" * " Represents project from 2008 PER

#	Proposed project	Brief project description	Projected Cost Tier	Approximate Cost	Next Steps	Benefits	Priority Assignment
1	24" NW Transmission Main: Alexander/Lake Elmo to Gleneagles (~2.5 miles).	Install 24" grid main from the intersection of Alexander/Lake Elmo to the Gleneagles main to complete a major loop in the system.	$1MM+	$11MM		Meet fire flow, meet demand growth, alleviate pressure issues.	High
2	Additional Storage Reservoir: Ox Bow II.	Installation of a new 4MG storage reservoir near the existing Ox Bow reservoir to supplement storage capacity throughout the system.	$1MM+	~$4MM	Analysis based on areas developed and DEQ circulars.	Increase storage.	Medium, pending #35
3	Reservoir water quality management system.	Install a reservoir water quality management system at all reservoirs within the District. Install a means to boost chlorine levels in existing facilities to provide greater protection against low-chlorine residuals in low usage periods or existing facility failures. Expand upon existing project for chlorination and mixers.	$250K-$1MM	??	A portion of this project is currently out for bid.	Improve water quality.	Medium
4	12" CI Pipe Replacement along US87/Roundup Road.	Verify main along Roundup Road (Hwy 87) is cast iron and replace prior to major issues or failure occur.	$1MM+	??		Reliability and resiliency	Medium
5	Assess conditions of existing pipelines.	Perform a comprehensive study of the Districts existing pipeline infrastructure to determine potential problem areas to guide future improvement scopes and schedules.	$250K-$1MM	??		Reliable information to strategically plan improvments	High
6	Upsize Main Street Main(s)	Upsize pipe(s) in Main Street based on pending hydraulic modeling results.	$1MM+	??		Replace aging infrastructure/ AC, Meet Demand	Low, pending #5
7	AC Pipe Replacement Program (Yearly Allocation?)	Implement a scheduled replacement program for all pipe throughout the District. 40-year turnover = 2.5% = 1,900LF pipe per year.	$250K-$1MM	??		Improve infrastructure	Low, pending #5
8	Pipe Replacement Program (Not exclusive to AC Pipe) (Yearly Allocation?)	Implement a scheduled replacement program for all pipe throughout the District. 100-year turnover = 1% = 6,000LF pipe per year.	$1MM+	??		Improve infrastructure	Low, pending #5
9	Replace Water Main in Wicks: Main to Bitterroot	Upcoming(?) road reconstruction on Wicks provides opportunity to replace AC pipe? FY 2025	$250K-$1MM	??	Verify status of this project	Replace AC.	High, pending street imp. schedule
10	Upsize Wicks from Hawthorne to Gleaneagles	Upsize 10" AC pipe in Wicks Lane pending hydraulic modeling results.	$1MM+	??		Replace AC. Meet demand.	Low, unless item #1 doesn't go
11	Residential meter testing/replacement program.	Add or expand current meter replacement program.	$25K-$250K		Ask District about current program in place.		Low
12	Separate/Additional fill line for Lanier for added redundancy into system.	Provide additional connection/fill line from supply directly to Lanier tank to provide redundancy for storage and pressure zones in the event of a failure at the Lanier tank or BPS.	$1MM+	??		Improve water quality and functionality of system.	Low
13	Upsized pump[s] in Lanier BPS.	Install upsized pumps in the Lanier booster pump station.	$250K-$1MM	??		Meet future demand.	Low
14	Addition of ultrasonic meters throughout District.	Install ultrasonic meters at strategic locations throughout the District to better monitor system performance/use.	$25K-$250K	??		Better system monitoring.	Low
15	Cross-connection control program (Yearly Allocation?)	Install cross-connection control measures at residential meters to better protect the distribution system from contamination.	$25K-$250K	??		Protect water system from cross connections.	Low
16	Install Smart Hydrants throughout system.	Install smart hydrants or hydrant components as a means to tie communication systems together and better monitor system use/performance.	$25K-$250K	??		Improve system monitoring and information.	Low
17	Update GIS Attributes	This includes all points, lines, and polygons, (20,000 total), with an average of 5 attributes to be updated per each, (at one minute spent per attribute) TECH V Rate	$25K-$250K	$125,800		Increase productivity, better system monitoring.	Low
18	GIS: Digital Workflows	Includes 10 digital workflow processes from concept to development and deployment.	$25K-$250K	$120,000		Increase productivity, better system monitoring.	Low
19	GIS Support/Data Workflow Maintenances	All data updates, 10 additional workflows, and software/hardware technical support.	$250K-$1MM	$500,000		Increase productivity, better system monitoring.	Low
20	Intake and WTP Feasibility Study	Preliminary study to determine feasibility of District owned and operated intake and water treatment facility.	$25K-$250K	??		Water source redundancy and self-sufficiency	Low
21*	Bitterroot 12-inch all the way to & across Highway 312. Verify need for PRV.	Complete the Bitterroot loop, forming a major loop within the system. Installation of Pressure Reducing Stations along the Bitterroot Main and S Mile Creek to reduce pressure to those areas as a result of the Ox Bow reservoir. (These Stations allow for automatic operation).	$1MM+	??		Growth	Low
22*	Verify PRV Location & Install Lake Hills Station	Allow Ox Bow to "back feed" into Pressure Zone 1 in case there is a problem in Pressure Zone 1.	$250K-$1MM	??		System redundancy and reliability.	Low
23*	Pemberton Upsize to 10-inch	Upsize the existing main in Pemberton Lane to 12-inch diameter, replacing existing vales and hydrants.	$250K-$1MM	??	Ask District about status of this one.		
24*	Bench Blvd. AC Pipe Replacement and Upsizing	Replace selected mains in Bench Blvd. near the Metra with new main.	$250K-$1MM	??		Improve infrastructure	Low
25*	Lake Elmo Road Between Wicks & Sioux	Replace "soft" pipe in Lake Elmo Road with new main.	$250K-$1MM	??	Ask District if this has been completed	Replace AC	High?
26*	24-inch Oxbow to Bitterroot and 12-inch in Bitterroot	"Complete the 24-inch transmission main loop and complete the 12-inch main in Bitterroot." Verbiage is from 2008 PER and pipe sizing for mains pending hydraulic modeling results.	$1MM+	??		Complete major loop in system.	Low
27	Emergency Generation	Procurement of additional backup generator(s) for standby in the event of major power outages.	$25K-$250K	??		Reliability	Low

" * " Represents project from 2008 PER

#	Proposed project	Brief project description	Projected Cost Tier	Approximate Cost	Next Steps	Benefits	Priority Assignment
28	City of Billings/CWDBH Interties	Identify strategic locations and coordinate the COBPW to install interties between the systems to provide greater flexibility in distribution system for both parties.	$250K-$1MM	??		System redundancy and reliability.	Low
29	Procurement of equipment/vehicles/IT needs to supplement or replace fleet.	Placeholder until needs are identified.	??	??	Ask District about status of fleet and existing equipment.		Low
30	Facility/shop/yard upgrades.	Address potential needs to expand or upgrade existing facilities to accommodate growth.	$250K-$1MM	??		Increase productivity, meet growth demand.	Low
31	Consumer notification system	Implement system to notify consumers of the District for issues, planned outages, etc.	$25K-$250K	??	Ask District about the current process?	Public safety and information sharing.	High?
32	5-Year update to the CIP	Provide budget for revision and updates to the CIP as projects progress or priorities change.	$25K-$250K	??		Information to guide priorities and future improvements	Medium
33	Rate Study	Identify schedule and budget for next rate study to ensure appropriate rates for necessary maintenance and improvements.	$25K-$250K	??		Information to guide priorities and future improvements	Medium
34	Water Demand Forecasting Analysis	Perform a comprehensive water demand forecasting analysis to determine future needs associated with growth patterns around the District.	$25K-$250K	??		Information to guide priorities and future improvements	High
35	Storage Analysis	Perform a comprehensive storage analysis to determine current and future needs for additional water storage capacity and pressures.	$25K-$250K	??		Information to guide priorities and future improvements	High
36	"SWOT" Analysis	Perform a "Strengths, Weaknesses, Opportunities, and Threats" analysis of the existing system to identify risks and potential opportunities for mitigation and growth throughout the District.	$25K-$250K	??		Information to guide priorities and future improvements	Medium

Draft Agenda Items for Discussion.

Agenda Item:	Preliminary Notes:	Notes

Intro/General Discussion	• Overall goals for the District? Growth, maintenance/replacement of existing, other?
	• Big picture needs/known projects upcoming? Anything from previous list of projects that are still a need?
	• Number of existing residences served?
	• Expected growth in Heights? Level of effort to keep up with growth?
	• Which areas are expected to grow the most?
	  ○ Consideration for the Billings Bypass impacts once completed? Any zoning implications as a result of the Bypass being completed?
	• Any concerns or needs associated with the new EPA LCRR and upcoming compliance?
	• Condition of existing assets?
	  ○ Pull what we can from GIS (quantities, sizes, etc.)
	•	

Input Sources	• Project ranking system? What major aspects are important to the District to score potential projects to assign priority?
	  ○ Example ranking categories (?):
	  ▪ Imminence of need to ensure Public Health & Safety and code compliance or eliminate a hazard. (25%)
	  ▪ Project required to handle growth for current in-service area of District. (25%)
	  ▪ Project proactively addresses a future need to reduce potential emergent issues (15%)
	  ▪ Project provides necessary infrastructure to expand into planning area. (15%)
	  ▪ Project provides increased efficiency for maintenance crews and administrative personnel. (10%)
	  ▪ Project is eligible for grant assistance. (10%)	

Administrative and Maintenance Assets and Processes:		

Facilities & Building Improvements	• Current state of office facility? Room to expand with potential growth?
	  ○ Technology needs?
	• Wants or needs to improve energy efficiency of existing facilities?
	• Maintenance shop/yard in good condition? Large enough to store necessary materials for busy season?
	• Security systems in place or needed?
	  ○ Technology security in place?
	• What is the current process/protocol to notify consumers of issues, upcoming events, etc.
	•	

Billing/Financial Management	• What programs/processes are currently in place for monthly billing?
	  ○ Sustainable if District were to see major growth?
	  ○ Any perceived needs to make system better?
	• Service/Maintenance calls
	  ○ What is current process? WOs?
	  ○ Any needs to make system better?
	•	

Fleet/Vehicles/Equipment	• Current status of fleet and equipment? Age, condition, etc? • Upcoming needs on vehicles or equipment? ○ What additional equipment would increase efficiency at a reasonable cost to the District? • Lease vs. purchase? •	
Specific Distribution System Asset:	• Dedicated annual or biennial replacement/upgrade programs to turn over aging assets throughout the District? •	

Reservoirs:	• Any immediate or short-term needs?
	  ○ Hydraulic modeling needs to determine potential target timeline for additional reservoir.
	  ○ Perform storage analysis for CIP and ballpark timeline.
	• Any upgrade or repair needs on Hilltop or Lanier?	

Pumping Stations:	• Current state of all pumping stations? Aging, good condition, etc.? • Any need for upgrades/additional/removal of existing? ○ Hydraulic modeling needs for this? See which areas are covered in the event of emergent issues in the District? (SWOT Analysis). •	

Pipelines: Transmission/ Distribution Mains	• Any existing projects in consideration?
	  ○ 24" Transmission Main: Alexander/Lake Elmo to Gleneagles? (~2.5 miles)
	• Areas of known need for replacement?
	  ○ AC Pipe areas?
	  ○ GIS Data shows at least ~76,000 LF of AC pipe of varying size. I assume this is not entirely comprehensive since there are a lot of blanks in the "pipe type" data. Need to consider program for replacement? 2.5% per year (or 5% per biennium) would equate to a 40-year replacement program. 2.5% would equate to ~1,900+ LF/year.
	  ○ AC pipes aside, GIS data shows ~112 miles of mains. A 100-year replacement plan (1%) would require ~6,000LF of pipe to be replace yearly.
	• Areas of known need for upsizing mains?
	• Areas requesting annexation in planning area or service area?
	• Current capacity for growth?
	  ○ Hydraulic modeling needs for this?
	• Sampling plan? Move towards sampling stations throughout the District?
	•	

Pipelines: Service Lines	• Any areas of known need for replacement?
	  ○ Any lead lines in place/remaining?
	  ○ Any concerns with compliance with new LCRR?
	•	

Meters	• Cellular based meter readers? • Any areas of known need for replacement? ○ Any consistent issues noted with specific makes/models still in place? • Is there an existing replacement program for valves or need to consider one in CIP?	

Valves /Vaults	• Any areas of known need for replacement? ○ Any consistent issues noted with specific makes/models still in place? • Is there an existing replacement program for valves or need to consider one in CIP? •	
Fire Hydrants	• Current state of hydrants throughout the District? ○ Aging units? • GIS data shows ~800 hydrants owned by the District. Need to consider a dedicated program for replacement? A 50-year replacement program would require ~16 hydrants per year. • Smart hydrants? •	
Water Quality Systems	• What is currently in-place? (Perhaps only an internal question) ○ Upcoming chlorination/mixers project. What else? • Project idea: Ability to chlorinate at each booster station? • Any needs for compliance with upcoming LCRR? •	
Electrical Systems	• Any known needs regarding the existing system? • Energy audit? •	
Backup Power Supplies	• Need additional? • Does Walter station have backup power to continue to provide water to District in event of power outage? •	
Communication/SCADA Systems	• Is everything pretty well tied-together at this point or are there dead zones that should be addressed? • Meter management entirely remote? Manual? Combination of the two? Where would the District like to be in regards to collecting that information? • Current systems in place working well? MicroComm? Badger? •	
Asset Management/GIS	• Ability to/or want to expand capabilities of GIS program in place? • Perform inventory for update to GIS as a capital project? • Implement digital workflows to tie with GIS system?	

Financials/Funding:		
Financials:	• Assumed limit for "Capital improvement" of >$25K. Reasonable? • Develop budget that will be dedicated to capital improvements over the next 10 years based on historical expenditures, cash on hand, rate study results, and supplementary funding opportunities. • Possible need for additional personnel with current growth trajectory? ○ For consideration of operating costs vs. what can be put toward capital projects. •	
Funding	• Identify potential funding sources for selected projects to pursue as part of this CIP. •	
Project Summary/Analysis	• Mimic City of Billings or City of Lewiston summary sheets? • Refinement of the scoring summary? •	

Projects from the 2008 PER document:

1st Priority Projects

Hawthorne North & South	Completion of the 24-inch Hawthorne Transmission Main.	Complete
Lanier II Reservoir	New 4,000,000 Gallon Storage Reservoir.	Complete
Lanier Pump Station	New pump station to transfer water from Lanier I (Pressure Zone 1) to Lanier II (Pressure Zone 2).	Complete
Transmission Line from Lanier I to Lanier II	New water transmission main connecting the Lanier Pump Station to the new Lanier II Reservoir.	Complete
Distribution Line – Lanier II to Lake Elmo (Pressure Zone 2)	New transmission main from Lanier II down the face of the hill, along Alexander Road and down Lake Elmo, connecting to the existing system.	Complete
Relocate the Inverness Pump Station and Reservoir Management System	Move the new Inverness pump station to the Lanier II Reservoir site to allow service to the few homes that will be located above the Lanier II Reservoir. Install a reservoir water quality management system.	Not complete – partial on the RMS.
	Reservoir water quality management system	IEI added to list. Move to agenda items.

24-inch Ox Bow Main to Hawthorne and an 8-inch main to Bitterroot	24-inch transmission main from Lanier II to the Oxbow Subdivision (Eliminate the Ox Bow Pump Station) and complete the 8-inch loop in Ox Bow.	Complete
Bitterroot 12-inch all the way to & across Highway 312	Complete the Bitterroot loop, forming a major loop within the system.	Not done.
PRV Bitterroot & 5 Mile Creek	Installation of Pressure Reducing Stations along the Bitterroot Main and 5 Mile Creek to reduce pressure to those areas as a result of the Lanier II reservoir. (These Stations allow for automatic operation).	Not done.

2nd Priority Projects

Verify PRV Location & Install Lake Hills Station	Allow Lanier II to "back feed" into Pressure Zone 1 in case there is a problem in Pressure Zone 1.	Not done.
Pemberton Upsize to 10-inch	Upsize the existing main in Pemberton Lane to 12-inch diameter, replacing existing vales and hydrants.	Not done.
Lake Elmo Road Between Wicks & Sioux	Replace "soft" pipe in Lake Elmo Road with new main.	Not sure?
Bench Blvd. Pending Street Improvements	Replace selected mains in Bench Blvd. near the Metra with new main.	Not sure?
24-inch Oxbow to Bitterroot and 12-inch in Bitterroot	Complete the 24-inch transmission main loop and complete the 12-inch main in Bitterroot.	Not done – how to tie in with Bar-11 addition?

Group 3 Projects

Emergency Generation	Portable emergency generator, and installation of manual transfer switches and Arc-Tite couplings.	Complete?

Long Range Projects

Grid 12-Inch	Construct 12-inch transmission mains in currently undeveloped lands.	Certain portions complete?
Grid 24-Inch	Construct 24-inch transmission mains in currently undeveloped lands.	Certain portions complete?

COUNTY WATER DISTRICT OF BILLINGS HEIGHTS
WATER DISTRICT SYSTEM MAP
YELLOWSTONE COUNTY, MONTANA