Stillwater County

2008 Capital Improvements Program

FINAL DRAFT

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Prepared by:

GreatWest engineering

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I. CAPITAL IMPROVEMENTS PLANNING

A. Introduction

A Capital Improvements Plan (CIP) is a budgeting and financial tool used by a local governing body to establish public works rehabilitation and maintenance priorities and to establish funding for repairs and improvements. The CIP includes planning, setting of priorities, effective public works management, financial management, and community decision-making. A community's CIP normally covers all public works that fall under the umbrella of the governing body's jurisdiction.

The purpose of this document is to outline the key elements of a CIP to fund repairs, replacements, upgrades and expansion of the county's public facility systems. This document qualifies the level of recommended repairs as well as the associated budgetary costs. This document is intended to be a guide to the Stillwater County community leaders to effectively pursue much needed funding for their public infrastructure system.

This report is the beginning of a comprehensive capital improvements program for Stillwater County that will focus, not only on the roads and bridges, but also on other county facilities, including those used for recreation, fire fighting, law enforcement, and public administration. Due to funding limitation, this CIP will be compiled in a phased manner as monies become available.

B. Legal Authority

Montana law authorizes local governments to adopt and implement capital improvements plans. Specifically:

1. The general powers of county commissioners are quite broadly described as follows: "The board of county commissioners has jurisdiction and power, under such limitations and restrictions as are prescribed by law, to represent the county and have the care of the county property and the management of the business and concerns of the county in all cases where no other provision is made by law" (7-5-2101, MCA).

2. "A county or municipal governing body may provide for a capital improvement program for the replacement, improvement, and acquisition of property, facilities, or equipment that costs in excess of $5,000 and that has a life expectancy of 5 years or more. The capital improvement program must be formally adopted by the county or municipal governing body. The capital improvement program may receive funds from up to 10% of one or more property tax levies and may receive funds from any source: (7-6-616, MCA).

3. In accordance with 76-1-101, MCA, a local governing body may create a planning board whose responsibility, in part, is to prepare and propose a growth policy (or comprehensive plan) for the community of county. "A growth policy must include…a

strategy for development, maintenance, and replacement of public infrastructure, including drinking water systems, wastewater treatment facilities, sewer systems, solid waste facilities, fire protection facilities, roads, and bridges" (7-1-601, MCA).

C. What is a Capital Improvements Plan?

The CIP is a budgeting and financial tool that can be used by local governing bodies to establish public works rehabilitation and maintenance priorities and to establish improvement funding. The CIP process involves planning/prioritization, effective public works management, financial management, and community decision-making.

A CIP consists of five basic elements:

1. Inventory and evaluation of existing conditions for each facility,
2. Prioritization of needs for each segment of the improvements,
3. Identification of monetary options that can be used to meet the needs, and
4. Establishment of a time schedule that matches available funds to the improvements required to meet the system needs.
5. A brief written document (this CIP), which is formally adopted by the governing body.

A CIP is a common sense, systematic approach for many public entities to evaluate their needs and secure the necessary support of public officials and the general public. Some notable advantages of developing a CIP to provide for public improvements and maintenance needs include:

- Cost effectiveness and improved efficiency of government expenditures,
- To understand and respond to citizens needs,
- To obtain community support,
- To obtain a consensus of critical projects,
- To avoid crisis situations resulting from lack of maintenance,
- To set a stable financial plan and demonstrate sound planning to bond underwriters and funding programs,
- To dedicate a CIP Fund for the sole purpose of paying for capital improvements,
- To help provide systematic direction to county staff and consultants.

A CIP is a cost savings tool that identifies where improvements will be needed rather than waiting for each crisis to occur before taking action. It is usually more expensive to make

emergency repairs than it is to maintain a system in working order by foreseeing problems and making corrections before there is a total breakdown in the system. The CIP also reduces risk and avoids the inconvenience and public safety threat associated with emergency type facilities.

Since there is never enough money to meet all needs, the CIP assists the governing body in establishing priorities for funding projects from different types of facilities. A CIP provides the commission with information regarding which projects are most technically critical and which are most economical. Thus, money is allocated in the most effective way with an eye towards avoiding last minute crises.

An added benefit to implementing a CIP is to memorialize commission planning and decisions. As commissioners and key staff members come and go the CIP document, particularly if it is routinely updated, will remain a constant.

D. Key Elements of a CIP

The development of a CIP requires that certain information for each community's public facilities be collected and assembled in a format that can be entered into the CIP process. The key elements fundamental to developing a CIP are:

Inventory/Analysis
In order to develop a CIP, the County needs to evaluate their public infrastructure systems. To do this, a thorough field analysis must be performed and the described systems carefully analyzed. Sound engineering recommendations should be entered into a manageable database and summary tables developed as applicable. This data may then be used as the basis for the CIP approach.

Cost Estimates
Preliminary cost estimates for improvements identified during the inventory and analysis phase are made using estimated budgetary unit prices. All administrative, engineering, inspection and contingency costs are incorporated with historic construction costs to develop the budgetary unit prices. Due to the general nature of the analysis, these cost estimates are not accurate enough to be used as a definitive basis for establishing the actual cost of a specific improvement project, but are acceptable for budget level estimates.

Funding Analysis
The research and identification of funding sources to finance improvements for the various public systems is one of the most important and difficult tasks in the CIP process. Due to the fluctuation of available federal and state funding, it is only possible to forecast funding availability from these sources for short time periods when budgets are known, and difficult to forecast for the periods of time over which the CIP extends. For this reason, the current level of funding from state gas tax, federal aid urban funds, other state and federal funding programs, grants, loans, and user fees, is assumed to be the same for the duration of the CIP. Funding options for this CIP are discussed in more detail in Section G of this report.

Public Involvement/Outreach
Public outreach and support of the CIP is one of the most essential elements of the entire planning process. It is essential that input from the commission, staff and community are solicited and considered during preparation, adoption and updating of the plan. This topic is discussed in greater detail in Part F of this section.

Adoption of the CIP
The governing body should formally adopt the CIP by resolution or ordinance. The final CIP document should be utilized during the annual budgeting process.

Secure Funding
Funding sources may require pursuing grants, passing revenue, or general obligation bonds, obtaining loans, creating SID's, creating maintenance districts, raising user fees or carrying out other local government fund raising methods.

Project Construction
When the money is received, scheduling and management of the construction projects may proceed.

Annual CIP Update
Cost accounting and reprioritization occurs at the annual update stage, typically during the budgeting process. This annual process should also focus on periodic re-inspection of the major public facilities.

E. Policy Development

Stillwater County should consider establishing policies that guide the CIP process. Policy guidelines are a reflection of overall community goals and objectives related to future growth and development and fiscal capacity. Policies are very useful because they provide long-term guidance on how day-to-day decisions should be made so that the daily decisions conform to long-term and overall community needs. What this means is that decision makers need to take time to ask themselves questions about where their community is going, how they are going to get there, and how funds will be allocated to do this. The Stillwater County Planning Board may be part of this process, in that they make the recommendations regarding land use and comprehensive planning through the use of the Stillwater County Growth Policy. The goals, objectives and policies in the Growth Policy should be compatible and coordinated with CIP policies.

Public works policies can span the range from fiscal policies concerning indebtedness to management policies relating to proper maintenance and operation of a facility. Some categories of policies include fiscal policies, policies on allocation costs, policies on how to finance capital projects, and policies on planning construction and management.

Some suggested policies the County may consider are:

1. The CIP will be incorporated into an annual planning process.

2. Regular inspection and systematic maintenance will be a primary goal of the County Commission.

3. State and Federal inspections should be incorporated into the CIP updating process.

4. Coordinate CIP planning with the Stillwater County Planning Board.

5. Utilize the CIP in preparation and/or updates of any comprehensive plans, growth policies, and zoning regulations. Likewise, use any comprehensive plan and zoning information when preparing and updating the CIP (Example: account for population and build out density.)

F. Public Outreach

Public support for the CIP is the most essential element of the entire planning process. Ultimately, the consumer will pay for the improvements and must be convinced that such improvements are necessary. The best, most logical program may be rejected by the tax/rate paying community due to lack of public awareness of infrastructure problems.

Many citizens are often unaware of the most fundamental public works issues including: scope of the problems, consequences of not making repairs, short term costs versus long term savings, what are fair rates for services, how repairs can be made affordable, etc. Thus, local leaders will have to work extra hard to inform and educate citizens on these issues. This section outlines the recommended process for involving the public.

The County should designate a "Spokesman" to convey the needs of the local infrastructure to the general public. In the case of Stillwater County, perhaps the spokesman may be the Road and Bridge Superintendent, the Planning Director, the Commission, or a combination of these. Techniques by this group or person that are vital to gaining public support are:

- Begin as early as possible in the process to inform and educate the public. It is a grave mistake to "surprise" the public with final plans just before a governing body hearing on the issues. People generally support projects in which they have been involved, especially those who have witnessed step-by-step decision making by the governing body.
- Have inspection, analysis and background data compiled at the start of the public information phase of the CIP.
- Be able to justify the need for the program as well as explain the benefits. Outline the consequences of not improving the infrastructure.

Following are suggested outreach methods to gain support for the County's CIP. These suggestions are listed in accordance with their anticipated effectiveness. Note that the order of the outreach methods is very important and is discussed further in this section:

Establish Need
First and foremost, the governing body and local community leaders must be convinced of the need for a CIP. Thorough presentation and review by the Public Works personnel and/or Consultants is vital to gaining a commitment from the body.

County Meetings
Conduct County meetings to present the CIP to the public and solicit constructive interaction. These meetings are an important gauge of the political climate and helps determine if alternatives should be considered.

Service Organization Support
The Governing Body should solicit support from local service and support organizations.

Public Education
Information summary flyers are successful in public education. Though the content must be short and concise, these information flyers can provide the basic components of a CIP as well as alert residents of future county workshops and meetings. Public service announcements (PSA) via press releases or paid ads are an effective outreach method. This procedure could be used in addition to utility bill stuffers or mailed flyers. Other options could also include "Open Houses" at the county courthouse, tours of the facilities, or utilizing area TV and radio stations.

G. Funding

The role of the CIP process is to identify the amount of money required and establish the best method(s) to obtain financing. Bridge, water and sewer infrastructure improvements can often be funded with grants and low interest loans from state and/or federal programs. Unlike water and sewer infrastructure improvements, state or federal grants and loans are practically nonexistent for road improvements and maintenance. Public entities generally use gas tax monies or general funds to finance road upgrades and maintenance.

The process of financing improvements should begin with a Financial Forecast. It is important to develop a financial forecast of the public funds likely to be used in financing improvements over the coming five years. Note that 3-5 year programs are widely used across the nation. This tool is critical to estimate how many projects can be scheduled in accordance with a five-year plan. This forecast is necessary to identify lack of available funds in existing County accounts and establish need for outside fund sources.

A Financial Forecast is broken down into two main components: A Revenue Forecast, and an Expenditure Forecast. With these forecasts in hand, the County is able to accurately assess the amount of supplemental funding needed.

Research of available supplemental funding sources reveals several options:

- Fund and/or defray costs of improvements
  - Department of Natural Resources and Conservation (DNRC)-Grants and Loans
  - Community Development Block Grant (CDBG)-Grants
  - Treasure State Endowment Program (TSEP)-Grants
  - Rural Utility Service/Rural Development (RUS/RD)-Grants and Loans
  - State Revolving Fund (SRF)- Water and/or Wastewater Loans
  - Economic Development Administration (EDA)-Grants
  - Community Transportation Enhancement Program (CTEP)-Grants
  - FEMA Hazard Mitigation Grants

- Fund improvement construction and remediation maintenance
  - General Obligation (GO) and/or Revenue Bonds

- Fund Water, Wastewater, Road Improvements
  - Special Improvement Districts (SID's) or Rural Improvement Districts (RID's)
  - Local Option Gas Tax

- Fund annual maintenance
  - Road Improvement Districts or Road Maintenance Districts

H. Criteria for Setting Priorities

The following lists are suggested criteria for which each proposed infrastructure project could be judged. Each potential project should be accompanied by the types of information noted below. This is not to say that all such information is to be included in the CIP. Rather, this information is to be used only to help rank each project in order of priority.

Capital Costs
The governing body should be provided with information concerning both the portion of the project costs for which the local government is responsible and the portion that will be paid by others (outside funding agencies, interested partners, private monies, etc.). If expenditures will be incurred over a period of more than one year, all long-term costs should be shown.

Reducing Operating and Maintenance (O&M) Costs
One of the major reasons for capital projects is often to reduce O&M costs. It is important not to underestimate the degree to which O&M costs affect your operating budget. Any capital improvements that can reduce operating costs should be seriously considered. Likewise added long-term O&M costs arising from an expansion of facilities, should be considered as they will result in future increases to the annual operating budget.

Changes in Local Government Revenue
Some proposed infrastructure projects will positively or negatively affect tax revenues or service charges. For example, a sanitary sewer extension project will generate additional hook-up fees and monthly user charges. Revenue changes should all be calculated.

Health and Safety Effects
Many public works projects will have an important impact on the crucial area of public safety. While it is difficult to assign a dollar value, they represent perhaps the most valuable public service that any government can provide. The value of the project in lives saved or injuries prevented should be stated. Projects, which protect public health and safety, should have a very high priority.

Planning
Projects should be consistent with all existing planning efforts, in particular the goal and objectives of the Stillwater County Growth Policy.

Effects on Local Economic Development
Economic development means business expansion and creation of new jobs. Since economic development is the objective of many capital projects, it is important to set forth the close correlation between capital improvements and economic development. The economic benefits of a project should be documented in the following areas:

- Local Property Tax Base
- Property Values
- Increased Employment
- Investment in Local Economy

Civic Pride and Community Livability
Falling under this category are all capital improvement impacts, which would affect the environmental, aesthetic or social condition of your community. Examples include the reduction of traffic congestion, air pollution, and noise in a suburban shopping area.

Public Support
It is usually desirable to place a higher priority on projects that have generated a good deal of public support. It should be remembered that without a sufficient degree of public support, some public projects (such as those backed by general obligation bonds or special assessments) simply couldn't go forward due to statutory requirements for public approval.

Compliance with State or Federal Regulations
A high priority should be assigned to projects that are required by state or federal regulations. Failure to comply with regulations could result in threats to public health or safety, damage to the environment, and fines levied against the local government. An example is a statutory mandate such as MCA 7-14-2201; Each board of county commissioners shall maintain all public bridges other than those maintained by the department of transportation…

Availability of Funds
Setting priorities between types of facilities is another task for the governing body and staff. The typical situation is that there is not enough money to do everything. There are no easy answers, although the criteria previously mentioned can help clarify the priorities. Because the CIP looks forward 5 years, projects that cannot be financed this year could be scheduled for financing in years 2-5.

If funding is available "right now" for one project, the County will probably want to assign this project a higher priority ranking. Projects for which funding is not available or difficult projects to finance are normally assigned lower priorities.

The following points are offered as an outline for a successful priority setting process.

- Consistently maintain financial viability through financial planning.
- Assure availability of qualified technical expertise.
- Promote technological innovation, "fresh ideas"; avoid quick "cookbook" approaches.
- Determine public needs for service as well as wishes in changing economic environment.
- Communicate these needs to the user, and the costs of facilities to meet those needs.
- Encourage public participation.
- Involve the regulatory or granting agency in the decision making process to assure full understanding of the project by all parties.
- Employ the planning process continuously (annually) for updates.
- Do not be afraid to plan for things you cannot currently afford; be realistic in your needs and work to obtain required funds.

II. TRENDS IN COUNTY GROWTH AND DEVELOPMENT

A. Recent Trends

The census figures indicate that Stillwater County has experienced steady growth since 1970. A substantial part of the growth occurred over the decade from 1990 to 2000 when the population increased at an average rate of approximately 2.5% per year adding 1,659 persons to the county population. The census showed 8,195 persons in Stillwater County for the 2000 census with the City of Columbus accounting for over 21% of the total at 1,748 persons.

According to the 2004 Stillwater County Growth Policy, the 2000 population distribution for the rural area by census tract listed the Columbus rural area at 1,395; the Absarokee area at 2,318; the Park City area at 1,809; and the north Stillwater area at 762 persons. Additional information is shown in the Growth Policy for population trends by elementary school district. The population increased from 1990 to 2000 in all school districts except the Fishtail district. The largest population increases occurred in the Absarokee, Columbus and Park City districts, followed by Reed Point, Nye, Rapelje and Molt. This growth trend is expected to continue through 2010. The overall population trend for the county is predicted to increase at an average of 1% to 2% a year that would result in a total county population as high as 9,770 by 2010.

B. Subdivision Activity

The number of subdivision lots reviewed increased substantially over the decade from 1990 to 2000 compared to the previous ten year period. Information developed by the Stillwater County Planning Department included in the Growth Policy shows that 532 lots were reviewed from 1990 to 2000 compared to 251 from 1980 to 1990. This represents a 112% increase in the number of lots. At the same time it was noted that tracts exempted from review declined by 67% indicating that a large part of the activity is due to a change in subdivision laws so that fewer tracts are exempted than in the past. Nevertheless, the information shows that growth is occurring on newly subdivided land which will ultimately affect the demand for services provided by the county.

III. PUBLIC FACILITIES AND NEEDS

A. Explanation of Public Facilities

Ultimately all types of facilities will be included in this CIP, including public facilities owned and managed by Stillwater County and other provides (i.e., special districts, etc.) The CIP will contain the following public facilities (in alphabetical order):

- Airport
- Care Facilities
- County Shop Building
- Courthouse Building
- Equipment
- Fairgrounds
- Fire
- General Government
- Law Enforcement
- Library
- Parks and Trails
- Public Schools
- Roads and Bridges
- Sewer
- Solid Waste
- Stormwater
- Water

The public facilities addressed in the CIP are grouped in the following two categories:

Category A: Those types of public facilities for which detailed information is available. Category A facilities are Roads, Bridges, Sewer, Solid Waste, Stormwater, and Water.

Public facilities are presented in significant detail, including an inventory of existing facilities, their size or capacity, their level of service, a list of proposed capital improvements projects and their costs, and a financing plan to pay for the cost of the proposed projects.

Category B: All other public facilities: Buildings, Airport, Care Facilities, Corrections, Fairgrounds, Fire, General Government, Law Enforcement, Library, Parks and trails, Public Schools, and Equipment.

Public facilities are presented in a more generalized fashion (although details are included where data is available).

B. Category A Facilities

1. Roads

Introduction and Background

Stillwater County contracted with Great West Engineering, Inc. to conduct a Road Evaluation as part of the Capital Improvements Plan development. The field inspections and road

evaluations were completed for minor collector and local county roads in Stillwater County, excluding roads in Reed Point and Park City. One hundred and twenty-four county roads were inspected and evaluated, thirty of which were local roads and ninety-four were minor collectors. Detailed road inventory and analysis information showing rating methods, maps and field data is provided in the Road Evaluation for Capital Improvement Plan report which was prepared in July 2006. The following write-up is from the front section of that document. The Road Evaluation Report is referenced as Appendix A of this document.

Methodology
The inspections and evaluation of the county roads were based on guidelines set forth by the Transportation Information Center, University of Wisconsin-Madison. The University of Wisconsin-Madison has developed the "Pavement Surface Evaluation and Rating: PASER Manual, Gravel Roads", which ranks gravel roads on a scale of one to five, one representing a failed road, two a poor road, three a fair road, four a good road, and five being the best or excellent road.

Road Evaluation Goals
The purpose of the County's roads inventory was to catalogue, evaluate the road conditions, rank, and provide guidance for ongoing maintenance as well as future road repair or reconstruction and provide the following:

- Recommend improvements to county gravel roads necessary to bring in compliance with current County Road Standards.
- Recommend maintenance level and associated costs for each road to assist the County maintenance program.

Field Data Collection and Evaluation

The field evaluation and data collection took place September 27, 2004 through October 2, 2004 for all county roads north of I-90, and May 30, 2006 through June 2, 2006 for all county roads south of I-90. The roads that were evaluated were predetermined and agreed upon prior to the field evaluations; see Appendix C of the Road Evaluation Report for road list.

Gravel Roads
Each road was driven, measured for length, and evaluated by a windshield/walking survey. The road evaluations were done in one mile increments and included roadway width, crown, rut depth, pothole depth, and washboard depth measurements. For each one mile increment the road evaluation assessment included the following eight categories:

Crown: A good road crown enhances the drainage off of the roadway. The crown of the roadway was measured using a smart level and a seven foot straight edge. A two to three percent crown was rated four to five, and a flat roadway was rated zero to one.

Drainage: Drainage was evaluated based upon the profile of the roadway as well as the condition of the roadside ditches. Roads that have sag points or low lying areas along the

roadway tend to develop ponding in these areas. Roadside ditches were evaluated to determine if there was adequate depth and width and if the ditch was clear of debris. Culverts were visually examined to see if cleaning was required or if the culverts had collapsed or were damaged.

Gravel Layer: The gravel layer needs to have sufficient depth to be able to carry and distribute the vehicle loads to the subsoils. Typically gravel roads require a depth of greater than 6 inches to distribute loads properly. Each gravel road depth was measured as part of this evaluation.

Washboards: Traffic action can dislodge aggregate and create washboard effects on the surface of a gravel road. Washboarding or corrugation develops across the road, perpendicular to the direction of traffic. Washboards are caused by heavy traffic movements, can develop in rolling terrain, along curves, near intersections, or in areas where traffic is accelerating or decelerating. Washboards were evaluated by the depth and the coverage area of roadway.

Potholes: Potholes and depressions develop in the gravel or surface of the road when surface material is worn away or when soft spots develop in the underlying soils. They fill with water and enlarge or spread in roads without adequate drainage features. Potholes were evaluated by the depth and the area of roadway coverage.

Figure 1: Roadway with no gravel

Ruts: Minor surface ruts or depressions may occur from repetitive traffic displacing the surface gravel in some portions of the road, while severe rutting may be a cause of weak underlying soils. Ruts were evaluated by depth and the length or coverage area of the roadway.

Dust and Loose Aggregate: Traffic on gravel roads with poor aggregate gradation or too many fines can generate dust. Heavy dust conditions create a visibility restriction that results in a traffic safety hazard. Dust is also a form of air pollution and can cause discomfort to nearby property owners. Loose aggregate or unstable surface material will be shoved from the wheel path and form ridges at the center of lanes and at the roadway edges. Dust and loose aggregate were visually evaluated and the depth of loose aggregate was measured.

Ride quality: The ride quality was evaluated based upon driver comfort - how smooth the roadway feels to the driver as the vehicle travels at the posted speed.

Each category was ranked using the PASER manual system scale of one to five. The final overall rating of the roadway was determined by calculating the weighted average of all eight categories. See Appendix D of the Road Evaluation Report for all field evaluation data sheets.

Problem Identification & Results

One hundred and twenty-four roads, 636 miles in total length, were evaluated and driven during the field review. All roads evaluated were Minor Collector and Local roads throughout Stillwater County, excluding roads in Reed Point and Park City. The evaluation includes three roads in the town of Rapelje. The overall rating for Stillwater County gravel roads was better than Fair or a rating of three (See Graph 1). The following overall summary of the evaluation categories outlines the rating results.

The existing gravel roads have an average PASER rating of 3.26. This value equates to roadways that are in fair to good condition and require regrading maintenance; however, due to the lack of gravel on the majority of the county roads, most roads should have a three inch gravel layer added while regrading. The PASER ratings calculated are based on current traffic volumes. As development and growth occur in focused areas of the county certain roads will deteriorate at a faster rate due to the larger number of vehicles traveling on select roads thus resulting in lower ratings. Table 5-1 shows the PASER rating for the existing road conditions within the study area.

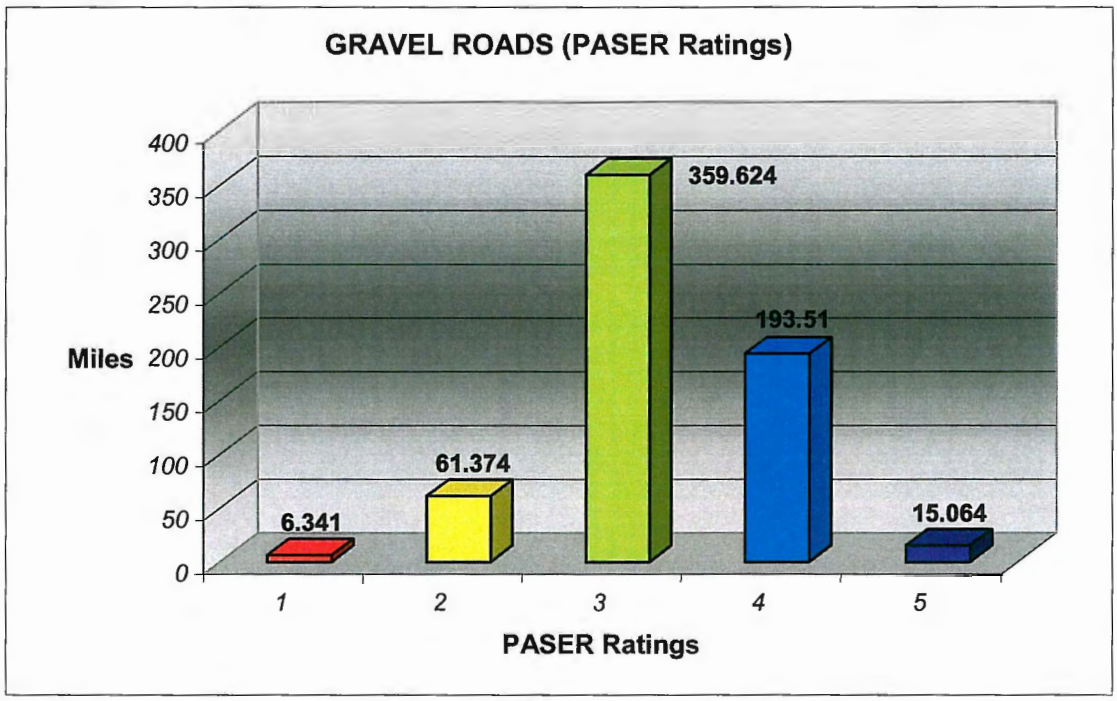
Maintenance and improvements are warranted on the majority of roads to improve the overall condition as well as residential access. A deteriorating road condition may affect the response time of emergency services as well as school bus traffic accessing areas of the county. Recommended improvements necessary to improve the existing road network are discussed further in Section 5.

Emergency Service

A major concern that coincides with substandard or failing road conditions is the response time for emergency service providers within the county. The major problem associated with the response time is the overall condition of the roads. The emergency vehicles are carrying vital equipment that can be damaged easily when rough roads are encountered. Another problem contributing to the response time is the width of the roadways. Many roads in the county have little or no shoulder and do no meet width requirements specified by the County Road Standards. These issues create a problem when the larger emergency service vehicles encounter oncoming traffic. The road conditions result in slower response times that could lead to wildfires spreading through the area. In the case of a health emergency, a quick response time could result in the difference between life and death.

Signing

A thorough inventory of the existing signs within the county was conducted during the data collection process. Each road was looked at to determine if the road signs were in place and in the right location. There are a few roads that did not have the road signs in place making it not only hard for the traveling public to navigate around the county but also for emergency vehicles.



Graph 1: GRAVEL ROADS (PASER Ratings)

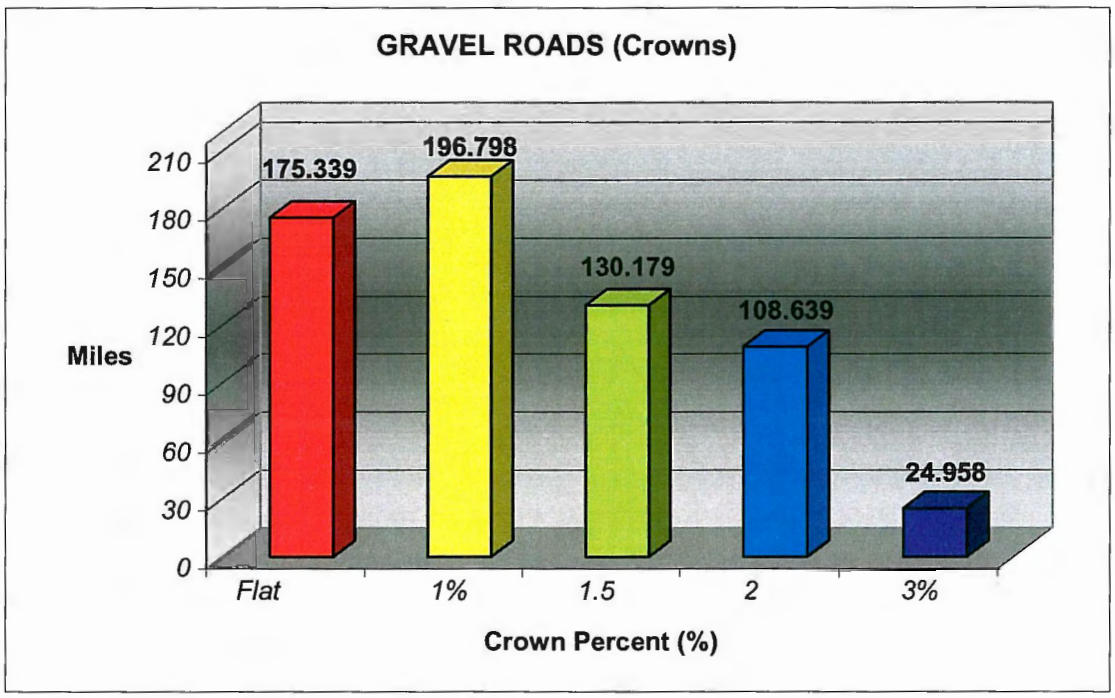
Crown

The field visit and measurements of the crowns on all the roads resulted in an average crown of zero (0) to one (1) percent, which is flatter than the desired crown for a gravel road (See Graph 2). The desired crown section is three percent. Even after evaluating roadways that had been bladed within a week time period, a proper two to three percent crown was not

incorporated in the shaping of the roadway which needs to become a standard practice when blading and shaping a gravel roadway.

Drainage

The field visit drainage evaluation results for all the road ditches showed an average drainage rating between fair and good (See Graph 3). Common problems with the ditches and drainages that rated fair were having ditches too shallow and narrow, or that material was impeding the flow line of the ditch or the roadway runoff (See Figure 2). Other roadways needed culvert crossings or had damaged culverts that were restricting the flow. Drainage on gravel roads is very important to the life of the road. A roadway that doesn't drain properly and allows the water to pond within the roadway will accelerate the deterioration of a road which will then require more attention. A good two to three percent crown is a major factor to roadway drainage which will assist in removing the water off of the immediate driving surface.

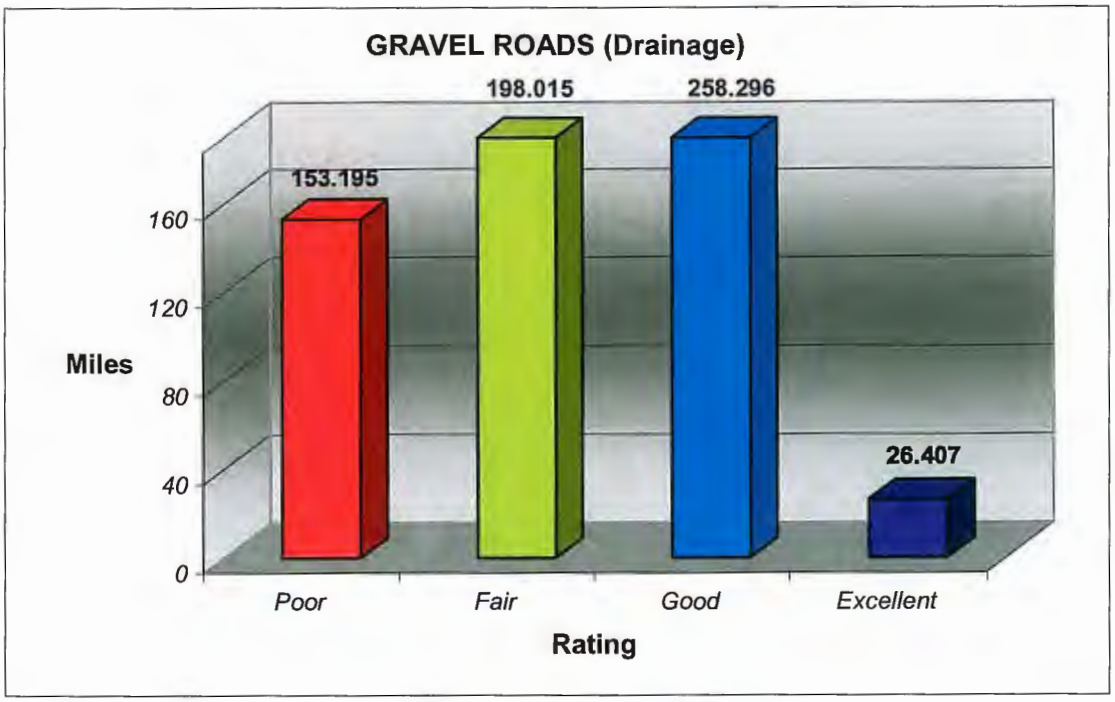


Graph 2: GRAVEL ROADS (Crowns)

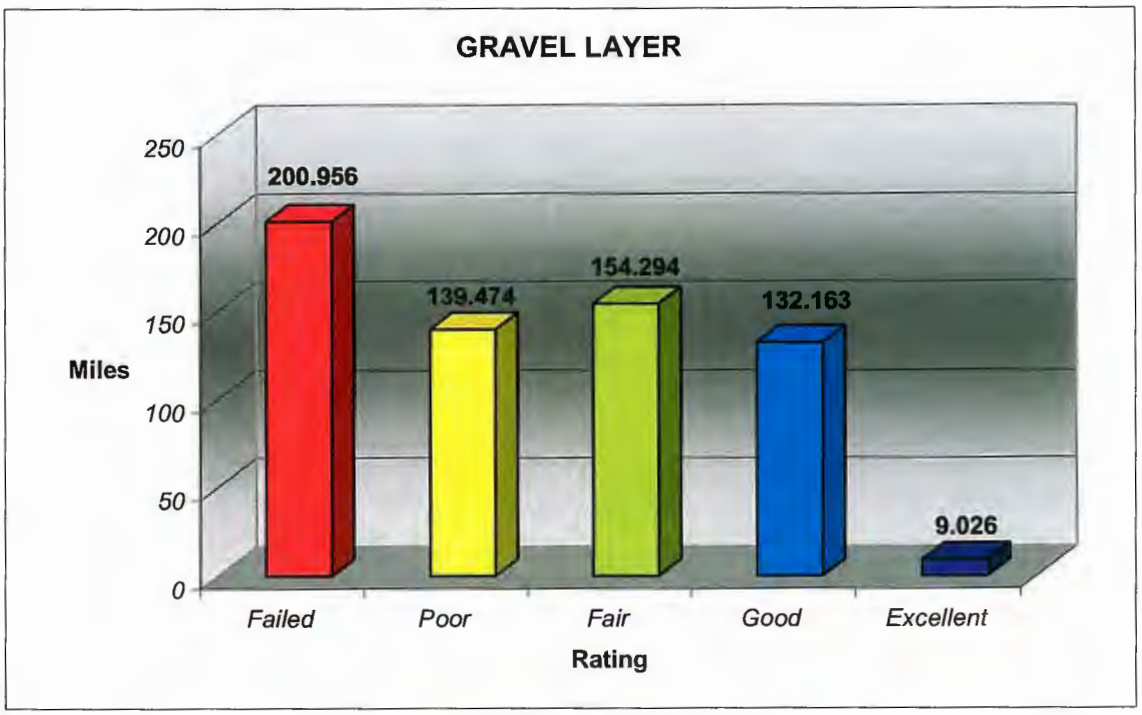
Figure 2: Poor drainage and failed crown

Gravel Layer, Dust and Loose Aggregate

The Gravel Layer was rated by visually inspecting the road. There are several roads within the study area that had little to no gravel surfacing (See Graph 4). There were several roads that had a powder layer on top of the roadway for the driving surface which creates a large rutting problem during and after storms. Roadways that have a failed or poor gravel layer will generate significant amounts of dust from traffic and wind. When the riding surface of the roadway is a powder surface the dust created by traffic can get bad enough to restrict sight distance on the roadway creating a driving hazard. Using a good mix of gravel layer can help prevent or reduce severity of other common problems with gravel roads such as rutting and dust control, and will greatly prolong the life of the roadway which will lessen the amount of on going maintenance to the roadway.



Graph 3: ROAD DRAINAGE



Graph 4: GRAVEL LAYER

Surface Deformation

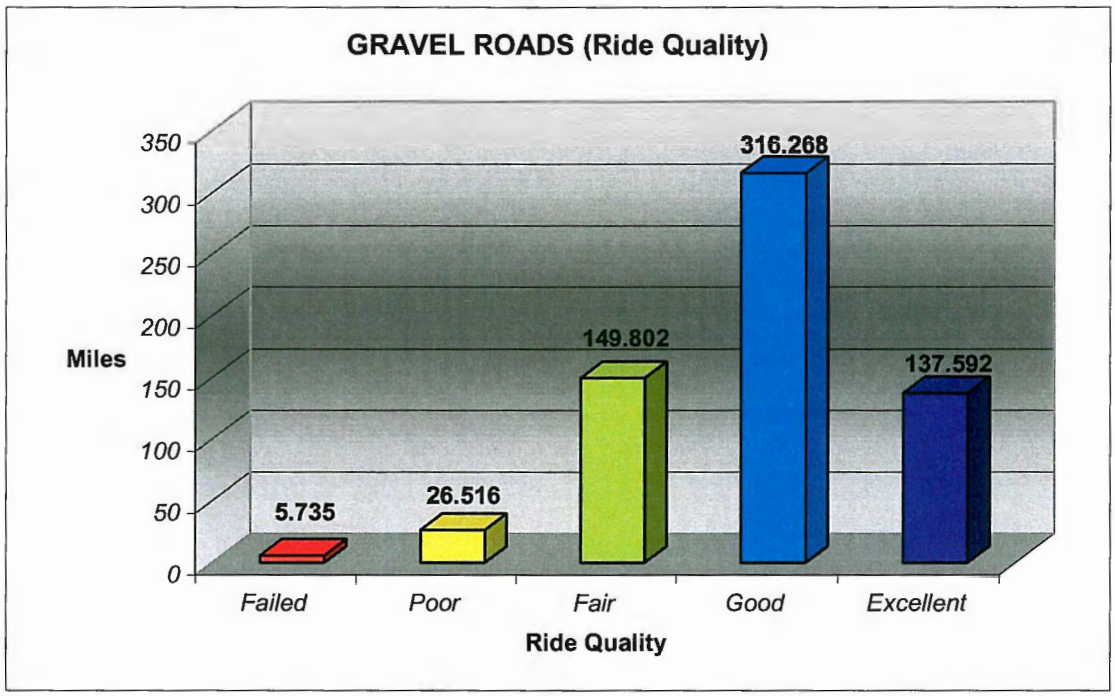
Surface deformation includes washboarding, ruts, and potholes. The majority of the county roads evaluated showed very little surface defects. There are some small select areas on a

few roads that have defects, but most of them can be fixed by improving the crown or by mixing additional gravel into the road surfacing. The one defect that showed up the most was rutting (See Figure 3). Most roads had some rutting which is a common problem with gravel roads with no gravel layer for a riding surface. Without a good gravel layer there is nothing to support the traffic loading which results in ruts forming in the driving paths. There are a few roads that had severe rutting which will take a major surface reconstruction to correct.

Ride Quality

The ride quality of a road was evaluated by driving the road at the posted speed limit or the roads reasonable speed limit. All roads were driven during the field visit and rated accordingly (See Appendix D for field visit notes). The overall ride quality rating for the roads was good for most roads (See Graph 5). This is a reflection of good maintenance practices that reduces washboards and potholes on a majority of the roads.

Figure 3: Big Coulee Rd. (Rutting and Loose Aggregate)



Graph 5: GRAVEL ROADS (Ride Quality)

Recognition and General Improvements

PASER Rating 5 and 4

The recommendation on roads with a PASER Rating of a 5 is to perform no maintenance. With the roads receiving a PASER Rating of 4 (See Figure 4) the first recommendation is to review the field notes and the PASER Rating print outs to determine what deficiencies caused a road rating of 4 and determine what maintenance the road needs if any. Roads with a 4 rating may need routine maintenance or drainage repairs in select spots, but for the most part are good roads and little to no maintenance is required.

Figure 4: Flat Rd. (PASER Rating of 4)

PASER Rating 3

A road rating of 3 is a fair road that does need maintenance performed on it before the road deteriorates to a rating of 2. Roads with a higher ranking of 3 may just need to be scarified and thoroughly mixed then re-graded to reestablish the road crown and to remove potholes or washboarding (See Figure 5). Most of the roads with a rating of 3 had little to no gravel layer or crown and need to be re-graded and have gravel material added to the road surfacing, or need ditch improvements, or culvert maintenance performed.

Figure 5: PASER Rating of 3

PASER Rating 2

A road with a rating of 2 is a road in poor condition that needs to be re-graded to reestablish the crown and to remove all surface defects from the road. A good gradation of gravel layer, six inches in depth typically, is needed to restore the roadway surfacing to enable traffic load carrying capacity that will provide long term service. Ditch establishment is needed on a majority of these roads as is culvert maintenance.

PASER Rating 1

A road with a rating of 1 (See Figure 6) is ranked as a failed road and maybe closed to the public at times. A roadway with a failed ranking will need to be completely reconstructed with ditches and possibly new culverts at appropriate locations.

Figure 6: A Section of Sheep Dip Road. (PASER Rating of 1)

Road Condition
Each road was evaluated based on the current road conditions with a list of recommended improvements and associated costs.

Table 5-2 shows maintenance needed of all existing roads, from reconstructing to simply blading, or leaving alone because the road has little to no traffic or is used simply as a farm or ranch road. The table breaks each road into blocks or sections and identifies the beginning and ending cross road or county line. Also included in the table are approximate lengths along with the PASER rating.

The following is a list of improvement options recommended for each section of road, a brief explanation of their function, and the estimated budgetary unit cost based on a 20 foot roadway section to apply the measure:

Gravel Shaping (GR)

- Includes blading ruts and potholes on gravel roads.
- Gravel applied at 2-3 inches thick for shaping as necessary.
- Improves ridability and drainage.
- Unit price used is $10.00 per lineal foot.

Blading (B)

- Includes blading ruts and potholes on gravel roads, and compaction.
- Improves ridability and drainage.

- Unit price used is $0.77 per lineal foot.

Gravel Reconstruction (RCG)

- Applies when 50-70% of the existing gravel road is showing signs of failure.
- Requires removal of subgrade, and construction of new crushed aggregate surface course.
- Improves ridability and drainage.
- Unit price used is $19.20 per lineal foot.

Unit price estimates for the described resurfacing and reconstruction improvements were prepared assuming work would be contracted out to private entities. The unit price estimate also included a 10 percent construction contingency for unforeseen quantity adjustments and change orders.

It is important to recognize that the recommended improvements are considered applicable in accordance with the context of this preliminary analysis. At the actual construction stage, each road should be thoroughly analyzed to verify the applicable maintenance or repair measure needs.

Road Maintenance Priorities and Costs

Two estimates are provided in the Road Evaluation Report in Tables 5-1 and 5-2. Table 5-1 is an estimate indicating what it would take to bring each evaluated section of road to county standards. The estimate in Table 5-1 (not included in this report) represents a very high cost because a majority of the county roads north of I-90 have little to no gravel layer for a driving surface. A gravel road without a gravel layer as a driving surface will deteriorate at a much greater rate than a road with a six inch gravel layer, especially after a rain storm.

Table 5-2 of the Road Evaluation Report, which is included as Table 2 at the end of this section, is an estimate of the maintenance needed to upgrade roads and to prolong the life of select roads. Several roads that were evaluated with a PASER rating of a three or less have been excluded of any maintenance because of the location and very low use. Some roads are exclusively used by a local rancher or farmer and may only be traveled once a day or once every other day. Such roads include Buck Creek Rd, part of Erfle Rd., and half of Phipps Rd. These roads should be identified by the county road supervisor and marked to be maintained on an as needed basis.

In conjunction with the improvements described in Table 2, it is strongly recommended that a road maintenance policy be implemented; one which provides a regular maintenance program and periodic roadway condition evaluations. It is recommended that a maintenance program including addition of gravel, and blading or some combination be conducted on a regular basis. Some higher volume roads may require more frequent resurfacing as necessary. blading of gravel roads is to be done once or twice a year depending on the amount of traffic use certain roads receive, and addition of gravel done every 4 to 5 years. Some gravel roads may only need to be bladed every other year or every third year depending on the use of the

road and the amount of traffic it may receive; this should be done by performing a biannual roadway evaluation which will provide a visual illustration on how each road section is deteriorating and at which rate. For example North Stillwater Road receives a significantly higher amount of traffic than Lovers Lane which results in a faster rate of deterioration. North Stillwater Road may need to be bladed once or twice a year where as Lovers Lane may only need to be bladed once every other year.

The PASER program and data base, provided in the inside cover of the Road Evaluation Report, has all of the evaluated roadway section logged and is an excellent platform to keep an ongoing evaluation and log of what the current roadway condition is and what maintenance has been performed in the past. An updated and continuous PASER program will assist in the planning and implementation of an annual maintenance program. This will allow the county to adjust which roads need to be maintained annually, biannually or so forth along with determining the deterioration rate of each roadway. Once a maintenance need or priority is set for a roadway it may be assigned a maintenance level which will help the county determine how much maintenance is done each year.

Maintenance Level
A common practice for a gravel road network is to come up with a maintenance level which determines the level of maintenance a particular roadway may receive. The following is an outline of maintenance level priorities.

Maintenance Level (A, B, C, D, Z Maintenance Priority Levels)
(Preliminary Road Maintenance Level)

- A – Highest Priority of maintenance

  Emergency Routes, Bus Routes, Main Arterial, Major Collector – First Maintenance Priority

- B – Medium Priority of Maintenance

  Feeder, Minor Collector, Frequent use – Regular Scheduled Maintenance

- C – Low Priority of Maintenance

  Infrequent Use – Scheduled Infrequent or Annually

- D – Lowest Priority of Maintenance

  Rarely used – Maintained as required, but no scheduled maintenance

- Z – Not Maintained

Priority tables have been set up to start a maintenance level program. The following lists in Table 1 layout each section of roadway in their corresponding maintenance level. The lists will need to be adjusted with county growth, biannual reviews of the road, emergency vehicle routes, and school bus routes.

Table 1
Road Maintenance Priority Levels

Maintenance Level A	Maintenance Level B	Maintenance Level C		Maintenance Level D		Maintenance Level Z
Big Timber Rd. #1	Fifth Street, Rapelje	Arnold Rd. #2	LE Peterson Rd.	Arnold Rd. #1	Lower Grove Cr. #1	Beaman Creek Rd.
Big Timber Rd. #2	Ninth Street, Rapelje	Battle Butte Rd.	Lower Flat Rd. #1	Five Mile Rd.	Lower Grove Cr. #2	Buck Creek Rd. #1
Columbus-Molt Rd. #1	Butcher Creek Rd.	Blattie Rd.	Lower Flat Rd. #2	Beaver Creek Rd. #1	Limestone Rd. #1	Buck Creek Rd. #2
Columbus-Molt Rd. #2	Canyon Creek Rd.	Brinkel Rd. #2	Limestone Rd. #3	Beaver Creek Rd. #2	Limestone Rd. #2	Cow Face Hill Rd.
Columbus-Molt Rd. #3	Christenson St., Rapelje	Bokma Rd. #1	Limestone Rd. #4	Beaver Creek Rd. #3	Lutgen Rd. #1	Erfle Rd. #1
Columbus-Molt Rd. #4	Coombs Flat Rd.	Bokma Rd. #2	Linger Rd. #1	Beaver Creek Rd. #4	Lutgen Rd. #2	West Gee Rd.
Big Coulee Rd. #4	Big Coulee Rd. #3	Cadillac Hill Rd.	Linger Rd. #2	Belmont Rd. #1	McDonald Basin Rd.	Huntley Butte Rd. #1
Big Coulee Rd. #5	Countryman Creek Rd. #4	Cash Rd.	Lone Tree Rd. #1	Belmont Rd. #2	McKeith Rd.	Jackstone Creek Rd. #3
Countryman Creek Rd. #1	Eastlick Rd.	Church Rd. #2	Lone Tree Rd. #2	Benbow Rd.	Meins Rd.	Jackstone East Rd. #1
Countryman Creek Rd. #2	Flat Rd. #1	Clappers Flat Rd.	Lovers Lane	Berry Creek Rd.	Meyer Creek Rd. #1	Jackstone East Rd. #2
Countryman Creek Rd. #3	Gee Rd. #1	Coles Rd.	Maki Hill Rd.	Brinkel Rd. #1	Meyer Creek Rd. #2	Jones Hill Rd. #1
Cemetery Rd.	Gee Rd. #2	Big Coulee Rd. #2	Mason Rd.	Church Rd. #1	Miller Rd. #1	Phipps Rd. #2
Johnson Bridge Rd.	Gooseneck Rd.	Countryman Creek Rd. #5	McNaley Rd. #1	Big Coulee Rd. #1	Miller Rd. #2	South Beaver Creek. Rd. #4
Leuthold Rd. #1	Huntley Butte Rd. #4	Downer Rd. #2	McNaley Rd. #2	Countryman Creek Rd. #6	Mosdahl Rd.	Skibstad Rd.
Leuthold Rd. #2	Jones Hill Rd. #2	Downs Rd.	McNaley Rd. #3	Davidson Creek Rd.	Nitche Rd.	Stiles Rd. #2
Molt-Rapelje Rd. #1	Jones Hill Rd. #3	Eder Rd.	Mohr Ln	Downer Rd. #1	Oil Well Rd.	Stockade Rd. #2
Molt-Rapelje Rd. #2	Main Street, Rapelje	Erfle Rd. #2	North Stillwater Rd. #4	Gorr Rd.	Painted Robe Rd.	
Molt-Rapelje Rd. #3	McFarland Rd. #1	Erfle Ln.	Old Mill Rd.	Hageman Rd.	Phipps Rd. #1	
Molt-Rapelje Rd. #4	McFarland Rd. #2	Fiddler Cr. Rd. #1	Peterson Ranch Rd.	Hanser Rd.	Pleasant Valley Rd.	
Molt-Rapelje Rd. #5	Nye-Cemetary Rd.	Fiddler Cr. Rd. #2	Peterson Rd.	Hap Trees Rd.	South Beaver Creek. Rd. #3	
North Stillwater Rd. #1	North Stillwater Rd. #3	Fiddler Cr. Rd. #3	Pine Hill Rd.	Henry Hill Rd. #1	South Fiddler Creek Rd.	
North Stillwater Rd. #2	Pony Rd. #1	Flat Rd. #2	Ray Rd. #1	Henry Hill Rd. #2	Sheep Dip Rd.	
Reed Point Rd.	Pony Rd. #2	Franks Rd.	Ray Rd. #2	Hines Ranch Rd. #1	Stagecoach Rd. #1	
Shane Creek Rd. #1	Pony Rd. #3	Grove Creek Rd. #1	Reifle Rd. #1	Hines Ranch Rd. #2	Stagecoach Rd. #2	
Shane Creek Rd. #2	South Beaver Creek. Rd. #1	Grove Creek Rd. #2	Reifle Rd. #2	Hines Ranch Rd. #3	Stagecoach Rd. #3	
Spring Creek Rd.	Schreiner Rd.	Grove Creek Rd. #3	Retirement Rd.	Hoagland Rd. #1	Stiles Rd. #1	
Springtime Rd #1	Shane Creek Rd. #3	Grove Creek Rd. #4	Ross Rd.	Huck Rd.	Stockade Rd. #1	
Stillwater River Rd. #1	Shane Ridge Rd. #1	Hailstone Basin Rd.	South Beaver Creek. Rd. #2	Huntley Butte Rd. #2	Swindler Rd.	
Stillwater River Rd. #2	Shane Ridge Rd. #2	Herzog Rd.	Shanks Basin East Rd.	Jackstone Creek Rd. #2	Wheat Basin Rd. #1	
Stillwater River Rd. #3	Springtime Rd #2	Hoagland Rd. #2	Svenson Rd.	Joe Hill Rd. #4	Wheat Basin Rd. #2	
Stillwater River Rd. #4	Springtime Rd #3	Hoagland Rd. #3	Trees Rd.	Lake Veiw Rd.		
Stillwater River Rd. #5	Trewin School Rd.	Huntley Butte Rd. #3	Valley Creek Rd. #1			
Stillwater River Rd. #6	Upper Flat Rd. #1	Ingersoll Creek Rd.	Valley Creek Rd. #2			
	Upper Flat Rd. #2	Jackstone Creek Rd. #1	Wheat Basin Rd. #1			
	Whitebird Creek Rd. #1	Joe Hill Rd. #1	Whitebird Creek Rd. #3			
	Whitebird Creek Rd. #2	Joe Hill Rd. #2	Whitebird Creek Rd. #4			
	West Springtime Rd. #1	Joe Hill Rd. #3	Wodrich Rd. #1			
	West Springtime Rd. #2	Joe Hill Rd. #5	Wodrich Rd. #2			
		Joe Hill Rd. #6	West Rosebud Rd. #1			
		Joe Hill Rd. #7	West Rosebud Rd. #2			
		Joe Hill Rd. #8	West Rosebud Rd. #3			
		Keyser Creek Rd. #1	West Rosebud Rd. #4			
		Keyser Creek Rd. #2	Youngs Point Rd.			

TABLE 2. Recommended Maintenance

Roadway	PASER Rating	Miles	Improv.	Estimate
Arnold Rd. #1	1.75	1.496	---	$0
Arnold Rd. #2	3.25	8.000	GR	$422,400
Battle Butte Rd.	3.66	4.087	---	$0
Beaman Cr. Rd.	2.875	0.479	---	$0
Beaver Cr. Rd. #1	3	2.500	GR	$132,000
Beaver Cr. Rd. #2	2.875	2.500	GR	$132,000
Beaver Cr. Rd. #3	2.5	1.500	GR	$79,200
Beaver Cr. Rd. #4	2.625	1.980	GR	$104,544
Belmont Rd. #1	2.97	6.000	---	$0
Belmont Rd. #2	3.13	1.048	---	$0
Benbow Rd.	3.375	1.758	B	$7,147
Berry Cr. Rd.	3.21	4.021	---	$0
Big Coulee Rd. #1	3	2.000	GR	$105,600
Big Coulee Rd. #2	2.94	1.898	B	$7,717
Big Coulee Rd. #3	3.75	3.330	---	$0
Big Coulee Rd. #4	2.5	2.000	B	$8,131
Big Coulee Rd. #5	3.13	3.500	RCG	$354,816
Big Timber Rd. #1	3.47	7.103	B	$28,878
Big Timber Rd. #2	4.13	1.030	---	$0
Blattie Rd.	3.5	0.556	GR	$29,357
Bokma Rd. #1	3.91	2.048	---	$0
Bokma Rd. #2	4.125	2.148	---	$0
Brinkel Rd. #1	2.31	1.960	RCG	$198,697
Brinkel Rd. #2	3.75	3.000	B	$12,197
Buck Cr. Rd. #1	2	4.500	---	$0
Buck Cr. Rd. #2	2	4.505	---	$0
Butcher Cr. Rd.	3.875	1.103	---	$0
Cadillac Hill Rd.	2.875	2.531	RCG	$101,376
Canyon Cr. Rd.	3.75	0.508	B	$2,065
Cash Rd.	3.375	1.230	GR	$64,944
Cemetery Rd.	3.875	1.100	---	$0
Christenson St. (Rapelje)	3.38	0.476	B	$1,935
Church Rd. #1	3.25	1.179	RCG	$119,522
Church Rd. #2	3.5	1.000	---	$0
Clapper Flat Rd.	3.09	3.867	GR	$204,178
Coles Rd.	3.44	3.513	RCG/B	$179,710
Columbus-Molt Rd. #1	3.72	5.096	B	$20,718
Columbus-Molt Rd. #2	3.825	9.318	B	$37,883
Columbus-Molt Rd. #3	3.67	5.000	B	$20,328
Columbus-Molt Rd. #4	3.3	8.320	GR/B	$236,561
Coombs Flat Rd.	3.54	5.018	GR/B	$69,136
Countryman Cr. Rd. #1	3.125	1.000	B	$4,066
Countryman Cr. Rd. #2	3.5	1.864	B	$7,578
Countryman Cr. Rd. #3	4.25	2.600	---	$0
Countryman Cr. Rd. #4	4	1.500	---	$0
Countryman Cr. Rd. #5	3.875	3.200	---	$0
Countryman Cr. Rd. #6	2.5	2.836	B	$11,530
Cow Face Hill Rd.	2.25	3.575	---	$0
Davidson Cr. Rd.	3.125	1.523	---	$0
Downer Rd. #1	2.25	1.000	B	$4,066
Downer Rd. #2	3.42	5.101	GR	$269,333
Downs Rd.	3.63	1.021	B	$4,151
Eastlick Rd.	3.13	2.001	B	$4,066
Eder Rd.	3.06	2.288	RCG	$231,948
Erfle Rd. #1	1.375	1.001	---	$101,477
Erfle Rd. #2	2.69	2.104	---	$213,295
Erfle Ln.	2.75	2.277	GR	$120,226
Fiddler Cr. Rd. #1	3.25	2.400	B	$9,757
Subtotal	---	*161.497*	---	*$3,662,533*

Roadway	PASER Rating	Miles	Improv.	Estimate
Fiddler Cr. Rd. #2	3.25	2.000	B	$8,131
Fiddler Cr. Rd. #3	3.5	1.943	GR	$102,590
Fifth St. (Rapelje)	3.25	0.068	B	$276
Five Mile Rd.	2.725	5.066	B	$20,596
Flat Rd. #1	4.125	7.136	---	$0
Flat Rd. #2	2.94	5.000	RCG	$506,880
Franks Rd.	3.38	0.990	B	$4,025
Gee Rd. #1	3.58	6.033	---	$0
Gee Rd. #2	3.88	4.000	---	$0
West Gee Rd.	2.25	2.038	---	$0
Gooseneck Rd.	3.71	6.012	---	$0
Gorr Rd.	3.19	4.066	GR	$214,685
Grove Cr. Rd. #1	3.5	1.300	B	$5,285
Grove Cr. Rd. #2	3.125	2.200	GR	$116,160
Grove Cr. Rd. #3	3.5	1.500	B	$6,098
Grove Cr. Rd. #4	3.125	1.630	GR	$86,064
Hageman Rd.	3.29	4.876	B	$19,824
Hailstone Basin Rd.	3.28	7.550	GR	$398,640
Hanser Rd.	3.5	1.005	B	$4,086
Hap Trees Rd.	3	1.336	---	$0
Henry Hill Rd. #1	2.69	2.200	B	$8,944
Henry Hill Rd. #2	3	4.016	B	$16,327
Herzog Rd.	3.13	0.584	GR	$30,835
Hines Ranch Rd. #1	3.38	3.000	B	$12,197
Hines Ranch Rd. #2	3.17	5.269	GR	$278,203
Hines Ranch Rd. #3	3.69	5.263	B	$21,397
Hoagland Rd. #1	2.5	5.500	B	$22,361
Hoagland Rd. #2	3.19	5.000	---	$0
Hoagland Rd. #3	3.38	2.429	---	$0
Hucke Rd.	2.81	2.978	RCG	$301,898
Huntley Butte Rd. #1	1.625	4.64	---	$0
Huntley Butte Rd. #2	2.625	1.260	GR	$66,528
Huntley Butte Rd. #3	3.125	2.400	B	$9,757
Huntley Butte Rd. #4	3.375	3.800	B	$15,449
Ingersoll Cr Rd	3.5	2.386	B	$9,701
Jackstone Cr Rd #1	3.375	1.200	GR	$63,360
Jackstone Cr Rd #2	3.125	1.800	GR	$95,040
Jackstone Cr Rd #3	2	5.445	B	$22,137
Jackstone East Rd. #1	2	3.000	---	$0
Jackstone East Rd. #2	2.125	3.734	---	$0
Joe Hill Rd. #1	3	1.000	RCG	$101,376
Joe Hill Rd. #2	3.25	1.000	GR	$52,800
Joe Hill Rd. #3	3.25	1.300	GR	$68,640
Joe Hill Rd. #4	3	2.900	B	$11,790
Joe Hill Rd. #5	3.25	1.600	---	$0
Joe Hill Rd. #6	3.25	1.200	---	$0
Joe Hill Rd. #7	3.25	2.000	---	$0
Joe Hill Rd. #8	3.375	2.420	---	$0
Johnson Bridge Rd.	3.625	0.480	B	$1,951
Jones Hill Rd. #1	2.66	4.700	GR	$248,160
Jones Hill Rd. #2	3.67	4.670	---	$0
Jones Hill Rd. #3	3.34	3.159	GR	$166,795
Keyser Creek Rd. #1	2.88	3.340	RCG	$338,596
Keyser Creek Rd. #2	3.25	2.060	GR	$108,768
L.E. Peterson Rd.	3.83	2.843	---	$0
Lakeview Rd.	2.66	4.061	---	$0
Leuthold Rd. #1	3.125	2.500	RCG	$253,440
Leuthold Rd. #2	3.125	2.612	RCG	$264,794
Subtotal	---	*175.498*	---	*$4,084,588*

Roadway	PASER Rating	Miles	Improv.	Estimate
Limestone Rd #1	3.25	3.000	---	$0
Limestone Rd #2	3	2.000	B	$8,131
Limestone Rd #3	3.5	0.700	---	$0
Limestone Rd #4	3	0.600	GR	$31,680
Linger Rd. #1	3.08	2.600	---	$0
Linger Rd. #2	2.75	2.664	RCG	$270,066
Lonetree Rd. #1	3.38	5.440	GR	$287,232
Lonetree Rd. #2	3.88	2.460	---	$0
Lovers Lane	3.75	1.179	---	$0
Lower Flat Rd. #1	4	1.500	---	$0
Lower Flat Rd. #2	4	0.604	B	$2,456
Lower Grove Cr. #1	2.875	1.400	---	$0
Lower Grove Cr. #2	2.625	1.809	---	$0
Lutgen Rd. #1	3.69	2.000	---	$0
Lutgen Rd. #2	1.875	1.150	B	$4,675
Main St. (Rapelje)	3.31	0.154	B	$626
Maki Hill Rd	3.875	1.145	---	$0
Mason Rd	3.875	1.620	---	$0
McDonald Basin Rd	3	0.769	---	$0
McFarland Rd. #1	3.75	3.000	B	$12,197
McFarland Rd. #2	3.21	2.099	GR	$110,827
McKeith Rd.	3.63	1.235	B	$5,021
McNaley Rd #1	3.5	3.000	---	$0
McNaley Rd #2	3.875	2.000	---	$0
McNaley Rd #3	4.25	0.785	---	$0
Meins Rd.	2.31	2.535	B/GR	$60,746
Meyer Cr. Rd. #1	3.5	1.300	---	$0
Meyer Cr. Rd. #2	3	1.039	---	$0
Miller Rd. #1	2.625	3.500	RCG	$304,128
Miller Rd. #2	3.375	2.791	GR	$147,365
Mohr Lane	4.25	0.772	---	$0
Molt-Rapelje Rd. #1	3.5	5.000	B	$20,328
Molt-Rapelje Rd. #2	3.88	4.700	B	$19,108
Molt-Rapelje Rd. #3	3.38	4.000	GR	$211,200
Molt-Rapelje Rd. #4	4.1	5.000	---	$0
Molt-Rapelje Rd. #5	4.25	1.000	---	$0
Mosdahl Rd.	2.81	2.910	GR	$153,648
Ninth St. (Rapelje)	3.083	0.196	B	$797
Nitche Rd	3.875	1.414	---	$0
North Stillwater Rd. #1	4	2.600	---	$0
North Stillwater Rd. #2	3.75	2.576	B	$15,246
North Stillwater Rd. #3	2.875	1.623	GR	$85,694
North Stillwater Rd. #4	3	2.777	B	$11,290
Nye-Cemetary Rd	4.125	3.468	---	$0
Oil well Rd.	3	4.195	B	$17,055
Old Mill Rd	4	1.130	---	$0
Painted Robe Rd.	3	7.979	B/GR	$227,377
Pererson Ranch Rd.	3.375	1.228	---	$0
Peterson Rd.	3.25	4.079	GR	$215,371
Phipps Rd. #1	3.08	2.000	GR	$105,600
Phipps Rd. #2	1.93	3.975	---	$0
Pine Hill Rd	2.875	1.7	B	$6,912
Pleasant Valley Rd.	3.03	6.027	GR	$170,597
Pony Rd. #1	3.56	2.000	---	$0
Pony Rd. #2	3.69	3.000	B	$12,197
Pony Rd. #3	3.13	1.051	GR	$55,493
Ray Rd. #1	3.125	3.000	---	$0
Ray Rd. #2	3.38	1.976	GR	$104,333
Reed Point Rd.	3.68	4.874	---	$0
Subtotal	---	*142.328*	---	*$2,677,396*

Roadway	PASER Rating	Miles	Improv.	Estimate
Reifle Rd. #1	3.125	2.107	GR	$111,250
Reifle Rd. #2	3	3.000	GR	$158,400
Retirement Rd.	3.88	1.050	---	$0
Ross Rd.	3.5	0.998	---	$0
Schreiner Rd.	4.375	1.954	---	$0
Shank Basin East Rd.	3.375	0.908	---	$0
Shane Cr. Rd. #1	4	4.000	---	$0
Shane Cr. Rd. #2	3.875	1.500	B	$6,098
Shane Cr. Rd. #3	3.75	1.549	---	$0
Shane Ridge Rd. #1	4.75	3.000	---	$0
Shane Ridge Rd. #2	4.5	1.750	---	$0
Sheep Dip Rd.	2.75	3.616	RCG	$265,200
Skibstad Rd.	2.875	0.493	---	$0
South Beaver Cr. Rd. #1	4.25	0.500	---	$0
South Beaver Cr. Rd. #2	3.375	1.500	---	$0
South Beaver Cr. Rd. #3	3	0.500	---	$0
South Beaver Cr. Rd. #4	2.25	1.808	---	$0
South Fiddler Cr. Rd.	3.375	1.559	---	$0
Spring Cr Rd.	3	1.135	B	$4,614
Springtime Rd. #1	3.38	3.940	B	$16,018
Springtime Rd. #2	3.42	5.700	B	$23,174
Springtime Rd. #3	3.406	6.000	GR/B	$170,597
Stagecoach Rd. #1	2.35	5.380	GR	$284,064
Stagecoach Rd. #2	3.13	4.886	B	$19,865
Stagecoach Rd. #3	3.5	2.800	B	$11,384
Stiles Rd. #1	3	6.100	GR	$322,080
Stiles Rd. #2	2.35	6.500	---	$0
Stillwater River Rd. #1	3.25	4.000	B	$16,262
Stillwater River Rd. #2	3.125	1.300	B	$5,285
Stillwater River Rd. #3	3.125	2.400	B	$9,757
Stillwater River Rd. #4	3.125	1.300	B	$5,285
Stillwater River Rd. #5	3.25	3.000	B	$12,197
Stillwater River Rd. #6	3.25	1.536	B	$6,245
Stockade Rd. #1	2.625	2.600	GR	$137,280
Stockade Rd. #2	1.875	2.900	---	$0
Svenson Rd.	3.48	6.815	B	$27,707
Swindler Rd.	3.43	1.200	GR/B	$38,457
Trees Rd.	3.97	4.532	---	$0
Trewin School Rd.	4.25	1.392	---	$0
Upper Flat Rd. #1	4	2.300	---	$0
Upper Flat Rd. #2	3.875	1.433	---	$0
Valley Creek Rd. #1	2.73	6.000	GR	$316,800
Valley Creek Rd. #2	2.81	6.192	GR	$326,938
West Rosebud Rd. #1	4	0.500	---	$0
West Rosebud Rd. #2	3	1.800	GR	$95,040
West Rosebud Rd. #3	3.5	2.000	---	$0
West Rosebud Rd. #4	3.5	4.230	---	$0
West Springtime Rd. #1	3	1.200	GR	$63,360
West Springtime Rd. #2	3.75	4.507	B	$18,324
Wheat Basin Rd. #1	3.42	3.000	---	$0
Wheat Basin Rd. #2	3.5	3.320	---	$0
Whitebird Cr. Rd. #1	3.875	1.000	---	$0
Whitebird Cr. Rd. #2	4.25	3.500	---	$0
Whitebird Cr. Rd. #3	3.5	1.000	---	$0
Whitebird Cr. Rd. #4	3	0.920	---	$0
Wodrich Rd. #1	2.83	2.954	RCG	$299,465
Wodrich Rd. #2	3.19	2.000	RCG	$202,752
Youngs Point Rd.	3.5	1.490	B	$6,058
Subtotal	---	*156.554*	---	*$2,979,955*
Total	---	**635.877**	---	**$13,404,472**

2. Bridges

Stillwater County has developed a very pro-active attitude regarding bridge replacement and evaluation. Since 1984, the Road and Bridge Department has replaced approximately fifty-two of its deteriorating bridges. The County is responsible for maintaining a total of 43 bridges (sixteen minor bridges and twenty-seven major bridges).

As the need for replacing larger structures continued to grow, the County began to look at outside funding sources for assistance with some of these projects. In 2002 the County utilized TSEP matching funds to evaluate all county maintained bridges, prioritize bridge improvements, and develop a plan of action. The Bridge Evaluation and Capital Improvement Plan Report was completed and adopted in March of 2002. The report assessed the condition of each bridge maintained by the County and ranked the bridges in order of greatest need for replacement or rehabilitation. In 2002 Stillwater County submitted a TSEP grant application in order to obtain assistance with projects outside the County's bridge budget. The application was successful and allowed the County to construct five bridges. After seeing the results of their first TSEP Grant Application, the county submitted for their second and third grant applications in 2004 and 2006. Both 2004 and 2006 grant applications were a success and provided funding for nine bridge replacements.

Recently, the County utilized TSEP matching funds to update its bridge inventory and bridge capital improvement plan. The Capital Improvement Plan gave the County a defensible basis upon which to make decisions regarding the allocation of financial resources, provided a mechanism to schedule capital projects with regard to financial limitations, and assisted in identifying potential outside funding sources in light of overall needs and available resources.

Appendix B contains the *Inventory and Priority Ranking* and *the Bridge Capital Improvement Plan.*

3. Water Systems

Absarokee Water System

Observations:
The water system serving Absarokee consists of 7 water wells, two elevated storage tanks and approximately 6.6 miles of distribution system piping. This system serves approximately 1300 persons and over 425 homes. The wells are generally fairly shallow ranging is depth from 50 ft to 110 ft . The oldest well was constructed in 1947 and the newest wells in the 1980's. The wells generally produce good quality water that is somewhat hard. Chlorine disinfection has been recently installed at the Thatcher well and the Tank well. The Church well has experienced a few bad bacteriological samples and has been taken off line. The wells provide the community with sufficient capacity with no water shortages being experienced and no rationing.

The distribution system quality is typical of systems the age of Absarokee and is generally in good condition with a few undersized pipes, some poor hydraulic performance and system leakage. Generally speaking water pressures are good with the lowest pressures being on the hill, but still in the 45 psi range. A water facility plan has been completed which identified several sections of pipe as priority replacements. The Water District has developed an annual program of pipe replacements following the priorities outlined in the facility plan. Fire hydrants are also replaced when the pipe replacements are made. Available storage consists of one 125,000 gallon tank and one 200,000 gallon tank.

Recommendations:

- Continue annual program of pipe replacements as outlined in the priority list.
- Pursue other improvements as outlined in the Facility Plan.

Rapelje Water System.

Observations:
The Rapelje water system was constructed in 1962 and serves 50 hookups and the school which has 85 students and 8 teachers. Current water fees include a base rate of $30/month and a variable rate of $0.75 per 1000 gallons. The system also has a loading station and sells water to nearby ranchers. The system consists of a shallow cistern type well, two turbine type pumps, a pump house, distribution system piping , a small storage tank and pump for the loading station and fire hydrants. The well is 20 feet deep and has a meter. The water source provides adequate capacity to meet the Town's needs, but the well can get low and may be susceptible to running out of water during a very sever drought. Consideration should be given to developing a back up water supply. Current water use is approximately 10,000 gallons per day in the winter and up to 35,000 gallons per day during peak periods. The pumphouse building needs some repairs.

The water supply well meets all of the DEQ drinking water standards except the standard for nitrates. The Town has retained an engineer and completed a study that recommends the installation of point of use water filtration units to remove the nitrates. The cost of capital improvements for the point of use treatment units is anticipated to be approximately $50,000. The water source is currently disinfected with chlorine using an Accutab system. There have been very few unsatisfactory bacteriological samples.

The distribution system pressure is controlled utilizing three hydropnuematic tanks and a pressure control switch controlling the well pumps. The hydropnuematic pumps have been recently replaced and are in good condition. The pumphouse piping is corroded and needs to be sanded and painted. Otherwise the pumps are performing well and no other improvements are anticipated. The hydrants are functioning well. The pipe network consists of 2, 4 and 6 inch diameter piping and is performing satisfactorily for domestic demand, but is probably insufficient for fire flow. The services are mostly copper pipe, but the lead and copper monitoring results have been satisfactory. The distribution system valves are exercised and

hydrants flushed once per year. The water distribution piping is at less than half its anticipated service live and there have been few leaks.

Recommendations

- Point of use treatment units are needed at each service connection to remove nitrates.
- A back up water well should be developed.
- The pumphouse building should be repaired and the corroded pipe painted.

4. Sewer Systems

Park City Sewer

Observations:
Based on the 2000 Census, the Park City County Water and Sewer District currently serves approximately 870 persons. The sewer facilities consist of a gravity collection system, two lift stations, an aerated pond treatment system with effluent disposal to Vandenberg Ditch.

The growth rate presented in the previous facility plan, the current growth policy, and the census data presented herein all seem to correlate fairly well. This suggests the existing wastewater facilities are planned well and should have hydraulic capacity for well into the future. Load capacity will exceed non-degradation permit limits and may result in the need for future wastewater treatment improvements dependent on the final permit issued by the State DEQ. Such improvements are at least 10 years into the future.

The collection system consists of 8200 lineal feet of 4 inch service line and 23,000 lineal feet of 1968 vintage, gravity fed, 8 inch vitrified clay pipe. Over the years an additional 10,000 lineal feet of PVC pipe has been installed. The clay pipe has a remaining service life of approximately 40 years and the PVC longer yet. The collection system has adequate capacity and is not experiencing significant plugging problems or structural failure. Minor pipe replacement is anticipated in the future in an ongoing manner.

Two lift stations were recently installed and are in good condition with adequate capacity for well into the future. The remaining service life of the lift station pumps and mechanical equipment is approximately 15 years.

A new aerated pond system was installed in 2003 and based on a review of a variety of population indicators, appears to have capacity up to 2020. The system discharges, after UV disinfection, to the Vandenberg Ditch. Currently this ditch is not classified as state waters and does not have to satisfy state aquatic health standards. These standards must be satisfied at the discharge into the Yellowstone River, but a high dilution ratio ensures these standards are not exceeded. The wastewater facility plan completed in February of 2000 thoroughly evaluated both secondary standards, instream water quality standards and non-degradation and correctly determined the appropriate technology. However, if the ditch is reclassified as

state waters when the new permit is issued in the future then additional study and improvements may be necessary.

Recommendations:

- NPDES Permit Evaluation as needed based on permit renewal
- Treatment Evaluation based on NPDES Permit Evaluation above
- Possible treatment plant upgrades as required based on above evaluations, but not likely sooner than 10 years into the future.

Reed Point Sewer

Observations:
The Reed Point Sewer system consists of a gravity collection system with treatment being provided by lagoons with effluent disposal by irrigation on cropland. The system is approximately 10 years old and in excellent condition. The treatment works is performing well and satisfying state regulations. Only minor improvements and ongoing maintenance is currently required and major improvements are not anticipated for more decades. Community growth is moderate and system capacity should be adequate for well into the future.

Recommendations:

- Ongoing maintenance
- Clean 10% of sewer mains annually.

5. Storm Sewer

The evaluation of the County's storm water drainage facilities focused on three known areas of deficiency: Highway 419 in Fishtail, the area surrounding the Park City School, and Division Street in Reedpoint. The purpose of the evaluation is to focus on the needs and improvements that will be useful in the development of the storm sewer section of the Stillwater County Capital Improvements Plan. The initial assessment was conducted on December 7, 2006 and included each of the aforementioned locations. Each site was visited and a history of the associated drainage concerns was provided by Ken Kissler and Steve Bue of the Stillwater County Road Department. Appendix E contains cost estimates, priorities and funding for each of the locations.

The scope of this survey was intended to identify the general cause of the drainage concerns and to recommend steps necessary to address the problems. The general nature of the survey does not allow for identification of precise quantities needed for construction bidding. In some instances, a more detailed investigation is recommended before undertaking a major improvement project.

Fishtail

Observations:
A site investigation was conducted by Great West Engineering in the company of Steve Bue and Ken Kissler of the Stillwater County Road Department on December 7, 2006. Mr. Bue and Mr. Kissler provided a brief history of the storm drainage related concerns during the tour. The primary concern involves overtopping of the Woodard Irrigation Ditch that runs through the east side of Fishtail. Water from snow melt and precipitation events will collect in the ditch and freeze during the winter months until such time that the level of the ice reaches that of the adjacent ditch bank. Runoff from subsequent snow melt and precipitation then overtops the ditch and flows west across Highway 419 at the 90-degree curve and floods Hanna Hall.

Recent improvements to Highway 419 through Fishtail have resulted in the installation of drop inlets at several locations along the inside of the 90-degree curve. The new drop inlets collect much of the runoff and have resolved much of the flooding concerns related to storm runoff. However, minor flooding has occurred when the inlets become plugged or frozen. Grading adjacent to the Cowboy Bar directs much of the runoff that would otherwise impact the bar toward a pasture north of town.

Recommendations:
It appears that the storm drainage improvements constructed incidental to recent upgrades to Highway 419 have alleviated most of the flooding problems within Fishtail. Recent flooding problems have been attributed to the plugging and/or freezing of the drop inlets along the inside of the 90-degree curve of Highway 419. During the winter, care should be taken when plowing the road to ensure that snow is not stockpiled in such a manner to block or plug the drop inlets. During the summer and fall, the drop inlets and outlet piping should be inspected for sediment build-up and plugging. The inlets and piping should be jetted on a regular interval to prevent the accumulation of debris and sediment and ensure proper operation. Maintenance and jetting of the inlets and piping is estimated to cost $5000-$10,000 per year including jet truck rental.

Park City School

Observations:
A site investigation was conducted by Great West Engineering in the company of Steve Bue and Ken Kissler of the Stillwater County Road Department on December 7, 2006. Mr. Bue and Mr. Kissler provided a brief history of the storm drainage related concerns during the tour. Park City is sited within a relatively level bench in the Yellowstone River Valley that generally slopes to the southeast. The primary area of concern is bounded by 2nd Street SE (east), 4th Avenue SE (south), 2nd Street SW (west), and the railroad tracks (north). The school, centrally located within the problem area, is situated in the general low-point of the town and tends to collect storm runoff from adjacent areas.

Park City's streets lack curb and gutter and adequate borrow ditches to convey runoff away from the school resulting in substantial ponding and potential flooding during periods of high runoff. Many of the borrow ditches that once conveyed runoff away from the school have been filled in as residents improved their yards and on-street parking areas. The groundwater table in the Park City area is also relatively shallow, minimizing the amount of infiltration that occurs during precipitation events.

Recommendations:
Given the extremely low gradient within the Park City area, adequate drainage of the area adjacent to the school will likely require the installation of a subsurface storm drain system. It may also be necessary to install a subsurface storm sewer in adjacent areas of town in order to properly convey storm runoff collected near the school to an appropriate discharge area. It is recommended that the County pursue a Technical Assistance (TA) Grant through the Treasure State Endowment Program (TSEP) to assist in preparing a Preliminary Engineering Report (PER) that thoroughly evaluates all storm drainage alternatives within the aforementioned area. It is estimated that a storm drain PER could be prepared for $30,000 with up to 50% funded through a TSEP Technical Assistance Grant.

Reedpoint

Observations:
A site investigation was conducted by Great West Engineering in the company of Steve Bue of the Stillwater County Road Department on December 7, 2006. Mr. Bue, a resident of Reedpoint, provided a brief history of the storm drainage related concerns during the tour. The primary area of concern involves the stretch of Division Street between 2nd Avenue and Highway 310. Storm water tends to collect in this area as Division Street changes grade from a north draining slope to a south draining slope as it rises to meet the grade of the railroad crossing.

Division Street, which serves as the primary north-south route through town, collects storm runoff from several adjacent roadways. Areas of town south of Central Avenue, the primary east-west route, and west of Division typically drain to the northeast toward Central Avenue. Once intersecting with Central, the runoff travels east to the intersection of Division where it flows north to Highway 310. Areas of town east of Division and west of South Pine Street drain west toward division where flow is directed to the north toward Highway 310.

It appears that culverts were installed below the intersection of Division Street and Highway 310 to convey storm runoff to the east where it discharges into a borrow ditch along the south shoulder. However, it appears that the culverts have been crushed and plugged for quite some time, compounding the drainage concerns in the area.

As a general note, most borrow ditches and culverts have been filled in and plugged through the Reedpoint as residents have expanded their yards and on-street parking areas. The loss of the ditches and culverts has created numerous localized areas of ponding due to lack of positive drainage.

Recommendations:
It may be possible to improve the drainage along the north end of Division Street by adding curb and gutter and dropping the grade of the street to enhance drainage up to the intersection of Highway 310. At this point it would be necessary to direct the runoff into a subsurface storm sewer that would convey the water east where it would discharge into an existing borrow ditch. Another alternative would involve the installation of a subsurface storm sewer along the length of Division Street from Central Avenue to Highway 310 where it could be piped east to a discharge point in the highway borrow ditch. Either alternative would also require miscellaneous drainage around town to reestablish historic drainage patterns and alleviate localized areas of ponding.

It is recommended that the County pursue a Technical Assistance (TA) Grant through the Treasure State Endowment Program (TSEP) to assist in preparing a Preliminary Engineering Report (PER) that thoroughly evaluates all storm drainage alternatives along the Division Street corridor. It is estimated that a storm drain PER could be prepared for $30,000 with up to 50% funded through a TSEP Technical Assistance Grant.

6. Solid Waste Disposal

Solid Waste disposal system improvements are listed in the Capital Improvements Priorities & Funding Summary Table (See Table 4).

C. Category B Facilities

1. Buildings

The countywide evaluation of selected buildings owned and maintained by Stillwater County will ultimately include public assembly and office buildings as well as nursing homes, vehicle equipment buildings, recreation facilities, and a variety of structures at the County Fairgrounds. The purpose of this evaluation is to provide information on facility condition and needs that will be useful in the development of the public buildings section of the Stillwater County Capital Improvements Plan. For the initial assessment of county buildings, an inspection of two county facilities was conducted on November 16, 2004 which included one building located on the County Fairgrounds in Columbus, and the swimming pool facility in Absarokee. The process involved completion of an inventory form and field sketches to record basic data on essential building, structural, and site elements for each location with emphasis on overall condition and specific maintenance or structural needs. In addition to information for these two facilities, data developed by architectural consultants for the County Courthouse is referenced and summarized below. Appendix G contains cost estimates, priorities and funding for each of the buildings.

The scope of this survey was intended to identify the most urgent maintenance and repair needs facing the county and to estimate costs associated with these improvements. The

general nature of the survey does not allow for identification of precise quantities needed for construction bidding. In some instances, a more detailed investigation is recommended before undertaking a major improvement project.

The present status of the buildings relating to clearance requirements established in the Americans with Disabilities Act (ADA) was noted during the inspection. Providing for these needs would be technically infeasible in some of the existing structures maintained by the county and/or would add astronomically to construction costs. Handicapped accessibility to basic county services and restrooms should be incorporated into major renovation projects for the county offices and for any new county building projects.

The results of the survey and the recommended improvements are presented in Appendix G. The scope of this survey is intended to identify the most urgent maintenance and repair needs facing the county and to estimate costs associated with these improvements. The general nature of the survey does not allow for identification of precise quantities needed for construction bidding. In some instances, a more detailed investigation is recommended before undertaking a major improvement project.

Other building improvement needs for Stillwater County were identified through a survey circulated to each department in the County administration in July 2006. The surveys returned indicated that the County Road and Bridge Department and the County Library are two building facilities with known deficiencies that need to be addressed. A general discussion of the needs using information provided is included in the following section.

Stillwater County Courthouse

Description
An inspection and evaluation of the courthouse was conducted for the county by JGA architects in 2002. The report documented findings for facility needs that were summarized and broken down according to line items for the following categories: Architectural Issues; Structural Issues; Mechanical System Issues; Electrical System Issues; and Site Issues. The summary of total estimated costs for all improvements listed fell in the range of $2,200,000 to $2,600.000.

Subsequent to the original analysis, JGA prepared a conceptual project cost estimate in 2004 to address some of the immediate needs regarding requirements for handicapped accessibility. The items identified were summarized for three different phases of construction including Phase I improvement for stairway handrails and other miscellaneous ADA upgrades, Phase II handicapped restroom construction, and Phase III elevator addition. These costs are itemized in tabular form in Appendix G of this report. For a more detailed discussion of courthouse improvements, see the Stillwater County Courthouse Facility Inspection & Evaluation report.

County Fairgrounds Pavilion

Description

A one-story steel frame structure with wood frame kitchen and restroom areas. The building contains primarily open floor space for various assembly uses. In addition to four entrance doors, it has a large service door located at each gable end for movement of equipment in and out of the building. The building was designed with a center 4:12 pitch and has a lower slope shed roof on the north and south sides. The steel columns and beams are exposed on the interior. The exterior walls and roof are sheeted with galvanized steel panels. The building system includes galvanized steel sliding doors on the exterior of each service entrance and an inside door was added later to help seal the opening for improved security and energy efficiency.

Observations

- The structure is in fair condition, but has some short term maintenance needs as well as some long term needs that should be included in the capital improvements plan.
- The exposed edge of the concrete slab is undercut on the north and south sides of the building and on part of the west side. Improvements are needed to prevent cracking in the slab and settlement around the frame foundations.
- The roofing and siding materials have deteriorated over the years and there are many areas where rusting is evident and/or panels are damaged.
- There are no roof drainage controls in place on the sides of the building.
- Three of the exit doors are in poor condition and are in need of re-finishing or replacement.
- Insulation on the west gable wall is exposed on the interior and should be covered with sheathing material.
- The area above the restrooms is used for storage. To prevent fire hazard the space should be closed off (code violation).

Recommendations

- Repair the perimeter slab edge by excavating to 12" below grade and installing a new concrete curb to project beyond and beneath the existing concrete. Slope the top of the new ledge to drain and provide metal flashing under siding.
- Install gutter and downspout on north and south sides of the building. Drain away from foundation area.
- Grade the north, east and west sides to drain away from the building.
- Replace or re-finish three exit doors (excludes main entrance); include new hinges and weather stripping; the south door is not the required width for an exit (32" clear) and

should be replaced with a 36" wide door; the exterior landing at this location must also be increased and set at floor level to meet code.

- Replace men's and women's toilet with ADA rated fixtures. Future restroom improvements should include a 5' diameter wheel chair turn around space.
- Improve assembly area ventilation to meet requirements of 2003 International Mechanical Code.
- Designate, sign and stripe a handicapped parking space adjacent to the main entrance.
- Long term improvements should include the replacement of siding and roofing panels.

Absarokee Swimming Pool

Description

The Absarokee public swimming pool and bath house facility was constructed in the late 70's at a park site in the north part of Absarokee. The 75'x 36' swimming pool was rebuilt in 1988 and includes a diving board and life guard stations and there is a small wading pool (closed off) next to the main concrete deck area. A stainless steel gutter system is installed around the perimeter of the pool which varies from 3' to 10' in depth. The pool mechanical system and pumps were replaced in 2002, and the pump house, which is located on the northeast end of the site, was also completely reconstructed at that time. The pump house is a wood frame building (13'x26') with a gable roof and metal siding and roofing. The pool cover is set aside on a steel reel and frame near the bath house. The pool and concrete deck area is contained by a 7' high chain link fence.

The bath house (16'x32') has not been substantially changed since its construction. It is situated near the southwest corner of the pool and contains a small concession / storage room in addition to the men's and women's locker rooms. The exterior walls and primary interior walls are constructed with 8" CMU (concrete masonry units), and the low slope shed roof is 2x6 wood frame with steel roofing. The interior partitions separating the entrance, toilet and shower areas are wood frame. The fascia and trim on the building are painted wood. The concrete slab is covered with rubber matting.

Observations

Swimming Pool

- Overall, the pool is in good condition considering its age and it apparently requires only normal maintenance except for some surface crack repairs. The mechanical improvements completed in 2002 included new filters and heater and have greatly improved the operating efficiency of the pool. According to pool employees, the most immediate need is for crack repairs on the pool bottom in the near future. The bottom of the pool was partially obscured by water and debris in the deep end at the time of our inspection.
- The concrete deck around the pool is cracked in several places and should be repaired to help extend the useful life of the concrete. The expansion joint at the pool

perimeter should be reconstructed to include a self leveling sealant. It appears that the decking will need replacement in the next 5 – 8 years.

- The wading pool is not used because it presents liability problems for the county. It should be removed and replaced with decking.
- The pool cover is in good condition at this time, however the steel reel and frame appear to be deteriorating and in need of maintenance. Long term plans should address replacement of the reel and pool cover.
- The covered patio on the southeast side of the pool deck consists of exposed wood framing supported by the steel fence frame members. The patio roof is in poor condition and it does not appear that it could be salvaged through maintenance procedures. It should be removed and a new free standing roofed structure should be installed if a replacement is desired.

Bath House

- The exterior walls appear structurally sound and have not been a maintenance problem for the county. The roof is also in satisfactory condition. The interior is in need of paint to cover areas that have peeled or chipped off. If the building is to be used in its present form, painting of all interior surfaces as well as exterior doors and trim should be scheduled within the next couple of years.
- The primary problem with the Bath House is that it does not meet access, clear space, or fixture requirements included in the ADA regulations. Given the limitations presented by the size of the existing facility, it is not possible to meet accessibility guidelines for a public locker room and shower facility that will serve both sexes. The spaces provided include only minimal clearance for access to interior functions, and there are present egress code violations if the building were required to meet modern building codes. Bath House replacement should be included in the long term capital improvements plan for the county.
- The water shutoff valve pit on the southeast side of the Bath House is covered with a deteriorated wood frame and plywood panel cover. The lid should be replaced with a metal lid and frame suitable for the purpose.

Parking Area

- The parking area is not clearly delineated at the entrance to the swimming pool park. There is a need for parking improvements, including an ADA designated space with an accessible sidewalk to the pool facilities. Plans should be developed to address these needs.
- Sidewalk improvements should be coordinated with parking improvement plans.

Recommendations:

Swimming Pool

- Repair cracks in concrete decking and reconstruct expansion joint around pool perimeter drain slab. Include deck replacement in long term plans.
- Repair cracks in the pool bottom to prevent further deterioration.
- Remove the wading pool and construct new decking in its place.
- Remove the deteriorated patio canopy and replace with a free standing roofed structure.
- Long term budget should include replacement of the pool cover and frame.

Bath House

- Short term improvements should include painting the interior walls, and exterior doors and trim items.
- Replace the valve pit cover on the southwest side of the building with a new metal frame and solid cover. Include new concrete work as required.
- Replacement of the Bath House should be a priority in the capital improvements schedule. The building is not in compliance with the ADA requirements for public buildings and facilities and there is inadequate space in the existing structure to provide for its intended use. Plans should be developed to replace the structure to bring it into compliance with building and accessibility codes.

Parking Area

- Prepare plans for parking improvements adjacent to the Bath House entrance. Construction of parking facilities should include provisions for handicapped accessibility as well as a number of spaces adequate for anticipated use of the pool facilities.
- Construct sidewalk improvements from the parking area to the Bath House.

Road and Bridge Department Shop

General

The Stillwater County Road and Bridge Department is need of new shop facilities to replace the existing shop/office building. The space provided in the current shop is inadequate to provide for administration, equipment storage and repair demands of the department. The existing building is an old steel structure that is used for both administration and equipment repair. The structural framework of the building, although apparently still functional, is not set up to allow for expansion or to easily accommodate effective improvements that would serve the needs of staff, employees, and public accessibility. The building replacement cost will vary according to details of design and the extent of the storage/repair/administrative functions served by the building. Rudimentary level estimates of costs anticipated are in the range of $500,000 to $750, 000 as listed by department personnel in the survey that was

returned. It is recommended that the higher number of this range be included in the priority list for capital improvements needs of the County.

More detailed information regarding shop facilities was developed in a previous analysis which considered the possibility of developing a shop jointly with the Solid Waste District. Since a Solid Waste District shop has already been constructed, new preliminary plans will be needed to more accurately identify the costs associated with construction of a new shop building for the Road and Bridge Department.

County Library

General
As indicated by library staff, The Stillwater County Library has some maintenance needs that should be addressed and provided for in the Capital Improvements Plan. The extent of repairs and maintenance required should be verified through a field inventory used to record existing conditions and deficiencies, as well as any known demands for renovation of the facility to better serve the needs of the public.

2. Site Development

Road and Bridge Department:
The survey information returned by County personnel shows that perimeter fencing is needed at the Fish Tail Site. Costs for completing this project are anticipated to be between $14,000 and $16,000.

Solid Waste District:
The survey information returned by County personnel shows that solid waste collection sites are needed at two locations in the district. Construction of new sites with vehicle circulation areas, dumping facilities, and containers are needed at Park City and at Absorakee. Details of the design for these facilities have not been completed, however, the district anticipates that development costs at each site will be approximately $80,000.

3. Equipment

A listing of equipment needed by the Road and Bridge Department, Environmental Health Department, and the Solid Waste District was included on the 2006 CIP Surveys along with an approximate cost estimate. The following table shows major equipment needs in order of priority.

Table 3
Equipment Priorities by Department or Agency

Road and Bridge Department			
Priority	**Equipment**	**Type**	**Estimated Cost**
1	Two Diesel Pickups	4x4 With Flatbed	$16,000 Ea.
2	Loader	5 ¼ Yard Bucket	$314,000
3	Dozer	D6	$280,000
4	Motor Grader	6 Wheel Drive	$295,000
5	Truck	Tractor, T800 Kenworth	$30,000 to $40,000 (used)
6	Tractor	Tractor with Cab and Mower	$80,000 (New), $30,000 (used)
Environmental Health Department			
Priority	**Equipment**	**Type**	**Estimated Cost**
1	SUV	4x4	$30,000
2	Car	Chevy Lumina	$20,000
3	Office Equipment	Copy Machine (Shared)	$9,000
4	Office Equipment	Computers, printers (Update)	$5,000
Solid Waste District			
Priority	**Equipment**	**Type**	**Estimated Cost**
1	Compactor	Packaged Unit	$30,000
2	Compactor Boxes (3)	To Fit New Compactor	$9,000
3	Truck	Truck w/ Hook System	$80,000

4. Parks and Trails

Parkland improvements needed to upgrade recreational opportunities were noted in the Beartooth Economic Development Strategy (CEDS) and highlighted by County personnel in the 2006 CIP Survey as part of the needs that should be addressed in this document. Additional information is needed to identify project scope and costs for each of the items in the following list:

- County Park with baseball fields
- Absarokee Skate Park
- Park City Pedestrian/Bikeway
- Park City Community Park

IV. SUMMARY

A. Summary of Recommendations

Although this CIP is a valuable tool for Stillwater County, it must be continually updated in order to represent current and changing conditions. Growth throughout the County through infill and new subdivision activity will affect the need for public services. The schedule of improvements must be reviewed and adjusted on an annual basis to account for changing public service demand and maintenance needs.

B. Priorities and Funding

The previous sections of this report outlined needed capital improvements for both Category "A" and Category "B" public facilities. Category "A" facilities' needs are those for which detailed information is typically available and include streets, bridges, sewer, water, solid waste, and storm drain facilities for unincorporated areas of the County. Other public facilities for Stillwater County are included in the grouping of Category "B" facilities. The County Commission reviewed the needed improvements, and priorities were determined for capital improvements for a variety of infrastructure needs as listed in the following summary table (Table 4). More detailed information for many of the facilities is contained in the appendices.

Table 4
Stillwater County
Capital Improvements Priorities & Funding Summary Table
by Department or Agency – January 2008

Road & Bridge Department				
	Project	**Improvement**	**Cost**	**Funding**
Roads				
Maintenance Level "A"	Big Timber Rd #1	Blading	$29,000	GF/RID
	Columbus-Molt Rd #1	Blading	$21,000	GF/RID
	Columbus-Molt Rd #2	Blading	$38,000	GF/RID
	Columbus-Molt Rd #3	Blading	$20,000	GF/RID
	Columbus-Molt Rd #4	Gravel Shaping/Blading	$237,000	GF/RID
	Big Coulee Rd #4	Blading	$8,000	GF/RID
	Big Coulee Rd #5	Gravel Reconstruction	$355,000	GF/RID
	Countryman Creek Rd #1	Blading	$4,000	GF/RID
	Countryman Creek Rd #2	Blading	$7,600	GF/RID
	Johnson Bridge Rd	Blading	$2,000	GF/RID
	Leuthold Rd #1	Gravel Reconstruction	$253,000	GF/RID
	Leuthold Rd #2	Gravel Reconstruction	$265,000	GF/RID
	Molt-Rapelje Rd #1	Blading	$20,000	GF/RID
	Molt-Rapalje Rd #2	Blading	$19,000	GF/RID
	Molt-Rapalje Rd#3	Gravel Shaping	$211,000	GF/RID
	North Stillwater Rd #2	Blading	$15,000	GF/RID
	Stillwater River Rd #2	Blading	$5,000	GF/RID
	Stillwater River Rd #3	Blading	$10,000	GF/RID
	Stillwater River Rd #4	Blading	$5,000	GF/RID
	Stillwater River Rd #5	Blading	$12,000	GF/RID
Maintenance Level "B"	Canyon Creek Rd	Blading	$2,000	GF/RID
	Christenson St., Rapelje	Blading	$2,000	GF/RID
	Coombs Flat Rd	Gravel Shaping/Blading	$70,000	GF/RID
	Eastlick Rd	Blading	$4,000	GF/RID
	Huntley Butte Rd #4	Blading	$15,000	GF/RID
	Jones Hill Rd #3	Gravel Shaping	$167,000	GF/RID
	McFarland Rd #1	Blading	$12,000	GF/RID
	McFarland Rd #2	Gravel Shaping	$111,000	GF/RID
	Pony Rd #2	Blading	$12,000	GF/RID
	Pony Rd #3	Gravel Shaping	$55,000	GF/RID
	Shane Creek Rd #2	Blading	$6,000	GF/RID
	Springtime Rd #2	Blading	$23,000	GF/RID
	Springtime Rd #3	Gravel Shaping/Blading	$171,000	GF/RID
	West Springtime Rd #1	Gravel Shaping	$63,000	GF/RID
	West Springtime Rd #2	Blading	$18,000	GF/RID
Bridges				
JL1	Johnson Lane	Replacement with bridge	$1,500,000	MDT-HBRRP
SW2	Stillwater (Red Bridge)	Replacement with bridge	$700,000	TSEP Local funds
SW1	Stillwater River Road	Replacement with concrete box culvert	$80,000	TSEP Local funds
VC1	Valley Creek (Bob Story)	Replacement with bridge	$400,000	TSEP Local funds
CR1	Cemetery Road	Replacement with bridge	$160,000	TSEP Local funds
FN1	1st NW PC	Replacement with bridge	$180,000	TSEP Local funds
YP2	Youngs Point	Monitor	NA	NA
SK1	Stockade Road	Replacement with culvert	$10,000	Local funds
RC1	Rosebud Cemetery Road	Replacement with bridge	$140,000	TSEP Local funds
CR2	Cemetery Road PC	Replacement with concrete box culvert	$75,000	Local funds

Bridges (continued)				
WR2	West Rosebud (Allen Grade)	Replacement with bridge	$200,000	TSEP Local funds
IR1	Ingersoll Road	Replacement with bridge	$200,000	TSEP Local funds
SC1	Spring Creek	Maintenance	$2,000	Local funds
Public Water Systems				
	Project	**Improvement**	**Cost**	**Funding**
Absarokee	Water Distribution	Annual Pipe Replacements	As Budget Allows	Local
Rapelje	Water Treatment	Nitrate Removal Units	$65,000	TSEP/Local
	Water Supply	Backup Well	$100,000	TSEP/Local
	Pumphouse	Pipe Paint & Building Repair	$5,000	Local
Public Sewer Systems				
	Project	**Improvement**	**Cost**	**Funding**
Park City	Wastewater Treatment	NPDES Permit Analysis	$30,000	Local
		Treatment Plant Evaluation	$30,000	TSEP/Local
		Treatment Plant Upgrades	$500,000	TSEP/Local
Storm Sewer Systems				
	Project	**Improvement**	**Cost**	**Funding**
Park City	Park City School Storm Drainage Improvements	Storm Drainage System PER	$30,000	TSEP/Local
Reed Point	Division Street Corridor Storm Drainage Improvements	Strom Drainage System PER	$30,000	TSEP/Local
Fishtail	Highway 419	Maintenance & Jetting of the inlets and piping	$5,000-$10,000 Yearly	TSEP/Local
Solid Waste Disposal				
	Project	**Improvement**	**Cost**	**Funding**
Park City	New Transfer Site	Solid Waste Collection	$80,000	User fees
Absarokee	New Transfer Site	Solid Waste Collection	$80,000	User fees
SW District	Site Attendant Offices	Modular Units (6 ea)	$12,000 ea	User fees
Buildings				
	Project	**Improvement**	**Cost**	**Funding**
Courthouse (See JGA Architects Report)	Structural, Mechanical, Electrical Systems	Building Renovation	$2,200,000-$2,600,000	
	Site Work	Utilities, Sewer, Drainage, Parking Improvements	$232,200	
Absarokee Swimming Pool	Pool Repairs	(Appendix G)	$17,000	
	Bath House	(Appendix G)	$2,600-$80,000	
	Parking Area	(Appendix G)	$21,500	
County Fairgrounds Pavilion	Building and Site Maintenance	(Appendix G)	$68,700	
Road & Bridge Department Shop	New Building	Office and Shop Facilities	$500,000-$750,000	
County Library	Maintenance	Roofing, etc.		
Equipment				
	Project	**Improvement**	**Cost**	**Funding**
Road and Bridge Department	Vehicles	See equipment listing in Table 3, Priorities 1-6	$965,000-$1,025,000	Budget
Environmental Health	Vehicles and Office Equipment	T See equipment listing in Table 3, Priorities 1-4	$64,000	Budget
Solid Waste District	Compactor and Vehicle	See equipment listing in Table 3, Priorities 1-3	$119,000	User Fee
Parks & Trails				
	Project	**Improvement**	**Cost**	**Funding**
County Park	New Park	Recreation Area with Baseball Fields		
Absarokee Skate Park	New Facility	Skateboard Park		
Park City Pedestrian/Bikeway	New Trail	Walking and Biking Trail		

APPENDIX A

Stillwater County Road Evaluation Report
(This is a separate document kept in the office
of the Stillwater County Commission)

APPENDIX B

Stillwater County Bridge Evaluation Report

STILLWATER COUNTY, MONTANA

BRIDGE EVALUATION AND CAPITAL IMPROVEMENT PLAN

2006 UPDATE

FINAL REPORT

FEBRUARY, 2006

Prepared for: **STILLWATER COUNTY COMMISSION**

Prepared by: **Great West Engineering**
Helena, Montana

Approved by: _____
William B. Lloyd
No. 11222PE

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I. INTRODUCTION

During mid 2001, the Stillwater County Commission initiated a countywide bridge inventory. This inventory was funded by a Preliminary Engineering Report (PER) grant from the Treasure State Endowment Program (TSEP), matched equally with local funds. The Commission contracted with Great West Engineering for the engineering services required on that project. The information from the 2001 inventory was summarized and compiled into a capital improvement plan for bridges, titled **Stillwater County, Montana Bridge Evaluation and Capital Improvement Plan**.

In 2003 and 2005, the Commission received additional TSEP PER grants to perform an updated bridge inventory. Great West Engineering was again retained to complete the work. This document will serve as an update to and replacement of the April 2, 2002 and the March 16, 2004 **Stillwater County, Montana Bridge Evaluation and Capital Improvement Plan**.

Stillwater County is responsible for maintaining 43 bridges (sixteen minor bridges and twenty-seven major bridges). Major bridges in Stillwater County (single clear spans greater than 20 feet in length) are inspected biennially by the Montana Department of Transportation. However, detailed inspections of minor bridges (single clear spans less than 20 feet) traditionally are not conducted on a regular basis by MDT. The primary focus of the 2001, 2003, and 2006 bridge inventory was on major structures although a few minor structures of interest were also included. In 2001, twenty-one bridges were inspected, evaluated and inventoried, five of which were minor and sixteen of which were major. The 2003 work included inspection, evaluation and inventory of nineteen bridges, eleven major and eight minor. The 2006 work included inspection, evaluation and inventory of eleven bridges, eight minor bridges and three major bridges. Both the 2003 update and 2006 update integrate the newly inspected structure into the evaluation list.

The bridges that were inspected, evaluated and inventoried are located throughout Stillwater County. The overall purpose of this inventory is to catalogue and evaluate the condition of the County's bridges in order to provide guidance for ongoing maintenance as well as future bridge repair/replacement projects.

Information contained in this report includes two categories listed as "2006 Evaluated Bridges" and "Other Bridges over 20 Feet". Further discussion follows in the next section regarding the contents of each of these. Due to limited funds, the County did not commission inspection and evaluation of all the bridges in Stillwater County. Rather only those bridges of immediate concern were included in the scope of work. This evaluation centers primarily on the bridges listed in the 2006 Evaluated Bridges category. The Other Bridges over 20 Feet category, which include a listing of the remaining county bridges, were added for the purpose of establishing a record of all of the bridges under the responsibility of Stillwater County.

II. INVENTORY AND PRIORITY RANKING

The inspections and evaluations of the County bridges were based on guidelines set forth by NBI, AASHTO and MDT. Copies of the inspection reports along with photos of each bridge and its individual components are provided in a three ring binder separate from this report. The inspection and evaluation of these bridges serves the purpose of assigning point values in several categories each of which will be discussed in depth later in this section. Based on the total point value assigned to each bridge, all bridges were then ranked in order of need for improvements.

The bridge inventory information can be found at the end of this section in Table 1 (Stillwater County Existing Bridge Data), Table 2 (Stillwater County Bridge Priority Ranking for 2006 Evaluated Bridges) and Table 3 (Bridge Replacement/Repair Information). The following narrative summarizes the information contained in each of the tables.

TABLE 1- Stillwater County Existing Bridge Data

Following completion of the inspection and evaluation phase of the bridge inventory, the information was organized and compiled into a master list. This list was separated into two parts; "2006 Evaluated Bridges" and "Other Bridges over 20 Feet" (a listing of County bridges over 20 feet that are inspected by the MDT) and "Other Bridges under 20 Feet" (a listing of all the other County Bridges). The list was categorized by bridge condition and included such other information as the name of the road on which the bridge is located, the feature crossed, bridge length, bridge width, type of bridge and posted load. The condition and/or SR rating values assigned to each bridge are listed in the table as well.

Priority:
This item is the suggested priority for dealing with bridges as determined during the process utilized in Table 2. Refer to the next section for more information.

MDT Bridge No.:
Where available, an MDT bridge number is given to help with cross-referencing.

Bridge No.:
The Bridge Number is used to identify each bridge. The typical protocol for numbering each bridge was to utilize an abbreviation of the road it is located on, followed by a number. The number was assigned beginning with the first bridge from the main entry point of the road, or if the road had two entry points, it was typically attempted to use the rule of south to north and west to east. The purpose of this column is to clarify the location of a particular bridge, as there are several water courses of the same or similar name within the County. Figures 1, 2, 3 and 4 include the locations of the bridges as called out by the Bridge Numbers or MDT Bridge Numbers.

Common Name:
Where available, the common name of the bridge, as provided by the County, was included.

Road:
This column lists the legal name of the road on which the bridge is located. The road name was used to gather data regarding average daily traffic, emergency routes, bus routes, mail routes, etc.

Crossing:
The name of the feature spanned by the bridge is listed under this heading. From this information data can be collected regarding clearance requirements, the hydrology of the area upstream from the bridge and the stream hydraulics at the bridge location.

Existing Structure Type:
The primary material of bridge construction is listed under this heading. In the case of truss bridges the description "truss" is used in place of the material type as steel is implied by this particular style of structure. Structures listed as "timber" are constructed from sawn lumber that may or may not be treated with a wood preservative.

Year Built:
Lists the year that the existing bridge was constructed, if available.

No. of Spans:
This listing indicates the number of spans utilized by the existing bridge to cross a particular feature. The majority of the bridges in the County are single span. Of the bridges with two or more spans, very few incorporate continuous beams that cross more than one span.

In most instances replacement of the existing structure, if deemed necessary and where possible, will involve a clear span bridge. This serves a two-fold purpose of improving fish habitat while minimizing the possibility of scour below the piers located within the river bed. Clear span bridges are generally less costly to construct than multi-span structures and require less maintenance, particularly removal of debris often deposited around intermediate piers.

Existing Length:
Lists length, in feet, of existing bridge. For the most part this is the deck length, not the clear span opening.

Posted Load:
Delineates current posted weight limit, in tons, of the bridge if applicable.

Structural Condition:
Each component of the bridges in the 2006 Evaluated Bridges listing was evaluated individually and assigned a rating of new, good, fair, poor or critical. A blank copy of the inspection form titled "Stillwater County Bridge Inspection Sheet" is included on the following page. The individual components were weighted based on importance and compiled into a single rating for the entire structure. Bridge components such as the foundation, stringers, caps, etc. were weighted much heavier than routine maintenance items like guardrail repair and painting. The bridge rating system utilized relies heavily on the experience of the inspector and information obtained from the County Road and Bridge Department Supervisor and the County Bridge Superintendent.

Bridges included in the Other Bridges over 20 Feet listing were not evaluated individually as part of this inventory but rather the MDT inspections and Sufficiency Ratings were utilized.

S.R.:
Delineates the Sufficiency Rating (SR) as provided by the MDT with the year of the last rating in parentheses. Sufficiency Ratings calculated by Great West are indicated by bold italic letters. The sufficiency rating is a method of evaluating bridges by calculating appraisal or element ratings (structural adequacy, safety, serviceability, and functional obsolescence) to obtain a numeric value which is indicative of the bridge's sufficiency to remain in service. The appraisal and element ratings (deck, superstructure, substructure, etc.) that were assigned by Great West to calculate the SR are listed on the back of the Bridge Inspection sheet which is included on the following page of this report. It should be noted that the Inventory Load Ratings were calculated based upon the allowable capacity of the main supporting members.

TABLE 2- Stillwater County Bridge Priority Ranking For 2006 Evaluated Bridges

The bridges in the 2006 Evaluated Bridges listing were prioritized through the use of a numerical rating system. The bridges were rated and assigned a corresponding point value in each of the following five categories: detour length, traffic volume, importance, safety and structural integrity. Each category was weighted based on its relation to public safety and convenience. Safety and structural integrity received the highest weights followed by importance, traffic volume and detour length. The criteria and associated point values for each of the categories are discussed in depth later in the following narrative. The summation of the rating points assigned to each of the categories resulted in a total number that is indicated in the column at the far right side of the table under the heading "Rating Total".

GreatWest engineering

STILLWATER COUNTY BRIDGE INSPECTION SHEET

Inspector _____ Inspection Date _____

Structure Number _____ Road _____

Name of Water Crossing _____ Mile Post _____ Skew _____

No of Spans ____ Total Span/Clear Span ____/____ Total Width/Useable Width ____/____

Vertical Clear Opening _____ Approach Road Width _____ Posted Load _____

Type of Structure _____

CONDITION CODES AND REMARKS

G=Good F=Fair P=Poor C=Critical NA=Not Applicable NOB=Not Observed

Substructure	Backwalls	Construction: _____ Remarks: _____
	Wingwalls	Construction: _____ Remarks: _____
	Piles/Abut	Construction: _____ Remarks: _____
	Caps	Construction: _____ Remarks: _____
Superstructure	Stringers	Construction: _____ Remarks: _____
	Bracing	Construction: _____ Remarks: _____
	Bearings	Construction: _____ Remarks: _____
Deck	Deck	Construction: _____ Remarks: _____
	Rail/Curbs	Construction: _____ Remarks: _____
End Fills		Construction: _____ Remarks: _____
Object Marker		Construction: _____ Remarks: _____
Riprap		Construction: _____ Remarks: _____
Channel		Construction: _____ Remarks: _____

OVERALL RATING _____

A priority ranking system was not prepared for the bridges listed in the Other Bridges Over 20 Feet Category. Rather, these bridges were ranked in descending order using the SR rating; the lowest rating at the top of the improvement list and the highest at the bottom. This listing was included in Table 1 only. Likewise, a priority ranking system was not prepared for the bridges listed in the Other Bridges Under 20 Feet Category since the County feels these bridges are in good condition at this time.

Priority:
The order in which the bridges are listed in the inventory (Tables 1 and 2) is the recommended order of bridge replacement or repair. The prioritization order is subject to constant review and alteration as a specific bridge may bypass another bridge or bridges presently rated as more critical. Such "leapfrogging" may, among other things, be a result of rapid deterioration caused by high use, extreme loading or the type of material of which it is constructed.

Status:
The bridges were each given a status rating from high to low, based on the total point rating. The purpose of assigning a status rating is to aid in interpreting the significance of the overall numerical rating assigned to the structures. The status was assigned based on the point ranges listed below:

>20 pts	High (H)
20 pts	Mid-High (MH)
19 pts	Mid (M)
17-18 pts	Mid-Low (ML)
< 17 pts	Low (L)

The breakpoints between the various conditions are subjective, based primarily on how the County Commission Road and Bridge Department, and the Engineer viewed the point values relative to their correlation to the safety and remaining useful life of the bridges. The key to this process is to group bridges in accordance with the immediacy of need for improvements.

Structural Condition:
The structural condition relates directly to the deficiencies found in the superstructure or substructure of a particular bridge during the bridge inspection process. This heading serves the purpose of separating the structural condition of the bridge from the overall bridge status. The reasoning for the separation is to prevent bridges rated as structurally deficient but satisfactory in all other categories from being overshadowed by structurally sound bridges which have a similar overall rating due to high traffic volumes, poor roadway approaches, etc. For example, a bridge with a structural condition of critical would be given preference over a bridge with a similar overall rating that has a structural condition of fair. This designation is not directly tied to the S.R. rating but rather was arrived at following inspection and evaluation by the Engineer.

Bridge No., MDT Bridge No., Road, and Crossing:
Refer to narrative Table 1 under **TABLE 1- Stillwater County Existing Bridge Data** for definitions and discussions of these items.

Detour Length:
The shortest available alternative route (actual or estimated) around the bridge along a roadway of equal or higher classification is listed under this heading. Bridges that are the sole access to an area and have no alternative route are listed as "No Detour".

Detour Rating:
The detour length around a particular bridge was integrated into the bridge rating process in order to give precedence to structures that serve as the sole access to a permanent residence or provide the primary means of access for emergency vehicles. Detour length is also an indication of the level of inconvenience a bridge closure would cause to the traveling public.

The ratings for detour length were assigned on a scale of 5-3-2-1 with 5 points assigned to the routes with no reasonable detour. The basis for assigning the points is as follows:

5 pts	No Detour
3 pts	Detour Length > 8 miles
2 pts	2 miles < Detour Length < 8 miles
1 pt	Detour Length < 2 miles

The rating for detour length was not weighted heavily since this data can be extremely misleading and tends to favor low volume structures in backcountry areas over high volume bridges near larger cities and towns. Structures located near urban areas with well developed road systems tend to have short detours compared to bridges located in less populated areas.

Traffic (ADT):
Many of the roads within Stillwater County do not have traffic volume data available. Where traffic counts were not available, a traffic volume had to be assumed with the aid of the Commission. Each bridge in the County was classified as carrying a low, medium or high volume of traffic based on the average daily traffic (ADT) breakdown listed below.

Low	< 50 ADT
Medium	50 ADT - 200 ADT
High	> 200 ADT

Bridges located on roads in which traffic volume data was available have the ADT listed in parentheses below the general classification.

Traffic Rating:
The traffic volume data was incorporated into the bridge rating system to ensure that a bridge serving a high volume of traffic would receive priority over a bridge in similar

structural condition serving a lesser traffic volume. The rating scale for this data was assigned on a 5-3-1 basis with 5 points assigned to the high volume bridges, 3 points to medium and 1 point to the low volume bridges. The basis for assigning the points is as follows:

5 pts	High
3 pts	Medium
1 pt	Low

Traffic volume data was weighted relatively low compared to other criteria, since average daily traffic is not an indication of the structural integrity or safety of the bridge. The purpose of this rating category is to rank a high volume bridge over a low volume bridge with similar structural and safety deficiencies.

Importance Rating:
Several factors come into play when determining how essential a specific bridge is to the transportation system as a whole. Major factors include whether the bridge serves as sole access to permanently inhabited residences, and if so how many, whether the bridge is critical to emergency services in the area, and whether the bridge is located along a school bus, mail or other route of significance.

When evaluating the importance of a bridge to the emergency response network several factors must be addressed. Bridges that serve as the sole access to a permanent residence obviously rank high on the importance scale. However, bridges that serve as the main access to a large area, yet are not the sole access, deserve a high rating as well. Therefore, structures on roads designated as arterials and collectors must be given preference over similar structures on less traveled roads. A bridge that lies on a school bus or mail route also affects the importance rating, though to a lesser degree than the aforementioned factors.

Ratings relating to the importance of a structure are given on a 7-4-1 basis according to the following criteria:

7 pts	Sole access to permanently inhabited dwelling. Critical for emergency service to an area. Road serves as arterial or collector.
4 pts	Main entry to permanently inhabited dwelling - not sole access. High volume of local and recreational traffic. Lies on school bus or mail route. Road serves as local collector.
1 pt	Light recreational or local traffic volumes. Not used by emergency vehicles.

The importance rating was weighted heavier than traffic volume or detour length due to its relationship to emergency services and user access.

Safety Rating:
The safety rating serves to address various safety issues such as missing or damaged guardrail, inadequate sight distance and poor horizontal and vertical alignment of the bridge approaches. This column also addresses the structural sufficiency of the bridge to a certain extent, although not to the degree of the structural integrity rating.

Ratings for safety are assigned on a 10-8-6-4-0 basis with 10 points assigned to structures with the greatest safety problems according to the following criteria:

10 pts	Extreme sharp corners leading into or out of bridge that require significant speed reduction and may result in loss of control. Extreme poor sight distance due to physical obstructions or curves that hinder view of oncoming traffic/pedestrians. Single lane bridges with no shoulders. Severe structural deficiencies; i.e. broken stringers, crushed pile caps, broken piles, etc. Severe scour problems. Combination of several of the items listed in the following categories.
8 pts	Sharp corners leading into or out of bridge that require obvious speed reduction and may result in loss of control. Poor sight distance due to physical obstructions or curves that hinder view of oncoming traffic/pedestrians. Guard rail severely damaged or missing, (replacement needed). Excessive structural deficiencies; i.e. Cracked stringers, damaged decking, rolled caps, etc. Moderate debris in stream. Combination of several of the items listed in the following categories.
6 pts	Moderate horizontal and/or vertical curves leading into bridge that may require speed reductions. Constricted bridges; i.e. Reduced lane widths, no shoulders. Moderately damaged guardrail in need of repair. Moderate structural wear; i.e. Checked or cracked stringers, worn or loose decking, etc. Moderate scour problems. Combination of several of the items listed in the following categories.
4 pts	Narrow bridges; i.e. Standard lane widths, no shoulders. Routine guardrail maintenance; i.e. tighten bolts, paint, etc. Minor structural wear; i.e. checked stringers. No scour trouble.

0 pts	No horizontal or vertical roadway concerns. Standard lane widths and shoulders carry through bridge. New guardrail. Structurally sound.

The safety rating was weighted the heaviest along with the structural integrity as it directly relates to the safety of the traveling public. Unsafe roadway approaches may result in vehicles missing the bridge whereas bridges, which are narrow or have poor sight distance, can lead to collisions.

Structural Integrity Rating:
This rating refers to the structural sufficiency of the bridge and the time frame under which replacement or repair projects must be completed in order for the bridge to remain in service. Bridges that are currently closed or face closure in the near future are assigned the highest rating. Bridges that are newly constructed or require minimal maintenance are assigned the lowest ratings. The bridges were rated on a scale of 0-10 as described below:

10 pts	Bridge currently closed - structural failure.
9 pts	Bridge closure imminent - severe structural deficiencies.
8 pts	Extensive maintenance and weight/speed limits required to temporarily extend bridge life; i.e. crushed pile caps, several broken stringers, severe foundation problems, etc.
7 pts	Weight/speed limits required to temporarily extend bridge life and keep bridge open to public; i.e. cracked stringers, possibly a couple of broken stringers.
6 pts	Extensive rehabilitation may extend bridge life without requiring weight/speed restrictions; i.e. deck replacement, scour remediation and protection, etc.
5 pts	Moderate-heavy rehabilitation required to prevent further structural/safety deterioration; i.e. guardrail replacement, wearing surface overlay, etc.
4 pts	Moderate repairs such as cleaning of water passage, pothole patching, and riprap placement are required.
3 pts	Routine maintenance including guardrail repairs and tightening of diaphragm bracing.
2 pts	Minor maintenance items such as painting.

1 pt	No repairs required, minimal signs of wear.
0 pts	New bridge.

The structural integrity rating was assigned the highest weighting as it directly relates to the safety of the traveling public.

Rating Total:
The last column of Table 2 includes the total of the points assigned to the detour, traffic, importance, safety, and structural integrity ratings. Although the maximum number of points available in this column is 37, this number is not as critical as ensuring that all of the bridges are being rated on a comparable basis. The number in this column correlates with the priority of the improvements; the highest number equating with the number one priority and so on. In the case of the same rating totals, the priority ranking is then based on the structural condition with critical being ranked over poor, which is ranked over fair and so on. The important thing to remember in using this Table is to look at the particular groupings of the bridges according to the total rating numbers and how certain bridge priorities fall into place accordingly.

TABLE 3-Stillwater County Bridge Replacement/Repair Information

Priority, Status, Structural Condition, Bridge No., MDT Bridge No., Road, and Crossing:
Refer to the narrative in Tables 1 and 2 for definitions and discussions of these items.

Recommended Repairs/Replacement Structure:
The preliminary replacement alternative or recommended maintenance assumed for a particular structure is listed under this heading. The preferred alternative may consist of a new structure, such as a bridge or culvert, permanent closure of the existing structure, or repairs. Should a new culvert be the desired option, the material and size of pipes are listed. When a new bridge is to be constructed the material of the superstructure is designated. This information is primarily used by the Engineer during estimation of preliminary costs for each bridge replacement. It should be noted that this initial assessment regarding the preferred alternative is conducted at a very high level and the information associated herewith should be used accordingly. It is assumed that a more detailed alternative analysis will be performed for each structure as the need arises.

The preliminary decision regarding whether an existing bridge should be replaced with a new bridge or a culvert was made jointly by the, Road and Bridge Superintendent and the Engineer. In general, spans of 20 feet or less were considered for replacement with culverts, when possible, in order to save on installation and maintenance costs. Once the span exceeded 20 feet, a bridge or open bottom culvert was most often the selected alternative to ensure that the waterway was adequate in size and to protect riparian areas and fish habitat.

Replacement Length:
Lists the assumed length of a new bridge, diameter of a circular culvert or span of a box culvert.

Replacement Width:
Lists the assumed width of new bridge or length of culvert.

Estimated Cost:
For purposes of budget allocation an estimated construction/rehabilitation cost was developed for each replacement structure rated as high or mid-high under the status category. Estimated costs for new bridge construction or extensive rehabilitation work were generally prepared by the Engineer.

The cost estimates prepared by the Engineer were based on the assumption that the entire project would be contracted out to bid. Therefore, costs for bonding, insurance, profit and material mark-up are included in the final estimate. The engineer's estimate also assumes that all laborers and operators will be paid according the Montana Prevailing Wage Rate.

Since a complete analysis and design for each bridge was not warranted during the cost estimation process, several assumptions regarding material type and quantity were required. The first step in this process was to divide each bridge replacement into the categories listed below:

New Bridges:
- Substructure Material & Type
- Superstructure Material & Type
- Concrete Work
- Roadway Reconstruction
- Embankment Protection
- Barrier Rail/Guard Rail
- Demolition of Existing Structure
- Detour Provisions

New Culverts:
- Culvert Material and Type
- Concrete Work
- Roadway Reconstruction
- Embankment Protection
- Barrier Rail/Guard Rail
- Demolition of Existing Structure
- Detour Provisions

In order to standardize the cost estimation procedure, the substructure was limited to driven steel piling with a cast-in-place concrete cap. The superstructure was limited to precast/prestressed concrete bulb tee beams or trideck beams. These materials and bridge types were selected based on economics, ease of installation and previous bridge

construction experience. All unit costs listed below include labor and incidentals required to construct or install the item.

Driven pile foundations with cast-in-place concrete caps provide excellent scour protection and bearing capacity while minimizing the cost in most situations. The length of pile required was generally assumed to be 250 linear feet (LF) per bridge. This quantity varies somewhat based on the length and width of the new structure. The costs associated with supplying and installing steel piling vary greatly depending on the type of pile specified. A cost of $60/LF installed was used for estimating.

Precast/prestressed concrete beams are unique in that the driving surface (deck) and bridge stringers can be combined into one prefabricated unit. Bulb tees and tridecks are designed so that the top face of the flange doubles as the driving surface. This results in a quick installation with significant cost savings over a similar bridge constructed of steel. Concrete bridges also have a design life that is 3-4 times that of a timber structure while requiring a minimal amount of maintenance. The maximum span of Trideck beams is 65 feet with longer spans requiring the use of bulb tee beams. The number of beams required is dependent on the bridge width. Trideck beams have a maximum width of 6.5 feet while Bulb Tee beams have a maximum width of 7.5 feet. The costs associated with the beams must be addressed on a case by case basis as they fluctuate depending on the type of beam specified and bridge location.

The majority of the new bridges will require a significant amount of concrete to construct the pile caps and wingwalls. The quantity of concrete is assumed to vary from 30-40 CY depending on bridge width and geometry. Estimated costs for concrete work range from $600-$800/cubic yard (CY) depending on the location of the bridge in relation to a supplier.

Roadway reconstruction costs depend on the length of road to be reconstructed and whether the existing road has an asphalt driving surface. In general, 200 LF of roadway reconstruction was assumed for each bridge replacement to account for transitions into and out of the bridge. The estimated costs for road reconstruction vary from around $5/square yard (SY) for graveled roads to $15/SY for asphalt surfaced roads.

Riprap is the most common means of protecting the stream banks and preventing scour below the foundation. The quantity of riprap is dependent on the geometry of the crossing as skewed bridges will generally require a greater volume of riprap than a standard 90° crossing. A riprap quantity of 100 to 200 CY is typically adequate for most bridge replacements. The cost of riprap is proportional to the distance the bridge is located from the borrow site. A cost of $50/CY was used for estimating riprap installation.

The quantity of bridge barrier rail is generally assumed to be twice the length of the bridge. A cost of $90/LF was used for estimating purposes.

Guard rail quantities depend on the length of road reconstruction, angle of fill slopes, fill slope height and location of public and private accesses. Bridge approaches located on large fills will require additional guardrail. It was assumed that 150 LF (37.5 LF on each

corner of the bridge) will be required for a new bridge. The cost for guard rail was estimated to be $60/LF.

Excavation costs associated with constructing the new bridge are difficult to estimate without a preliminary bridge layout and design. An excavation quantity of 150-200 CY was generally used at an estimated cost of $30/CY. Demolition costs are related to the size and type of the existing structure. Timber structures are generally less labor intensive to demolish than a concrete or steel structure. A lump sum cost of $5000-$10,000 was generally considered adequate for this item.

In many cases a culvert rather than a new bridge may best accomplish the replacement of an existing structure. Culverts are generally cheaper to install, have a similar design life and require much less maintenance than a bridge. Several types of culverts are considered for replacement of bridges within Jefferson County. The most common culvert options are corrugated steel pipe (CSP), Aluminum Box Culverts, and reinforced concrete box culverts. Aluminum box culverts can be used for spans of 9 to 26 feet and provide a high width to height ratio, which allows large volumes of water to pass through a low profile fill section. Aluminum box culverts are generally designed to be placed on aluminum footing pads and therefore have little impact on the stream bed. However, a circular CSP culvert or a CSP pipe arch will better serve areas with low runoff volumes and shorter spans. CSP pipe is generally less expensive than aluminum box culvert. Both require 2-4 feet of fill over the top of the pipe in order to disperse the traffic loading. Generally CSP culverts will be utilized unless span and loading requirements dictate the need for an Aluminum Box Culvert.

Costs associated with Engineering are included in all estimates. In general, engineering is assumed to comprise 20% of the total construction cost of a project. The engineering costs involve the site survey, hydraulic analysis, geotechnical investigation, structural design, preparation of plans and specifications, acquisition of necessary permits, construction management and inspection. Projects that are to be contracted out to bid also require preparation of the bid package, bid award, pay estimate processing and miscellaneous other items.

Contingency costs are also included in the cost estimates prepared by the Engineer. Contingency costs are those associated with unforeseen circumstances that may occur during design and construction phases. For instance, a geotechnical study may determine that the soils in the area of a particular bridge are extremely poor and necessitate longer pile lengths to develop the required bearing capacity. If the project requires 10 piling and each had to be driven an additional 10 feet, the resulting cost increase would be approximately $6,000. Contingency costs generally comprise 10% of the total construction cost at this point. As the project progresses and the design becomes more accurate the contingency costs tend to drop to around 5% of the total construction cost. 5% for legal and administration was also included in the estimates.

Summary

The purpose of the bridge inventory is to serve as a guideline for the County to utilize when scheduling annual bridge replacement, rehabilitation and maintenance projects. The estimated costs associated with each project may also be used as a basis for long range budget allocation and grant requests from various agencies.

In order for the bridge inventory to effectively serve its purpose it should be updated on a regular basis to reflect the changes that occur as a structure approaches its useful life. It is suggested that bridges rated as poor or critical be inspected annually to ensure that the structure remains safe for public use. Bridges that received a rating of fair or better need only to be inspected every two years. Exceptions to this policy include bridges that are located on high volume roads and are beginning to reach the end of their expected service life. Bridges such as these should be inspected annually regardless of the rating listed in the bridge inventory, as it is common for structural deterioration to occur much more rapidly near the end of a structure's life, particularly with timber bridges.

The County should continue to maintain and repair all bridges as needed. When doing so, safety should always be considered. Objects markers should be in place at all four bridge corners, should be of the right color scheme and should have the bars angling down and in. Rail should be up on all bridges to at least provide a visible comfort barrier for drivers. Where possible, the rail should be made as structurally functional as the system allows. Waterways should be kept free of debris and sediment deposits removed. To the extent possible, decks should be kept free of fill and/or gravel, particularly timber decks, to reduce the possibility of moisture entrapment. Approach fills experiencing sloughing should be repaired immediately. Load limit signs should be installed as necessary and checked frequently to ensure they remain properly installed.

III. BRIDGE CAPITAL IMPROVEMENT PLAN

"Capital improvements planning" is defined as a process by which local governments identify capital (public facility) needs, establish project priorities and set forth a program for the scheduling and funding of construction or repair projects. A Capital Improvement Plan (CIP): provides local governing bodies with a defensible basis upon which to make decisions regarding the allocation of financial resources; provides a mechanism to schedule capital projects with regard to financial limitations; and assists potential outside funding sources in evaluating local government funding applications in light of overall needs and available resources. Planning for the financing or maintenance, repairs and construction of our public infrastructure is extremely important in light of limited financial resources, which are available to meet ever increasing demands.

The capital improvement planning process typically involves: assessing need, setting priorities, identifying solutions, evaluating funding options, scheduling activities, adopting the CIP and implementing the CIP. The first sections of this report outline the inventory and evaluation of the County's bridges, which address the assessment of need, priority setting, and solution identification portions of the Bridge CIP. This section will evaluate funding options, establish schedules and summarize the CIP for Stillwater County bridges into an easy to read table. This document will then be adopted by the Commission and ultimately incorporated into an overall Stillwater County CIP that will be prepared in the upcoming year. Implementation will be the responsibility of the Commissioners.

The following is a listing of some of the potential sources of funding that may be considered.

- Levy the maximum amount of bridge mills allowed by state law.
- Bridge Depreciation Reserve Fund.
- County CIP Fund.
- PILT Payments and Timber Receipts.
- Optional Motor Vehicle Tax.
- Local Option Motor Fuel Excise Tax.
- Oil and Gas Lease Funds.
- Rural Improvement Districts.
- General Obligation Bonds.
- Revenue Bonds.
- Impact Fees.
- MDT Secondary Road Program
- MDT Bridge Replacement and Rehabilitation Program (HBRRP Off-System).
- Forest Highway Funds.
- Federal Hazard Elimination Program (STPHS).
- Treasure State Endowment Program (TSEP).
- Montana Board of Investments Intercap Program.
- U.S. Forest Service Wood in Transportation Program.
- Federal Emergency Management Agency (FEMA).

Unfortunately for most Counties, there are few viable options for funding bridge improvement projects. The above list of funding sources outlines many possibilities, each with its own individual requirements that must be explored in detail to determine eligibility. Currently, the most popular funding sources being utilized involve grants from the TSEP program combined with Local funds from operating budgets and/or Montana Board of Investments Intercap loans.

The following presents a verbal narrative summarizing the County's plan to address its bridge needs over the next five years (FY 2006 through 2011). This information is summarized in Table 4, Stillwater County2004 5-Year Bridge Capital Improvement Plan.

CURRENTLY PLANNED AND FUNDED

Centennial Road over Keyser Creek (CN1). The proposed improvements for this structure include replacement with a precast bridge at a cost of around $180,000. Funding has been procured from the TSEP program with matching local bridge funds. The project is currently in the construction stage with the scheduled completion date in April 2006.

Lovers Lane over Town Ditch (LL1). The proposed improvements for this structure include removal and replacement with a corrugated steel pipe at an estimated cost of $30,000. Funding has been procured from the TSEP program with matching local bridge funds and labor. The project has been designed with construction expected to occur in the spring and summer of 2006.

Jackstone Road over Jackstone Creek (JC1). The proposed improvements for this structure include removal and replacement with a corrugated steel pipe at an estimated cost of $40,000. Funding has been procured from the TSEP program with matching local bridge funds and labor. The project has been designed with construction expected to occur in the spring and summer of 2006.

Hines Ranch Road over West Big Coulee (WB1). The proposed improvements for this structure include removal and replacement with a corrugated steel pipe at an estimated cost of $60,000. Funding has been procured from the TSEP program with matching local bridge funds and labor. The project has been designed with construction expected to occur in the spring and summer of 2006.

Svenson Road over Spring Creek (SV1). The proposed improvements for this structure include removal and replacement with two corrugated steel pipes at an estimated cost of $50,000. Funding has been procured from the TSEP program with matching local bridge funds and labor. The project has been designed with construction expected to occur in the spring and summer of 2006.

Valley Creek Road over Cove Ditch (VC2). The proposed improvements for this structure include removal and replacement with a concrete box culvert at an estimated cost of $50,000. The project will be constructed with county crews and

funded with local bridge funds. The project has been designed with construction expected to occur in April of 2006.

South Park City Road over Italian Ditch. The proposed improvements for this structure include removal and replacement with a concrete box culvert at an estimated cost of $25,000. The project will be constructed with county crews and funded with local bridge funds. The project has been designed with construction expected to occur in April of 2006.

FUTURE PRIORITIES

1. "Johnson" Johnson Lane over the Stillwater River (JL1). Although this bridge ranked high in the priority list, the Commission decided that it could not afford its replacement ($1,500,000) with local resources. Even though it ranked high, should it be closed, a detour of less than three miles is available which led to the decision to postpone action on its replacement. The County intends to inspect it frequently and conduct emergency repairs as needed. The proposed avenue of financing for this project is through the MDT HBRRP, off system program. The anticipated timeframe for this project is after FY 2010.

2. "Red Bridge" Stillwater River Road over the Stillwater River (SW2). The proposed improvements for this structure include replacement with a precast concrete bridge at a cost of around $700,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. The anticipated timeframe for this project is FY 2006 through 2008.

3. Stillwater River Road over the Phelps Ditch (SW1). The proposed improvements for this structure include replacement with a precast concrete box culvert at a cost of around $100,000. This crossing is located 60 feet from the Red Bridge and will be integral to its bridge replacement. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. The anticipated timeframe for this project is FY 2006 through 2008.

4. "Bob Story" Valley Creek Road over Valley Creek (VC1). The proposed improvements for this structure include replacement with a precast concrete bridge at a cost of around $400,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. The anticipated timeframe for this project is FY 2008 through 2010.

5. Cemetery Road over Valley Creek (CR1). The proposed improvements for this structure include replacement with a precast bridge at a cost of around $160,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. Due to the cost of this project and the fact that it must be contracted out, the County has elected to delay this project until FY 2008 through 2010.

6. 1st Street NW in Park City over Big Ditch (FN1). The proposed improvements for this structure include replacement with a precast concrete bridge at a cost of around $180,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. Due to the cost of this project and the fact that it must be contracted out, the County has elected to delay this project until FY 2008 through 2010.

7. Young's Point Road over Cove Ditch (YP2). Given its current posting of 14 tons, the plan is to continue periodic monitoring of the structure. If deemed necessary, proposed improvements for this structure include replacement with a steel multi-plate culvert at a cost of around $200,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds.

8. Stockade Road over Stillwater Ditch (SK1). The proposed improvements for this structure include replacement with a CSP culvert an estimated cost of $10,000. This work would be performed by County crews with funding through the local bridge fund. Due to the condition of the existing structure the anticipated timeframe for this project is FY 2007.

9. Rosebud Cemetery Road over Butcher Creek (RC1). The proposed improvements for this structure include replacement with a precast concrete bridge at a cost of around $140,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. Due to the cost of the project, the County has elected to delay this project until FY 2010 through 2012. In the meantime, routine maintenance will be performed by County crews including repair of backwalls and stabilization of caps.

10. Cemetery Road over Italian Ditch (CR2). The proposed improvements for this structure include replacement with a concrete box culvert at a cost of around $75,000. This work would be performed by County crews with funding through the local bridge fund. Due to the condition of the existing structure the anticipated timeframe for this project is FY 2008.

11. "Allen Grade" West Rosebud Road over West Rosebud Creek (WR1). The proposed improvements for this structure include replacement with a precast bridge at a cost of around $200,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. The anticipated timeframe for this project is FY 2010 through 2012. In the meantime, routine maintenance will be performed by County crews including stabilizing approach fills and upgrading the rail.

12. Ingersoll Road over West Rosebud Creek (IR1). The proposed improvements for this structure include replacement with a precast bridge at a cost of around $200,000. The proposed avenue of financing for this project is the TSEP program with matching local bridge funds. The anticipated timeframe for this project is FY 2010 through 2012. In the meantime, routine maintenance will be

performed by County crews including stabilizing end fills, installing running plates and placing object markers.

13. Spring Creek Road over Stillwater River (SC1). Maintenance will be performed by County crews including upgrading rail and monitoring the glulam stringers.

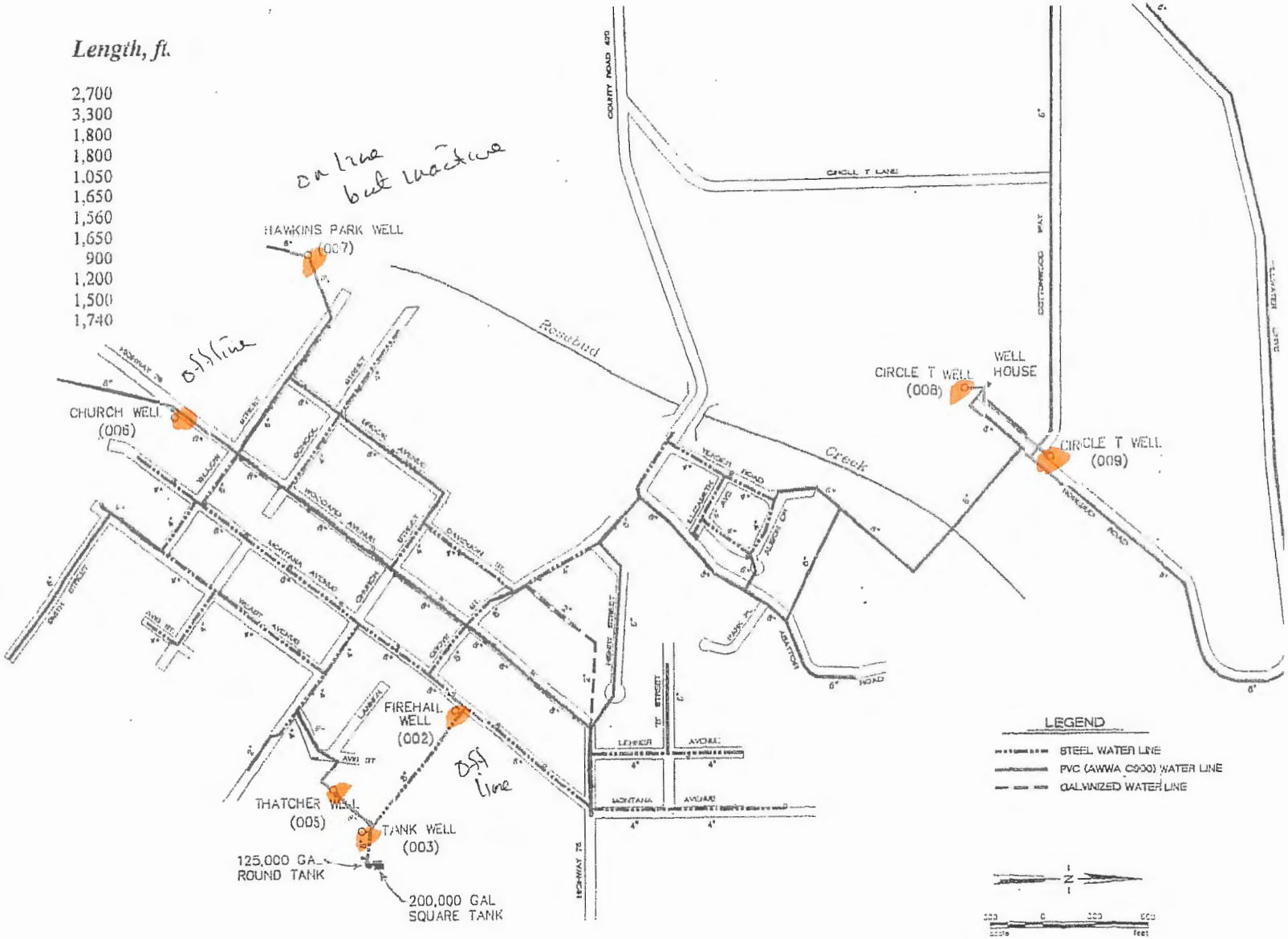
The Commission should revisit this plan on a regular basis, preferably each year during the budgeting cycle. Updates to the plan should be made at this time, adding another year(s) to the overall plan as necessary to maintain the five-year approach. The updates may reflect reprioritization of the bridges, changes in funding opportunities, availability of materials and personnel, etc.

APPENDIX C

Stillwater County Water System
Evaluations and Background Data

Photos of
Absarokee Water System

Line Replacement	*Length, ft.*
Woodard Ave	2,700
Montana Ave	3,300
Church Street Loop	1,800
Willow Street	1,800
School Street West	1,050
Brook & Church West	1,650
Weast Ave	1,560
Davidson looped to Woodard	1,650
Lehner Ave	900
Montana Ave North	1,200
Grove Street	1,500
Yerger, Elizabeth & Alson	1,740



Absarokee Water System
Line Replacement Plan

Absarokee Water System Photos

Thatcher Well Meter

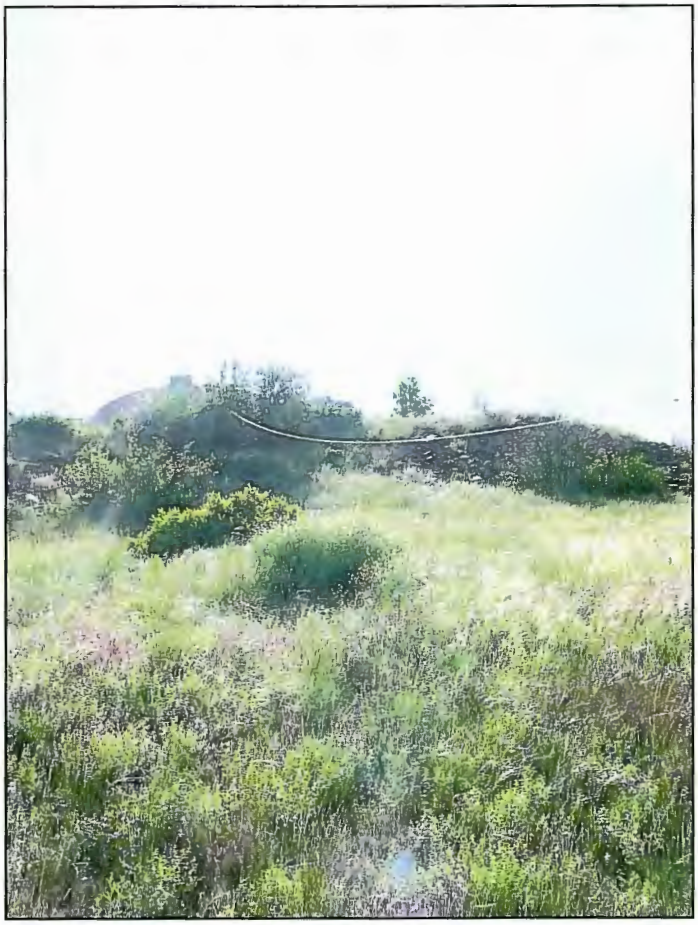
Thatcher Well

Thatcher Well House

Tank Well House

Tank Well

Tank Well Meter



Storage Tank

Circle T Well House (008)

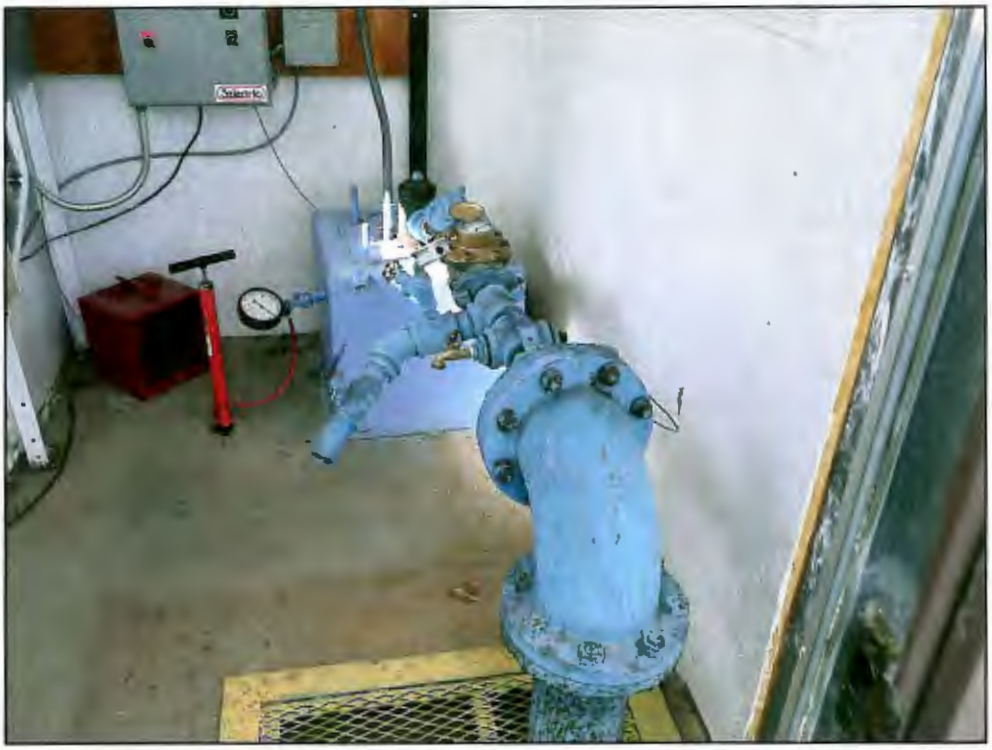
Circle T Well (008)

Circle T Meter

Circle T Chlorination (008)

Chlorine Meter Pump (008)

Circle T Well (009)



Circle T Well (009)

Photos of
Rapelje Water System

Rapelje Water System Photos

Water Storage Tank

Typical Fire Hydrant

Typical Fire Hydrant

Typical Fire Hydrant

Typical Fire Hydrant

APPENDIX D

Stillwater County Sewer System
Evaluations and Background Data

Capital Improvements Plan (CIP)
Park City Sewer District CIP

Current Situation

Based on the 2000 Census, the Park City County Water and Sewer District currently serves approximately 870 persons. The sewer facilities consist of a gravity collection system, two lift stations, an aerated pond treatment system with effluent disposal to Vandenberg Ditch.

Growth

The Park City Sewer District Boundary also serves as a Census Designated Place (CDP) and as such represents specific area for which specific census data is collected by the US Census Bureau. Census 2000 determined that the population for this CDP is 870 persons. Specific Census information for the Park City CDP is presented in Appendix C. The Park City CDP did not exist for Census 1990 and as such no historical data is available for this census unit.

The next smallest census unit is the Park City Census Tract. Population data for the Park City Census Tract is presented in the Table below:

Census Year	Population	Increase
2000	1809 persons	29%
1990	1398 persons	
1980		
1970		

County population statistics are as follows:

Census Year	Population	Increase
2000	8195 persons	25%
1990	6536 persons	17%
1980	5598 persons	21%
1970	4632 persons	

Based on conversations with Richard Webb, School Superintendent, the school enrollment for the Park City School District is as presented in the table below:

Year	Enrollment	Increase
2007	356 students	4.2%
2006	341 students	3.6%
2005	329 students	4.4%
2004	315 students	2.5%
2003	307 students	

A detailed wastewater facility plan for Park City was finalized in February of 2000. This facility plan demonstrated that the average growth rate in Stillwater County from 1979 to 1990 was 1.74%. This same facility plan predicted a county wide population of 8110 by the year 2000 and predicted a growth rate of 1.54% through the year 2020. Based on these statistics, the wastewater facility plan utilized a conservative growth rate of 2.0% when sizing future wastewater facilities. The future wastewater facilities were designed for a population of 1260 residents plus a commercial contribution of 99 full time equivalents. This includes a school growth rate of 2.0% for a total school population of approximately 480 students by the year 2020.

The 2000 Census population for Stillwater County was 8195, which is very close to the prediction of 8110 persons for the above referenced facility plan. The Growth rate for this same area for the last decade has been 2.9%. The County completed a Growth Policy Plan in 2004 which predicted similar County wide growth rates. The population projections presented in Part II of this CIP predict a County wide population growth rate between 1 and 2%.

There are several large vacant areas within the current sewer district boundaries and significant infill is possible. The facility plan completed in 2000 planned for infill of 113 properties and an infill population of 243 persons. Two subdivisions are currently being planned, a 40 lot unit within the current district boundaries and an 84 lot subdivision outside the current district boundaries. There is an area of approximately 20 homes north of the interstate that may also be added to the district in the future. Within the school district there have been approximately 450 lots added.

The growth rate presented in the previous facility plan, the current growth policy, and the census data presented herein all seem to correlate fairly well. This suggests the existing wastewater facilities are planned well and should have hydraulic capacity for well into the future. Load capacity will exceed non-degradation permit limits, which will be discussed later, and may result in the need for future improvements dependent on the final permit issued by the State DEQ. It is possible for subdivision growth and a higher rate of infill than anticipated to alter the current predictions. Other growth considerations include the following:

- Real estate lower than in Billings
- Laurel refinery expanding
- New Walmart in Laurel
- Railroad expanding
- Close proximity to Billings

Collection System

According to the 2000 Wastewater Facility Plan the collection system consists of 8200 lineal feet of 4 inch service line and 23,000 lineal feet of 1968 vintage, gravity fed, 8 inch vitrified clay pipe. Over the years an additional 10,000 lineal feet of PVC pipe has been

installed. The clay pipe has a remaining service life of approximately 40 years and the PVC longer yet. There are approximately 95 standard manholes and 9 cleanouts. The collection system has adequate capacity and is not experiencing significant plugging problems or structural failure. Minor pipe replacement is anticipated in the future in an ongoing manner.

A single submersible pump, wet well type pump station was installed in the area of the school in 2003 with sufficient capacity to serve the predicted 2020 facility plan. The remaining service life of the lift station pumps and mechanical equipment is approximately 15 years. The wet well has a remaining service life approximately 40 years. A lift station was also added at the lagoon system to lift the wastewater to the lagoons. The service population and service life are the same as described above for the first lift station.

The maintenance budget for the collection system should allow for cleaning at least 10 % of the collections system would be approximately $5,000 annually. A replacement reserve should also be set aside for future repair and replacement of the collection system, which is probably more than 20 years into the future. However it is important to remember that the replacement value of this collection system in current dollars is over $2.5 million and the District needs to be developing a reserve now to be able to afford future replacement. The reserve should also include the need to replace the mechanical equipment for the lift station in the next 15 years.

Wastewater Treatment Facilities

A new three cell aerated pond system was installed in 2003. Aeration is provided by fine bubble, flexible tube, retrievable floating aerators that receive air from three bowers housed in a building The system is designed for a 2020 population of 1360 full time equivalents which equates to a 2% growth rate. The system discharges, after UV disinfection, to the Vandenberg Ditch. Currently this ditch is not classified as state waters and does not have to satisfy WQB7 aquatic health standards. These standards must be satisfied at the discharge into the Yellowstone River, but a high dilution ratio ensures these standards are not exceeded.

The wastewater facility plan completed in February of 2000 thoroughly evaluated both secondary standards, instream water quality standards and non-degradation and correctly determined the appropriate technology. However, if the ditch is reclassified as state waters when the new permit is issued in the future then additional study and improvements may be necessary. The approach should be as follows:

1. Perform a detail analysis to determine if the waters due meet the criteria for state waters and if so what is the most appropriate water quality classification based on beneficial uses. $30,000
2. Prepare an engineering evaluation based on the final permit limits to determine the appropriate upgrade, if any, needed. $30,000
3. Implement appropriate upgrade, if any. $0.00 to$500,000

The improvements required could be either the addition of nitrification facilities or a new discharge pipeline to the Yellowstone River. Nitrification facilities may allow ammonia standards to be satisfied and could allow continued discharge to the Ditch. A new discharge pipeline would allow the District to avoid discharge to the ditch and associated ammonia standard. However, nondegradation rules would require that the entire system load be considered a new discharge and would be subject to nondegradation load limits. The load, for up to 1360 persons, would be classified as nonsignificant as long as the flow in the Yellowstone exceeds 647 cfs. This is well below the lowest recorded levels.

TABLE 1
PARK CITY SEWER DISTRICT – WASTEWATER SYSTEM IMPROVEMENTS AND BUDGET

***Priority 1* – General Improvements**				
Item	**Timing**	**Unit Cost**	**Quantity**	**Amount**
Collection System Cleaning	Ongoing	$4,000	1	$4,000
Collection System Rehabilitation	Ongoing	$4,000	1	$4,000
Collection System Reserve				
***Priority 2* – Long Term Improvements**				
Item	**Timing**	**Unit Cost**	**Quantity**	**Amount**
MPDES Discharge Permit Evaluation	FY2009-2013	$30,000	1	$30,000
Engineering Evaluation for Treatment Facilities	FY2009-2013	$30,000	1	$30,000
Possible Treatment Facility Improvements	FY2017-2022	$500,000	1	$500,000

Photos of
Park City Sewer System

Park City Sewer Photos

Wastewater Treatment Facility

Lagoon Lift Station

Collection Lift Station

Photos of
Reed Point Sewer System

Reed Point Sewer

Treatment Lagoon

Treatment Lagoon

Effluent Irrigation

Effluent Irrigation

Effluent Irrigation

Treatment Lagoons

APPENDIX E

Stillwater County Stormwater System
Evaluations and Background Data

APPENDIX F

Stillwater County Solid Waste District
Evaluations and Background Data

APPENDIX G

Stillwater County Buildings
Evaluations and Background Data

STILLWATER COUNTY

BUILDINGS EVALUATION

Prepared by:

GreatWest engineering

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STILLWATER COUNTY BUILDINGS EVALUATION

I. GENERAL

The countywide evaluation of selected buildings owned and maintained by Stillwater County will ultimately include public assembly and office buildings as well as nursing homes, vehicle equipment buildings, recreation facilities, and a variety of structures at the County Fairgrounds. The purpose of this evaluation is to provide information on facility condition and needs that will be useful in the development of the public buildings section of the Stillwater County Capital Improvements Plan. For this initial assessment of county buildings, an inspection of two county facilities was conducted on November 16,2004 which included one building located on the County Fairgrounds in Columbus, and the swimming pool facility in Absarokee. . The process involved completion of an inventory form and field sketches to record basic data on essential building, structural, and site elements for each location with emphasis on overall condition and specific maintenance or structural needs. In addition to information for these two facilities, data developed by architectural consultants for the County Courthouse is referenced and summarized below. Appendix C contains cost estimates, priorities and funding for each of the buildings.

The scope of this survey is intended to identify the most urgent maintenance and repair needs facing the county and to estimate costs associated with these improvements. The general nature of the survey does not allow for identification of precise quantities needed for construction bidding. In some instances, a more detailed investigation is recommended before undertaking a major improvement project.

The present status of the buildings relating to clearance requirements established in the Americans with Disabilities Act (ADA) was noted during the inspection. Providing for these needs would be technically infeasible in some of the existing structures maintained by the county and/or would add astronomically to construction costs. Handicapped accessibility to basic county services and restrooms should be incorporated into major renovation projects for the county offices and for any new county building projects.

The results of the survey and the recommended improvements are presented in the following section. Photographs of each structure are attached separately, and the field survey forms are included in Appendix A of this report.

II. FACILITIES, DESCRIPTION, OBSERVATIONS AND NEEDS

STILLWATER COUNTY COURTHOUSE

Description:

An inspection and evaluation of the courthouse was conducted for the county by JGA architects in 2002. The report documented findings for facility needs that were summarized and broken down according to line items for the following categories: Architectural Issues; Structural Issues; Mechanical System Issues; Electrical System Issues; and Site Issues. The summary of total estimated costs for all improvements listed fell in the range of $2,200,000 to $2,600.000.

Subsequent to the original analysis, JGA prepared a conceptual project cost estimate in 2004 to address some of the immediate needs regarding requirements for handicapped accessibility. The items identified were summarized for three different phases of construction including Phase I improvement for stairway handrails and other miscellaneous ADA upgrades, Phase II handicapped restroom construction, and Phase III elevator addition. These costs are itemized in tabular form in Appendix C of this report. For a more detailed discussion of courthouse improvements, see the Stillwater County Courthouse Facility Inspection & Evaluation report.

COUNTY FAIRGROUNDS PAVILION

Description:

A one-story steel frame structure with wood frame kitchen and restroom areas. The building contains primarily open floor space for various assembly uses. In addition to four entrance doors, it has a large service door located at each gable end for movement of equipment in and out of the building. The building was designed with a center 4:12 pitch and has a lower slope shed roof on the north and south sides. The steel columns and beams are exposed on the interior The exterior walls and roof are sheeted with galvanized steel panels. The building system includes galvanized steel sliding doors on the exterior of each service entrance and an inside door was added later to help seal the opening for improved security and energy efficiency.

Observations:

- The structure is in fair condition, but has some short term maintenance needs as well as some long term needs that should be included in the capital improvements plan.

- The exposed edge of the concrete slab is undercut on the north and south sides of the building and on part of the west side. Improvements are needed to prevent cracking in the slab and settlement around the frame foundations.

- The roofing and siding materials have deteriorated over the years and there are many areas where rusting is evident and/or panels are damaged.

- There are no roof drainage controls in place on the sides of the building.

- Three of the exit doors are in poor condition and are in need of re-finishing or replacement.

- Insulation on the west gable wall is exposed on the interior and should be covered with sheathing material.

- The area above the restrooms is used for storage. To prevent fire hazard the space should be closed off (code violation).

Recommendations:

- Repair the perimeter slab edge by excavating to 12" below grade and installing a new concrete curb to project beyond and beneath the existing concrete. Slope the top of the new ledge to drain and provide metal flashing under siding.

- Install gutter and downspout on north and south sides of the building. Drain away from foundation area.

- Grade the north, east and west sides to drain away from the building.

- Replace or re-finish three exit doors (excludes main entrance); include new hinges and weather stripping; the south door is not the required width for an exit (32" clear) and should be replaced with a 36" wide door; the exterior landing at this location must also be increased and set at floor level to meet code.

- Replace men's and women's toilet with ADA rated fixtures. Future restroom improvements should include a 5' diameter wheel chair turn around space.

- Improve assembly area ventilation to meet requirements of 2003 International Mechanical Code.

- Designate, sign and stripe a handicapped parking space adjacent to the main entrance.

- Long term improvements should include the replacement of siding and roofing panels.

ABSAROKEE SWIMMING POOL

Description:

The Absarokee public swimming pool and bath house was constructed in the late 70's at a park site in the north part of Absarokee. The 75'x 36' swimming pool was rebuilt in 1988 and includes a diving board and life guard stations and there is a small wading pool (closed off) next to the main concrete deck area. A stainless steel gutter system is installed around the perimeter of the pool which varies from 3' to 10' in depth. The pool mechanical system and pumps were replaced in 2002, and the pump house, which is located on the northeast end of the site, was also completely reconstructed at that time. The pump house is a wood frame building (13'x26') with a gable roof and metal siding and roofing. The pool cover is set aside on a steel reel and frame near the bath house. The pool and concrete deck area is contained by a 7' high chain link fence.

The bath house (16'x32') has not been substantially changed since its construction. It is situated near the southwest corner of the pool and contains a small concession / storage room in addition to the men's and women's locker rooms. The exterior walls and primary interior walls are constructed with 8" CMU (concrete masonry units), and the low slope shed roof is 2x6 wood frame with steel roofing. The interior partitions separating the entrance, toilet and shower areas are wood frame. The fascia and trim on the building are painted wood. The concrete slab is covered with rubber matting.

Observations

<u>Swimming Pool</u>

- Overall, the pool is in good condition considering its age and it apparently requires only normal maintenance except for some surface crack repairs. The mechanical improvements completed in 2002 included new filters and heater and have greatly improved the operating efficiency of the pool. According to pool employees, the most immediate need is for crack repairs on the pool bottom in the near future. The bottom of the pool was partially obscured by water and debris in the deep end at the time of our inspection.

- The concrete deck around the pool is cracked in several places and should be repaired to help extend the useful life of the concrete. The expansion joint at the pool perimeter should be reconstructed to include a self leveling sealant. It appears that the decking will need replacement in the next 5 – 8 years.

- The wading pool is not used because it presents liability problems for the county. It should be removed and replaced with decking.

- The pool cover is in good condition at this time, however the steel reel and frame appear to be deteriorating and in need of maintenance. Long term plans should address replacement of the reel and pool cover.

- The covered patio on the southeast side of the pool deck consists of exposed wood framing supported by the steel fence frame members. The patio roof is in poor condition and it does not appear that it could be salvaged through maintenance procedures. It should be removed and new free standing roofed structure should be installed if a replacement is desired.

Bath House

- The exterior walls appear structurally sound and have not been a maintenance problem for the county. The roof is also in satisfactory condition. The interior is in need of paint to cover areas that have peeled or chipped off. If the building is to be used in its present form, painting of all interior surfaces as well as exterior doors and trim should be scheduled within the next couple of years.

- The primary problem with the Bath House is that it does not meet access, clear space, or fixture requirements included in the ADA regulations. Given the limitations presented by the size of the existing facility, it is not possible to meet accessibility guidelines for a public locker room and shower facility that will serve both sexes. The spaces provided include only minimal clearance for access to interior functions, and there are present egress code violations if the building were required to meet modern building codes. Bath House replacement should be included in the long term capital improvements plan for the county.

- The water shutoff valve pit on the southeast side of the Bath House is covered with a deteriorated wood frame and plywood panel cover. The lid should be replaced with a metal lid and frame suitable for the purpose.

Parking Area

- The parking area is not clearly delineated at the entrance to the swimming pool park. There is a need for parking improvements, including an ADA designated space with an accessible sidewalk to the pool facilities. Plans should be developed to address these needs.

- Sidewalk improvements should be coordinated with parking improvement plans.

Recommendations:

Swimming Pool

- Repair cracks in concrete decking and reconstruct expansion joint around pool perimeter drain slab. Include deck replacement in long term plans.

- Repair cracks in the pool bottom to prevent further deterioration.

- Remove the wading pool and construct new decking in its place.

- Remove the deteriorated patio canopy and replace with a free standing roofed structure.

- Long term budget should include replacement of the pool cover and frame.

Bath House

- Short term improvements should include painting the interior walls, and exterior doors and trim items.

- Replace the valve pit cover on the southwest side of the building with a new metal frame and solid cover. Include new concrete work as required.

- Replacement of the Bath House should be a priority in the capital improvements schedule. The building is not in compliance with the ADA requirements for public buildings and facilities and there is inadequate space in the existing structure to provide for its intended use. Plans should be developed to replace the structure to bring it into compliance with building and accessibility codes.

Parking Area

- Prepare plans for parking improvements adjacent to the Bath House entrance. Construction of parking facilities should include provisions for handicapped accessibility as well as a number of spaces adequate for anticipated use of the pool facilities.

- Construct sidewalk improvements from the parking area to the Bath House.

III. COST ESTIMATES

For purposes of budget allocation and planning, an estimated construction/rehabilitation cost was developed for the recommended improvements for each building. Estimated costs for new construction or substantial rehabilitation work were generally prepared by the Engineer. Please refer to the table on the following page for a summary of the estimated costs. As previously noted, this initial report includes only information developed from an investigation of the Fairgrounds Pavilion and the Absarokee Swimming Pool, as well as a summary of information available for the county courthouse. Other county buildings will be addressed in the future and the Capital Improvements Plan will be updated periodically.

The cost estimates prepared were based on the assumption that the entire project would be contracted out to bid. As a complete analysis and design for each building was not warranted during the cost estimation process, several assumptions regarding material type and quantity were required.

Costs associated with Architecture and/or Engineering are not included in the estimates. In general, for planning purposes, these costs can be assumed to be 15% to 20% of the total construction cost of a project. These costs typically involve the site survey, geotechnical investigation, structural design, preparation of plans and specifications, acquisition of necessary permits, construction management, and inspection. Projects to be contracted out to bid also require preparation of the bid package, bid award, pay estimate processing, and miscellaneous other items.

Contingency costs are not included in the cost estimates. Contingency costs are those associated with unforeseen circumstances that may occur during design and construction phases. Contingency costs include legal fees associated with the project as well as general administration costs. Contingency costs generally comprise 10% of the total construction cost at this point. As the project progresses and the design becomes more accurate, the contingency costs tend to drop to around 5% of the total construction cost.

STILLWATER COUNTY BUILDINGS EVALUATION

BUILDING	TYPE OF IMPROVEMENT	ESTIMATED COST
County Fairgrounds Pavilion	Repair perimeter slab edge. Excavate and install new concrete curb with metal flashing.	$9,000
	Install gutters and downspouts.	$2,000
	Improve site grading on north, south and west sides.	$5,000
	Replace 3 exit doors - Increase opening width to 36" for south door (salvage panic hardware).	$2,500
	Install new 5' x 5' concrete landing at south exit.	$400
	Replace Men's and Women's toilets with ADA rated fixtures.	$800
	Improve assembly area ventilation (verifiy code requirements to finalize estimate).	$3,000
	Sign and stripe handicapped parking area.	$1,000
	Install new metal siding and roofing (includes demolition).	$45,000
	Total	**$68,700**
Absarokee Swimming Pool Facilities		
Swimming Pool	Repair surface cracks in the pool bottom, prepare and paint the affected areas.	$500
	Repair cracks in concrete deck, reconstruct and seal perimeter expansion joint.	$1,000
	Demolish the wading pool and replace with concrete decking.	$1,500
	Demolish the wood picnic area canopy and replace with open free standing roofed structure.	$9,000
	Replace pool cover and reel.	$5,000
	Sub-total	**$17,000**
Bath House	Paint interior walls, exterior doors and trim	$2,000
	Remove valve pit cover and replace with metal frame and checkered plate lid - pour recessed curb for frame.	$600
	Sub-total (Short term)	**$2,600**
	Construct new 900 SF Bath House in place of existing.	$80,000
	Sub-total (Long Term)	**$80,000**
Parking Area	Develop plans and construct a designated parking area.	$20,000
	Construct sidewalks from the parking area to the pool site.	$1,500
	Sub-total	**$21,500**
Stillwater County Courthouse		
	See attached Table *Conceptual Project Cost Estimate* prepared by JGA Architects	**$189,800**
Road and Bridge Department Shop		
	New shop and office building	**$500,000-$750,000**
Library		
	Maintenance	

STILLWATER COUNTY COURTHOUSE

Conceptual Project Cost Estimate

November 9, 2004

JGA ARCHITECTS ENGINEERS PLANNERS

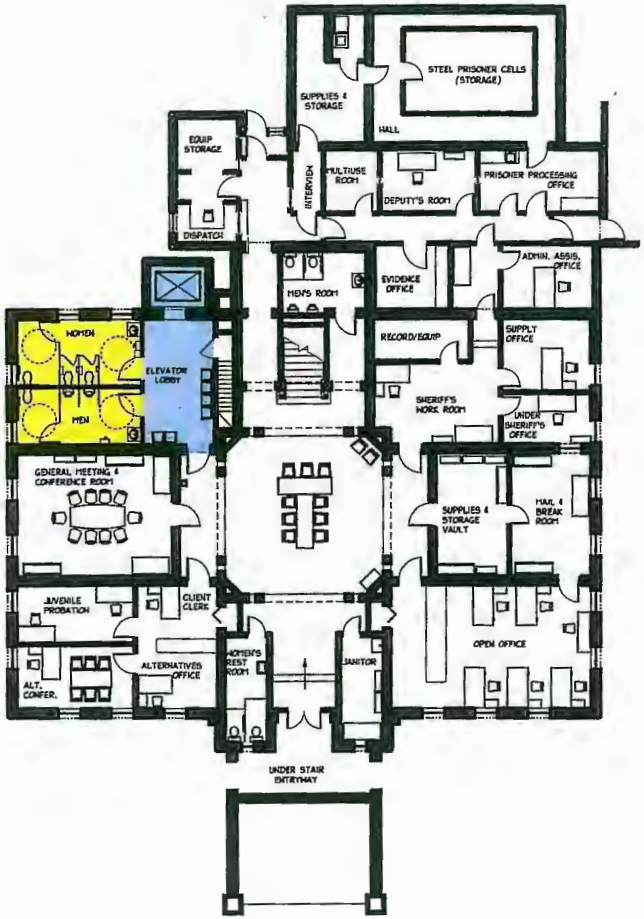
PHASE I (Handrail & ADA Upgrades)

4BL1322.000

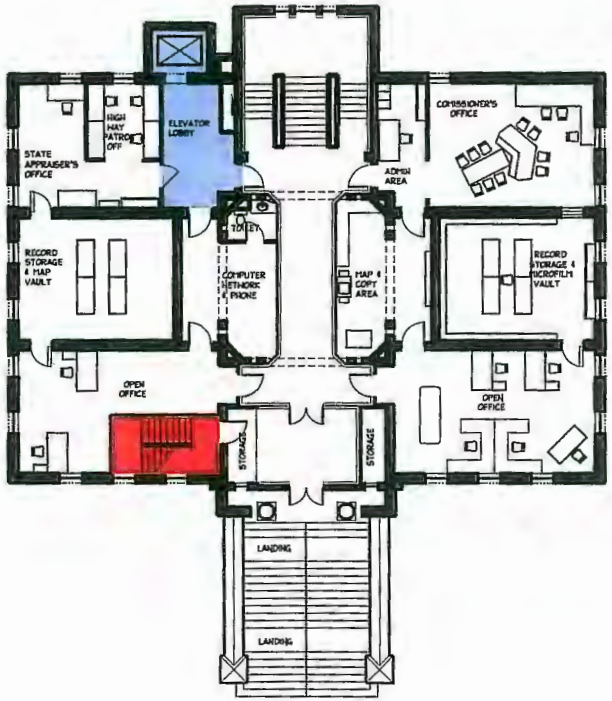
Item	Quantity	Unit	Cost per unit	Extend
HARD COSTS				
Remove exsting handrail	80	LF	$5	$400
New handrailing with brackets	168	LF	$45	$7,560
Door operator @ main rear entrance for ADA	1	EA	$6,200	$6,200
Interior ADA signage	10	EA	$35	$350
Exterior signage at South entrance	1	EA	$250	$250
Concrete entrance slab repoured to meet ADA	25	SF	$10	$250
Subtotal				$15,010
General Conditions (5%)				$751
General Overhead & Profit (15%)				$2,364
Hard Costs Total				$18,125
SOFT COSTS				
Municipal, professional fees, testing, inspections	1	LS	$5,600	$5,600
Soft Costs Total				$5,600
CONTINGENCY (10%)	1	LS	10.00%	$2,372
TOTAL PROJECT COST				*$26,097*

PHASE II (H/C Toilets)

Item	Quantity	Unit	Cost per unit	Extend
HARD COSTS				
Demolition	400	SF	$8	$3,200
New Architectural Renovation	400	SF	$34	$13,600
New Plumbing Renovation	400	SF	$28	$11,200
New Mechanical renovation	400	SF	$10	$4,000
New Electrical Renovation	400	SF	$15	$6,000
Subtotal				$38,000
General Conditions (5%)				$1,900
General Overhead & Profit (15%)				$5,985
Hard Costs Total				$45,885
SOFT COSTS				
Municipal, professional fees, testing, inspections	1	LS	$9,500	$9,500
Soft Costs Total				$9,500
CONTINGENCY (10%)	1	LS	10.00%	$5,539
TOTAL PROJECT COST				*$60,924*



1 FIRST FLOOR PLAN
1/8"= 1'-0"



2 SECOND FLOOR PLAN
1/8"= 1'-0"

544 Grand Avenue, Suite 1 - Billings, Montana 59101
Telephone: (406) 259-5050 - Facsimile: (406) 248-4040
111 South Broadway - Bozeman, Montana 59501
Telephone: (406) 587-4438 - Facsimile: (406) 587-4439
JAS ARCHITECTS ENGINEERS PLANNERS INTERIORS

FLOOR PLAN DRAWINGS

ADA RETROFIT
STILLWATER COUNTY COURTHOUSE
COLUMBUS, MONTANA

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DRAWN: [illegible]
CHECKED: [illegible]
REVISED: [illegible]

11-07-01

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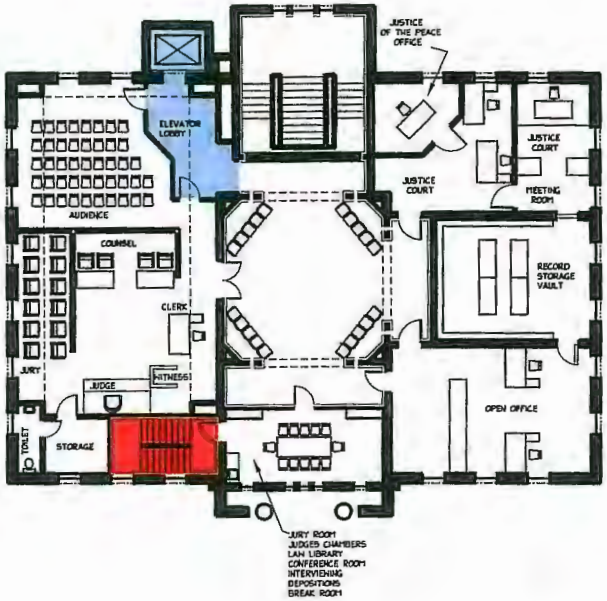
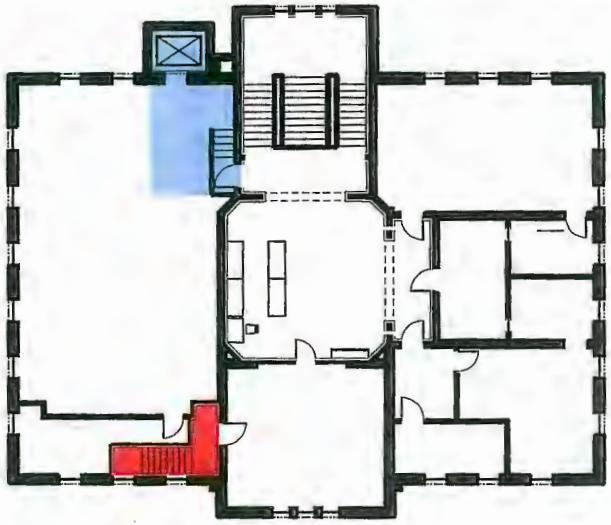


3 THIRD FLOOR PLAN-OPTION 1
1/8"= 1'-0"



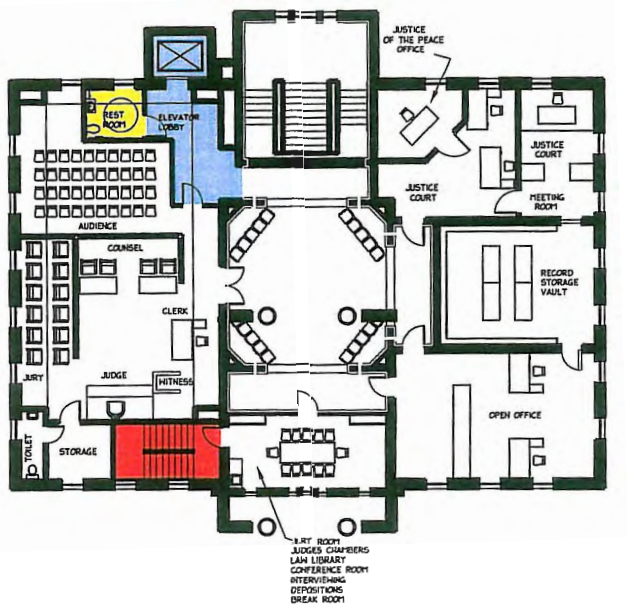
4 FOURTH FLOOR PLAN
1/8"= 1'-0"

ADA RETROFIT
STILLWATER COUNTY COURTHOUSE
COLUMBUS, MONTANA

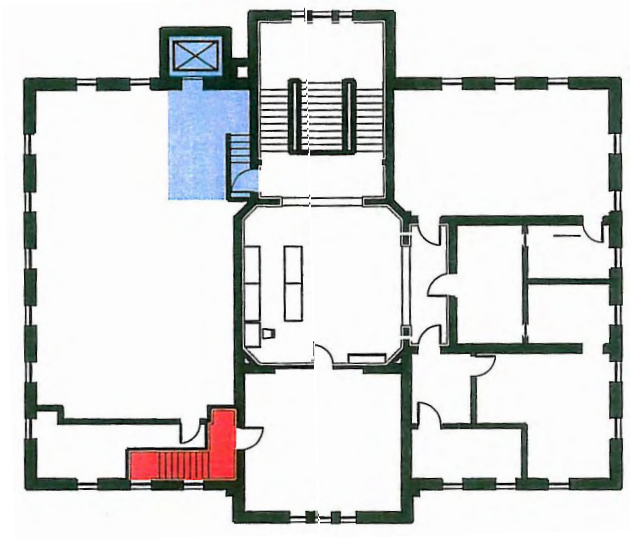
FLOOR PLAN DRAWINGS

PROJECT
DRAWN
CHECKED
DATE
11-07-01

A1.2



3 THIRD FLOOR PLAN-OPTION 2
1/8"= 1'-0"



4 FOURTH FLOOR PLAN
1/8"= 1'-0"

ADA RETROFIT
STILLWATER COUNTY COURTHOUSE
COLUMBUS, MONTANA

FLOOR PLAN DRAWINGS

PROJECT:
DRAWN:
CHECKED:
REVISED:

11-07-01

A1.2

Field Inspection Sheets

GreatWest engineering

STILLWATER COUNTY PUBLIC BUILDINGS
INSPECTION AND EVALUATION

Name of Structure Absarokee Pool Bath House Location Absarokee Year Built Late 70's

Type of Construction: Wood Frame ☐ Steel Frame ☐ Masonry ☑

No. of Stories 1 Sq. Ft. per Story 512 Basement Sq. Feet NA Crawl Space NA

Date of Inspection 11/16/2004

Exterior:	Type	Condition	Comments
Foundation	Conc.	NA	Not visible below grade
Exterior Walls	8" CMU	Fair	Grouts joints intact but some erosion observed;
			Structure appears to be stable;
			No finish coat on exterior.
Roof	Wood Frame	Fair	
	Ext.; steel panels	Fair	Joints should be checked and repaired / sealed periodically;
	Interior; exposed wd. frame	Good	Painted 2x6 roof framing.
Exterior Doors	5 exterior doors	Good	Pool access doors are 32" wide (3); locker room side access doors are 36" wide (2);
	(Wd. Frame and door)		Pool deck is 3" below door threshold. Sidewalks are 5" – 8" below side entrances.
Windows			No windows
Siding	CMU walls		See exterior walls.
	(masonry)		
Entrance (To pool deck)	Pool entry	Good	Elevated threshold; Not accessible; improper width;
			ADA hardware required.

Interior:	Type	Condition	Comments
Floor	Conc. Slab w/ rubber matting	Good	Rubber matting for finish floor.
Ceiling	2x6 rafters	Good	Painted; appears to be in good condition.
Walls	Plywd. panel	Fair	Painted; touch-up or new paint required.
	CMU	Good	Painted; touch-up or new paint required.
Heating	NA		
Plumbing and Mechanical	By others		Toilet, lav, and shower are operational in men's and women's, men's shower stall has a urinal to one side.
			No ventilation provided.
Electrical	By others		The building appears to have inadequate lighting; the electrical system should be inspected to verify code requirements.

ADA COMPLIANCE

EXTERIOR

- Parking Parking area is unimproved. No accessible route to the facilities.

- Sidewalk A sidewalk runs along both sides and on the back of the building. The surface is old and weathered.
- Entrance There are no accessible entrances to the building. There are threshold barriers and/or clearance deficiencies at each doorway.

- Door The side doors meet width requirements, but do not have proper threshold height, inside landing clearance, or proper hardware.

INTERIOR

- Hallway Entrance hallways are 32" wide and do not meet minimum requirements for ADA clearance.

- Doors Shower and toilet doorways are too narrow.

- Restroom Men's and women's similar. Fixture type and clearances do not meet ADA requirements.

  - Toilet Does not meet height requirements, Rim height = 17"-19" above floor
    Grab bars are required.
  - Lavatory Dimensions, mounting height, and faucet type do not meet ADA requirements.
  - Turnaround Wheelchair turnaround space is provided near the lavatory.
  - Door Doors do not meet ADA requirements;

COMMENTS It does not appear to be feasible to meet ADA requirements by altering the construction of this building.

STILLWATER COUNTY PUBLIC BUILDINGS
INSPECTION AND EVALUATION

Name of Structure Fairgrounds Pavilion Location Columbus Year Built _____

Type of Construction: Wood Frame ☐ Steel Frame ☑ Masonry ☐

No. of Stories 1 Sq. Ft. per Story 7,000 Basement Sq. Feet NA Crawl Space NA

Date of Inspection 11/16/2004

Exterior:	Type	Condition	Comments
Foundation	Conc. pier	Not Visible	Foundation for steel frame base plate appeared to be level
			and solid at the anchor bolt connections. Not visible below
			grade.
Exterior Walls	Steel frame;	Frame; Good	Steel girts not visible.
	Insulated		
	Stl panel ext.	Fair	Steel panels are in need of maintenance.
	Plywood panel int.	Interior; Good	
Roof	Steel Frame	Fair; older steel	Galv. Steel panels are dented and rusted in some areas;
	Ext. steel panels	ribbed panels sim. to old siding.	Joints should be checked and repaired / sealed periodically;
			Re-roof within the next 5-10 yrs.
	Insulated		Metal building insulation w/ vapor barrier.
Exterior Doors	1 overhead track w/ slider	Good (slider fair)	15'-6' x 11' overhead dr. (new) behind old exterior slider at east (front)
	1 hinged w/ slider	Fair (slider fair)	16' x 12' hinged dr. behind old exterior slider at west (back)
	4 exit doors	3 poor; 1 good	Southeast dr. is in good cond.(main entry), other 3 doors are in poor condition but serviceable.
Windows			No windows
Siding	Stl. panels	Fair, older steel	Panels are dented and rusted in places on the east, south
		ribbed panels;	And west sides. East was replaced within the last few yrs.
		Good; newer steel	East has a couple of dents and a gash in 1 panel.
		Panels north side	Older panels should be replaced within the next 5-10 yrs.
Entrance	Steel door Main entry	Good	42" x 6'-8" exit door with signing (southwest) Panic hardware installed, handicapped approach.
			South door is signed as an exit but is not required width.

Interior:	Type	Condition	Comments
Floor	Conc. slab	Good	Seal coat, no finish floor
	Conc. edge		Exterior perimeter is eroding at the edge on the north and south sides.
			Concrete grout to 12" below grade should be installed at north, south and west sides.
Ceiling	Vinyl sheet w/ Wd. Slat retainers	Good	Check smoke and fire rating of exposed insulation vapor barrier to meet code.
Walls	Plywd. panel	Good	Sheet exposed insulation at west gable end.
			Remove Stored material from above restroom enclosure. Storage area must be separated from assembly use.
Heating	NG Unit Heater	Good	Main assembly area – two units
	Elec. Baseboard	Good	Installed in restrooms and kitchen
Plumbing and Mechanical	By others		Verify ventilation requirements in assembly area (1 roof fan provided),
			Verify Kitchen ventilation requirements (1 wall fan provided)
Electrical	By others		The building appears to have adequate lighting; the electrical system should be inspected to verify code requirements.

APPENDIX F

Stillwater County Solid Waste District
Evaluations and Background Data

APPENDIX G

Stillwater County Buildings
Evaluations and Background Data

APPENDIX H

Airport

APPENDIX I

Care Facilities

APPENDIX J

Corrections

APPENDIX K

Fairgrounds

APPENDIX L

Fire

APPENDIX M

General Government

APPENDIX N

Law Enforcement

APPENDIX O

Library

APPENDIX P

Parks and Trails

APPENDIX Q

Public Schools

APPENDIX R

Equipment

APPENDIX P

Parks and Trails

APPENDIX Q

Public Schools

APPENDIX R

Equipment