



# Capital Improvements Plan & Area-Wide Management Plan

April 15, 2025



# Project Timeline and Overview



- Proposal for Consultant Services Executed: December 13, 2023
- Project Kick-off Meeting: January 4, 2024
- Background Information and Planning: January – June 2024
- BCRSD Facility Site Visits: June 5 and 6, 2024
- Meeting with i5 Group – Boone County Master Plan: June 25, 2024
- Developing Recommendations and Cost Estimates: June – October 2024
- Meeting with City of Columbia: October 8, 2024
- Preliminary Board Presentation: November 6, 2024
- Draft Reports to BCRSD Staff: February 28, 2025
- Draft Reports to Board: March 14, 2025



# Capital Improvements Plan: Planning Period

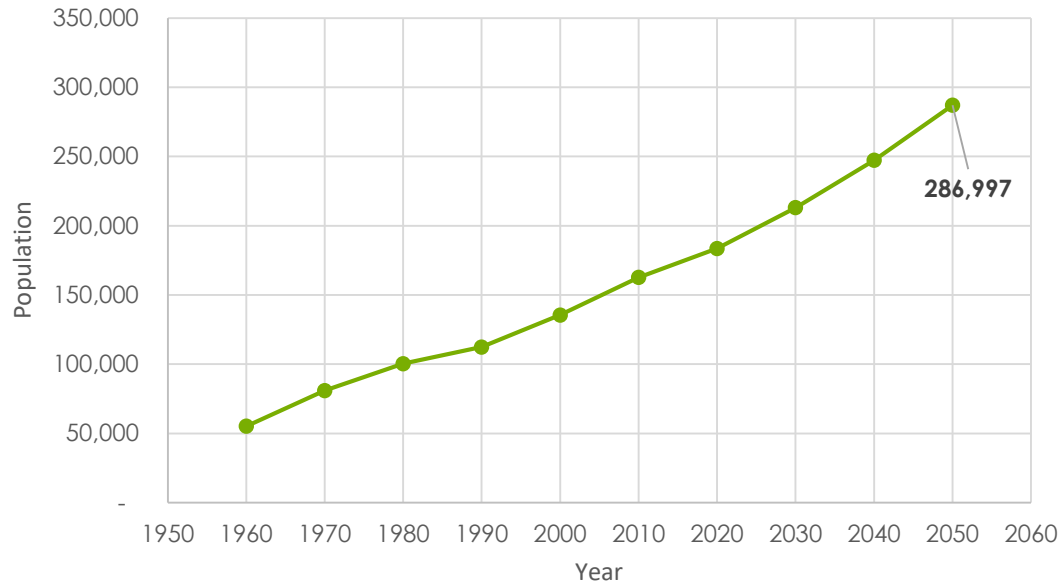


- CIP Planning Period = 20 years with focus on next 10 years
  - Phase 1 Improvements: 0-5 Years (2025 to 2030)
  - Phase 2 Improvements: 6-10 Years (2030 to 2035)
  - Phase 3 Improvements: 11-20 Years (2035 to 2045)
- Recommend annual review of CIP with updates at a minimum of 10-year intervals

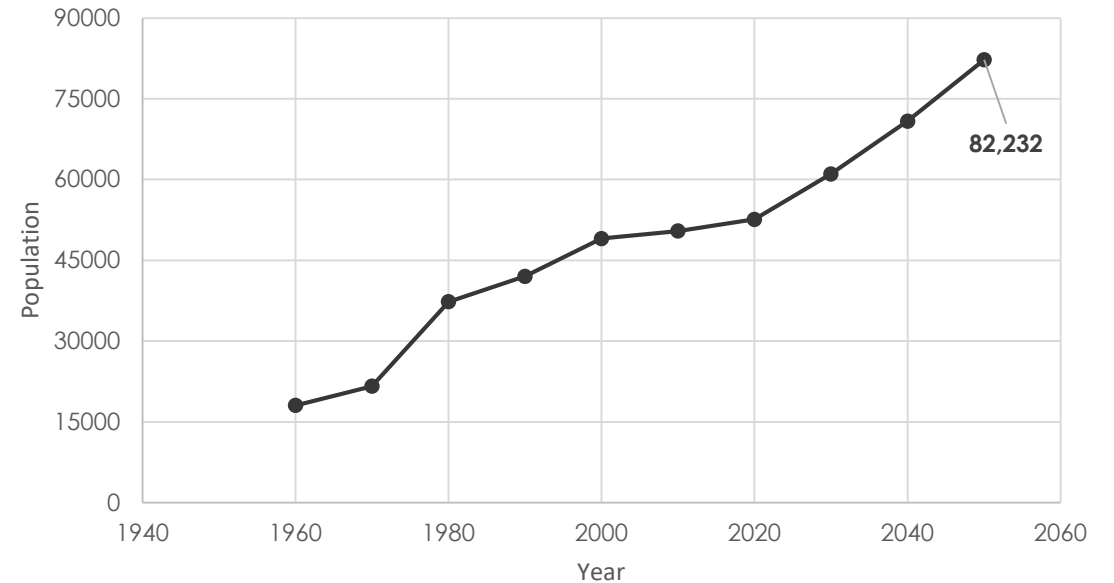
# Population and Growth Analysis



**Boone County 1.5% Growth Rate Population Projection**



**Boone County Excluding Columbia & Ashland 1.5% Growth Rate Population Projection**



Boone County 2050 Population Projections	
Draft Boone County Master Plan – i5Group (2024)	252,000
Columbia Area Transportation Study Organization (2019)	292,969
McClure (2024)	286,997

Estimate of Projected Growth in BCRSD Service Area 2020 to 2050 = 29,623 residents

# BCRSD Customer Growth



## BCRSD Customer Growth 2014 - 2024

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
No. of BCRSD Customers	6,352	6,381	6,435	6,534	6,566	6,599	6,950	7,178	7,408	7,420	7,752

Annualized Growth Rate Since 2014 = 2.01%

BCRSD Projected # of Customers 2044 Utilizing 1.5% Growth Rate = 10,441

# BCRSD Customer Growth



<b>BCRSD Service Area</b>	<b>Estimate of Projected Customer Growth (2024 – 2044)</b>
Rocky Fork	300 - 500
South Route K	1,200 – 1,800
Midway Crossing	100 - 300
North Fork Grindstone Creek / Little Cedar Creek / Hominy Branch Watershed	200 - 400
Outlying Rural Subdivisions	300 - 400
Total	2,100 – 3,400

Projected growth in South Route K service area is based on a proposed alternative to relocate the plant and increase its capacity.

# Capital Improvements Categories

1. WWTP Regulatory Compliance
2. WWTP Infrastructure Renewal
3. WWTP Capacity Expansion
4. Collection System Improvements
5. Operational Enhancements

# WWTP Regulatory Compliance



## WWTP Regulatory Permit Compliance Improvements

Facility	Permitted Design Flow (GPD)	Permit Expiration Date	SO C Deadline	SO C Parameters	Previous Facility Plan Date	Improvement Recommendation	CIP Phase	2025 Cost	CIP Cost - Future Planning Year
Midway Arms	4,800	6/30/2025	9/1/2024	Ammonia	None	Coordinate with original developer to complete a Facility Plan and implement recommendation.	0-5 years	\$ -	\$ -
Highfield Acres	29,000	3/31/2025	11/1/2025	Ammonia & <i>E coli</i>	2016	Transport flow to City of Columbia and close facility.	0-5 years	\$ -	\$ -
Richardson Acres	8,510	3/31/2025	11/1/2028	Ammonia & <i>E coli</i>	2021	Transport flow to Rocky Fork and close facility.	0-5 years	\$ 1,551,700	\$ 1,956,900
Brown Station	1,850	3/31/2025	11/1/2028	Ammonia & <i>E coli</i>	2021	Transport flow to Rocky Fork and close facility.	0-5 years	\$ 3,263,600	\$ 4,096,300
South Route K	244,000	3/31/2025	11/1/2029	Ammonia & <i>E coli</i>	2017	Replace with New WWTP on relocated site.	0-5 years	\$ 17,028,300	\$ 21,597,600
Trails West	57,500	6/30/2025	11/1/2031	Ammonia & <i>E coli</i>	2022	Transport flow to Midway Crossing and close facility.	6-10 years	\$ 1,186,900	\$ 1,715,500
Twin Lakes	19,400	9/30/2024	11/1/2032	Ammonia & <i>E coli</i>	2011	Upgrade facility to extended aeration package plant on adjacent site.	6-10 years	\$ 1,571,800	\$ 2,284,100
Cedar Gate	11,100	6/30/2025	11/1/2034	Ammonia & <i>E coli</i>	2021	Transport flow to Rocky Fork and close facility.	6-10 years	\$ 2,407,800	\$ 3,476,300
Brookfield Estates	30,000	3/31/2025	11/1/2035	Chloride	None	Coordinate with water district and homeowners regarding use of water softeners.	11-20 years	\$ -	\$ -
Quarter Mile Hills	5,480	13/31/2024	11/1/2037	Ammonia & <i>E coli</i>	2017	Upgrade facility to no discharge drip irrigation treatment system.	11-20 years	\$ 820,900	\$ 1,697,400
Sunnyslope	5,500	13/31/2024	11/1/2038	Ammonia & <i>E coli</i>	2017	Transport flow to Hallsville and close facility.	11-20 years	\$ 485,600	\$ 1,059,900

Total Planning Cost = \$37,884,000



# WWTP Infrastructure Renewal



WWTP Infrastructure Renewal Improvements							
Facility	Permitted Design Flow (GPD)	SO C Deadline	Final Improvement Recommendation	CIP Phase	2025 Cost	CIP Cost - Future Planning Year	Notes
Kinkade Crossing	50,000	N/A	Rehabilitate and repaint treatment basins Replace anodes	0-5 years	\$ 383,100	\$ 488,900	Includes cost for temporary pumping and hauling to Rocky Fork
Meadow Village	16,500	N/A	Rehabilitate and repaint treatment basin Replace anodes Install safety railing Improve site drainage	0-5 years	\$ 265,600	\$ 339,000	Includes cost for temporary pumping and hauling to Rocky Fork
Midway Crossing	150,000	N/A	New permanent influent flow measurement Replace influent manual bar screen Rehabilitate final clarifier equipment Add cover over UV equipment	0-5 years	\$ 158,400	\$ 202,200	
Prairie Meadows	80,000	N/A	Rehabilitate and repaint treatment basins Replace anodes UV equipment access improvements	0-5 years	\$ 694,100	\$ 886,000	Includes cost for temporary pumping and hauling to Rocky Fork
Rocheport	34,400	N/A	New permanent influent flow measurement	0-5 years	\$ 59,100	\$ 75,400	
Rocky Fork	460,000	N/A	Sludge handling improvements (not including equipment) Controls redundancy for RAS/WAS pumps Cover over cascade aerator	0-5 years	\$ 381,600	\$ 487,100	Separate equipment cost for portable sludge screw press.
Trails West	57,500	11/1/2031	New influent manual bar screen	0-5 years	\$ 46,100	\$ 59,000	
American Outdoor Brands	4,889	N/A	New influent manual screen	6-10 years	\$ 46,100	\$ 68,200	
Eagle Knoll	35,000	N/A	Upgrade site to 3-phase power Replace motors and install fine bubble diffusers	6-10 years	\$ 172,800	\$ 255,400	Dependent upon electric utility expense
Midway USA	< 3,000	N/A	New influent manual screen	6-10 years	\$ 46,100	\$ 68,200	

Total Planning Cost = \$2,929,400



# WWTP Capacity Expansion



WWTP Capacity Expansion Improvements				
Facility	Improvement Recommendation	CIP Phase	2025 Cost	CIP Cost - Future Planning Year
Rocky Fork WWTP	Expand Capacity to 690,000 gpd	0-5 Years	\$ 983,900	\$ 1,255,800

Total Planning Cost = \$1,255,800

# Collection System Improvements



Collection System Improvements				
Facility	Improvement Recommendation	CIP Phase	2025 Cost	CIP Cost - Future Planning Year
Cedar Lake Sphon Elimination	Gravity re-route to eliminate inverted siphon sewer	0-5 years	\$ 667,500	\$ 851,900
Hillcreek LPS System	Upsize portion of existing pressure sewer	0-5 years	\$ 144,000	\$ 183,900
Woodland LPS System	Upsize portion of existing pressure sewer	0-5 years	\$ 187,200	\$ 239,000
NewTown Pump Station	Gravity to new South Route K sewer	0-5 years	\$ 115,200	\$ 145,700
Rollingwood Aerial Crossing	Gravity re-route of aerial crossing	6-10 years	\$ 260,200	\$ 384,500
Clearview North Pump Station	Replace with duplex grinder pump station	6-10 years	\$ 288,000	\$ 425,600
El Rey Heights Pump Station	Install 2,000 lf of tracer wire	6-10 years	\$ 48,000	\$ 71,000
Green Hills Pump Station	Ste drainage improvements	6-10 years	\$ 76,800	\$ 113,500
BCP Pump Station	Replace access hatch	6-10 years	\$ 18,000	\$ 26,600
Fairway West Pump Station	Gravity to City of Columbia across I-70	6-10 years	\$ 924,400	\$ 1,336,200
Water's Edge	Upsize portion of existing sewer to 24" gravity main	11-20 years	\$ 1,007,400	\$ 2,199,100

Total Planning Cost = \$5,977,000

# O&M Enhancements



Operational Enhancements			
Recommendation	CIP Phase	2025 Cost	CIP Cost - Future Planning Year
Purchase Trailer-Mounted Portable Sludge Screw Press	0-5 Years	\$ 1,200,000	\$ 1,531,538
Purchase Portable Flow Meters	0-5 Years	\$ 54,000	\$ 68,919
Collection System Investigation	0-5 Years	\$ 500,000	\$ 638,141
Collection System Rehabilitation	0-5 Years	\$ 2,500,000	\$ 3,190,704
Collection System Investigation	6-10 Years	\$ 500,000	\$ 738,728
Collection System Rehabilitation	6-10 Years	\$ 2,500,000	\$ 3,693,639
Collection System Investigation	11-20 Years	\$ 1,000,000	\$ 2,182,875
Collection System Rehabilitation	11-20 Years	\$ 5,000,000	\$ 10,914,373

Total Planning Cost = \$22,958,916

# DRAFT CIP – March 2025

- Total Cost in 2025 Dollars =  
**\$48,544,200**

BCRSD Capital Improvements Plan 2025					
Description		Phase 1 (0-5 YR)	Phase 2 (6-10 YR)	Phase 3 (11-20 YR)	Total
<b>TREATMENT FACILITY PERMIT COMPLIANCE IMPROVEMENTS</b>					
1	Rollingwood Flat 1 - Connect to Midway Crossing	-			-
2	Highfield Acres - Connect to City of Columbia	-			-
3	Brown Station WWTP - Connect to Rocky Fork	\$ 4,096,300			\$ 4,096,300
4	Richardson Acres WWTF - Connect to Rocky Fork	\$ 1,956,900			\$ 1,956,900
5	South Route K WWTP - New WWTP	\$ 21,597,600			\$ 21,597,600
6	Trails West WWTF - Connect to Midway Crossing		\$ 1,715,500		\$ 1,715,500
7	Twin Lakes WWTF - WWTF Upgrades		\$ 2,284,100		\$ 2,284,100
8	Cedar Gate WWTF - Connect to Rocky Fork		\$ 3,476,300		\$ 3,476,300
9	Quarter Mile Hills WWTF - WWTF Upgrades			\$ 1,697,400	\$ 1,697,400
10	Sunnyslope WWTF - Connect to Hallsville			\$ 1,059,900	\$ 1,059,900
<b>Total Treatment Facility Permit Compliance</b>		<b>\$27,650,800</b>	<b>\$7,475,900</b>	<b>\$2,757,300</b>	<b>\$37,884,000</b>
<b>TREATMENT FACILITY INFRASTRUCTURE RENEWAL IMPROVEMENTS</b>					
1	Kinkade Crossing WWTP Improvements	\$488,900			\$488,900
2	Meadow Village WWTP Improvements	\$339,000			\$339,000
3	Midway Crossing WWTP Improvements	\$202,200			\$202,200
4	Prairie Meadows WWTP Improvements	\$886,000			\$886,000
5	Rochepoint WWTP Improvements	\$75,400			\$75,400
6	Rocky Fork WWTP Improvements	\$487,100			\$487,100
7	Trails West WWTF Improvements	\$59,000			\$59,000
8	American Outdoor Brands Improvements		\$68,200		\$68,200
9	Eagle Knoll WWTP Improvements		\$255,400		\$255,400
10	Midway USA Improvements		\$68,200		\$68,200
<b>Total Treatment Facility Infrastructure Renewal</b>		<b>\$2,537,600</b>	<b>\$391,800</b>	<b>\$0</b>	<b>\$2,929,400</b>
<b>TREATMENT FACILITY CAPACITY EXPANSION IMPROVEMENTS</b>					
1	Rocky Fork WWTP Capacity Expansion	\$1,255,800			\$1,255,800
<b>Total Treatment Facility Capacity</b>		<b>\$1,255,800</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,255,800</b>
<b>COLLECTION SYSTEM IMPROVEMENTS</b>					
1	Cedar Lake Siphon Sewer Elimination	\$851,900			\$851,900
2	Hillcreek Pressure Sewer Improvements	\$183,900			\$183,900
3	Woodlands Pressure Sewer Improvements	\$239,000			\$239,000
4	NewTown Pump Station Elimination	\$145,700			\$145,700
5	Rollingwood Aerial Crossing Elimination		\$384,500		\$384,500
6	Fairway West Pump Station Elimination		\$1,336,200		\$1,336,200
7	Clearview North Pump Station Replacement		\$425,600		\$425,600
8	Pump Station Improvements (BCP, Green Hills, & El Rey Heights)		\$211,100		\$211,100
9	Water's Edge Sewer Improvements			\$2,199,100	\$2,199,100
<b>Total Collection System</b>		<b>\$1,420,500</b>	<b>\$2,357,400</b>	<b>\$2,199,100</b>	<b>\$5,977,000</b>
<b>OPERATIONAL ENHANCEMENTS</b>					
1	Portable Sludge Press w/ Trailer (equipment only)	\$1,531,538			\$1,531,538
2	Portable Flow Meters	\$68,919			\$68,919
3	Collection System Evaluation	\$638,141	\$738,728	\$2,182,875	\$3,559,743
4	Collection System Rehabilitation	\$3,190,704	\$3,693,639	\$10,914,373	\$17,798,715
<b>Total Operations and Maintenance</b>		<b>\$5,429,302</b>	<b>\$4,432,366</b>	<b>\$13,097,248</b>	<b>\$22,958,916</b>
<b>TO TOTAL IMPROVEMENTS</b>		<b>\$38,294,002</b>	<b>\$14,657,466</b>	<b>\$18,053,648</b>	<b>\$71,005,116</b>

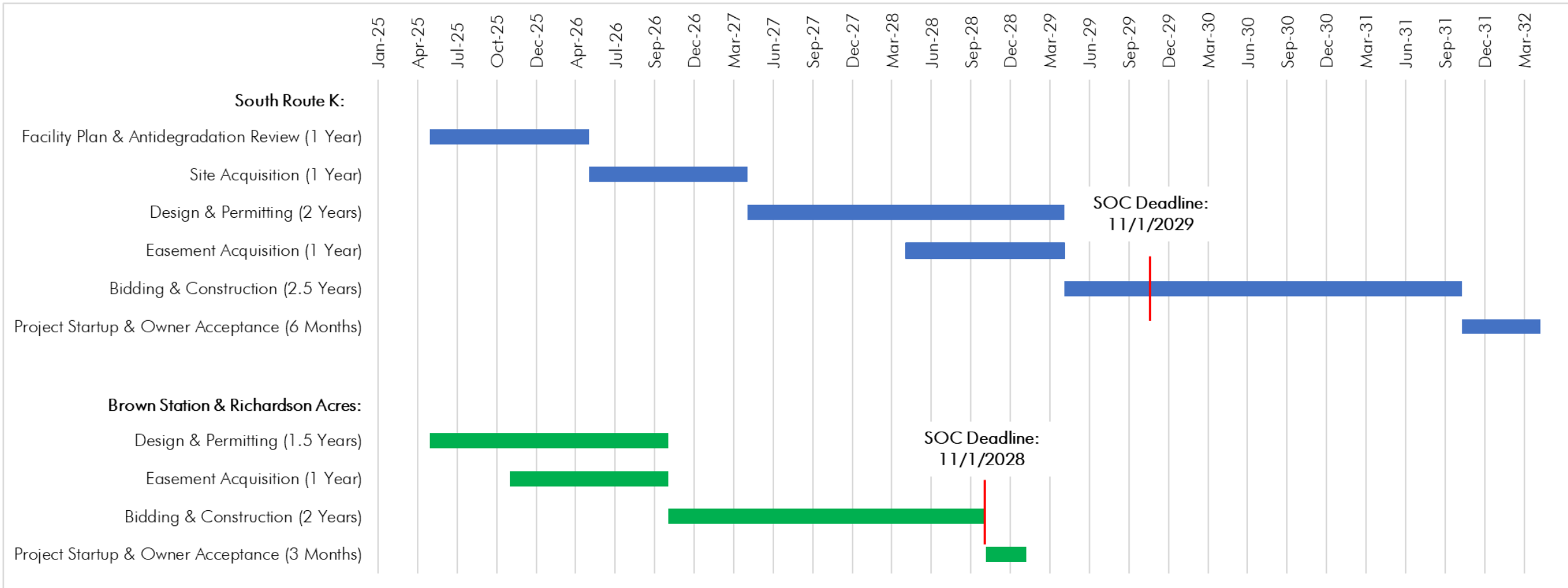


# Schedules & Implementation

# Project Prioritization

BCRSD Capital Improvements Plan 2025		
Description		Phase 1 (0-5 YR)
<b>TREATMENT FACILITY PERMIT COMPLIANCE IMPROVEMENTS</b>		
1	Brown Station WWTP - Connect to Rocky Fork or Columbia	\$ 4,096,300
2	Richardson Acres WWTF - Connect to Rocky Fork or Columbia	\$ 1,956,900
3	South Route K WWTP - New WWTP or Connect to Columbia	\$ 21,597,600
<b>Total Treatment Facility Permit Compliance</b>		<b>\$27,650,800</b>
<b>TREATMENT FACILITY INFRASTRUCTURE RENEWAL IMPROVEMENTS</b>		
1	Kinkade Crossing WWTP Improvements	\$488,900
2	Meadow Village WWTP Improvements	\$339,000
3	Midway Crossing WWTP Improvements	\$202,200
4	Prairie Meadows WWTP Improvements	\$886,000
5	Rocheport WWTP Improvements	\$75,400
6	Rocky Fork WWTP Improvements	\$487,100
7	Trails West WWTF Improvements	\$59,000
<b>Total Treatment Facility Condition and Renewal</b>		<b>\$2,537,600</b>
<b>TREATMENT FACILITY CAPACITY EXPANSION IMPROVEMENTS</b>		
1	Rocky Fork WWTP Capacity Expansion	\$1,255,800
<b>Total Treatment Facility Capacity</b>		<b>\$1,255,800</b>
<b>COLLECTION SYSTEM IMPROVEMENTS</b>		
1	Cedar Lake Siphon Sewer Elimination	\$851,900
2	Hillcreek Pressure Sewer Improvements	\$183,900
3	Woodlands Pressure Sewer Improvements	\$239,000
4	NewTown Pump Station Elimination	\$145,700
<b>Total Collection System</b>		<b>\$1,420,500</b>
<b>OPERATIONAL ENHANCEMENTS</b>		
1	Portable Sludge Press w/ Trailer (equipment only)	\$1,531,538
2	Portable Flow Meters	\$68,919
3	Collection System Evaluation	\$638,141
4	Collection System Rehabilitation	\$3,190,704
<b>Total Operations and Maintenance</b>		<b>\$5,429,302</b>
<b>TOTAL IMPROVEMENTS</b>		<b>\$38,294,002</b>

# Preliminary Project Schedules







# Area-Wide Management Plan

# 10 CSR 20-6.010(2)(F)

(F) Application of Level 2 Authority. If a municipality or public sewer district wishes to provide wastewater collection and/or treatment services on a regional or watershed basis as outlined in paragraph (2)(B)2. of this rule, the entity shall –

1. Submit a preliminary request to the Missouri Clean Water Commission through the department to obtain higher authority;

2. Develop a plan, which includes, but not limited to:

A. A discussion of regional treatment service;

B. Capital improvements program;

C. Process to provide waivers when sewer connection is not available;

D. Approach to address permit compliance with facilities in the service area;

E. Community financial capability information; and

F. Defined service area map.

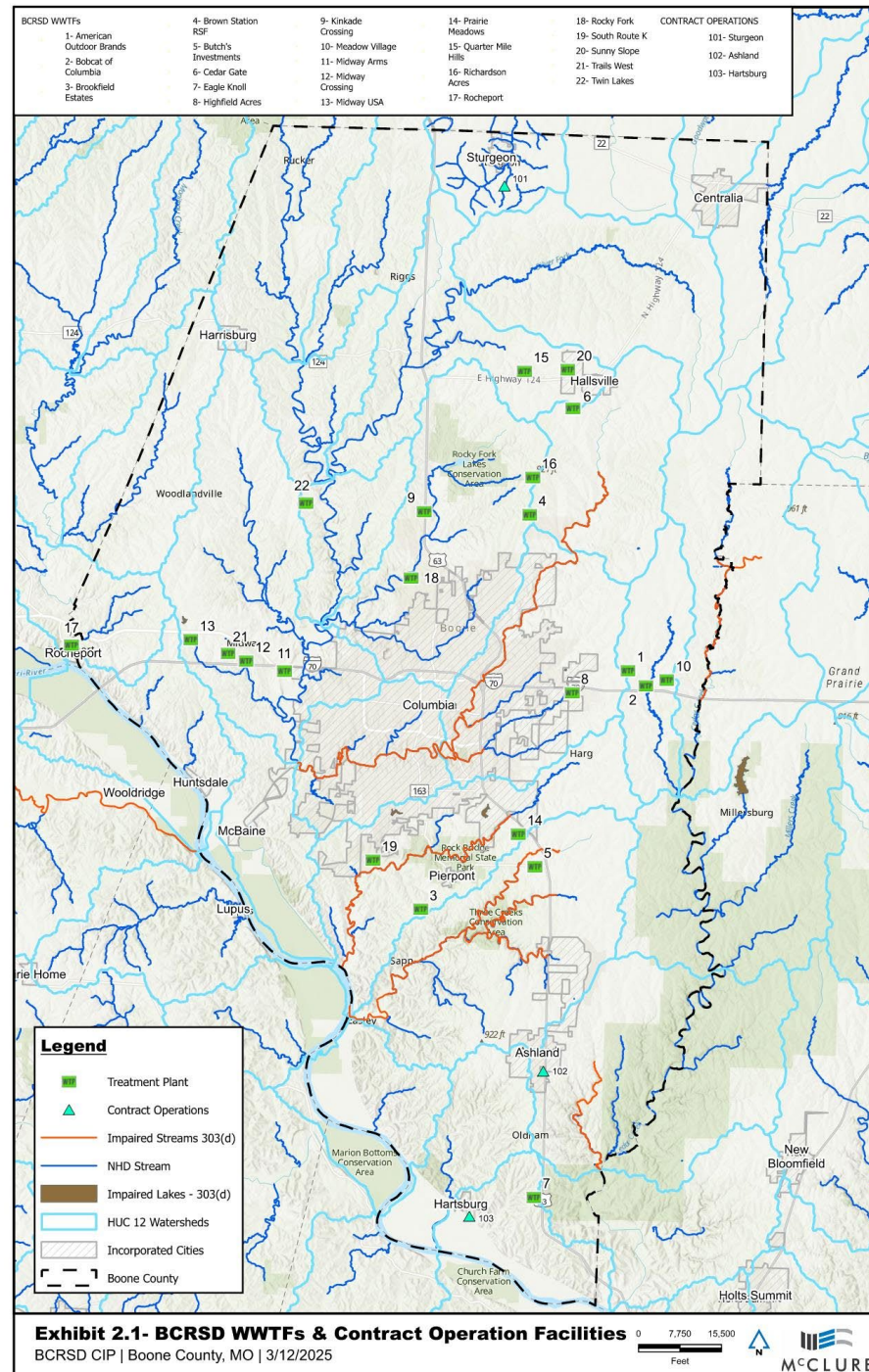
3. Obtain and maintain authority through ordinances to compel wastewater users and facilities to connect for management of wastewater flows. The ordinance requires the recipient to notify all potential users of service availability and that all users connect to the system within the timeframe provided in the notice of service availability. Submit a copy of the enacted ordinance.

4. Provide a public meeting prior to approval of the plan developed according to paragraph (2)(F)2. of the rule and the draft ordinance. Distribution of information and the publication of the notice of decision making should occur for at least thirty (30) days. Following the public meeting, provide a copy of the transcript, attendance log, recording, or other complete record to the department.

5. Submits a final request to the Missouri Clean Water Commission through the department, containing the fulfillment of paragraphs (2)(F)1.-4. of this rule, incorporating preliminary recommendations provided by the Missouri Clean Water Commission.

6. Staff shall review the plan and present recommendations to the Missouri Clean Water Commission for action.

# BCRSD Service Area





# Waiver Process



1. Property owner or developer submits formal request for a conditional waiver to the District
2. Preliminary meeting with BCRSD staff to discuss details of the request
3. Technical review by BCRSD engineer
4. BCRSD staff present recommendation to the Board
5. Board determines if a waiver can be granted



# Privately Owned Facilities



- Updated catalog of private facilities:
  - 2013 Master Plan included 57 private domestic WWTFs in Boone County
  - 2025 AWMP includes 26 Privately Owned Facilities in Boone County



# Publicly Owned Facilities



1. City of Ashland WWTP – Operated by BCRSD
2. City of Centralia WWTF
3. City of Columbia WWTP
4. Columbia Regional Airport WWTF
5. CPS, Two Mile Prairie Elementary School WWTF
6. City of Hallsville WWTF
7. Village of Harrisburg WWTF
8. Village of Hartsburg WWTF– Operated by BCRSD
9. City of Sturgeon WWTF – Operated by BCRSD
10. UMC, Columbia KOMU-TV 8 WWTF

# Implementation



- Next Steps:
  - Public Meeting and Outreach
  - Clean Water Commission Approval
    - Tentative CWC Meeting Selection: Oct. 8, 2025

# Input from the Board

Looking for Feedback on:

1. CIP Affordability
2. Collaboration w/  
Partners
3. Public Meeting



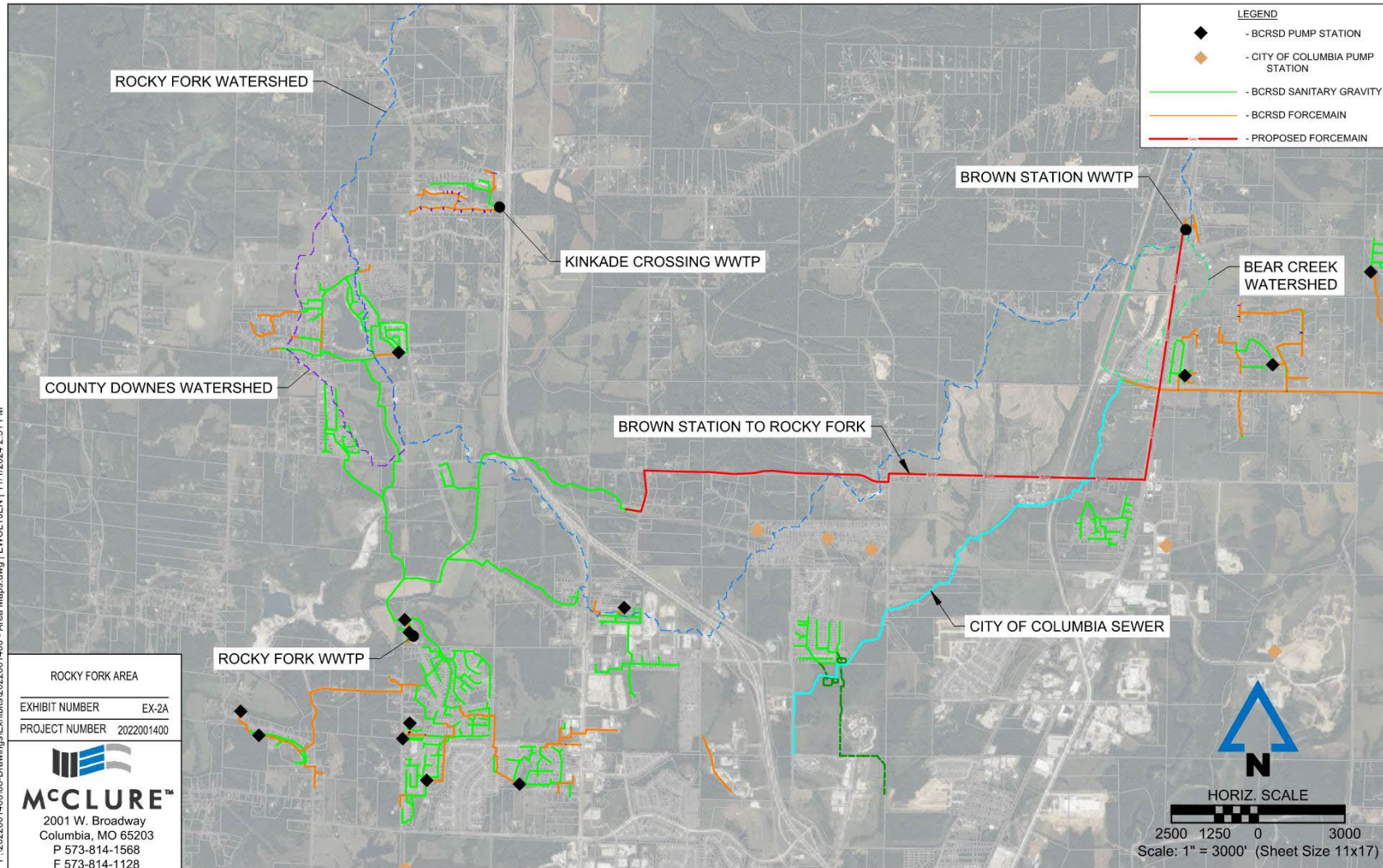
Thank You



# CIP – Hydraulic Strategy Discussions

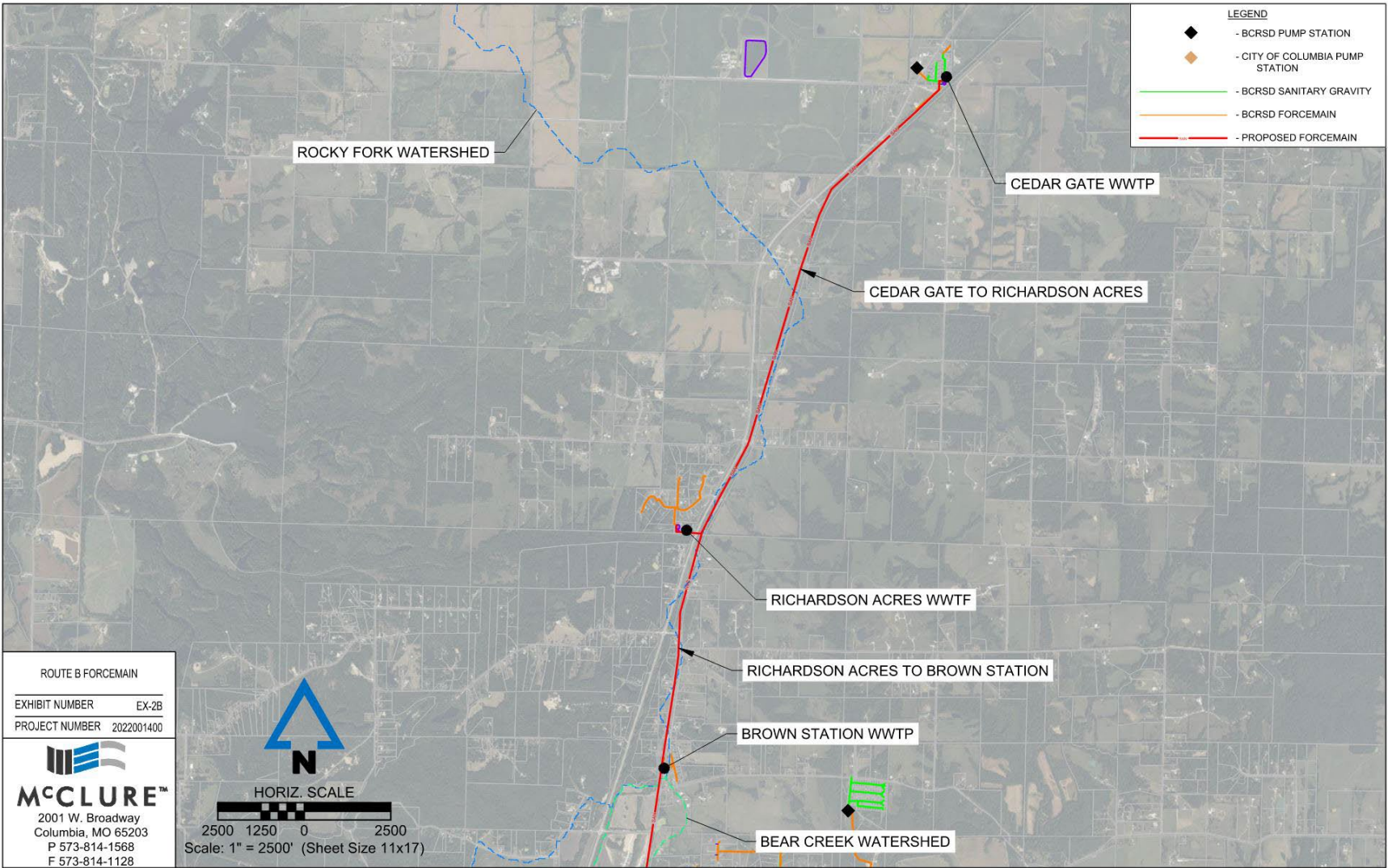
1. Richardson Acres, Brown Station, & Cedar Gate
2. South Route K
3. Midway Area – Trails West & Midway Crossing

# Richardson Acres, Brown Station, & Cedar Gate

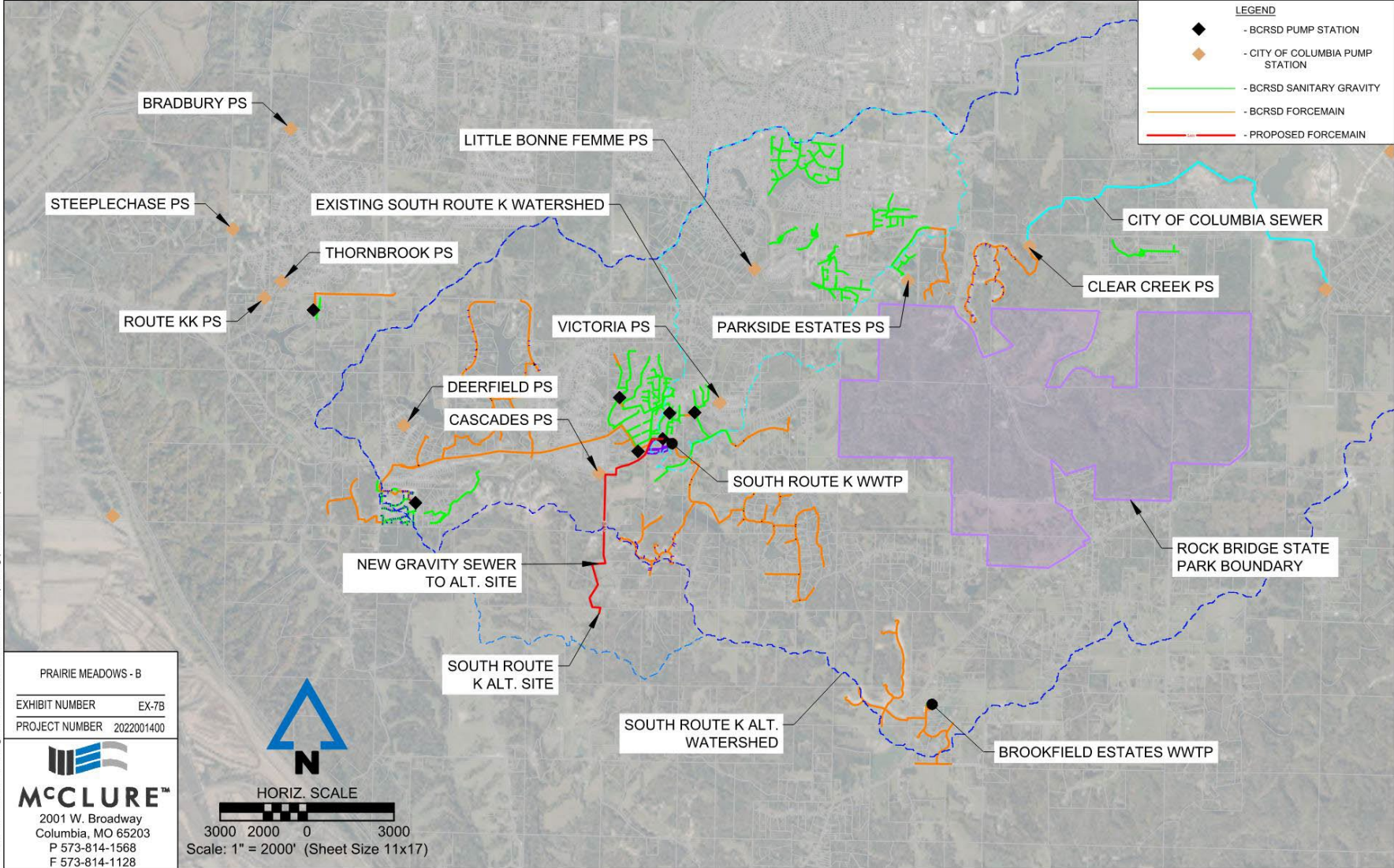


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# Richardson Acres, Brown Station, & Cedar Gate

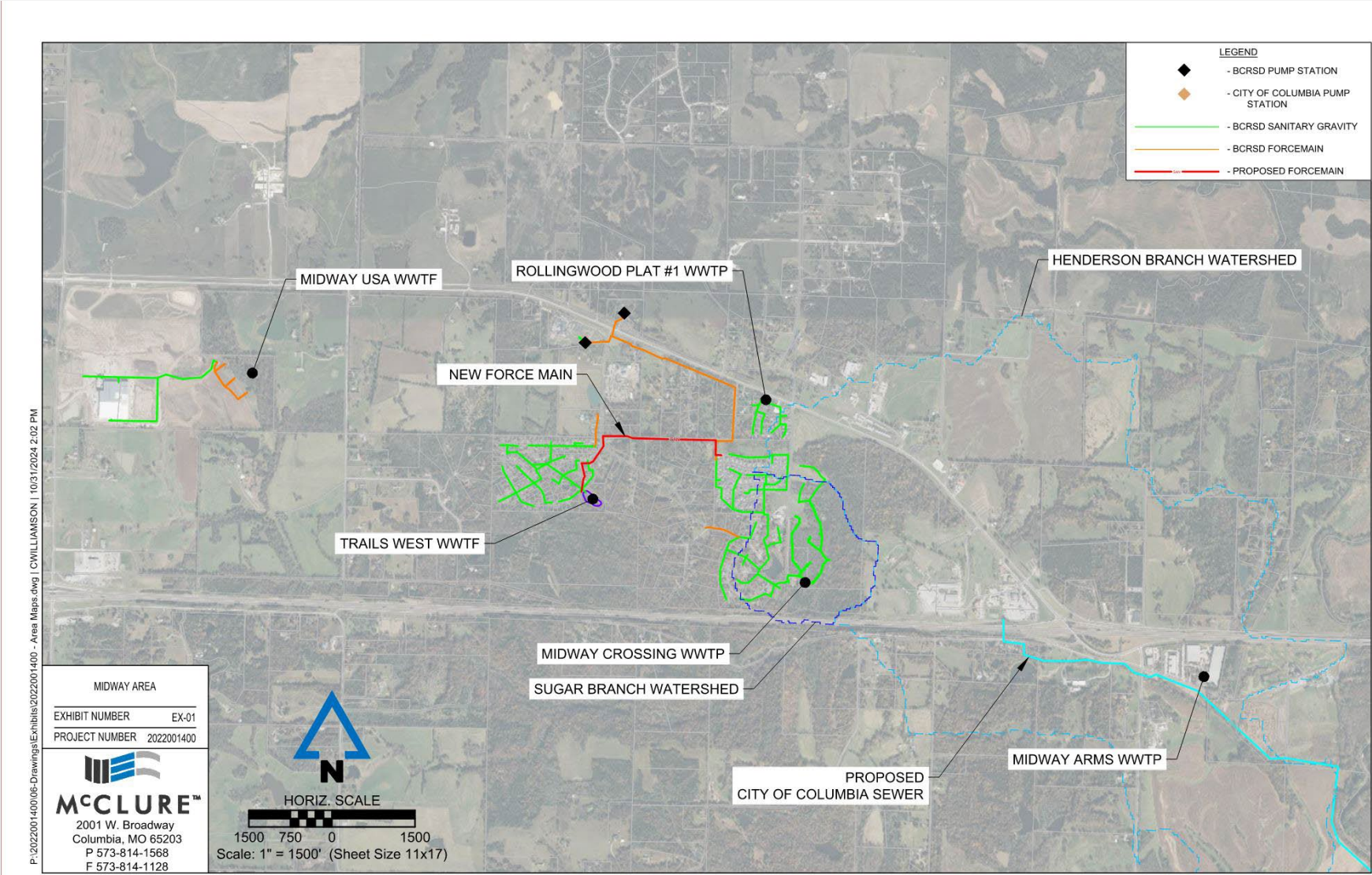


# South Route K



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# Midway Area – Trails West & Midway Crossing



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