TECHNICAL MEMORANDUM No. 5

for the
Cities of Hayden, Post Falls, and Rathdrum
with Kootenai County

Rathdrum Prairie Wastewater Master Plan

Capital Improvement and Implementation Plan

November 2008

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Introduction

Technical Memorandum No. 5 utilizes the master planning information developed in previous memorandums for wastewater collection, treatment, reuse, and discharge to guide implementation planning. Implementation for such large-scale planning requires high levels of intergovernmental cooperation over many years. The cities of Hayden, Post Falls, and Rathdrum, along with Kootenai County, continue to move this process forward even as specific agreements, regulatory constraints, and funding mechanisms evolve. In conjunction with the intergovernmental efforts, working with affected property owners will be crucial to blend individual goals with the ability to serve them. Implementation of this plan will require continuous review of service areas, treatment standards, revenue sources, and development patterns in order to adapt to changing conditions in a sustainable manner.

Section 1 – Unit Cost Assignments

General

Technical Memorandum No. 4 detailed the planning level capital costs for developing the collection system (interceptor, list stations, and force mains), as well as treatment and discharge. The costs are assigned assuming a "concentric" growth pattern. Major infrastructure components would be built at the time they are needed outward from the existing city limits and Areas of City Impact (ACI). **Table 1-1** shows those costs for each entity based on gallons per day (gpd) of service and compares them with fee in place in October 2008.

Table 1-1 – Shared Tier Capital Cost Summary by City

Description	Hayden ($/gpd)	Post Falls ($/gpd)	Rathdrum ($/gpd)
Collection System [1]	$11.54	$8.78 [2]	$14.31 [3]
Treatment	$14.52	$10.37	$10.37
Reuse: Transmission, Storage, and Irrigation	$5.46	$3.11	$3.11
Reuse: Land Acquisition	$8.70	$8.70	$8.70
Total	$40.22	$30.96	$36.49
October 2008 Fee	$37.19	$25.65	$33.61

[1] *Common collectors and interceptors 12-inches or larger, as well as lift stations and force mains. Includes required upsizing within existing or planned collection systems required to serve Shared Tier.*

[2] *Utilize higher of two costs derived from Meyer/Highway 41 upsizing (within 10% of common improvements).*

[3] *Common basin improvements plus Rathdrum-specific improvements.*

While there are costs assigned to each entity for serving their portion of the Shared Tier, there is no differentiation among the individual flow basins within each City's study area. The unpredictable timing and density that will ultimately be served in each flow basin does not lend itself to further differentiation at this scale of master planning. It is also problematic for long-term tracking and implementation by each entity. Therefore, overall costs attributable to each City's Shared Tier are utilized in this analysis.

Section 2 – Collection System Staging Options

General

The key to collection system staging in the Shared Tier will be incremental outward growth from the existing ACIs. Hayden will likely accommodate Shared Tier development the most easily. Rathdrum will likely experience the greatest challenges due to the separation from existing and planned infrastructure. This section will describe individual basin priorities to achieving the master planning goals outlined in previous memorandums. **Figure 1.1** shows the collection system color coded by entity. It is important to note that only trunk lines 12-inches and larger, lift stations, and force mains are included in the Capital Improvement Plan (CIP). All smaller piping is considered incidental to development.

2.1 Hayden Collection System Staging

Hayden's future Shared Tier collection system will emanate westward from Huetter Road via a connection to the future H10 Lift Station. In descending order of priority, the following flow basins can be developed once H10 is functional:

- **RP-H-Central** (Central Basin)
- **RP-H-South** (South Sub-Basin)
- **RP-H-North** (North Basin)
- **RP-H-Central West** (Central West Sub-Basin)

2.1.1 Central Flow Basin

Once the H10 Lift Station is operational in the existing ACI, the Central Basin could be considered for possible sewer service. The first project will need to construct the Central Basin Lift Station and discharge to the H10 gravity collector near the intersection of Hayden Avenue and Huetter Road. The east side of the Central Basin serves along Huetter Road, which is the planned route for the Huetter Bypass between Interstate 90 and Highway 95 (north of Hayden). Constructing the Huetter Road Bypass will increase development along the corridor and result in prioritization of the Central Lift Station.

The H10 Lift Station is in the City's current CIP. This study provides the input necessary to plan for its upsizing. It will be advantageous to construct a compartmental wet well so that additional compartments can be brought on-line as the service area grows toward build-out. The future wet well volumes can be used for emergency bypass storage until they are needed for pumping volume.

2.1.2 South Sub-Basin

The next logical basin for development is the South Sub-Basin due to its service of the Prairie Avenue corridor. Prairie Avenue is an arterial roadway with likely commercial activity attracting growth. The South Basin Lift Station will discharge into the Central Basin gravity collection system. If the South Sub-Basin were to develop ahead of the Central Basin, it would need to discharge directly into the H10 gravity collection system near the Huetter Road and Hayden Avenue intersection. This could reduce the required size of the Central Lift Station by

as much as 1.01 cubic feet per second (cfs) peak flow. It would require more than double the length of force main along the planned Huetter Road Bypass.

2.1.3 North Flow Basin

The North Basin would also be located along the future Huetter Road Bypass, which will tend to encourage development. It is master planned to discharge directly into the H10 gravity collection system near the lift station. Once H10 is operational, the North Basin could be independently developed at any time without regard to other basin development.

2.1.4 West Sub-Basin

The West Sub-Basin will likely be the last to develop in Hayden's portion of the Shared Tier. It is the furthest from the existing ACI and the planned infrastructure. It also does not adjoin any existing or planned arterial roadways, so it likely will not receive the commercial pressures of the other basins. If the City determines that early development is advantageous, the West Sub-Basin could discharge independently to the future H10 gravity collection system by doubling the planned force main length.

In summary, Hayden would develop the Central, South, and North Basins' lift stations and force mains to serve their portion of the Shared Tiers. Most of the gravity collection system would be constructed as part of individual developments and staged to conform to the Master Plan. Since the North Basin is currently the least developed, it may also be advantageous to prioritize land in and around the North Basin for acquisition and reuse.

2.2 Post Falls Collection System Staging

Post Falls' collection system development for the Shared Tier will be more independent from the existing collection system than Hayden's. The exception is in the northeast corner where flows must pass through the *future* 12th Avenue Lift Station. In all other cases, Shared Tier flow will pass through a future lift station planned exclusively to serve the existing or future ACI as a result of this study. **Figure 1.1** shows the planned collection system. In descending order of priority, the flow basins and their appurtenant lift stations are:

- **RP-PF-Major** (Major Basin)
- **RP-PF-Southwest** (Southwest Basin)
- **RP-PF-Stateline** (Stateline Basin)
- **RP-PF-Hwy 41** (Highway 41 Sub-Basin)
- **RP-PF-Meyer** (Meyer Sub-Basin)
- **RP-PF-West** (West Sub-Basin)

2.2.1 Major Flow Basin

The Major Basin lift station located near the corner of Spokane Street and Prairie Avenue will be the largest lift station in the study area. It will receive gravity sewer flow from all of Rathdrum's Shared Tier as well as half of Post Falls' Shared Tier (from Chase Road east beyond Highway 41). Since it is also in the center of the future service territory, it receives the highest priority for future construction.

At a maximum build-out peak flow of 13.65 cfs, the Major Lift Station will require staged construction for both the lift station and the force main. More precise build-out capacities must be determined when the land uses, densities, and development locations are known in the future.

First, it will be necessary to build a compartmental wet well that can serve an initially smaller flow basin. A station with two smaller pumps would ultimately be converted to a station with three or four larger pumping units. The portion of the wet well for the additional pumps would initially act as an overflow basin for the duplex station. A slide gate in a knock-out wall would facilitate initial operation and future conversion.

Lift station staging will require laying dual force mains rather than the single 24-inch pipe used for planning and budgeting purposes. Each of the dual force mains would be at least 12 inches in diameter. The design pipe sizes must be determined when more is understood about development densities in the future ACI.

The force main alignment is also consistent with the alignment envisioned for the reuse water transmission main to irrigate Post Falls' and Rathdrum's farmland. Therefore, the highest priority should also be given to constructing the reclaimed water piping at the same time as the Major Lift Station Force Main. The reuse transmission main, pump station, and storage pond are already included in Post Falls' current CIP for wastewater treatment.

Four other sub-basin lift stations were identified as flowing to the Major Lift Station. Only Rathdrum's Central Lift Station warrants consideration for staging here. The consideration is due to its size as well as the fact that it would pump wastewater collected from the northernmost portion of Post Falls' Shared Tier. Staging for this station is discussed in the Rathdrum section to follow.

Staging for gravity trunk lines and interceptors will be development driven at the time of requested annexations. Developers should be required to present plans consistent with current wastewater master planning. Small temporary lift stations may be required on a case-by-case basis to serve some developments pending extension of particular reaches of gravity sewer as the system expands outward.

2.2.2 Southwest Flow Basin

The Southwest Lift Station would be located south of Poleline Road along Pleasant View Road. It would receive flow from the west side of Pleasant View northeast to the corner of Chase Road and Hayden Avenue.

Its force main could be routed either east to Chase Road and then south to Seltice Way or south on Pleasant View Road to Seltice Way. The center median of Seltice Way could serve as a utility corridor for both the Southwest Force Main and the Stateline Force Main. It could also be used as an alternate route for the existing Idahline Lift Station Force Main, which is currently planned along the West Centennial Trail. In addition, the Seltice Way utility corridor could accommodate a reuse water transmission main for possible future irrigation in the westernmost portion of the study area. Only the West Centennial Trail Force Main is currently in the City's CIP.

Once the Southwest Lift Station is in service, the gravity trunk lines and interceptors will be built to serve specific developments. The annexations and development plans should be consistent with the most current wastewater master planning, as previously discussed.

Once the gravity system exists north to Prairie Avenue, the West Sub-Basin Lift Station would have a discharge location. For development to occur earlier in this sub-basin, the force main would have to extend further south along Corbin Road or east to one of the Major Basin collector lines. Again, growth would occur on a case-by-case basis as specific developments are brought forward for consideration.

2.2.3 Stateline Flow Basin

The Stateline Lift Station currently receives the lowest priority for development in the planning area due to its predominantly mining land use. As discussed in Technical Memorandum No. 4, mining land uses include decades-long operational and reclamation plans. While these areas may not need wastewater service for many years, their longtime horizons may also provide significant opportunities for reuse. Therefore, priority should be given to working with these landowners to establish a basis for limited residential and commercial development in favor of long-term reuse. The resulting collection system will likely be very limited and the Stateline Lift Station accordingly small.

2.2.4 Highway 41 and Meyer Sub-Basins

Each of these sub-basin lift stations is independent of the other. However, they are both dependent on the future Meyer Road interceptor and future 12th Avenue Lift Station. Although there may be some interim capacity available in the Highway 41 interceptor, the City's most current Sewer Master Plan shows it being fully utilized at build-out without extending the service territory north of Prairie Avenue. The 12th Avenue Lift Station and its four-mile dual force main are most crucial because it will relieve flow from numerous lift stations along the City's southernmost service basins. The 12th Avenue Lift Station is in the City's current CIP, but the Meyer Road Interceptor and these smaller future lift stations are not. Planning level costs for these smaller lift stations as well as upsizing the Meyer Road Interceptor and upsizing the 12th Avenue Lift Station are included with this plan.

2.3 Rathdrum Collection System Staging

All of Rathdrum's Shared Tier collection system flows from the northeast to the southeast into the Major Lift Station. This presents significant challenges to Rathdrum's development of the Shared Tier. The Major Lift Station and approximately two miles of its interceptor must be in place to receive Rathdrum's flow by gravity. This emphasizes the prioritization of the Major Basin for both Post Falls and Rathdrum for the orderly execution of this Master Plan.

As an interim alternative, Rathdrum could construct a temporary lift station on their existing reuse parcel and discharge to their existing and planned force mains. The location would be suitable to collect all of Rathdrum's Shared Tier flow, including redirected flow from the Central Sub-Basin Lift Station. Once the necessary gravity interceptor is available in Post Falls' portion of the Shared Tier, Rathdrum could take the temporary lift station off-line.

The Central Sub-Basin Lift Station should also be combined with Rathdrum's currently-planned SW1 Lift Station. The SW1 Lift Station is planned for the far southwestern corner of Rathdrum's current ACI and was included in their 2006 Provisional Sanitary Sewer Evaluation's Capital Improvement Plan (Welch Comer Associates). By combing the SW1 and Central Lift Stations, the total number of lift stations would remain the same as Rathdrum's original master planning. The discharge flow must be increased for development from the Shared Tier service area.

Section 3 – Reuse Priorities

General

Technical Memorandums No. 3 and No. 4 established the basis for how much reuse land would be needed to match crop uptake with reclaimed water production rates. **Figure 3.1** shows where the entities have purchased existing farmland for reuse. Those properties form the initial "backbone" of the reuse system. Permitting those lands for reuse and developing the transmission, storage, and irrigation systems for those sites becomes the next priorities for both Exclusive and Shared Tier master planning. It is also critical to look for opportunities for additional reuse as near as possible to those existing and planned facilities. The proximity will make them more cost-effective to own, operate, and manage by:

- Minimizing setback requirement losses
- Minimizing travel time for operating staff
- Consolidating capital facilities (operations/buildings, pump stations, storage ponds, electrical supply, etc.)

Large-scale, consolidated reuse operations will make the entities develop new areas of staffing expertise. The entities currently utilize contract farmers to plant and harvest their land. However, farming under the reuse rules requires significantly more oversight in order to minimize the potential for offsite migration and inappropriate public contact. With large-scale farming operations waning in the study area, reuse will create the need for farming and/or silvicultural operators specializing in production with reclaimed wastewater irrigation. Special expertise will include:

- Soil moisture monitoring
- Soil and water sampling
- Crop tissue sampling
- Irrigation and fertilizer to match crop uptake rates
- Maximizing production for water and nutrient uptake
- Pest management
- Crop sales, storage, and distribution

That expertise may be contracted, developed in-house, or employed cooperatively, depending on each entity's need and available personnel.

3.1 Hayden Reuse Priorities

Hayden, as part of the Hayden Area Regional Sewer Board (HARSB), currently participates in the only large-scale reuse operation over the Rathdrum-Prairie Aquifer. They have been operating for over ten years and currently produce crops and hybrid poplar trees on 300 of their 476 acres. Because they have a successful track record, their work forms the baseline for building future reuse operations.

Hayden's current reuse transmission main is 14 inches in diameter. It runs due west along HARSB's northern boundary and on Kootenai County Airport's property to Huetter Road. It then runs north along Huetter Road to the HARSB reuse parcel at the northeast corner of Lancaster Road and Huetter Road. The pipeline and pump station capacity was rated at 2.8 million gallons per day (MGD) peak flow capacity in 2004, so it will require upgrading. The alignment passes a significant number of parcels with current farming, fallow land, or open space. Therefore, this Master Plan envisions an expanded reuse transmission main along the same alignment to serve both the Exclusive and Shared Tier build-out.

Securing sufficient land along the planned reuse transmission main should be the highest priority for expanded reuse. There appears to be over 1,700 acres of undeveloped property along Huetter and Lancaster Roads, including at least 64 acres on Kootenai County Airport's western runway approach. Hayden needs to secure 600 acres of additional reuse area under this Master Plan, or approximately 35 percent of total undeveloped land. This would allow full development of all the remaining property in the City's Exclusive and Shared Tiers.

The airport has considered reuse a favorable opportunity to protect and expand its Runway Protection Zones (RPZ). The land purchase may be fundable through the Federal Aviation Administration (FAA) in the future if they are in a designated zone. Restrictive easements may also be fundable from FAA to benefit the airport by restricting activities, structures, and trees. Welch-Comer and Associates looked more closely at airport reuse opportunities for HARSB in February 2008. They determined it would be necessary to utilize subsurface irrigation so as not to attract birds and wildlife that would present hazards to aircraft. The extreme costs of that construction made airport reuse appear infeasible at $35.70/gpd. However, the irrigation rate assigned to the area was low compared to HARSB current alfalfa production. The irrigation calculation should also be applied to a 150-day irrigation season rather than distributing the allowed volume over the entire year. HARSB will discharge the non-irrigation season flows to the Spokane River. The change in irrigation rate and duration would bring the planning level cost down to approximately $14.40/gpd. The unit cost would be further improved by a less restrictive irrigation system policy from the airport. The subsurface system is expensive to construct and very difficult to maintain, especially during cultivation and replanting. Much can be done to manage surface irrigation system types and timing to discourage the presence of birds and wildlife. Therefore, airport and reuse operational goals should not be considered infeasible without further exploration.

3.2 Post Falls and Rathdrum Reuse Priorities

Rathdrum and Post Falls are distinct and antonymous municipalities. However, this analysis groups the two entities together because they have chosen to work cooperatively to treat and discharge wastewater. These cooperative agreements will require expansion to address their proportionate needs for wastewater reclamation and reuse.

Post Falls' purchase of 618 acres of property in the Study Area for future reuse set their initial prioritization in motion. As stated in the introduction of this section, the next step is obtaining an appropriate Reuse Permit. Groundwater monitoring, soil monitoring, and other data will be required along with a public comment process through IDEQ. The City should next develop the transmission, storage, irrigation, and monitoring system to transition from an East Greenacres Irrigation District (aquifer) water supply to a reclaimed wastewater irrigation

source. All these elements are currently included in Post Falls' Capital Improvement Plan, which should facilitate their implementation.

Additional reuse opportunities within one half-mile of Post Falls' current ownership or along the proposed transmission main should be the next highest priority to serve both their Exclusive and Shared Tier. There is approximately 1,440 acres of agriculture, fallow land, and mining use within one half mile of Post Falls' farmland within their Shared Tier.

Expanding the reuse priority to one mile from Post Falls' farmland would add approximately 640 acres of farm or fallow land to that total. No acreage from Rathdrum's Exclusive Tier was included in these totals. The one-mile distance would also bring approximately 95 acres of the Prairie Falls Golf Course into the area of consideration. The City has an existing agreement to provide reuse water to Prairie Falls as soon as suitable quality reuse water is available. Other opportunities within one mile of Post Falls' farmland include approximately 200 acres of the Bonneville Power Administration power transmission line and the Pacific Gas Transmission gas pipeline easements, as well as Links Golf Course. Approximately half of this acreage is within Rathdrum's portion of the Shared Tier.

Including reuse priorities within one half mile of Rathdrum's existing farmland in their Exclusive and Shared Tier would add as much as 800 acres to the total. An additional 480 acres could be added within one mile of their farmland that was not included in any previous total.

The total area of high priority reuse potential within one mile of both cities' existing farmland is 3,655 acres, or approximately 113 percent of the total need identified. Of course, it is not realistic to expect that all this property could be secured exclusively for reuse. Therefore, it will be crucial to negotiate development and/or purchase agreements that maximize reuse while providing strategic and suitable development opportunities.

Cooling water for gas-fired electrical generators is another important reuse opportunity. As discussed in Technical Memorandum No. 3, Cogentrix operates one facility at the southwest corner of Greensferry and Lancaster Roads. Avista operates another facility at the northeast corner of Meyer and Boekel Roads. Both facilities are within Rathdrum's city limits. The Avista generating station is one mile west of HARSB's existing reuse land while Cogentrix lies one mile north of Rathdrum's farmland. Avista has contracted for all of the power production out of Cogentrix's more efficient generator, so they rarely operate their older, less efficient facility. Avista's simple cycle turbine uses no cooling water. Cogentrix has adequate water for their existing facility with a water treatment system tailored closely to its specific water chemistry.

The highly dynamic nature of power generation and marketing makes it extremely difficult to prioritize reuse production for these facilities. However, as the region grows and proposed natural gas supplies increase, making reuse water reliably available to these facilities could provide significant reuse opportunities. Converting the existing Avista generating station to a more efficient combined cycle turbine would require approximately 0.85 MGD of cooling water, which is equivalent to 245 acres of reuse property irrigation. Doubling the size of the existing Cogentrix facility would require approximately 1.0 MGD of cooling water, equivalent to 290 acres of reuse irrigation. At this time, cooling water should be considered a third-tier

priority for reuse. The expansion needs of these facilities could change their priority very rapidly. Avista may also need to offset their impacts of impounding Lake Spokane downstream and reuse may be an avenue for them to support. Therefore, the cities should maintain an open dialogue with Avista and Cogentrix.

Finally, reuse expansion to the far west of Post Falls' Shared Tier could provide significant opportunities in combination with the existing mining operations and long-term mining agreements. There are approximately 1,240 acres designated for these purposes by Kootenai County north of Seltice Way and west of Pleasant View Road. The near-term reuse need would center around industrial process water and farming irrigation. The long-term plans for these areas are generally to return the land to agricultural development. Some plans include development for commercial or residential purposes under the 5-Acre Rule or appropriate rules at that time. The deep excavations could easily accommodate storage ponds, and the ultimate floor of the excavations could accommodate agricultural reuse. The longevity of mining developments plus the distance to Post Falls' reclamation plant make these opportunities a fourth-tier priority.

Table 3-1 summarizes all the identified reuse opportunities and their priority. While the highest level priorities carry a higher degree of need and certainty, no opportunity should be overlooked in an attempt to balance the long-range service needs and water quality goals.

Table 3-1 – Post Falls and Rathdrum Reuse Priorities

Priority Rank	Reuse Area Description	Approximate Reuse Area (acres)
1	Irrigation within 1/2 mile of Post Falls Farmland	1,440 [1]
1	Irrigation within 1/2 mile of Rathdrum Farmland	800
2	Irrigation within 1 mile of Post Falls Farmland	935 [2]
2	Irrigation within 1 mile of Rathdrum's Farmland	480
3	Cooling Water for Gas-Fired Generators	535 [3]
4	Mining Industrial and Irrigation	1,240 [4]
	TOTAL	5,430

[1] *Excludes Rathdrum's Exclusive and Shared Tier*

[2] *Includes Rathdrum's westernmost Shared Tier*

[3] *Equivalent Reuse Land at 290 acres/MGD demand*

[4] *West of Pleasant View Road*

3.3 Distributed Treatment for Reuse

Significant discussions have centered around the priority and preference for smaller distributed treatment plants on the Rathdrum Prairie. The premise is whether they could more readily accommodate both growth and reuse. Technical Memorandums No. 3 and No. 4 presented the criteria and planning level costs for constructing a membrane bioreactor (MBR) treatment plant on Post Falls' farmland. The MBR evaluation utilized the proposed reuse transmission main to discharge reclaimed wastewater to the main plant for river discharge during the non-growing season. This concept minimizes storage and maximizes reuse land

availability. Waste solids would also be discharged to the main plant for further treatment and dewatering.

The MBR alternative evaluated would still utilize some of the main treatment plant processes, so this type of distributed treatment is called "scalping". By contrast, a "satellite" plant operates completely independently and utilizes only the operating staff and mobile assets in common with the main plant. Without the non-growing season discharge to the main plant, a 0.5 MGD MBR plant would require as much as 250 acres of reuse land and 110 million gallons of finished water storage. Smaller satellite plants would have proportionately smaller storage and reuse area needs.

Distributed treatment is feasible in the Study Area. However, it depends largely on the economics of independent construction and operations as well as establishing suitable long-term ownership parameters. Ownership and operations priorities must be developed by the cities in conjunction with Kootenai County. The County's Draft Comprehensive Plan accommodates the cities' desire for limited growth in the Shared Tier with the Urban Reserve land use designation. Subdivisions with up to one "equivalent residential unit" per ten acres can be developed in the Shared Tier under the Urban Reserve. While the Urban Reserve designation limits high density development in the Shared Tier, numerous 10-acre subdivisions could make it difficult for the cities to efficiently aggregate reuse properties. Inclusion in an ACI would allow a City more input into County growth decisions than are afforded in the Urban Reserve. However, the County also requires approval of a City's 20-year CIP before agreement to expand an ACI. The County's Draft Comprehensive Plan would also allow Master Planned Communities inside and outside ACIs, presumably utilizing satellite wastewater treatment or connecting to a public wastewater system. It is, therefore, crucial for the cities and County to closely coordinate planning and development throughout the Exclusive and Shared Tiers in determining the best policy for satellite or other forms of distributed treatment systems.

Section 4 – Potential Funding Sources

General

Funding the needed infrastructure to serve the Shared Tier may be the largest challenge to face the cities under this or any Wastewater Master Plan. Funding sources generally fall into one of three categories:

- Fees
- Bonds (Loans)
- Grants
- Tax Increment Financing

Communities typically plan based on fees with or without bond financing. Then they utilize those funding sources to match any available grant program or tax increment funds in an effort to keep fees reasonable. This section outlines the basics of each of these funding categories.

4.1 Fees

Fees fall into two categories; user fees and capacity or impact fees (also referred to as connection or capitalization fees). User fees are paid on a regular basis (monthly, bi-monthly or quarterly) by those currently connected to the system. Regular operations and maintenance expenses of the system (power, labor, chemicals, repairs, etc.) make up one element of user fees. Fees for a reasonable level of reserves for eventual replacement of system components as they become obsolete make up the second element of user fees. The replacement reserves are usually accounted for separately from the daily operational and capacity expansion costs.

Capacity expansion costs cannot be included in user fees without specific authorization through a public vote or judicial confirmation as "ordinary and necessary". The municipal entity may ask users or a judge to authorize a fee increase as a means to secure bond financing with the intent for new connection/impact fees to fully retire the bonds without utilizing the fee increase. The pace at which capacity fees are collected is not as predictable as user fees; therefore user fees provide the assurance for timely bond repayment and attractive bond rates.

Capacity fees are a one-time fee to replace the capacity required to serve a structure or development (impact on capacity). Most entities charge the fee at the time of the building permit request because the specific impact will be most accurately definable. Capacity fees accrue in a separate account from user fees because they can only be used for expenditures directly related to capacity improvements. The fees are based on an approved Capital Improvement Plan or Wastewater Facilities Plan prepared to keep capacity available for orderly growth. The fees may or may not include financing costs for the projects. If the fees are developed as impact fees, they fall under specific requirements of the Impact Fee Act (Title 67, Chapter 82, Idaho Code). Impact fees must be obligated within eight years of

collection unless specific reasonable cause can be demonstrated (BBC Research and Consulting, 2008).

Providing service to the Shared Tier will fall under the definition for capacity fees. Currently, all three cities charge these fees without including the costs for debt financing. The intent is that the existing users of the system have paid for its construction with some incremental capacity available for growth. As each new user paid their capacity fee, adequate capital reserves were generated to construct the next increment of capacity. As the collection and treatment systems have become larger and more complicated, the cash-only construction approach has been stretched to its limit. Some level of bond financing may become inevitable to provide capacity to each City's Exclusive and Shared Tier in the future.

Post Falls is the first entity to include financing costs in their most recent "Utility Capacity Replacement Fee Study" (BBC Research and Consulting, 2008). The resulting impact fees are currently under consideration by the Post Falls City Council.

Impact fees are also available for approved Open Space plans. Boise, Idaho currently uses an 8.3 acres/1,000 people "level of service" standard for calculating such fees.

4.2 Bonds and Loans

Municipal entities can borrow money for infrastructure projects through the issuance of municipal bonds. The bonds can be generally categorized as Revenue Bonds or General Obligation Bonds.

Revenue Bonds obligate a specific revenue source to capitalize the bond obligation. As stated earlier in this section, user fees are the typical revenue source for this type of wastewater obligation. Capacity fees and impact fees can be utilized to make the bond payments; however, user fees would "guarantee" the revenue stream if growth slowed and capacity fees were insufficient. Revenue Bond passage requires a simple majority of the users to vote in favor of the request or judicial confirmation of the increase as "ordinary and necessary". Hayden, Post Falls, and Rathdrum have all passed Revenue Bonds in the past. Post Falls used that mechanism in 2004 for the purchase of reuse property. Hayden has not currently obligated the bonding authority they received in 2006.

General Obligation Bonds require approval of at least 60 percent of the qualified electorate within the municipal jurisdiction. Judicial confirmation of a General Obligation Bond is possible but much less common. The bonds are repaid from property taxes levied annually on all taxable parcels in the municipal boundary. Bond repayment becomes a general obligation of the municipality and the tax rate will rise or fall as necessary to meet the obligation. This is the form of funding that Boise City used to authorize $10 million for open space land purchases in 2001 and may find support within the Exclusive and Shared Tiers.

A third category would be bonds issued to special districts such as a Public Utility District (PUD) or Local Improvement District (LID). Special district bonds may have some applicability in the future, but they generally do not apply at this level of master planning. Forming a new overlying district appears to be redundant to the existing authority of the entities. Forming an LID appears to be premature since LIDs are specific and local in nature and apply more to

individual projects within a CIP that would benefit specific land owners. Hayden, Post Falls, and Rathdrum have all used LID funding in that manner.

Bond approval is a precursor to obtaining funding from public agency loan funds. The Idaho Department of Environmental Quality (IDEQ) has funds available through their State Revolving Fund (SRF) loan program. This program provides below market rate interest loans to Idaho communities to build new, or repair, existing wastewater facilities. The current interest rate is 3 percent and the loan term is 20 years; however, some applicants may qualify as disadvantaged and be eligible for better loan terms. The funding is derived from an appropriation from the EPA (80 percent) and a 20 percent match from the Water Pollution Control Account. IDEQ queries wastewater systems in January each year to obtain information on projects for which loan funds could be used. Potential projects must first be listed on the State's annual Priority List, developed through a rating and ranking process based upon public health concerns. Projects that can be funded within the budget of the Revolving Fund are placed on the Intended Use Plan. After review of the application and satisfaction that all environmental and legal requirements have been met, a loan may be offered to the highest ranking entities as early as July each year.

The United States Department of Agriculture (USDA) Rural Development Agency (RDA) makes loans and grants to public bodies and non-profit organizations in rural communities (less than 10,000 people) to construct or improve community facilities that are modest in size, cost, and design. Water and Waste Disposal (WWD) Loans and Grants may be used to construct, repair, improve, expand, or otherwise modify rural wastewater facilities; pay necessary fees and costs associated with the project; or finance facilities in conjunction with funds from other agencies or those provided by the applicant. The maximum loan term is 40 years and grant funds may be available for facilities serving the most financially needy communities. Only Rathdrum could qualify for an RD load based on the maximum population restriction. Applications may be submitted at any time and the current interest rate is 4 percent.

4.3 Grants and Appropriations

Grants or appropriation funding may also be available in specific situations for the regional level of collections, treatment, and reuse being contemplated in this Master Plan. The following is a common list of funding used for these types of projects.

The State and Tribal Assistance Grants (STAG) are administered through the EPA's Office of Enforcement and Compliance Assurance (OECA). Funds are appropriated by Congress on a yearly basis. The STAG account is also the source of the Drinking Water State Revolving Fund and the Clean Water SRF. STAG grants are "earmarked" by congressional delegates for designated projects within the congressional district. The grants are an increasingly sought-after source of funds. Projects funded through STAG vary from multi-million dollar facilities to small projects. By congressional directive, the grants can cover only 55 percent of the project cost. The remaining 45 percent has to be matching funds unless the EPA reduces or waives the matching requirement. Grants are received based on solicitation of the Congressional delegates serving the area.

Congressional Line Item Appropriation funds are earmarked in the Federal budget for specific projects. Because they are special appropriations, they have no firm criteria. In general, these funds require a reasonable amount of local match (30 to 60 percent). Idaho's

Congressional delegation typically solicits requests for these funds at the beginning of each calendar year.

US Army Corps of Engineers (USACOE) 595 Funds are Federal appropriations grant funds that are administered by the USACOE. In contrast to Congressional line item appropriations, this program is allocated an overall budget, which then funds a number of projects. These funds require a minimum of 25 percent local match; like line item appropriations, they have no firm evaluation criteria.

The Idaho Community Development Block Grant program (ICDBG) assists Idaho Cities and Counties with populations under 50,000 with the development of needed public infrastructure and housing in an effort to support local economic diversification and growth. The program is administered by the Idaho Department of Commerce and Labor Division of Community Development, with funds received annually from the U.S. Department of Housing and Urban Development. ICDBG funds are used to construct projects that benefit low and moderate income persons, help prevent or eliminate slum and blight conditions, or solve catastrophic health and safety threats in local areas. Applications are due in November each year with short list candidates submitting further information in January and selections made in April.

The U.S. Department of Commerce EDA provides funding for the construction of public infrastructure under the authority of the Public Works and Economic Development Act of 1965. Eligible projects include water and wastewater improvement and projects that support economic development within the community. Cities, counties, and special Districts are eligible to apply. Projects must meet economic development eligibility criteria as established by Congress – specifically, per capita income, employment, and other demographic characteristics, with an emphasis on resolving unemployment and barriers to economic growth and stability. EDA funds are provided as grants from 50 to 80 percent of the project. Applicants must provide the local share from acceptable sources with applications accepted at least twice each year.

4.4 Tax Increment Financing/Urban Renewal

Tax increment financing utilizes the increase property tax that occurs when properties develop to finance or to reimburse qualifying project expenses within a specific Urban Renewal District (URD). Typically, this approach is used to stimulate economic development within an economically blighted or disadvantaged area. The stimulation is assumed to create ancillary benefits from job creation, sales tax revenue, and increase in property values outside the URD. Creation of the URD requires planning, economic analyses, and a public meeting process similar to other municipal organizations. It is overseen by a Board of Commissioners appointed by the City where urban renewal is proposed. Hayden and Post Falls currently have Urban Renewal Agencies and may find tax increment financing or reimbursements beneficial as specific projects or areas of development are proposed in the Shared Tier.

Section 5 – Shared Tier Operations, Maintenance, and Replacement Impacts

General

Up to this point in this Master Plan development, primarily capital costs have been examined. Capital costs are in fact the biggest challenge to providing sewer service to the Shared Tier in the near term. Operation, maintenance, and replacement (OMR) costs can also be a major factor in long term ownership and operations of infrastructure. In this case, however, serving the Shared Tier does not seem to present significantly different OMR costs than the systems the Cities currently operate or will operate to serve their Exclusive Tiers.

Each entity's collection system will be extended with gravity piping, lift stations, and force mains. All of these facilities have been planned in accordance with each entities current capability to mimic their current operations and facilities. Therefore, no differential collection system OMR impacts are expected.

Wastewater treatment operations will change dramatically for HARSB and Post Falls in the next few years. Those changes are driven by ultra-low-level phosphorus requirements and waste load allocations for discharge into the Spokane River. With finite loading to the river, seasonal reuse appears to be one of the only viable options to accommodate long-term growth in the Exclusive Tiers. Biological nutrient removal and filtration plus higher levels of disinfection will be required with or without service to the Shared Tier.

These extraordinary treatment levels will be borne by all current and future users. While biologic and filtration OMR costs will increase overall OMR costs, transmission, storage, irrigation, harvesting, and monitoring reuse operations will be the most significant change for Post Falls and Rathdrum. It is instructive to examine HARSB's current budget for those operations. In fiscal year 2008 (FY08), HARSB spent $100,000 to operate their reuse site ($274/day). This equates to an annual cost of about $250/day/MGD ($91,000/year/MGD) or about 6 percent of HARSB's total budget. At build-out under this plan, HARSB would therefore pay $367,000/year and Post Falls with Rathdrum would pay an additional $1,620,000/year for efficient agricultural reuse operations and maintenance (2008 costs).

Replacement costs for infrastructure are in addition to the O&M costs outlined above. Each entity approaches replacement funding differently, but few entities fully fund replacement of their entire systems. Typically, specific replacement projects are identified in 5- to 10-year time horizons. These projects can then be included with user fees for replacement. An alternative is to fund a specific portion of the annual depreciation of entire system for a general replacement fund. From 25 to 50 percent of the annual depreciation is a general goal for this approach. Bond funding may be required to make up the difference between replacement project needs and available reserves if a shortfall occurs with either method.

Section 6 – Policy and Implementation Recommendations

General

Implementation of any Master Plan requires consistent application over long periods of time along with the ability to adapt to changing conditions. The Rathdrum Prairie Wastewater Master Plan examines service to 10,460 acres in the Shared Tier between the City of Hayden's, Post Falls' and Rathdrum's Exclusive Tiers (Area of City Impact). It also includes 1,460 acres in Post Falls' ACI that was not previously planned. Build out of the planning area could take between 50 and 100 years. Countless parameters will change over that period, but the Plan will allow the Cities and County to move forward within a build-out framework.

The Plan estimates an increase in average future wastewater flows to the HARSB and Post Falls treatment plants of 5.2 MGD from the study area. At 73 gpd per capita, the flow increase represents an equivalent population of 71,233. Dispersed over the 11,920 acres examined, the equivalent density is six people per acre or about half of the upper "bookend" build-out density originally outlined by the entities.

It is important to note that the selected Scenario No. 3 service alternative eliminated future service considerations for all existing and proposed reuse areas as well as all mining areas. The resulting developed land in the service area would be approximately 5,530 acres. Therefore, the potential density on the developed land within the study area could be 7 percent higher than the original 12 people per acre. In the long term, Scenario No. 3 should provide adequate growth and development potential in the Shared Tier.

In order to implement the Plan, strategies need to be developed by the Cities and County in three key areas:

- Land Use and Annexations
- Funding
- Regulatory Support

6.1 Land Use and Annexation Policies

Continued coordination of land use, Areas of City Impact and annexation policies between Hayden, Post Falls, Rathdrum, and Kootenai County will be crucial for Master Plan implementation. The entities reinforced their original planning intentions with their adoption of "An Endorsement of Shared Principals and Common Goals for the Rathdrum Prairie" (Kootenai County Resolution No. 2008-34, April 2008) included here as **Appendix A**. Those goals were summarized by the entities as guidance in future land use planning as follows:

- To collaboratively and cooperatively plan for infrastructure in support of future land use on the Prairie, encourage coordinated planning efforts between affected agencies and service providers, and provide adequate levels of public services in an integrated, efficient, and effective manner
- To establish common principles for land use on the Prairie

- To protect our shared water resource, consider wildlife habitat in planning, and ensure open space is provided in balance with development
- To preserve the unique identity of each city as future development expands existing boundaries

This Master Plan's priorities will support these goals through the following actions:

- Wastewater service priorities should be given to lands within existing City Limits while recognizing that strategic and incremental growth within and beyond the existing ACI can be beneficial to each community.
- Annexation should only occur in a sequential manner outward from existing sewer service basins and only when collection and treatment capacity is available or is reasonably assured to be available when needed. Service basin priorities were described in Section 2 of this Technical Memorandum.
- Land use and annexations in the Shared Tier (north of Prairie Avenue) must be limited to an overall average density of six people per acre.
- At least 40 percent of the current non-mining and non-reuse land in the Shared Tier (north of Prairie Avenue) must become available for future reuse under this Plan.
- Reuse land should be aggregated near existing reuse land to the maximum extent possible to optimize operating efficiencies. Reuse acquisition priorities were described in Section 3.
- Reuse land should be connected together and to other public spaces to the maximum extent possible through dedicated public ownership and easements for long-term operations and access.
- Where acceptable reuse land cannot feasibly be included within a proposed annexation, such land or the financial equivalent of such land must be identified.
- The value of reuse land brought forward through annexation must be determined prior to the annexation by appropriate public appraisal methods.
- Land use policies should encourage and maintain existing agricultural operations in the Shared Tier until such time as purchase, lease, or suitable development agreements can be reached to encourage conformance with this Master Plan.
- Land use and annexation policies should be continually coordinated with this Master Plan and updates generated by each entity to provide reliable future wastewater service to the Shared Tier.

6.2 Funding Priorities

The entities are under increasing regulatory restrictions as well as pressure from citizens to keep user fees reasonable and pressure from developers to keep capacity fees in check. With or without implementation of this Master Plan, user fees and capacity fees must increase to address the regulatory restrictions. Master planning for the Shared Tier compliments the efforts for Exclusive Tier planning by identifying total build-out capacity as well as preferred reuse areas and utility corridors.

Generating funding for Master Plan implementation can only occur reliably through fees. Capacity or impact fees will be the primary funding source since the existing Hayden, HARSB, Post Falls, and Rathdrum systems generally have available capacity. Unfortunately, capacity fees often do not accrue fast enough for construction of improvements or acquisition of property at the precise time that the funds are required. Therefore, bond funding with the approval of entity voters will likely be required to make sure adequate funding is available at the time it is needed for Master Plan implementation.

Bond funding is often an unpopular choice for communities because users do not want to guarantee funding for growth. If those requests are moderate, however, voters have traditionally supported utility projects for specific purposes. In this case, the intent would be to use capacity fees almost exclusively. User fees would only be affected if a strategic project or acquisition required funding ahead of the reasonably anticipated capacity fee collection.

Hayden utilized this approach with voters in 2006 to pass a Revenue Bond for $3.9 million. The bond can be used for either treatment plant process expansion or upgrades required to meet new regulatory requirements. The capacity expansion funding would be retired primarily with capacity fees as they are collected. Since HARSB's current capacity fee includes additional reuse land, land purchase would also be eligible under this bonding authority. HARSB's land acquisition value was assigned at $5.80/gpd and should be updated to $8.70/gpd. The process upgrades for regulatory requirements would be retired with user fees. Currently, Hayden has not utilized this funding until the regulatory mandates are better defined. It is advisable to revisit the fee assignments often to keep pace with inflation and new regulatory requirements.

Post falls passed a $9.5 million bond in 2004 for the express purpose of acquiring property for future reuse in anticipation of tightening regulations. Passage was certainly made easier because user fees were unaffected due to a concurrent bond retirement from an earlier expansion project. All of the bonding authority is now obligated with the purchase of 618 acres on the Prairie plus about seven acres next to the treatment plant. At this time, Post Falls' CIP only includes the seven acre parcel for $2.678 million. Therefore, capacity fees do not currently include additional reuse land. The City will need to revisit this issue in their capacity fee structure in order to add future reuse land acquisition and minimize the impact to rate payers. Under Exclusive and Shared Tier calculations included in **Table 1-1** of this Technical Memorandum, that cost should be budgeted at $8.70/gpd. It may be possible to phase this additional fee in at the same time that voters are also asked to approve the bonding authority.

Rathdrum rate payers have also purchased Prairie land in advance of anticipated tightening regulations. Since they participate fully with Post Falls' users in OMR plus capacity expansion through user and capacity fees, the same funding program is assumed to apply to both.

6.3 Regulatory Implementation Priorities

Regulatory priorities for this Master Plan center around discharging the reclaimed water to the Spokane River and/or for irrigation reuse over the Rathdrum Prairie Aquifer. Both

discharge options have or will have the strictest standards in the nation to protect water quality.

6.3.1 River Discharge Priorities

The River discharge requirements will be equal to or better than the technological limit for phosphorus treatment from June through September. Those strict standards will still not meet the Water Quality Standards for Lake Spokane dissolved oxygen during that critical period. Therefore, Washington Administrative Code allows point and non-point sources to discharge into the River until it would theoretically cause a detectable change in dissolved oxygen (0.2 mg/L). The EPA's draft Idaho NPDES Discharge Permit issued in February 2007 met that condition. However, the Washington Permits issued by their Department of Ecology (WDOE) in September 2007 also indicated a similar oxygen sag. Environmental groups questioned the approach.

In September 2008, EPA's in-house attorney advised Region 10 to revise the Idaho permits to meet the dissolved oxygen standard with all sources included at one time. The September 26, 2008 Stakeholder Meeting by the EPA's Region 10 Associate Director in the Office of Water and Watersheds issued a written statement which is included here as **Appendix B**. Page 5 of that statement listed six specific points which merit implementation consideration in this Master Plan. The points and accompanying recommendations for entity actions are as follows:

1. EPA: Limits of Technology – The standard pushes us beyond the capabilities of municipal treatment systems built to date.

   Master Plan Implementation: This plan anticipates "all known and reasonable treatment technologies" (AKART) will be applied to address the standard.

2. EPA: Water Quality Trading – How can it be used to bridge the gap between what is technologically achievable and what the standards require?

   Master Plan Implementation: As part of its strict management of wastewater over the Rathdrum Prairie Aquifer, Kootenai County, Panhandle Health District, and the Cities have very limited trading opportunities (especially compared to an estimated 16,000 septic tanks and drainfields that have yet to be sewered in Spokane County near the river or near the aquifer surface).

   The Cities of Athol, Dalton, Hauser, and Huetter represent the vast majority of unsewered areas over the aquifer in Kootenai County. In total, there are less than 3,000 drainfields that could eventually fail and affect the aquifer or the river. All septic systems removed with municipal sewer must now be catalogued for trading purposes.

3. EPA: Regulatory Flexibility – It is difficult to make water quality revisions.

   Master Plan Implementation: The Cities and HARSB must continue to work cooperatively with the Washington dischargers, EPA, and WDOE to change the water quality standards through a Use Attainability Analysis (UAA) and site specific criteria. It will likely not change the need to meet AKART treatment levels but could provide an achievable standard in Lake Spokane.

4. EPA: (What is) the role of Federal Energy Regulatory Commission (FERC) licensing in TMDL development?

   Master Plan Implementation: Participate with the other dischargers, EPA and WDOE to define Avista Corporation's role and responsibility in addressing the dissolved oxygen problem caused by impounding the Spokane River behind Long Lake Dam. Avista may participate directly with load reduction (AKART), lake oxygenation, increasing flows from Lake Coeur d'Alene or water quality trading projects.

5. EPA: Principles and considerations for allocating loads between Idaho and Washington.

   Master Plan Implementation: The entities must engage themselves and IDEQ at the highest levels with Washington State and EPA to obtain fair consideration for allowable loading. Idaho's April 2007 Draft Permits caused a theoretical 0.15 mg/L dissolved oxygen sag. Therefore, Idaho dischargers could conceivably meet the water quality standards with AKART at a sag of 0.10 mg/L (50 percent of that allowed by Washington).

6. EPA: Agency resources for modeling (are not funded).

   Master Plan Implementation: Entities should contact the Idaho Congressional delegation and lobby for EPA, IDEQ, and/or WDOE funding to perform thorough and reliable water quality modeling.

6.3.2 Reuse Policy Priorities over the Rathdrum Prairie Aquifer

Idaho regulates reuse under IDAPA 58.01.17 – Rules for the Reclamation and Reuse of Municipal and Industrial Wastewater. Those rules further reference IDEQ's "Guidance for Reclamation and Reuse on Municipal and Industrial Wastewater" which includes additional requirements over the Rathdrum Prairie Aquifer (RPA). The Class A Reuse Rules appear to provide the necessary framework for irrigation and many other commercial and industrial uses without additional testing or monitoring. However, IDEQ staff in Coeur d'Alene have expressed reservations about such "unrestricted" reuse over the RPA due to its designation under IDAPA 58.01.11 (Ground Water Quality Rule) as Idaho's only Sensitive Resource Aquifer. Parts 300 and 301 of the Ground Water Quality Rule state that:

- The aquifer shall not be degraded, as it relates to beneficial uses, as a result of point source or nonpoint source activity unless it is demonstrated by the person proposing the activity that such change is justifiable as a result of necessary economic or social development.
- Activities with the potential to degrade Sensitive Resource aquifers shall be managed in a manner which maintains or improves existing ground water quality through the use of best management practices and best available methods.

It is reasonable and generally supported among IDEQ's Coeur d'Alene Staff that slow rate agricultural reuse operations over the RPA represent the best management practices and best available methods. This would satisfy the second tenant of the Ground Water Rule for Sensitive Resource Aquifers. Significant discussions are continuing as to whether the first tenant of the Rule is applicable, depending on the level of treatment and classification of the reuse water. Since River discharge will almost certainly require nutrient removal and filtration, HARSB and Post Falls should be able to achieve a Class A or Class B reuse water

quality with no additional treatment. Some disinfection modifications may be required depending on final treatment performance and rule interpretation. Consequently, this Master Plan recommends the following priorities for regulatory issues over the RPA:

- Stay engaged with IDEQ as it further defines reuse practices over the RPA in 2009 through interpretation of the Ground Water Quality Rule and RPA supplemental information. The goal should be to establish that statewide reuse rules are protective of the RPA with minimal additional safeguards. If that goal cannot be accomplished within existing rules, then recruit state legislative support for appropriate rule modification that protects aquifer quality and gives reasonable certainty to water reclamation and reuse practices.
- Improve groundwater monitoring at HARSB for better operations and install it at Post Falls' reuse land for determining background conditions. HARSB should construct and test at least one more monitoring well and Post Falls should construct and test two to four wells.
- Establish Reuse Permits for the Post Falls and Rathdrum farm lands. Reuse may be a few years away but the applications, background data, and public review process will likely take a year or more. Establishing these permits will clearly establish the treatment, monitoring, and set-back requirements.
- Work with IDEQ and mining land owners to establish the expected condition for permitting reclaimed mining lands for reuse water irrigation. There is hesitation among regulators, the Cities, and the public due to the proximity of the RPA once mining operations and reclamation are complete. However, the topsoil originally removed from the site is required to be stockpiled, returned, and revegetated for agricultural, commercial, or residential purposes as part of those mining agreements. Since reuse rules require operations to minimize any chance of irrigation water and nutrients moving beyond the root zone, a strong case can be made that reuse practices would be the most protective of the aquifer in reclaimed mining zones. The practicality of reuse irrigation on the reclaimed properties' side slopes may limit those areas to silviculture, nursery stock, or fruit crops.
- Stay engaged with the Idaho Department of Water Resources' (IDWR's) adjudication process for supporting reuse as a means to conserve and protect existing ground water rights of municipal water purveyors. All of the water that HARSB treats originates from other entities' water rights. Post Falls' potential reuse production will also originate largely from Rathdrum, East Greenacres Irrigation District and Ross Point Water District. HARSB and Post Falls must file claims on those rights for "use to extinction" as reuse water because the water laws in these instances are not clear. IDWR's Groundwater Management Plan for the RPA supports these concepts and states that existing ground water rights will not be forfeited as a result of conservation and reuse.

The above approaches will make this Master Plan adaptable to the evolving growth and regulatory conditions for many years. With them, the cities of Hayden, Post Falls, Rathdrum, and Kootenai County can sustainably manage wastewater to be protective of the Spokane River while also "closing the loop" on reclaimed water for reuse and conservation over the RPA.

Figures

(Figures Bound Separately)

Figure 1.1 – Color-Coded Collection System by Entity

Figure 3.1 – Potential Expanded Reuse Locations, Transmission, and Storage

Appendices

(Appendices Bound Separately)

Appendix A – An Endorsement of Shared Principals and Common Goals for the Rathdrum Prairie" (Kootenai County Resolution No. 2008-34, April 2008)

Appendix B - September 26, 2008 - Stakeholder's Meeting Public Announcement – EPA's Region 10 Office of Water and Watersheds