning issues that need to be addressed as we proceed forward with improvements.
- Develop design criteria and preliminary identify the service area, service population, and demand projections for improvements that may be constructed between the City’s existing water system and the VAMC.

Several factors that must be considered as options are evaluated include:

- The VAMC has their own water rights and is already a partner in the 30-inch RWTM.
- The VAMC desires to continue to use raw water for irrigation. If it is determined to switch the VA to City water, some of their treated water facilities could be used to improve their raw water delivery system.
• If the VAMC switches to City water, a new transmission main will need to be extended to the VAMC. For efficient planning, this main should be designed to serve others that may benefit from it also. A cost sharing plan is needed.
• The plan for improvements needs to clearly define ownership and O&M responsibilities. A draft agreement between the City and VA will be prepared.
• What improvements are required in the parts of the VAMC water system that will continue to be part of the water supply system?
• How do drinking water regulations affect the options considered?
• How will local growth management planning integrate into the proposed water system improvement planning?

1.3 Study Area

The study area lies immediately northwest of the City of Sheridan, and includes the area between the City and VA WTPs and the VAMC. It primarily includes sections 15, 16, 17, 20, and 29 of Township 56 North, Range 84 West. Refer to the Final Report for a more complete discussion on the primary study and possible adjoining areas. The area between the Sheridan and VA water treatment plants and the VAMC is mostly agricultural land. It varies in elevation and is bisected by Soldier Creek. It is close to the Sheridan City Limits and is mostly within the Urban Growth Area. Refer to Figure 1 at the back of this document.

1.4 Project Input

Significant input to this study was provided by the VAMC staff, City of Sheridan Public Works and Planning Departments, City of Sheridan Council and Mayor, City Planning Commission, WWDC staff and general public. A kickoff meeting was held, as were meetings with the VA staff, City Staff, the City Planning Commission, City Council, and SAWSJPB. A public meeting was also held on November 9, 2005 to present project findings and recommendations, and receive public input.

2.0 EXISTING FACILITIES

There are many existing water supply facilities owned by the VAMC or the City in the study area that were evaluated as improvements were considered. Some of these facilities will help serve the proposed improvements. Other facilities may be rehabilitated, abandoned or their purpose modified. The recommendations include an enhanced system for delivering both raw and treated water involving both existing facilities and new facilities. The City service area will be expanded with these improvements.

2.1 VAMC

The VA WTP receives its raw water from the 30-inch RWTM via a 16-inch lateral off the 30-inch line and then a 10-inch ductile iron line from Kendrick Golf Course to the VA WTP. The filling of the open reservoir at the VA WTP from this 10-inch line is done manually. This raw water reservoir acts as a presedimentation basin and storage for both the WTP and the raw water irrigation system. This reservoir has a water surface elevation of about 4111. This reservoir was built in 1901 and modified in 1949. It is 19.5-feet deep with sloping side walls, and a storage capacity of around 1.1 million gallons. The reservoir is constructed of concrete and has been covered with a layer of sprayed on shotcrete. The reservoir was taken out of service for cleaning in the spring of 2005 and inspected. It was found to be in good shape, with no major cracking or noticeable leaks. This reservoir could continue to serve the VAMC’s irrigation system, should the City provide treated water to the VA.
From this reservoir, the water currently goes one of two directions: to the WTP to be treated or to the VAMC as irrigation water. The irrigation water flows through a 1904 8-inch cast iron line (in poor condition) to the VAMC while treated water flows to the VAMC through a 1992 10-inch ductile iron line (poly-wrapped, class 52). The 8-inch lines should be abandoned soon, while the 10-inch line is in good condition and has significant life remaining.

The treatment process at the VA WTP is a diatomaceous earth (DE) filtration process. It uses two filters with nominal capacities of 250 gallons per minute (gpm) each. Filtered water is chlorinated as it enters the 40,000-gallon baffled clearwell. Occasionally during spring runoff, the turbidity level in the raw water is high enough that the DE process cannot readily treat the water because it plugs off too quickly. This occurred in 2005. During these times, the VA WTP runs an above-ground temporary line from the Sheridan WTP.

The existing water plant is basically in good condition, with no major improvement projects currently planned. The operation of the plant is mostly manual however, and if this plant is to remain in operation, a new control system is desired at some point.

The elevated tank at the VAMC is a 139.8-foot high, 600,000-gallon tank, which has an overflow elevation of approximately 4033. This tank is about 35 years old. It was reportedly last recoated in 1992. Normal operation is such that the VAMC facility distribution system operates off of the hydraulic grade line of this tank. The goal is to maintain at least 18 feet of water in the tank for fire protection. The design fire flow is 1500 gpm for 4 hours, or 360,000 gallons. Therefore this elevated tank is very important to the VAMC regardless of which entity provides the treated water.

The inside of this tank was recently inspected by Liquid Engineering (April 11, 2005). Their inspection showed that the inside of the tank is mostly in good condition, with some corrosion pits below the water surface and some coating delamination above the water surface. It is recommended that the inspections continued to monitor the coating and corrosion. The tank needs to be recoated within the next 10 to 15 years, with spot repairs in the next year or two.

The VA water system probably serves about 700 people a day. The VA’s water system also serves about 6 homes between their WTP and the VAMC. These taps were granted primarily in the 1920’s, in exchange for easements.

The distribution system that serves the Medical Center had a major improvement project in 1993. This system is generally looped and believed to be in good condition. Pressures throughout the service area are mostly in the 55 to 65 psi range. According to the 2005 Sanitary Survey for this system, there has been a cross connection survey and appropriate backflow preventors have been installed. This distribution system and the elevated tank should be able to continue to provide more than adequate storage and distribution of water regardless of where the treated water comes from.

2.2 City of Sheridan

The 30-inch RWTM also serves the SWTP. This is a 14-million gallon per day (MGD) plant located on the southwest corner of the study area, west of Sheridan. Treated water from this plant enters a 4-million gallon (MG) clearwell (storage tank) located at the plant. This clearwell has an overflow elevation of 4040. It provides water by gravity flow to the 4040 and 3952 pressure zones of Sheridan.
There are three pressure zones pertinent to the study area. These are the 3952 (lowest zone in the Sheridan water system), 4040, and 4160 zones. These elevations are the hydraulic grade line (HGL) for that zone, or the elevation of the overflow for any storage tanks on that zone. Water leaves the SWTP and enters to these pressure zones through a 24-inch line which leaves the clearwell and runs east to a point near the North High Tank, located approximately one-half mile south of West 5th Street. There, water flows north in 16 and 20-inch mains at the hydraulic elevation of 4040, and also flows south and enters the lower elevation North High and North Low Tanks through altitude valves. These tanks serve the 3952 pressure zone. The 16-inch line (4040 pressure) extends north to 5th Street, and then turns east on 5th Street. 12-inch extensions off the 16-inch line are located on Highland, Long Dr. and Mydland Rd. Refer to Final Report for more information on these major transmission lines.

The 4 MG tank at the SWTP is also connected to the higher pressure zone established by the Big Goose WTP. This is important to consider as improvements are planned to extend City water to the VAMC. The Big Goose WTP could potentially supply water above the 4040 zone of the SWTP. However, there are several issues regarding the long term feasibility of using BGWTP water as the supply for this area.

3.0 PROJECT AREA INFORMATION

3.1 Area Geology

Generally the area topography consists of gently rolling dryland pasture and irrigated farmlands dissected by numerous intermittent drainages. The proposed water line alignment crosses the Soldier Creek drainage. Geology consists predominately of residual clay soils with gravel terrace deposits on the uplands overlaying bedrock of soft sandstones and shales of the Fort Union Formation. Alluvium is encountered along Soldier Creek. Landslides, slumps and soil creep areas are common in some areas south of Soldier Creek. The Fort Union Formation is well known for landslides throughout the Sheridan area.

The gravel terrace deposits are generally dense in consistency and typically poorly graded gravel with cobbles. There are numerous abandoned gravel pits in this area, with one active pit located directly to the west of the VAMC. Inspection of excavations at the gravel pit sites indicates that the gravel terrace deposits may range from 8 to 15 feet in thickness. Soft clay shale was observed underlying the gravel terrace deposits at the pit areas.

Landslide and creep areas exist immediately to the east of the existing pipelines to the VAMC on the south valley slope of Soldier Creek. The proposed new alignment can generally follow the existing lines, however it should be located at least 50 feet west of the existing alignment adjacent to the soil creep area. Best management practices and erosion control design will be required at the Soldier Creek crossing. There are no other unstable areas of concern along this alignment.

3.2 Permitting Issues

While several permits are required for this project, there does not appear to be any “fatal flaws” that would significantly alter the project scope as these permits are pursued. Permits required include:

- Permits and approvals from the agencies listed in the Environmental Report:
  - U.S. Army Corps of Engineers
  - Wyoming Game and Fish & U.S. Fish and Wildlife Service
  - Wyoming State Historical Preservation Office
- Natural Resources Conservation Service
- Wyoming DEQ
- Department of Veteran’s Affairs

- Wyoming DEQ Permit to Construct the water system improvements
- Sheridan County for crossing Soldier Creek Road
- Wyoming DEQ Construction Permits (by the Contractor)

3.3 Community Planning and Growth Issues

The area in the vicinity of the VAMC is of planning and growth interest in the Sheridan community. The potential impacts to the area from a planning, land use and growth perspective were considered in this study. The Sheridan County Growth Management Plan, adopted in July 2001, is the planning tool used by both the City and County to guide planning and growth decisions. This area is largely within the “Urban Growth Area”. The Urban Growth Area is defined as “Those areas outside of the urban core area that are likely to be developed within the next 20 or more years.” These are designated growth areas and are considered suitable for public water and sewer services and eventual annexation.

This area encompasses virtually all the current planning and zoning boundaries defining areas for public water and sewer, has experienced a recent annexation, and is included in on-going transportation planning projects. The Level II study team met with the City of Sheridan Planning Commission and presented information on this study. Input was requested from the Commission regarding planning or land use issues associated with extension of water through this area. The Commission made clear its desire to implement long-range planning strategies and plan for future growth in the area. They preferred to see water lines sized and installed where they could provide the most long-term benefit for the City and the area as the system grows.

It is concluded that extension of City water through this area will not adversely affect local planning and zoning activities. In fact, planning for this growth as part of the VAMC project will benefit the intended use of the area.

3.4 Land Ownership

Land ownership in the study area is composed mainly of large agricultural parcels. Most of the routing of the proposed lines is on private land, therefore easements will be required. Easement acquisition is becoming more of a concern as land becomes more valuable, particularly close to Sheridan where development is likely to accommodate expected growth.

While the VA has an easement for their pipelines, this easement is relatively narrow, so it is not seen as usable for the upcoming project. Although routing near these lines may be less objectionable to landowners. Most of the landowners whose land will be crossed with the pipeline alignments have been contacted, and they support the project and are interested in potentially receiving water in the future. So at this point, the easement acquisition process appears favorable.

3.5 Irrigation with Raw Water

The VAMC has its own raw water system, separate from its treated system. The potential for an expanded raw water irrigation system serving areas in northwestern Sheridan in addition to more acreage at the VAMC, was analyzed as part of this study. The VA’s historical raw water usage was used to calculate approximate water requirements for other potential users.
The VA can potentially expand the areas they irrigate with their raw water system by approximately 3.7 acres that are irrigated with treated water, plus about 11 acres that are not irrigated. Abandoning the aging 8-inch transmission main to the VAMC should eliminate some loss of water from leakage, making their overall system more efficient. It is noted that the VA has the water rights and raw water deliver system capacity (once they switch from the 8-inch to the 10-inch ductile iron line), to increase the acres irrigated with raw water, provided times of watering are properly managed.

By assessing the amount of raw water the VA has used and the area they irrigate, water requirements were estimated for larger potential users in the area such as the Sheridan High School, two elementary schools, Memorial Hospital, and the County Fairgrounds (about 50 acres total). Using historical usage by the VAMC an application rate of 36 inches per year was estimated as the feasibility of a new raw water system for these areas was considered. An approximate potential demand of 48 million gallons per irrigation season for a raw water system for these areas was estimated.

While a more detailed analysis is required before proceeding to final design, a transmission main for delivering raw water down West 5th Street to these 5 areas was tentatively sized using an 8-hour delivery period and a design flow of 700 gpm. This line would tentatively originate from the 1 MG open reservoir at the VA WTP site. A raw water irrigation system such as this would benefit this area and will be eligible for WWDC funding. Therefore it is recommended that this system be investigated further.

### 3.6 Regulations

Regulations have a significant impact on public water supplies. The primary regulation is the Safe Drinking Water Act (SDWA), which is a nationwide law that regulates public water supplies. While both the City of Sheridan and VAMC have been in compliance with the SDWA, it is expensive to comply with these requirements and two upcoming rules will make it more difficult for the VA to remain in compliance. These rules are:

- Long-term 2 Enhanced Surface Water Treatment Rule
- Stage 2 Disinfectants/Disinfection Byproducts Rule

Therefore it would benefit the VA from a regulatory standpoint if treated water was provided by the City. If the VA continued to operate their own distribution system around the campus, they would still be a public water supply and need to comply with the SDWA rules that relate to distribution systems.

### 4.0 PRELIMINARY ENGINEERING

#### 4.1 Design Criteria

Historical water usage by both the City and VAMC and population projections for the Sheridan area were used to develop the design criteria for this project. Potential growth in the area between the SWTP and the VAMC was considered in allocating capacity in possible improvements. Per input from VA staff, no growth in current water use by the VAMC was included. Trends in usage by the City and SAWS were considered. Conservation measures implemented a few years ago by the City seem to be paying off as the usage per account has reduced about 20% since this effort commenced.

The VAMC has historically used about 6.3% of the water diverted through the City’s intake facilities. About 58% of this water remains raw water and is used for irrigation, while 42%
(average of 50 MG/year) is treated. If the VAMC was served by the SWTP, it would use about 4.2% of its historical treated capacity.

A summary of treated water design flows for the VAMC:
- Supply Capacity: 1 MG = 700 gpm over 24 hours
- Design Peak Day: 0.55 MG = 380 gpm over 24 hours
- Average Day: 0.137 MG = 95 gpm over 24 hours
- Typical rate for filling the elevated tank = ~300 gpm

If a new pipeline was built it could serve growth in the area near the new line. The design flow in this line (assuming there is a new storage tank constructed on the 4160 pressure zone) is 3329 gpm. This amount includes up to 700 gpm for the VAMC.

### 4.2 Options

Two primary options for the City extending their water system to the VAMC were evaluated in this study. In addition, a relatively simple extension to serve the VAMC only was developed for comparison. The “serve the VAMC only” approach not only does not benefit the area as was desired, but stressed some of the existing City water mains that run from the WTP to 5th Street. Therefore this was not a desirable option.

The recommended option consists of the following:
- A pump station at the SWTP to pump water to the next pressure zone. Piping will be included to also allow the higher pressure Big Goose WTP water to fill the proposed tank, bypassing the pump station.
- A 1 MG tank on the next pressure zone (4160). This will be a buried concrete tank, located on a hill just west of the VA WTP.
- A transmission main between the pump station and the tank (16-inch line).
- A transmission main from the tank to the VAMC. This line will primarily follow the existing VA water lines between their WTP and the VAMC. Part of this line would be sized 20 inches and part 16 inches.
- Connection to the VAMC’s system with a master meter.
- A connection from the new tank to the 8-inch line on West 5th Street to eliminate a small booster station.
- Connecting the 5-6 homes served by the VA to the new transmission main.

### 4.3 Benefits of Expanded Project

The following summarizes benefits that are realized to both the VAMC and the area (including the Sheridan water system), if the expanded improvements are constructed as opposed to a simple extension to serve only the VAMC. With consideration of these benefits, it is recommended that the larger project be installed.

1. A line to serve the VAMC only, will only carry its design flows. The expanded project will carry higher flows if they are briefly needed, such as for an emergency.
2. The expanded project includes a storage tank, which can provide water to the VA system by gravity. This can provide storage for fire protection during times when the VA’s tank is out of service for recoating or other maintenance.
3. The VA does not need to install a pump station at the base of their tank to assure their tank will be filled. This eliminates reliability concerns and the operation and maintenance (O&M) associated with the pump station.
4. The transmission main for the expanded project is closer to the existing users whose service the VA must transfer to the new main.
5. These improvements are designed with consideration to expected area growth.
6. A gravity storage tank provides emergency and fire flows to this entire area.
7. These improvements can interconnect into the City water system (such as on Hill Pond and 5th Street), to improve the transmission of water.
8. A SAWS pump station will be eliminated and improved service provided to their line out Soldier Creek/Keystone Road.
9. If a future project develops northwest of Sheridan that is not currently considered, the basic water infrastructure will be there as a starting point.

4.4 Operation and Maintenance

City of Sheridan staff provides O&M on both the City and SAWS water systems. The VAMC currently provides the O&M on their WTP and entire water system with their staff. The VAMC is interested in reducing their O&M responsibilities, and see this as one of the benefits of the proposed project.

The City will provide O&M for the improvements constructed under this project with the same staff and resources with which they currently provide these same services for the remainder of the system. Two teams of operators were considered. These are the WTP staff and the transmission/distribution system staff. The expanded production of the SWTP will not be significant, while the transmission improvements are not expected to add to the workload of the second crew to the point that another operator will be required. The cost for O&M will be built into the rates charged the VAMC.

5.0 ECONOMIC ANALYSIS

5.1 Water Rate Considerations

From data obtained from the VA, it was estimated that their costs to treat 1000 gallons of water were about $2.50 for treatment only. If all associated costs are considered, a greater amount will result. The City’s costs are significantly lower. The major factor is the economy-of-scale and is not a reflection on the VA’s methods.

Categories of Sheridan’s costs to consider as the unit costs to deliver water to the VAMC are calculated include:
- Source and Supply (Twin Lakes and the Intake)
- 30-inch RWTM (VAMC already participates in these costs)
- Treatment (at the SWTP)
- Transmission and distribution (only for the portion of the system between the SWTP and the VAMC).
- Administration (includes billing and collection, meter reading/maintenance, and various other operation transfers to other City departments including: Treasurer, Attorney, Clerk, Computer Services, Personnel, Legislative and Executive)
- Depreciation (contributing to a reserve for upgrades to the intake and SWTP so the VAMC does not need to participate in any individual projects).

The cost developed for the City to provide the VA treated water was $1.55 per 1000 gallons. This is less than the City’s current rate for “in-city” users. Their rate for “out-of-city” users is higher. To simplify the recalculation of this rate in the future, it is recommended that the new
VAMC rate be based upon 85% of the inside-city water rate for a 6-inch meter, and would be adjusted to 85% of the new rate as the City adjusts their rates in the future.

5.2 Cost Estimate

The VAMC’s potential contribution to this project was developed in the Final Report based on the simpler project of serving the VAMC only. The cost estimate for this option included serving the users on the VA’s transmission main and a cost allowance for the capacity in the City’s system that the VA would consume between the WTP and their point of connection. This cost is estimated at $699,000.

The cost estimate for the recommended project, as outlined on page 7, is as follows:

<table>
<thead>
<tr>
<th>Recommended Option – WWDC Eligible Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Final Plans &amp; Specifications</td>
</tr>
<tr>
<td>Geotechnical investigation</td>
</tr>
<tr>
<td>Permitting and Mitigation</td>
</tr>
<tr>
<td>Administration/Legal</td>
</tr>
<tr>
<td>Access and Right-Of-Way Acquisition</td>
</tr>
</tbody>
</table>

**Cost of Components**

- 6830 LF of 20” PVC Pipeline @ 86$/FT  $587,400
- 3220 LF of 16” PVC Pipeline @ 63$/FT  $202,900
- 1640 LF of 12” PVC Pipeline @ 45$/FT  $73,800
- 4300 LF of 16” PVC Pipeline @ 63$/FT  $270,900
- Bond/Insurance/Mobilization             $200,000
- Pipeline Appurtenances                  $253,000
- SWTP Pump station                       $180,000
- 1 MG Tank El. 4160                      $1,550,000

**Construction Subtotal**  $3,318,000

**Engineering During Construction (10%)**  $330,000

**Subtotal**  $3,648,000

**Contingency (Subtotal x 15%)**  $548,000

**Estimated Project Total Cost**  $4,716,000

5.3 Possible Funding Sources

While several possible funding sources for this project were investigated, the WWDC is the primary source. They are the only source that is discussed in this Executive Summary. A 50% grant from the WWDC is assumed, although the grant rate may increase to 67% in the future. The higher grant amount would of course reduce the amount that the local sponsors need to contribute. Since others may benefit form these improvements in the future, the City will hold a recoupment plan on this project, so others will be assessed their fair share of the costs when their benefits are realized. It is assumed the VA will pay off their share of the costs at the time of construction, and that the City will borrow their share from the State Revolving Loan program at 2.5% for 20 years. If WWDC funding is to be pursued, an application must be submitted by November 1, 2006, for the 2007 funding cycle.

The total estimated project cost is $4,732,000 ($4,716,000 from the above table + $16,000 for non-WWDC eligible costs). The payoff of this loan under these terms results in an annual repayment of $107,500. (A 4% loan results in a $123,000 annual payback).
A summary of the funding plan thus becomes:

- WWDC Grant: $2,358,000
- VAMC contribution: $699,000
- City of Sheridan loan: $1,675,000
- Total estimated cost: $4,732,000

6.0 SUMMARY of RECOMMENDATIONS

This section briefly summarizes the key recommendations discussed in the Final Report of this Level II study. Refer to Figure 1. These recommendations include:

1. The City of Sheridan should provide treated water to the VAMC, allowing the VA to discontinue the use of their treatment plant.
2. Finalize an agreement to design and construct water system improvements to expand the service from the SWTP. This will need to include a final funding and cost sharing plan. Apply to the WWDC for 2007 funding.
3. Create a new 4160 pressure zone in this area. Place a tank at that elevation so gravity flow is available and install a pump station to deliver water to this tank.
4. Size the tank and transmission mains to accommodate future expected growth within the area designated, as long as it complies with the Sheridan Growth Management Plan and local planning efforts.
5. Provide a method to “recoup” the investment in the oversizing of the water system improvements that will be constructed to provide water to the VAMC, so those that benefit from these improvements in the future will pay their fair share.
6. The VAMC should continue to operate the facilities at the site of their water plant (except the plant). This includes the open reservoir and the connections to the raw water line supplying this point and the line going north to the VAMC. Abandon the old 8-inch cast iron line between here and the VAMC and switch the 10-inch ductile iron line to provide raw water to the Medical Center.
7. Continue to use raw water to irrigate the green areas around the Medical Center, and even expand the scope of this system, once service is off the 10-inch ductile iron line. Over time, eliminate the use of treated water for irrigation at the VAMC.
8. Provide a “master meter” and connection near the VA’s elevated tank. All facilities downstream of this meter are to remain the VA’s and the operation and maintenance of these facilities will be their responsibility. This includes the elevated tank and distribution system.
9. Recoat the elevated tank as discussed in the Final Report.
10. Proceed with more detailed planning for a raw water system to serve the larger green areas in northwest Sheridan. These areas include the High School, Sagebrush and Cloud Peak Elementary Schools, Memorial Hospital and Welch Cancer Center, and the County Fairgrounds. Once final planning is complete, proceed with design and construction if this system still appears favorable.
11. Eventually eliminate the SAWS booster station on West 5th Street and use the new storage tank to supply the line running west on Soldier Creek and Keystone Roads. The 8-inch portion of this line (from this booster station west to the bend in West 5th Street), will then be fed from this tank back to the east. Connect to this line with a new 12-inch main from the tank.
12. Provide a potential connection off the new transmission main running to the VAMC to the City water system on Hill Pond Drive, to make an important transmission main connection in the City water system.
13. Finalize the method of adjusting the rate for Sheridan water used by the VAMC.
14. Re-examine the Water Service Boundary in this area and Urban Services Boundary in this area. Is it time for expansions or other adjustments?