



*City of Red Lodge, MT*



Wastewater Collection and  
Treatment System  
Preliminary Engineering Report

April 2016



# Preliminary Engineering Report City of Red Lodge, MT

Public Meeting # 2

April 26, 2016





# Recap of Public Meeting #1

- Study Period: 2016 through 2036
- Design Population Growth
  - Summer: 5,300 to 6,013
- Wastewater Flows - (Existing)
  - Domestic Sewage: 500,000 gpd
  - Infiltration: 440,000 gpd
  - Storm Inflow Rate: 1 to 5 mgd



# Sewer Collection System - Recap



- Piping
  - PVC: ≈ 7 miles (1980s & 1990s)
  - Clay: ≈ 10 miles (Early 1900s)

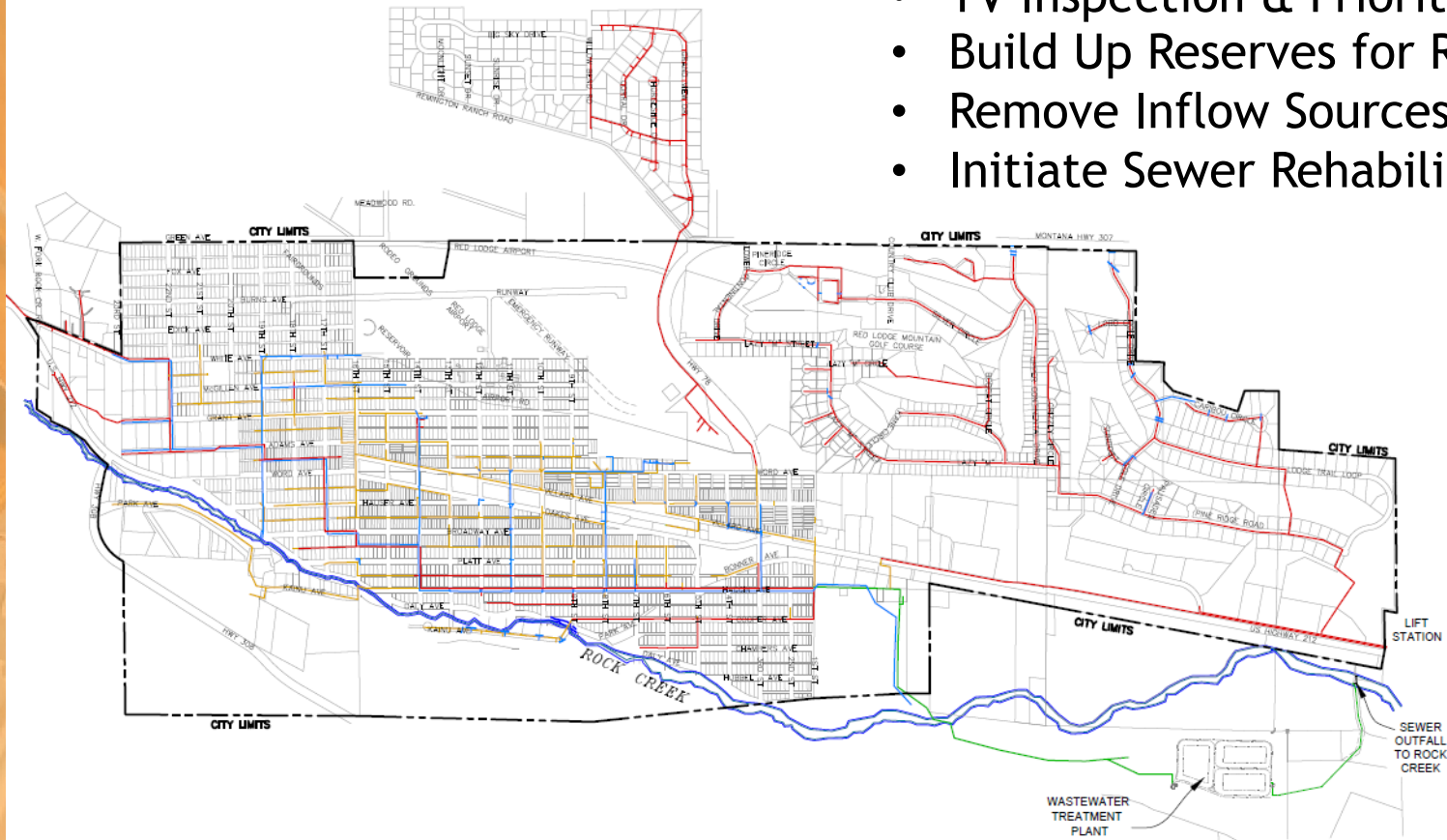
Wastewater Collection System Alternatives	
Description	Net Present Value
Alternative C1 - No Action	\$0
Alternative C2 - New Sewer with Conversion of Old SS to Storm	\$11,430,000
Alternative C3 - Rehab Existing Sewer and New Storm	\$17,740,000
Alternative C4 - Further Investigation & Analysis	\$140,000



# Sewer Collection - Conclusions



- TV Inspection & Prioritization
- Build Up Reserves for Replacement
- Remove Inflow Sources from Sewer
- Initiate Sewer Rehabilitation





# WWTP - Recap

- Overall Performance - Good
- Constructed - 2001
- Upgrades - 2009
- Nutrient Loadings
  - Reaching 90-95% of Old Permit Limits
- MPDES Discharge Permit
  - New Permit: 2016 - 2021
  - Nutrient Limits Removed from Permit
  - No Variance Required





# WWTP - Conclusions

Wastewater Treatment System Alternatives	
Description	Net Present Value
Alternative T1 - Optimization of Existing Facility (No Action)	\$29,000
Alternative T2 - Inter-Lagoon Ammonia Polishing System	\$2,894,000
Alternative T3 - Post Lagoon Denitrification & Phosphorous Removal Systems	\$3,911,000
Alternative T4 - Land Application/Spray Irrigation of Effluent Wastewater	\$5,861,000
Alternative T5 - Biological Nutrient Removal System	\$5,554,000

- Optimize Existing Q&M
- Prepare for More Stringent Limits in 2021
- Build up WWTP Reserves



# Timeline

## Proposed Implementation Schedule

Task Description	Collection System	Treatment Plant
PER/PER Update Complete	June 2017	October 2021
Submit Funding Application	April 2018	April 2022
Preliminary Notice of Grant/Loan Award	December 2018	December 2022
Issuance of New MPDES Permit	-	May 2021
Variance Requested from MDEQ <sup>(1)</sup>	-	-
Expiration of Optimization Period	-	September 2021
Completion of Final Plans & Specifications	December 2019	December 2023
Advertise & Receive Bids For Construction	March 2020	March 2024
Award Construction Contract	March 2020	March 2024
Begin Construction	April 2020	May 2024
Complete Construction	November 2020	October 2024
One Year Certification	November 2021	October 2025

(1) This will only be necessary if existing treatment system is unable to meet new discharge permit standards



# Funding Scenario(s)

Funding Source	Collection Improvements with Grants	Treatment Improvements with Grants
Opinion of Probable Cost - (2022)	\$4,100,000	\$3,400,000
<b>Total Grants Estimated</b>		
• TSEP	\$750,000	\$750,000
• DNRC	\$125,000	\$125,000
• MT Coal Board	\$500,000	\$500,000
City Reserve Contribution	\$750,000	\$750,000
Remaining Cost to be Financed	\$1,975,000	\$1,275,000
<b>Loan Conditions</b>		
• Annual Interest Rate	3.0%	3.0%
• Term (Years)	20	20
<b>Total Annual Cost</b>		
• Annualized Capital Cost	\$132,800	\$ 85,700
• Annual O&M Increase	<u>0</u>	<u>115,000</u>
<b>Total</b>	\$132,800	\$200,700
Estimated Average Cost Per User <sup>(1)</sup>	\$6.30 / month	\$9.50 / month

(1) Based on sewer system average EDU count of 1,762 - (2015 Water & Sewer Rate Study).





# City's Projected Reserves

Fiscal Year	Projected Revenue <sup>(1)</sup>	Projected Q&M Expenses	Debit Service	Projected Surplus
2015-16	\$850,000	\$505,000 <sup>(2)</sup>	\$210,300	\$134,700
2016-17	\$908,500	\$515,000	\$210,300	\$183,200
2017-18	\$972,000	\$525,000	\$210,300	\$236,700
2018-19	\$1,042,000	\$535,000	\$210,300	\$296,700
2019-20	\$1,117,500	\$545,000	\$210,300	\$362,200
<b>Reserve Potential:</b>				<b>\$1,213,500</b>

(1) Projected revenue includes the \$150,000 per year contributed to the sewer enterprise fund via the City's resort tax.

(2) City of Red Lodge Water & Sewer Rate Study, March 30, 2015; Great West Engineering.



# What's Next?

- Sewer Line TV Inspection
- Calibrating WWTP Flow Meters
- Review TV & Prioritize SS Lines
- SS Visual Examination
  - MH Flow & Observation
  - Inlet & Roof Drain Connections
  - Smoke Testing (Downtown Area)
- Detailed Report & CIP Update



# Questions & Public Input



## Questions?