

X. MONTGOMERY COUNTY

Fifty-nine centralized projects and one de-centralized project were identified in Montgomery County, addressing water quality and human health concerns.

The identified centralized projects focus on the areas previously identified by the County as growth areas for both wastewater services and population. The single de-centralized project identified, that also ranked out as a "Primary Priority" project, is in an area in the county that has experienced condensed population growth, but which is relatively removed from other wastewater service areas.

Primary Priorities

Centralized Projects

Project Name	Project Cost
Prices Fork (M-11)	\$ 3,015,500
Yellow Sulphur Road (M-12)	\$ 1,755,200
Pepper's Ferry Road-Vicker's Switch (M-13)	\$ 2,051,300
Pepper's Ferry Road- Coal Hollow Rd (M-15)	\$ 573,900
NW Rt. 460 By-pass (M-16)	\$ 3,094,700
Riner Phase I (M-20)	\$ 3,676,800
Shawsville (M-23)	\$ 2,271,300
Ironto (M-24)	\$ 2,472,800
<i>Total</i>	<i>\$ 18,911,500</i>

De-centralized Projects

Project Name	Project Cost
McCoy (DC-13)	\$ 1,347,500
<i>Total</i>	<i>\$ 1,347,500</i>

Secondary Priorities

Centralized Projects

Project Name	Project Cost
Cedar Run (M-1)	\$ 5,115,400
Luster's Gate (M-2)	\$ 4,031,890
Luster's Gate (M-3)	\$ 3,350,700
Luster's Gate (M-4)	\$ 2,074,300
Luster's Gate (M-5)	\$ 2,944,400
Indian Run (M-6)	\$ 4,798,600
Merrimac Phase 1 (M-7)	\$ 4,411,700
Merrimac Phase 2 (M-8)	\$ 4,007,200
Merrimac Phase 3 (M-9)	\$ 2,269,300
Merrimac Phase 4 (M-10)	\$ 3,701,300
Dominion Dr/Crab Creek Rd (M-14)	\$ 3,816,500
Radford Rd. (M-17)	\$ 3,071,300
Mud Pike (M-18)	\$ 5,490,300
Flanagan Dr (M-19)	\$ 2,432,000
Riner Phase 2 (M-21)	\$ 2,746,300
Falling Branch Rd (M-22)	\$ 945,600
Brush Mtn Phase 1 (M-25)	\$ 4,949,000
Brush Mtn Phase 2 (M-26)	\$ 3,323,400
Brush Mtn Phase 3 (M-27)	\$ 3,368,300
Brush Mtn Phase 4 (M-28)	\$ 4,735,900
Brush Mtn Phase 5 (M-29)	\$ 4,599,600
Brush Mtn Phase 6 (M-30)	\$ 4,023,800
Multiple Town of Christiansburg Line Replacements (M-31 to M-58)	\$ 5,810,560
Graysontown (M-59)	\$ 6,502,580
<i>Total</i>	<i>\$ 92,519,930</i>

De-centralized Projects

Project Name	Project Cost
None	\$ 0

Total Funding Necessary for Montgomery County = \$112,778,930

Table 52 - Overall Project Ranking - Centralized Projects Montgomery County									
County	Project ID	Total ERC's	Equivalent Connections	Present Worth Per Connection	Elimination of Health Hazard	Elimination of Water Quality Problems	Available Facilities	Potential Growth (Residential/Industrial)	Total Points
			20	20	15	20	10	15	100
Montgomery	M-23	172	10	20	15	20	10	10	85
Montgomery	M-13	115	10	15	15	10	10	10	70
Montgomery	M-20	149	10	10	10	20	10	10	70
Montgomery	M-24	79	5	5	15	20	10	15	70
Montgomery	M-11	125	10	10	15	10	10	10	65
Montgomery	M-12	42	5	0	15	20	10	15	65
Montgomery	M-15	26	5	15	15	10	10	10	65
Montgomery	M-16	115	10	10	0	20	10	15	65
Montgomery	M-7	320	20	20	0	0	5	15	60
Montgomery	M-9	89	5	10	0	20	10	15	60
Montgomery	M-10	146	10	10	0	20	10	10	60
Montgomery	M-14	118	10	5	15	10	10	10	60
Montgomery	M-18	247	15	10	0	10	10	15	60
Montgomery	M-21	126	10	10	10	20	0	10	60
Montgomery	M-1	135	10	0	15	10	5	10	50
Montgomery	M-2	185	10	10	0	20	0	10	50
Montgomery	M-3	186	10	10	0	20	0	10	50
Montgomery	M-22	42	5	10	15	0	10	10	50
Montgomery	M-59	29	5	0	0	20	10	10	45
Montgomery	M-5	131	10	5	0	20	0	10	45
Montgomery	M-8	296	15	20	0	0	0	10	45
Montgomery	M-27	130	10	10	10	0	0	10	40
Montgomery	M-4	44	5	0	0	20	0	10	35
Montgomery	M-17	71	5	0	0	10	10	10	35
Montgomery	M-19	53	5	0	0	0	10	15	30
Montgomery	M-25	95	5	0	10	0	5	10	30
Montgomery	M-26	60	5	0	10	0	0	10	25
Montgomery	M-30	128	10	5	0	0	0	10	25
Montgomery	M-6	128	10	0	0	0	0	10	20
Montgomery	M-29	103	10	0	0	0	0	10	20
Montgomery	M-31/M-58	0	0	0	0	10	10	0	20
Montgomery	M-28	90	5	0	0	0	0	10	15

Table 53 - Overall Project Ranking - Decentralized Projects Montgomery County										
County	Project ID	Total ERC's	Elimination of Health Hazard	Elimination of Water Quality Problems	Permitted Water System	Community Involvement	Utility Willingness	Financial Support	Present Worth Per Connection	Total Points
			20	20	5	15	10	10	20	100
Montgomery	DC-13	100	20	5	0	5	10	0	15	55

LEGEND

 PROJECT AREA

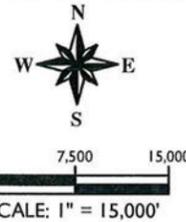
 COUNTY LIMITS

Centralized Projects

- M-1. Cedar Run and Jennelle Road
- M-2. Luster's Gate, Deercroft Dr, St. Andrew's Cir.
- M-3. Luster's Gate, Plank Drive, Clubhouse Road
- M-4. Luster's Gate, Woodland Hills
- M-5. Luster's Gate, Harding Road
- M-6. Indian Run
- M-7. Merrimac Phase I
- M-8. Merrimac Phase II
- M-9. Merrimac Phase III
- M-10. Merrimac Phase IV
- M-11. Prices Fork
- M-12. Yellow Sulpher Rd - Town of Christiansburg
- M-13. Peppers Ferry Road - Christiansburg West to Vicker Switch Road
- M-14. Dominion Dr/Crab Creek Rd - South of Peppers Ferry Road
- M-15. Peppers Ferry Road - Coal Hollow Road to McCormick Road
- M-16. NW Rte. 460 By-Pass - Ellett Road
- M-17. Radford Road - Rte. 11
- M-18. Mud Pike - North of I81
- M-19. Flanagan Dr/Riner Rd/Life Dr - South of I81 Exit 114
- M-20. Riner Phase I - Fairview Church Rd. North of Union Valley Rd.
- M-21. Riner Phase II - Union Valley Road to Mill Creek
- M-22. Falling Branch Road/Craig Mountain Road
- M-23. Shawsville - Buildout Existing Service Area
- M-24. Ironto / I81 Exit 128 - Buildout Existing Service Area
- M-25. Brush Mountain Phase I
- M-26. Brush Mountain Phase II
- M-27. Brush Mountain Phase III
- M-28. Brush Mountain Phase IV
- M-29. Brush Mountain Phase V
- M-30. Brush Mountain Phase VI
- M-59. Graystown

Decentralized Projects

- DC-13. McCoy Community



SCALE: 1" = 15,000'

SOURCE: RADFORD, VA & GALAX, VA
U.S.G.S. QUADRANGLE

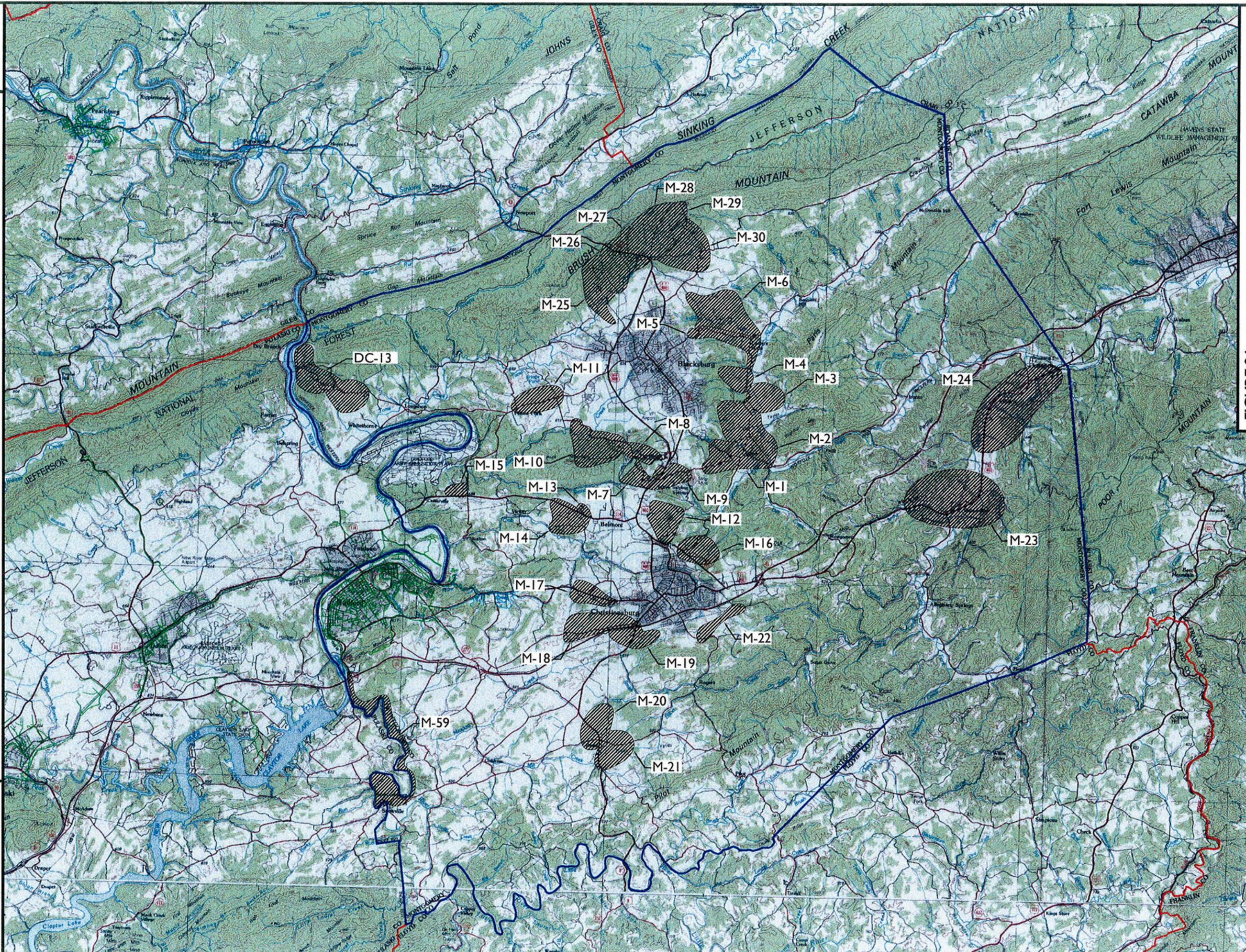


FIGURE 26:
MONTGOMERY COUNTY PROJECT AREAS
New River Valley Planning District

PRICES FORK SEWER EXTENSION (M-11)
MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
New River Valley Planning District

Project Background

The Prices Fork project area is located to the west of the Town of Blacksburg and extends primarily along State Route 685. The project area includes approximately 125 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Stroubles Creek and Tom's Creek, both of which have been identified by the Virginia Department of Environmental Quality (DEQ) as impaired streams. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth.

Proposed Facilities

The proposed facilities associated with the Prices Fork Sewer Extension include approximately 18,600 L.F. of 8-inch gravity sewer, 3,200 L.F. of 4-inch force main, 5,500 L.F. of 2-inch force main, one (1) sewage pump station, and two (2) grinder pump stations. The extension will connect to the existing sanitation authority sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Blacksburg-VPI Sanitation Authority Wastewater Treatment Plant (WWTP). The Blacksburg-VPI Sanitation Authority WWTP has a permitted capacity of 9.0 million gallons per day (MGD) and currently treats an average of 4.8 MGD. Treated effluent from the Blacksburg-VPI Sanitation Authority WWTP discharges into the New River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 153 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 45,900 GPD or 0.046 MGD. Therefore, adequate capacity is available at the Blacksburg-VPI Sanitation Authority WWTP to treat the anticipated wastewater generated in the Prices Fork project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Prices Fork Sewer Extension are \$3,015,500 and \$13,730, respectively. These costs result in an approximate present worth of \$25,370 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

Construction Cost

18,600	L.F.	8" Gravity Sewer @	\$80/L.F.	\$1,488,000
3,200	L.F.	4" Force Main @	\$28/L.F.	\$89,600
5,500	L.F.	2" Force Main @	\$19/L.F.	\$104,500
1	EA.	Sewage Pump Stations @	\$250,000/EA.	\$250,000
2	EA.	Grinder Pump Stations @	\$75,000/EA.	\$150,000
125	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$237,500
Total Construction Cost				\$2,319,600

Related Cost

30	%	Total Construction Cost	\$695,900
Total Related Cost			\$695,900
TOTAL PROJECT COST			\$3,015,500

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

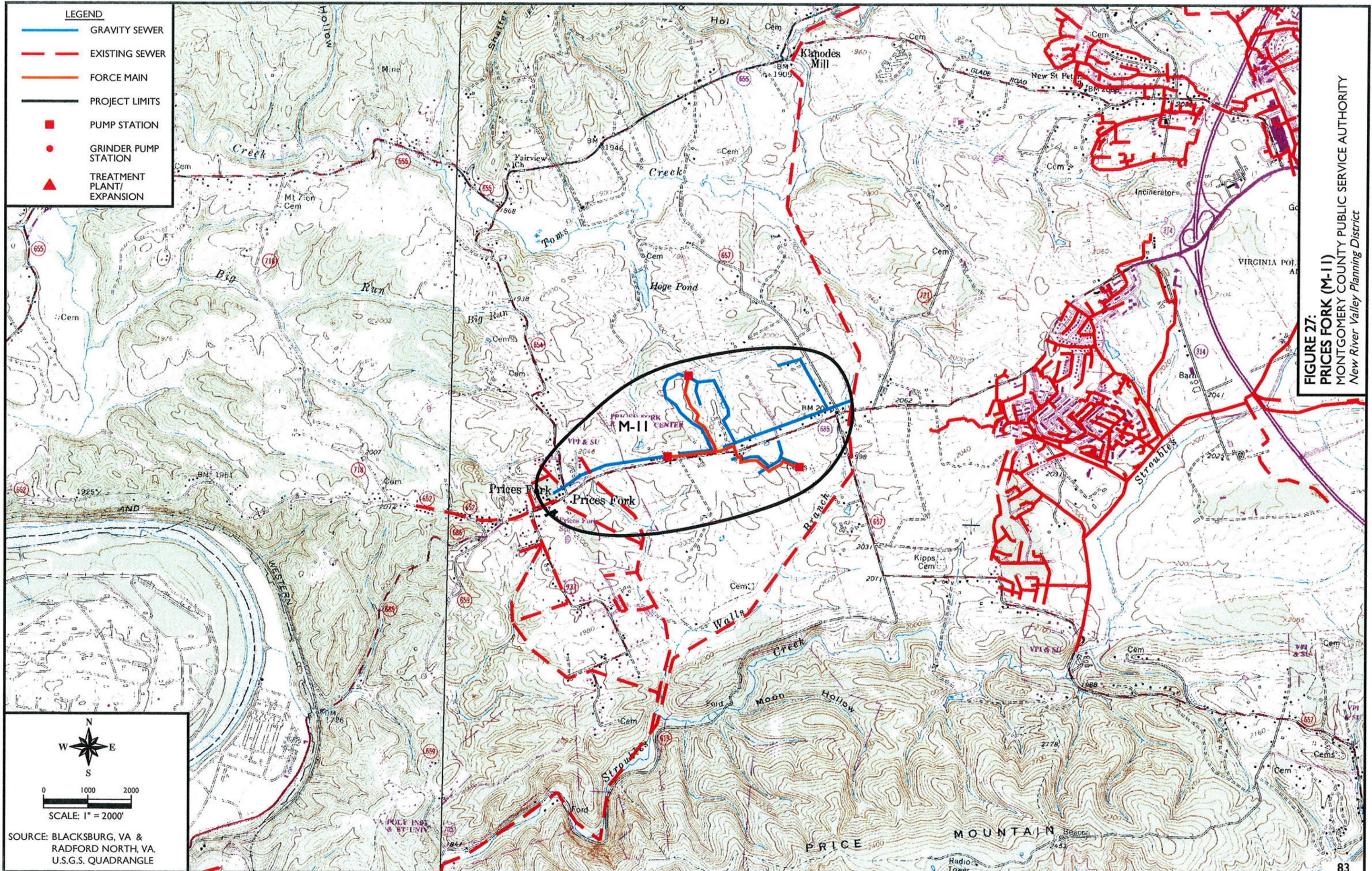
Operation and Maintenance Cost

18,600	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,860
8,700	L.F.	Force Main @	\$0.10/L.F.	\$870
1	EA.	Sewage Pump Stations @	\$5,000/EA.	\$5,000
2	EA.	Grinder Pump Stations @	\$3,000/EA.	\$6,000
TOTAL ANNUAL O&M COST				\$13,730

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%)	\$154,570
TOTAL PROJECT PRESENT WORTH	\$3,170,070
PRESENT WORTH PER CONNECTION (125 CONNECTIONS)	\$25,370

Table 54 - PROJECT DATA SHEET

Project Name:	Prices Fork (M-11)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	Yes	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 18,600 L.F. of 8-inch gravity sewer, 3,200 L.F. of 4-inch force main, 5,500 L.F. of 2-inch force main, one (1) sewage pump station, and two (2) grinder pump stations.	
Existing WWTP:	Name =	Blacksburg-VPI Sanitation Authority WWTP
	Design Flow (MGD)=	9
	Average Flow =	4.8
	Receiving Stream =	New River
	Stream Classification = Impaired Stream	IV Yes
Watershed or Adjacent Stream:	Name =	UT to Stroubles Creek, UT to Tom's Creek
	Impaired =	Yes
	Within Vicinity =	No
Equivalent Customers Served:	Residential =	125
	Industrial	0
	Commercial =	0
Health Hazard:	Documented Septic Failures	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Residential	
Total Project Cost:	\$3,015,500	
Present Worth Per Connection:	\$25,370	



YELLOW SULPHUR ROAD-TOWN OF CHRISTIANSBURG SEWER EXTENSION (M-12)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

The Yellow Sulphur Road project area is located to the east of the Town of Christiansburg and extends primarily along State Route 643. The project area includes approximately 42 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Wilson Creek, which has been identified by the Virginia Department of Environmental Quality (DEQ) as an impaired stream. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth and a moderate potential will exist for industrial/commercial growth.

Proposed Facilities

The proposed facilities associated with the Yellow Sulphur Road Sewer Extension include approximately 14,300 L.F. of 8-inch gravity sewer, 2,700 L.F. of 2-inch force main, and one (1) grinder pump station. The extension will connect to the existing Town of Christiansburg sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Town of Christiansburg Wastewater Treatment Plant (WWTP). The Town of Christiansburg WWTP has a permitted capacity of 4.0 million gallons per day (MGD) and currently treats an average of 2.0 MGD. Treated effluent from the Town of Christiansburg WWTP discharges into the New River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 52 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 15,600 GPD or 0.016 MGD. Therefore, adequate capacity is available at the Town of Christiansburg WWTP to treat the anticipated wastewater generated in the Yellow Sulphur Road project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Yellow Sulphur Road Sewer Extension are \$1,755,200 and \$4,700, respectively. These costs result in an approximate present worth of \$43,060 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

Construction Cost

14,300	L.F.	8" Gravity Sewer @	\$80/L.F.	\$1,144,000
2,700	L.F.	2" Force Main @	\$19/L.F.	\$51,300
1	EA.	Grinder Pump Stations @	\$75,000/EA.	\$75,000
42	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$79,800
Total Construction Cost				\$1,350,100

Related Cost

30	%	Total Construction Cost	\$405,100
Total Related Cost			\$405,100
TOTAL PROJECT COST			\$1,755,200

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

Operation and Maintenance Cost

14,300	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,430
2,700	L.F.	Force Main @	\$0.10/L.F.	\$270
1	EA.	Grinder Pump Stations @	\$3,000/EA.	\$3,000
TOTAL ANNUAL O&M COST				\$4,700

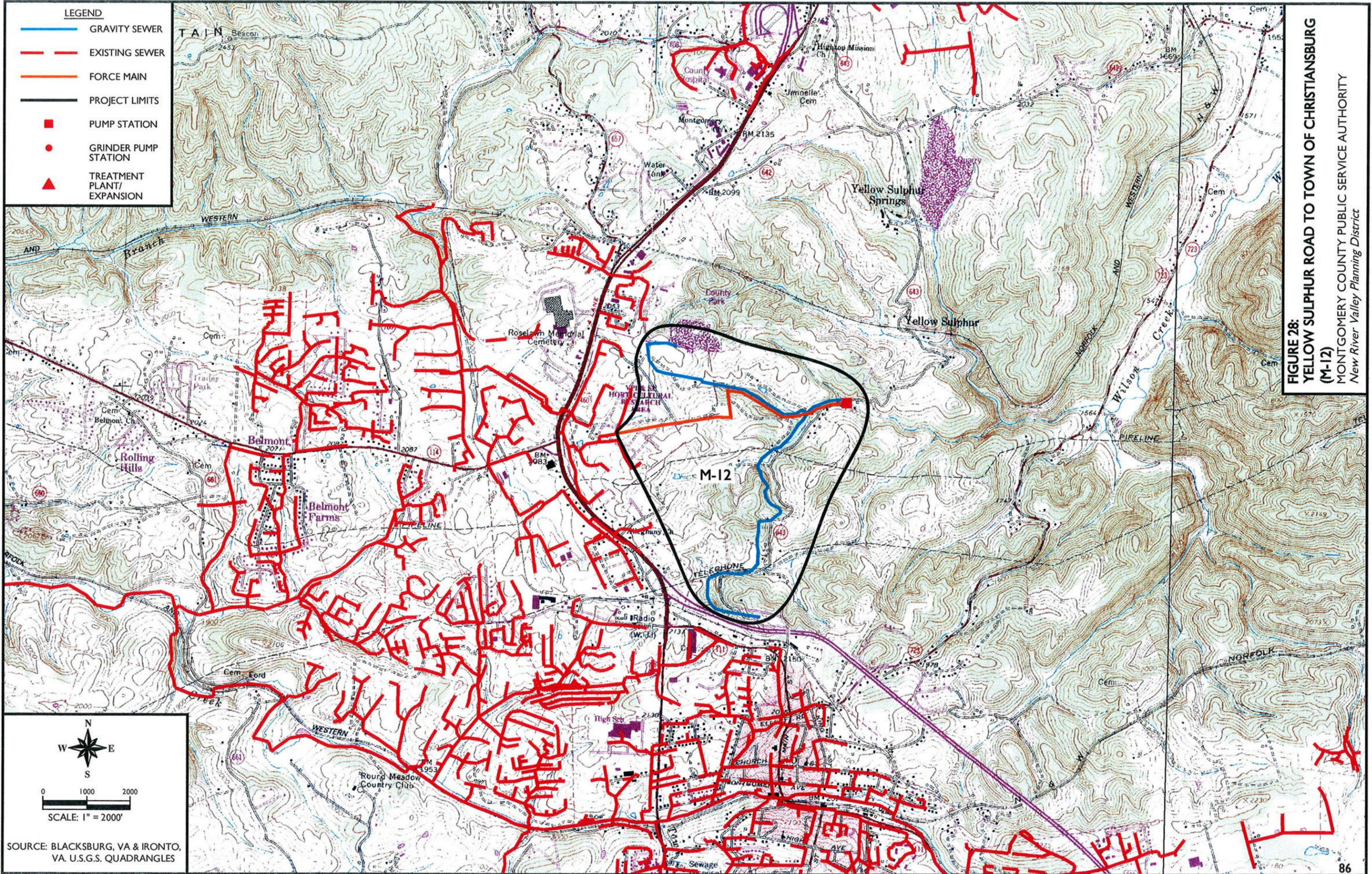
PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$52,920

TOTAL PROJECT PRESENT WORTH \$1,808,120

PRESENT WORTH PER CONNECTION (42 CONNECTIONS) \$43,060

Table 55 - PROJECT DATA SHEET

Project Name:	Yellow Sulphur Rd to Town of Christiansburg (M-12)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	No	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 14,300 L.F. of 8-inch gravity sewer, 2,700 L.F. of 2-inch force main, and one (1) grinder pump station.	
Existing WWTP:	Name =	Christiansburg Town - Sewage Treatment Plant (Crab Creek)
	Design Flow (MGD)=	4
	Average Flow =	2
	Receiving Stream =	New River
	Stream Classification = Impaired Stream	IV Yes
Watershed or Adjacent Stream:	Name =	UT to Wilson Creek
	Impaired =	Yes
	Within Vicinity =	Yes
Equivalent Customers Served:	Residential =	42
	Industrial	0
	Commercial =	0
Health Hazard:	Documented Septic Failures	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Industrial and Residential	
Total Project Cost:	\$1,755,200	
Present Worth Per Connection:	\$43,060	



PEPPERS FERRY ROAD-CHRISTIANSBURG WEST TO VICKER SWITCH ROAD SEWER EXTENSION (M-13)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

The Peppers Ferry Road-Christiansburg West to Vicker Switch Road- project area is located west of the Town of Christiansburg and extends primarily along State Route 114. The project area includes approximately 118 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Slate Branch and Crab Creek, both of which have been identified by the Virginia Department of Environmental Quality (DEQ) as impaired streams. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth.

Proposed Facilities

The proposed facilities associated with the Peppers Ferry Road-Christiansburg West to Vicker Switch Road Sewer Extension include approximately 10,100 L.F. of 8-inch gravity sewer, 16,000 L.F. of 4-inch force main, 6,900 L.F. of 2-inch force main, one (1) sewage pump stations, and one (1) grinder pump station. The extension will connect to the existing sanitation authority sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Town of Christiansburg Wastewater Treatment Plant (WWTP). The Town of Christiansburg WWTP has a permitted capacity of 4.0 million gallons per day (MGD) and currently treats an average of 2.0 MGD. Treated effluent from the Town of Christiansburg WWTP discharges into the New River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 144 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 43,200 GPD or 0.043 MGD. Therefore, adequate capacity is available at the Town of Christiansburg WWTP to treat the anticipated wastewater generated in the Peppers Ferry Road-Christiansburg West to Vicker Switch Road project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Peppers Ferry Road-Christiansburg West to Vicker Switch Road Sewer Extension are \$2,051,300 and \$10,020, respectively. These costs result in an approximate present worth of \$18,340 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

<u>Construction Cost</u>				
10,100	L.F.	8" Gravity Sewer @	\$80/L.F.	\$808,000
3,200	L.F.	4" Force Main @	\$28/L.F.	\$89,600
6,900	L.F.	2" Force Main @	\$19/L.F.	\$131,100
1	EA.	@ Sewage Pump Stations	\$250,000/EA.	\$250,000
1	EA.	@ Grinder Pump Stations	\$75,000/EA.	\$75,000
118	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$224,200
Total Construction Cost				<u>\$1,577,900</u>
<u>Related Cost</u>				
30	%	Total Construction Cost		<u>\$473,400</u>
Total Related Cost				\$473,400
TOTAL PROJECT COST				<u>\$2,051,300</u>

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

<u>Operation and Maintenance Cost</u>				
30,300	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,010
22,900	L.F.	Force Main @	\$0.10/L.F.	\$1,010
1	EA.	@ Sewage Pump Stations	\$5,000/EA.	\$5,000
1	EA.	@ Grinder Pump Stations	\$3,000/EA.	\$3,000
TOTAL ANNUAL O&M COST				<u>\$10,020</u>

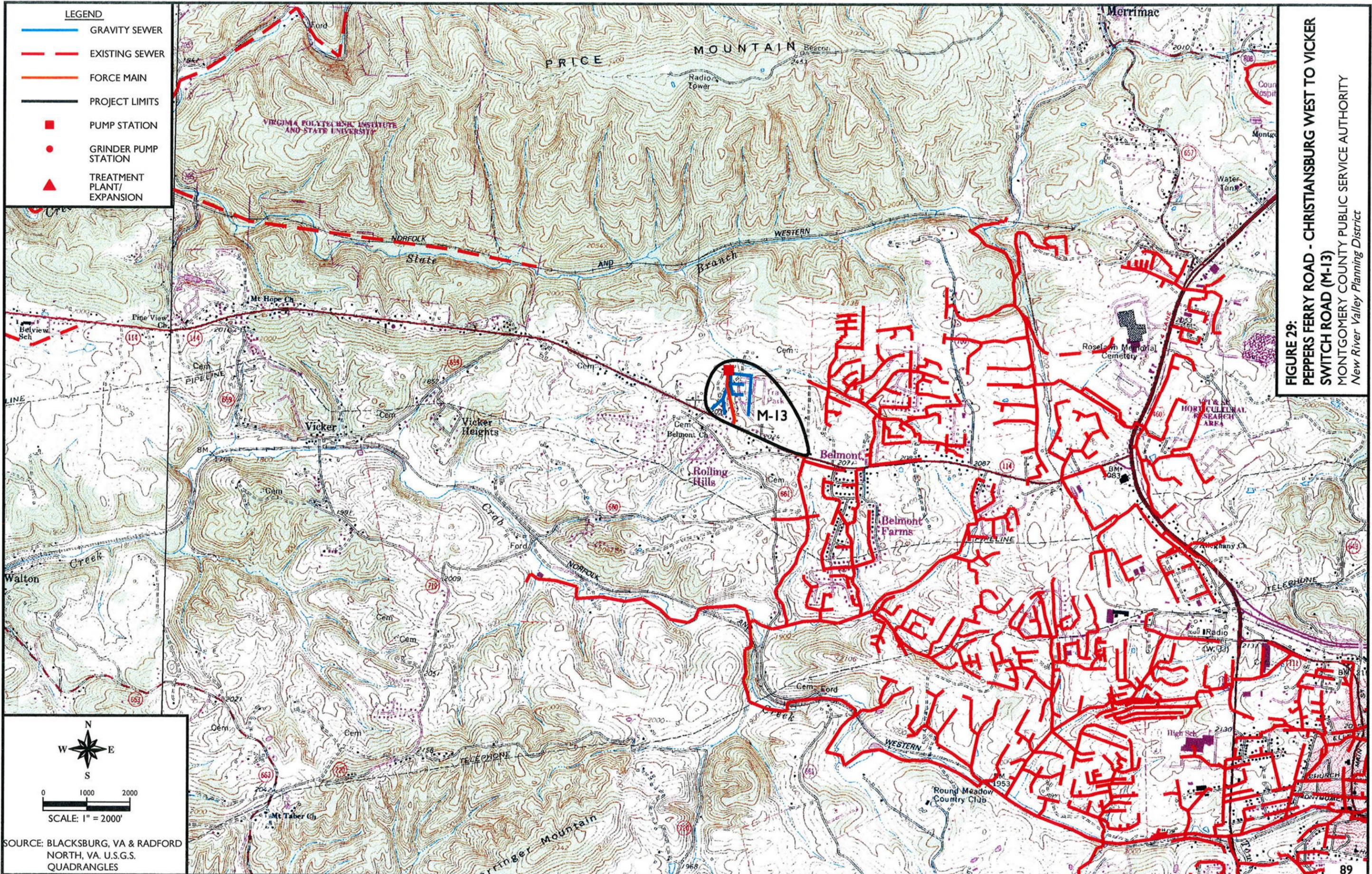
PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$112,810

TOTAL PROJECT PRESENT WORTH \$2,164,110

PRESENT WORTH PER CONNECTION (118 CONNECTIONS) \$18,340

Table 56 - PROJECT DATA SHEET

Project Name:	Peppers Ferry Rd (Rt. 114) - Christiansburg West to Vicker Switch Rd (M-13)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	Yes	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 33,000 L.F. of 8-inch gravity sewer, 16,000 L.F. of 4-inch force main, 6,900 L.F. of 2-inch force main, three (3) sewage pump stations, and one (1) grinder pump station.	
Existing WWTP:	Name =	Christiansburg Town - Sewage Treatment Plant (Crab Creek)
	Design Flow (MGD)=	4
	Average Flow =	2
	Receiving Stream =	New River
	Stream Classification = Impaired Stream	IV Yes
Watershed or Adjacent Stream:	Name =	UTs to Slate Branch and Crab Creek
	Impaired =	Yes
	Within Vicinity =	No
Equivalent Customers Served:	Residential =	118
	Industrial	0
	Commercial =	0
Health Hazard:	Documented Septic Failures	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Residential	
Total Project Cost:	\$2,051,300	
Present Worth Per Connection:	\$18,340	



PEPPERS FERRY ROAD - COAL HOLLOW ROAD TO MCCORMICK ROAD SEWER EXTENSION (M-15)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

The Peppers Ferry Road - Coal Hollow Road to McCormick Road project area is located to the east of the community of Centerville and extends primarily along State Route 114. The project area includes approximately 26 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Stroubles Creek, which has been identified by the Virginia Department of Environmental Quality (DEQ) as an impaired stream. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth.

Proposed Facilities

The proposed facilities associated with the Peppers Ferry Road - Coal Hollow Road to McCormick Road Sewer Extension include approximately 4,900 L.F. of 8-inch gravity sewer. The extension will connect to the existing sanitation authority sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Blacksburg-VPI Sanitation Authority Wastewater Treatment Plant (WWTP). The Blacksburg-VPI Sanitation Authority WWTP has a permitted capacity of 9.0 million gallons per day (MGD) and currently treats an average of 4.8 MGD. Treated effluent from the Blacksburg-VPI Sanitation Authority WWTP discharges into the New River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 32 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 9,600 GPD or 0.01 MGD. Therefore, adequate capacity is available at the Blacksburg-VPI Sanitation Authority WWTP to treat the anticipated wastewater generated in the Peppers Ferry Road - Coal Hollow Road to McCormick Road project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Peppers Ferry Road - Coal Hollow Road to McCormick Road Sewer Extension are \$573,900 and \$490, respectively. These costs result in an approximate present worth of \$22,290 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

<u>Construction Cost</u>				
4,900	L.F.	8" Gravity Sewer @	\$80/L.F.	\$392,000
26	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$49,400
Total Construction Cost				\$441,400
 <u>Related Cost</u>				
30	%	Total Construction Cost		\$132,500
Total Related Cost				\$132,500
TOTAL PROJECT COST				\$573,900

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

<u>Operation and Maintenance Cost</u>				
4,900	L.F.	Gravity Sewer @	\$0.10/L.F.	\$490
TOTAL ANNUAL O&M COST				\$490

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$5,520

TOTAL PROJECT PRESENT WORTH \$579,420

PRESENT WORTH PER CONNECTION (26 CONNECTIONS) \$22,290

Table 57 - PROJECT DATA SHEET

Project Name:	Peppers Ferry Rd (Rt. 114) - Coal Hollow Rd to McCormick Rd (M-15)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	Yes	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 4,900 L.F. of 8-inch gravity sewer.	
Existing WWTP:	Name =	Blacksburg-VPI Sanitation Authority WWTP
	Design Flow (MGD)=	9
	Average Flow =	4.8
	Receiving Stream =	New River
	Stream Classification = Impaired Stream	IV Yes
Watershed or Adjacent Stream:	Name =	UTs to Stroubles Creek
	Impaired =	Yes
	Within Vicinity =	No
Equivalent Customers Served:	Residential =	26
	Industrial	0
	Commercial =	0
Health Hazard:	Documented Septic Failures	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Residential	
Total Project Cost:	\$573,900	
Present Worth Per Connection:	\$22,290	

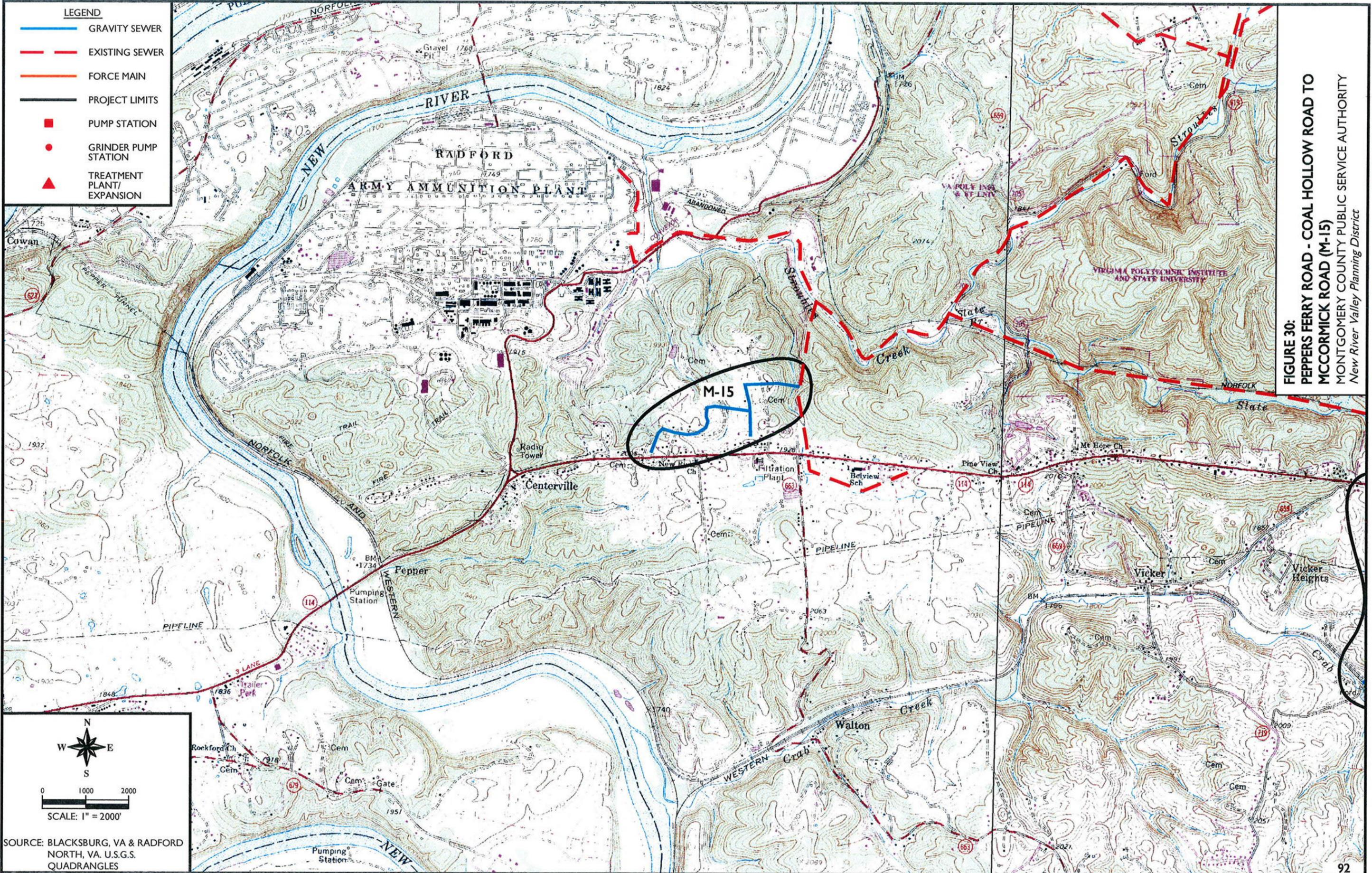


FIGURE 30:
PEPPERS FERRY ROAD - COAL HOLLOW ROAD TO
MCCORMICK ROAD (M-15)
 MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
 New River Valley Planning District

NW ROUTE 460 BY-PASS - ELLETT ROAD SEWER EXTENSION (M-16)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
New River Valley Planning District

Project Background

The Route 460 By-Pass - Ellett Road project area is located to the east of the Town of Christiansburg and extends primarily along State Route 723. The project area includes approximately 115 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Wilson Creek, which has been identified by the Virginia Department of Environmental Quality (DEQ) as an impaired stream. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth and a moderate potential will exist for industrial/commercial growth.

Proposed Facilities

The proposed facilities associated with the Route 460 By-Pass - Ellett Road Sewer Extension include approximately 18,800 L.F. of 8-inch gravity sewer, 8,500 L.F. of 4-inch force main, 5,000 L.F. of 2-inch force main, one (1) sewage pump station, and one (1) sewage pump stations. The extension will connect to the existing Town of Christiansburg sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Town of Christiansburg Wastewater Treatment Plant (WWTP). The Town of Christiansburg WWTP has a permitted capacity of 4.0 million gallons per day (MGD) and currently treats an average of 2.0 MGD. Treated effluent from the Town of Christiansburg WWTP discharges into the New River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 141 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 42,300 GPD or 0.042 MGD. Therefore, adequate capacity is available at the Town of Christiansburg WWTP to treat the anticipated wastewater generated in the Route 460 By-Pass - Ellett Road project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Route 460 By-Pass - Ellett Road Sewer Extension are \$3,094,700 and \$11,230, respectively. These costs result in an approximate present worth of \$28,010 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

Construction Cost

18,800	L.F.	8" Gravity Sewer @	\$80/L.F.	\$1,504,000
8,500	L.F.	4" Force Main @	\$28/L.F.	\$238,000
5,000	L.F.	2" Force Main @	\$19/L.F.	\$95,000
1	EA.	Sewage Pump Stations @	\$250,000/EA.	\$250,000
1	EA.	Grinder Pump Stations @	\$75,000/EA.	\$75,000
115	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$218,500
Total Construction Cost				\$2,380,500

Related Cost

30	%	Total Construction Cost	\$714,200
Total Related Cost			\$714,200
TOTAL PROJECT COST			\$3,094,700

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

Operation and Maintenance Cost

18,800	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,880
13,500	L.F.	Force Main @	\$0.10/L.F.	\$1,350
1	EA.	Sewage Pump Stations @	\$5,000/EA.	\$5,000
1	EA.	Grinder Pump Stations @	\$3,000/EA.	\$3,000
TOTAL ANNUAL O&M COST				\$11,230

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%)	\$126,430
TOTAL PROJECT PRESENT WORTH	\$3,221,130
PRESENT WORTH PER CONNECTION (115 CONNECTIONS)	\$28,010

Table 58 - PROJECT DATA SHEET

Project Name:	NW Rt 460 By-Pass - Ellett Rd (M-16)		
County:	Montgomery		
Type of Project:	Centralized		
Utility Provider:	Montgomery County PSA		
Responsible Mgmt Entity?	Montgomery County PSA		
Existing Water System?	Yes		
Existing Conditions:	The project area is currently not served by a public sewage system.		
Proposed Project:	The project consists of approximately 18,800 L.F. of 8-inch gravity sewer, 8,500 L.F. of 4-inch force main, 5,000 L.F. of 2-inch force main, one (1) sewage pump station, and one (1) sewage pump stations.		
Existing WWTP:	Name =	Christiansburg Town - Sewage Treatment Plant (Crab Creek)	
	Design Flow (MGD)=	4	
	Average Flow =	2	
	Receiving Stream =	New River	
	Stream Classification = Impaired Stream	IV Yes	
Watershed or Adjacent Stream:	Name =	Wilson Creek	
	Impaired =	Yes	
	Within Vicinity =	Yes	
Equivalent Customers Served:	Residential =	115	
	Industrial	0	
	Commercial =	0	
Health Hazard:	none		
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>	
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>	
	WWTP/Collection System Not Available	<input type="checkbox"/>	
Growth Potential:	Industrial and Residential		
Total Project Cost:	\$3,094,700		
Present Worth Per Connection:	\$28,010		

RINER PHASE I-FAIRVIEW CHURCH RD. NORTH OF UNION VALLEY RD. SEWER EXTENSION (M-20)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

The Riner Phase I-Fairview Church Rd. North of Union Valley Rd. project area is located within and north of the community of Riner and extends primarily along State Routes 8, 669, and 671. The project area includes approximately 149 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of Mill Creek, which has been identified by the Virginia Department of Environmental Quality (DEQ) as an impaired stream. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth.

Proposed Facilities

The proposed facilities associated with the Riner Phase I-Fairview Church Rd. North of Union Valley Rd. Sewer Extension include approximately 27,400 L.F. of 8-inch gravity sewer, 500 L.F. of 6-inch gravity sewer, 2,400 L.F. of 4-inch force main, and one (1) sewage pump station. The extension will connect to the existing community of Riner sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Community of Riner Wastewater Treatment Plant (WWTP). The Community of Riner WWTP has a permitted capacity of 0.1 million gallons per day (MGD) and currently treats an average of 0.022 MGD. Treated effluent from the Community of Riner WWTP discharges into the Mill Creek which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 182 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 54,600 GPD or 0.055 MGD. Therefore, adequate capacity is available at the Community of Riner WWTP to treat the anticipated wastewater generated in the Riner Phase I-Fairview Church Rd. North of Union Valley Rd. project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Riner Phase I-Fairview Church Rd. North of Union Valley Rd. Sewer Extension are \$3,676,800 and \$8,030, respectively. These costs result in an approximate present worth of \$25,290 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

<u>Construction Cost</u>				
27,400	L.F.	8" Gravity Sewer @	\$80/L.F.	\$2,192,000
500	L.F.	6" Gravity Sewer @	\$72/L.F.	\$36,000
2,400	L.F.	4" Force Main @	\$28/L.F.	\$67,200
1	EA.	Sewage Pump Stations @	\$250,000/EA.	\$250,000
149	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$283,100
Total Construction Cost				\$2,828,300
<u>Related Cost</u>				
30	%	Total Construction Cost		\$848,500
Total Related Cost				\$848,500
TOTAL PROJECT COST				\$3,676,800

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

<u>Operation and Maintenance Cost</u>				
27,900	L.F.	Gravity Sewer @	\$0.10/L.F.	\$2,790
2,400	L.F.	Force Main @	\$0.10/L.F.	\$240
1	EA.	Sewage Pump Stations @	\$5,000/EA.	\$5,000
TOTAL ANNUAL O&M COST				\$8,030

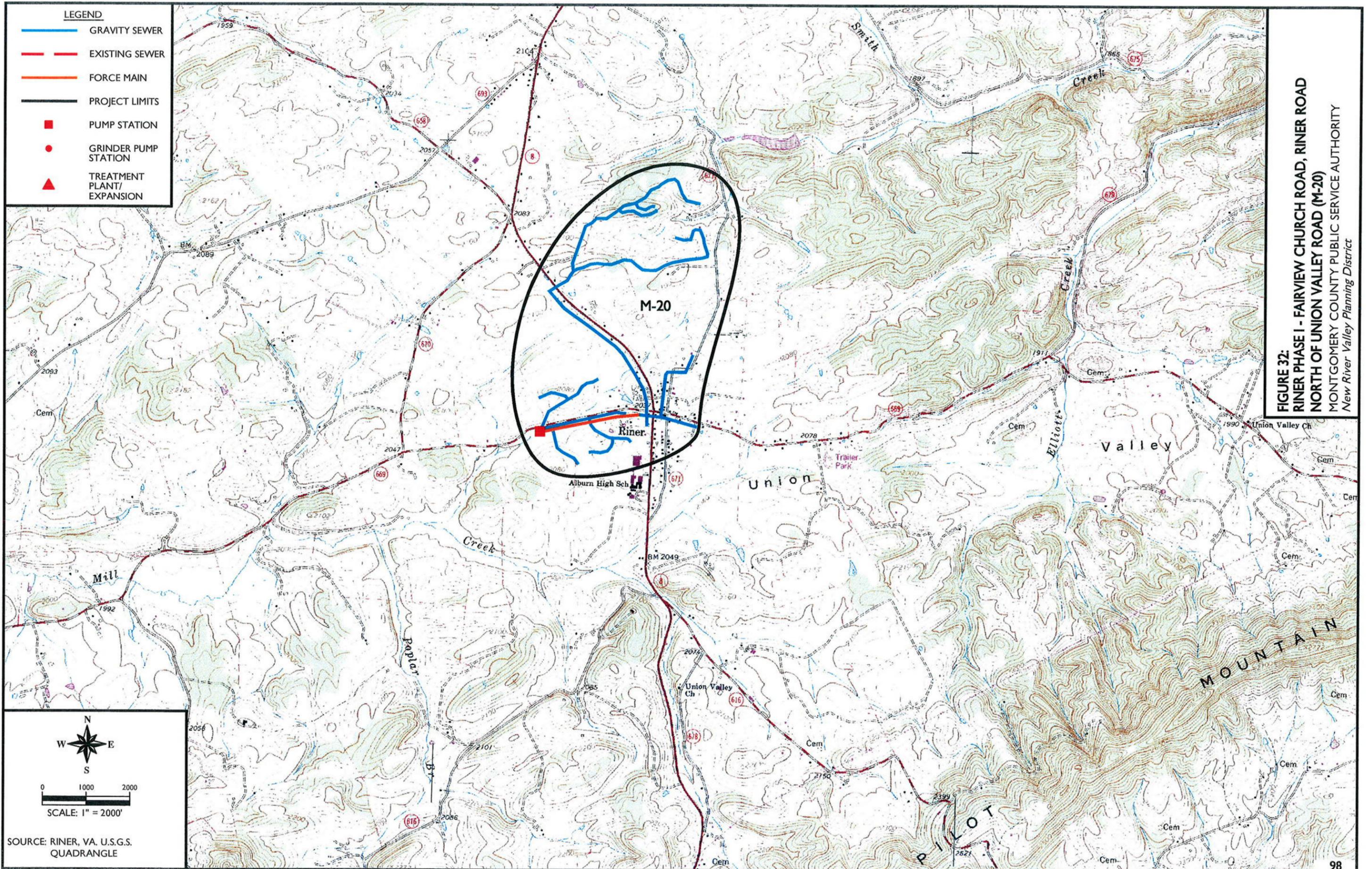
PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$90,410

TOTAL PROJECT PRESENT WORTH \$3,767,210

PRESENT WORTH PER CONNECTION (149 CONNECTIONS) \$25,290

Table 59 - PROJECT DATA SHEET

Project Name:	Riner Phase I - Fairview Church Rd., Riner Rd. North of Union Valley Rd. (M-20)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	Yes	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 27,400 L.F. of 8-inch gravity sewer, 500 L.F. of 6-inch gravity sewer, 2,400 L.F. of 4-inch force main, and one (1) sewage pump station.	
Existing WWTP:	Name =	Riner Town -Sewage Treatment Plant
	Design Flow (MGD)=	0.1
	Average Flow =	0.022
	Receiving Stream =	Mill Creek
	Stream Classification =	IV
	Impaired Stream	Yes
Watershed or Adjacent Stream:	Name =	UTs to Mill Creek
	Impaired =	Yes
	Within Vicinity =	Yes
Equivalent Customers Served:	Residential =	149
	Industrial	0
	Commercial =	0
Health Hazard:	Known older homes (>30 yrs.) with septic systems.	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Residential	
Total Project Cost:	\$3,676,800	
Present Worth Per Connection:	\$25,290	



SHAWSVILLE SEWER EXTENSION (M-23)
MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
New River Valley Planning District

Project Background

The Shawsville project area is located northeast of the Community of Shawsville and extends primarily along U.S. Route 11/460 and State Route 633. The project area includes approximately 172 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watersheds of South Fork Roanoke River and Spring Branch, which have been identified by the Virginia Department of Environmental Quality (DEQ) as impaired streams. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth.

Proposed Facilities

The proposed facilities associated with the Shawsville Sewer Extension includes approximately 15,400 L.F. of 8-inch gravity sewer, 700 L.F. of 2-inch force main, and one (1) grinder pump station. The extension will connect to the existing Community of Shawsville sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Shawsville Wastewater Treatment Plant (WWTP). The Shawsville WWTP has a permitted capacity of 0.2 million gallons per day (MGD) and currently treats an average of 0.053 MGD. Treated effluent from the Shawsville WWTP discharges into the South Fork Roanoke River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 210 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 63,000 GPD or 0.063 MGD. Therefore, adequate capacity is available at the Shawsville WWTP to treat the anticipated wastewater generated in the Shawsville project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Shawsville Sewer Extension are \$2,271,300 and \$4,610, respectively. These costs result in an approximate present worth of \$13,510 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

<u>Construction Cost</u>				
15,400	L.F.	8" Gravity Sewer @	\$80/L.F.	\$1,232,000
700	L.F.	2" Force Main @	\$19/L.F.	\$13,300
1	EA.	Grinder Pump Stations @	\$75,000/EA.	\$75,000
1	EA.	Railroad Crossings @	\$100,000/EA.	\$100,000
172	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$326,800
Total Construction Cost				\$1,747,100
 <u>Related Cost</u>				
30	%	Total Construction Cost		\$524,200
Total Related Cost				\$524,200
TOTAL PROJECT COST				\$2,271,300

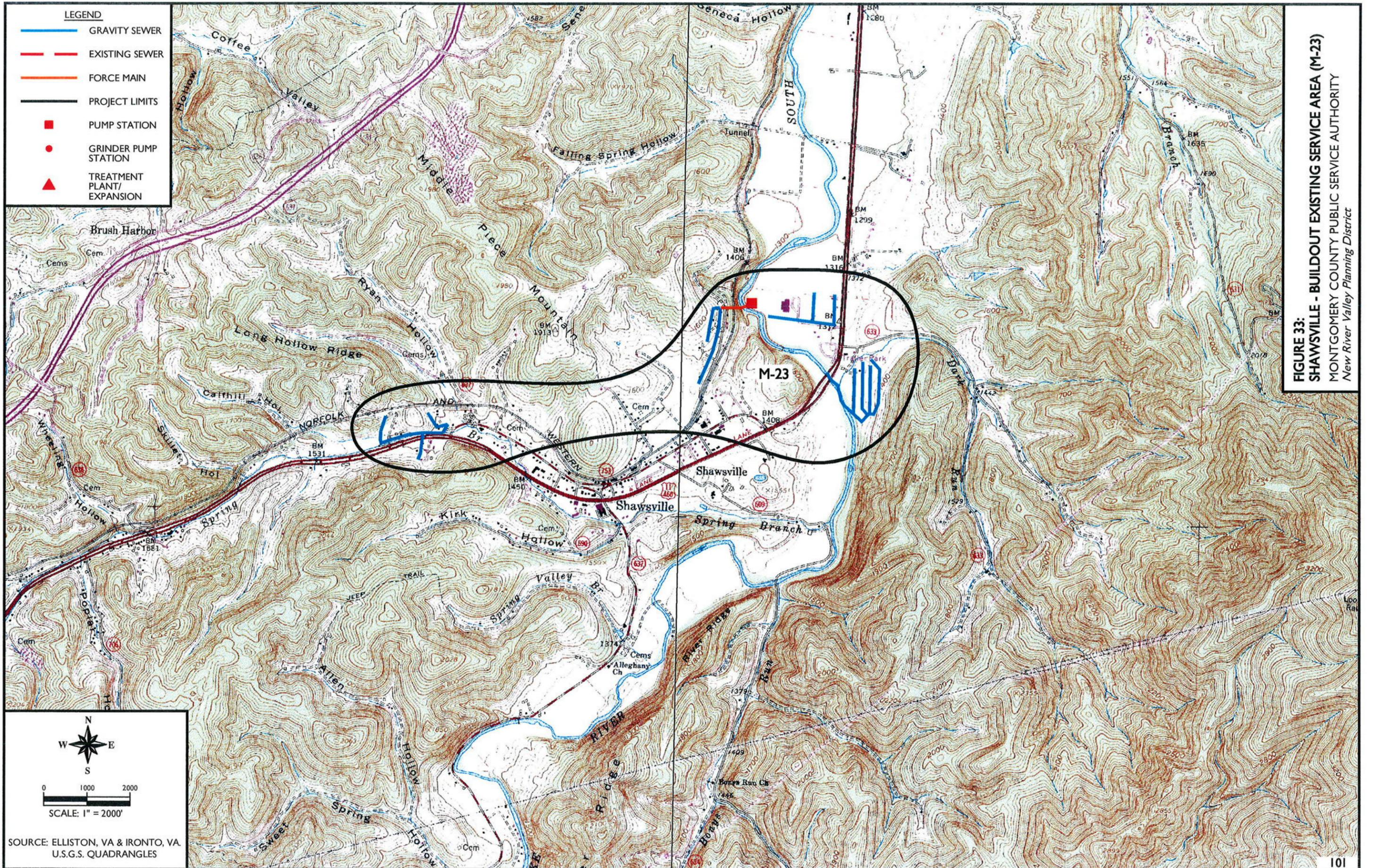
ANNUAL OPERATION AND MAINTENANCE (O&M) COST

<u>Operation and Maintenance Cost</u>				
15,400	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,540
700	L.F.	Force Main @	\$0.10/L.F.	\$70
1	EA.	Grinder Pump Stations @	\$3,000/EA.	\$3,000
TOTAL ANNUAL O&M COST				\$4,610

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%)	\$51,900
TOTAL PROJECT PRESENT WORTH	\$2,323,200
PRESENT WORTH PER CONNECTION (172 CONNECTIONS)	\$13,510

Table 60 - PROJECT DATA SHEET

Project Name:	Shawsville - Buildout Existing Service Area (M-23)	
County:	Montgomery	
Type of Project:	Centralized	
Utility Provider:	Montgomery County PSA	
Responsible Mgmt Entity?	Montgomery County PSA	
Existing Water System?	Yes	
Existing Conditions:	The project area is currently not served by a public sewage system.	
Proposed Project:	The project consists of approximately 15,400 L.F. of 8-inch gravity sewer, 700 L.F. of 2-inch force main, and one (1) grinder pump station.	
Existing WWTP:	Name =	Shawsville - Sewage Treatment Plant
	Design Flow (MGD)=	0.2
	Average Flow =	0.053
	Receiving Stream =	South Fork Roanoke River
	Stream Classification =	V
	Impaired Stream	Yes
Watershed or Adjacent Stream:	Name =	South Fork Roanoke River, Spring Branch
	Impaired =	Yes
	Within Vicinity =	Yes
Equivalent Customers Served:	Residential =	172
	Industrial	0
	Commercial =	0
Health Hazard:	Documented Septic Failures	
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>
	WWTP/Collection System Not Available	<input type="checkbox"/>
Growth Potential:	Residential	
Total Project Cost:	\$2,271,300	
Present Worth Per Connection:	\$13,510	



LEGEND

- GRAVITY SEWER
- EXISTING SEWER
- FORCE MAIN
- PROJECT LIMITS
- PUMP STATION
- GRINDER PUMP STATION
- ▲ TREATMENT PLANT/ EXPANSION

FIGURE 33:
SHAWSVILLE - BUILDOUT EXISTING SERVICE AREA (M-23)
 MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
 New River Valley Planning District



0 1000 2000
 SCALE: 1" = 2000'

SOURCE: ELLISTON, VA & IRONTO, VA
 U.S.G.S. QUADRANGLES

IRONTO/I81 EXIT 128/I81 EXIT 128 – BUILDOUT EXISTING SERVICE AREA (M-24)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

The Ironto/I81 Exit 128 project area is located to the east and south of the community of Elliston and extends primarily along U.S. Route 460 and State Route 631. The project area includes approximately 79 residential connections. Currently, the area is not served by a public sewage system. Residences in the area primarily utilize privately owned and maintained on-site septic systems. The project area lies in the watershed of the South and North Forks of the Roanoke River, both of which have been identified by the Virginia Department of Environmental Quality (DEQ) as impaired streams. It is anticipated that, with the provision of public sewage service, a moderate to high potential will exist for residential growth, and a moderate potential will exist for industrial/commercial growth.

Proposed Facilities

The proposed facilities associated with the Ironto/I81 Exit 128-Buildout Existing Service Area project includes approximately 14,700 L.F. of 8-inch gravity sewer, 1,200 L.F. of 6-inch gravity sewer, 3,400 L.F. of 2-inch force main, and three (3) grinder pump stations. The extension will connect to the existing community of Elliston sewage collection system and all wastewater generated in the project area will ultimately be conveyed to and treated at the existing Elliston-Lafayette Wastewater Treatment Plant (WWTP). The Elliston-Lafayette WWTP has a permitted capacity of 0.25 million gallons per day (MGD) and currently treats an average of 0.058 MGD. Treated effluent from the Elliston-Lafayette WWTP discharges into the South Fork Roanoke River which has been identified by DEQ as an impaired stream. Based on a 50-year design period, a potential future customer base of 97 connections (anticipated 50-year growth of 20%) and a flow of 300 gallons per day (GPD) per connection, future average daily flow for the project area will be approximately 29,100 GPD or 0.029 MGD. Therefore, adequate capacity is available at the Elliston-Lafayette WWTP to treat the anticipated wastewater generated in the Ironto/I81 Exit 128 project area.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with the Ironto/I81 Exit 128-Buildout Existing Service Area project are \$2,472,800 and \$10,930, respectively. These costs result in an approximate present worth of \$32,860 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

<u>Construction Cost</u>				
14,700	L.F.	8" Gravity Sewer @	\$80/L.F.	\$1,176,000
1,200	L.F.	6" Gravity Sewer @	\$72/L.F.	\$86,400
3,400	L.F.	2" Force Main @	\$19/L.F.	\$64,600
3	EA.	Grinder Pump Stations @	\$75,000/EA.	\$225,000
2	EA.	Railroad Crossings @	\$100,000/EA.	\$200,000
79	EA.	Gravity Sewer Connections @	\$1,900/EA.	\$150,100
Total Construction Cost				\$1,902,100
<u>Related Cost</u>				
30	%	Total Construction Cost		\$570,700
Total Related Cost				\$570,700
TOTAL PROJECT COST				\$2,472,800

ANNUAL OPERATION AND MAINTENANCE (O&M) COST

<u>Operation and Maintenance Cost</u>				
15,900	L.F.	Gravity Sewer @	\$0.10/L.F.	\$1,590
3,400	L.F.	Force Main @	\$0.10/L.F.	\$340
3	EA.	Grinder Pump Stations @	\$3,000/EA.	\$9,000
TOTAL ANNUAL O&M COST				\$10,930

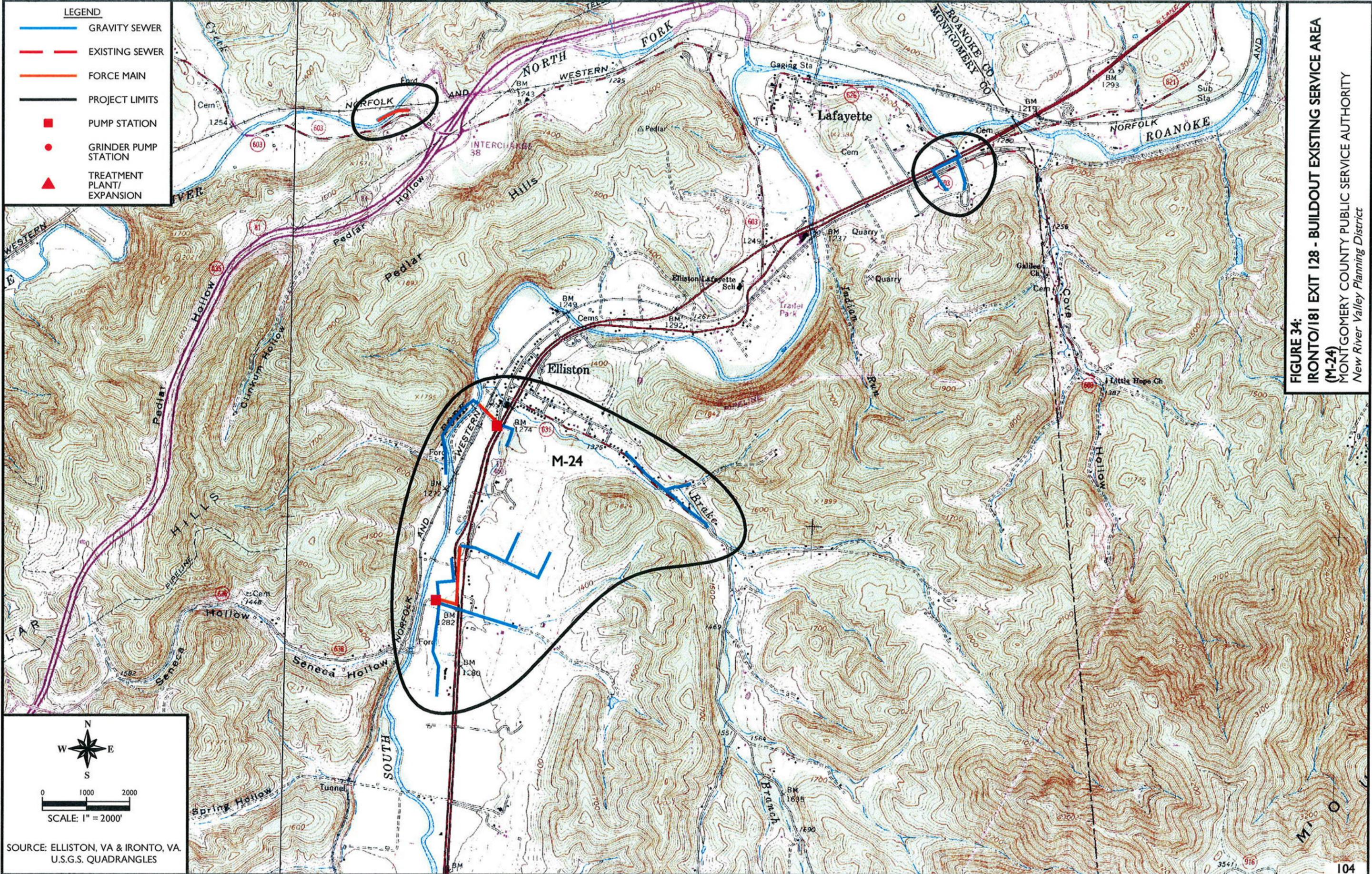
PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$123,050

TOTAL PROJECT PRESENT WORTH \$2,595,850

PRESENT WORTH PER CONNECTION (79 CONNECTIONS) \$32,860

Table 61 - PROJECT DATA SHEET

Project Name:	Ironto / I81 Exit 128 - Buildout Existing Service Area (M-24)		
County:	Montgomery		
Type of Project:	Centralized		
Utility Provider:	Montgomery County PSA		
Responsible Mgmt Entity?	Montgomery County PSA		
Existing Water System?	Yes		
Existing Conditions:	The project area is currently not served by a public sewage system.		
Proposed Project:	The project consists of approximately 14,700 L.F. of 8-inch gravity sewer, 1,200 L.F. of 6-inch gravity sewer, 3,400 L.F. of 2-inch force main, and three (3) grinder pump stations.		
Existing WWTP:	Name =	Elliston-Lafayette WWTP	
	Design Flow (MGD)=	0.25	
	Average Flow =	0.058	
	Receiving Stream =	South Fork Roanoke River	
	Stream Classification =	V	
	Impaired Stream	Yes	
Watershed or Adjacent Stream:	Name =	Roanoke River, South & North Forks	
	Impaired =	Yes	
	Within Vicinity =	Yes	
Equivalent Customers Served:	Residential =	79	
	Industrial	0	
	Commercial =	0	
Health Hazard:	Documented Septic Failures		
Construction Feasibility:	WWTP/Collection System Available	<input checked="" type="checkbox"/>	
	WWTP/Collection System Upgrades Required	<input type="checkbox"/>	
	WWTP/Collection System Not Available	<input type="checkbox"/>	
Growth Potential:	Industrial and Residential		
Total Project Cost:	\$2,472,800		
Present Worth Per Connection:	\$32,860		



LEGEND

- GRAVITY SEWER
- EXISTING SEWER
- FORCE MAIN
- PROJECT LIMITS
- PUMP STATION
- GRINDER PUMP STATION
- ▲ TREATMENT PLANT/ EXPANSION

N
W —+— E
S

0 1000 2000

SCALE: 1" = 2000'

SOURCE: ELLISTON, VA & IRONTO, VA.
U.S.G.S. QUADRANGLES

FIGURE 34:
IRONTO/181 EXIT 128 - BUILDOUT EXISTING SERVICE AREA
(M-24)
 MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
 New River Valley Planning District

McCOY COMMUNITY SEWER SYSTEM (DC-13)

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY

New River Valley Planning District

Project Background

McCoy is located in a beautiful section of Montgomery County, across the New River from the Radford Army Ammunition Plant, and roughly 9 miles from the Virginia Tech campus in Blacksburg. Public water and sewer are not available in this community, and ground water contamination has been reported recently. All the homes are served by individual onsite septic systems, which is not desirable in densely populated areas with karst conditions.

Proposed Facilities

The proposed facilities associated with a decentralized wastewater system serving 100 homes includes approximately 24,000 linear feet of effluent sewer line. The lines would range from 6-inch gravity sewers to 2-inch force main. Approximately 10% of the septic tanks at the 100 homes would require pump packages due to the rolling terrain. The treatment system would require 4-AX100 modules to treat the 20,000 gallons per day of wastewater generated. An ultraviolet (UV) disinfection system would be required prior to discharging into the stream.

Project Costs

The preliminary probable project cost and annual operation and maintenance costs associated with this system are \$1,347,500 and \$23,400, respectively. These costs result in an approximate present worth of \$16,109 per existing connection.

PRELIMINARY PROBABLE PROJECT COST

Construction Cost

10	EA.	STEP Systems	\$5,000	\$50,000
90	EA.	STEG Systems	\$3,000	\$270,000
24,000	LF	4" Gr. Effluent & 2" Force Main	\$10	\$240,000
2,750	LF	6" Gravity Effluent Sewer Line	\$14	\$38,500
20	EA.	Road Crossings	\$2,500	\$50,000
20,000	Gal.	Treatment System - AX100	\$10	\$200,000
16,000	Gal.	Treatment Tanks	\$1.50	\$24,000
20,000	Gal.	Discharge System -UV	\$2	\$40,000
100	EA.	Crush & Fill Existing Septic Tank	\$500	\$50,000

Total Construction Cost \$962,500

Related Cost

40 % Total Related Cost \$385,000

TOTAL PROJECT COST \$1,347,500

OPERATION AND MAINTENANCE (O&M) COST

<u>Conn.</u>	<u>Unit</u>	<u>Description</u>	<u>\$/Month</u>	<u>Monthly</u>	<u>Total Annual</u>
100	EA.	Plant Operations & Maintenance	\$12.50	\$1,250	\$15,000
10	EA.	STEP System Operations	\$10.50	\$105	\$1,260
90	EA.	STEG System Operations	\$5.50	\$495	\$5,940
		VPDES Permit Fee	\$1.00	\$100	\$1,200

TOTAL O&M COST \$1,950 \$23,400

PRESENT WORTH OF ANNUAL O&M COST (30 YEARS, 8%) \$263,433

TOTAL PROJECT PRESENT WORTH \$1,610,933

PRESENT WORTH PER CONNECTION (100 CONNECTIONS) \$16,109

Table 62 - PROJECT DATA SHEET

Project Name:	McCoy	
County:	Montgomery	
Type of Project:	Decentralized	
Utility Provider:	Montgomery County	
Responsible Mgmt Entity?	Montgomery County	
Existing Water System?	No	
Existing Conditions:	This is a large community where the homes are generally on large lots, but the soils are not very good for onsite treatment and disposal. Wells are contaminated with bacteria.	
Proposed Project:	The existing 100 homes in the community could be served by using a STEG/STEP system at each home or business. Treatment would be provided by using an AdvanTex Treatment System followed by UV disinfection system before discharging into the unnamed tributary of the New River.	
Existing WWTP:	Name =	N/A
	Design Flow =	
	Average Flow =	
	Receiving Stream =	
	Stream Classification = Impaired Stream	
Watershed or Adjacent Stream:	Name =	New River
	Impaired =	No
	Within Vicinity =	No
Equivalent Customers Served:	Residential =	100
	Industrial	0
	Commercial =	0
Health Hazard:	Yes	
Construction Feasibility:	WWTP/Collection System Available	No
	WWTP/Collection System Upgrades Required	
	WWTP/Collection System Not Available	
Growth Potential:	Residential growth is expected since building lots would not need to be as large.	
Total Project Cost:	\$1,347,500	
Present Worth Per Connection:	\$16,109	

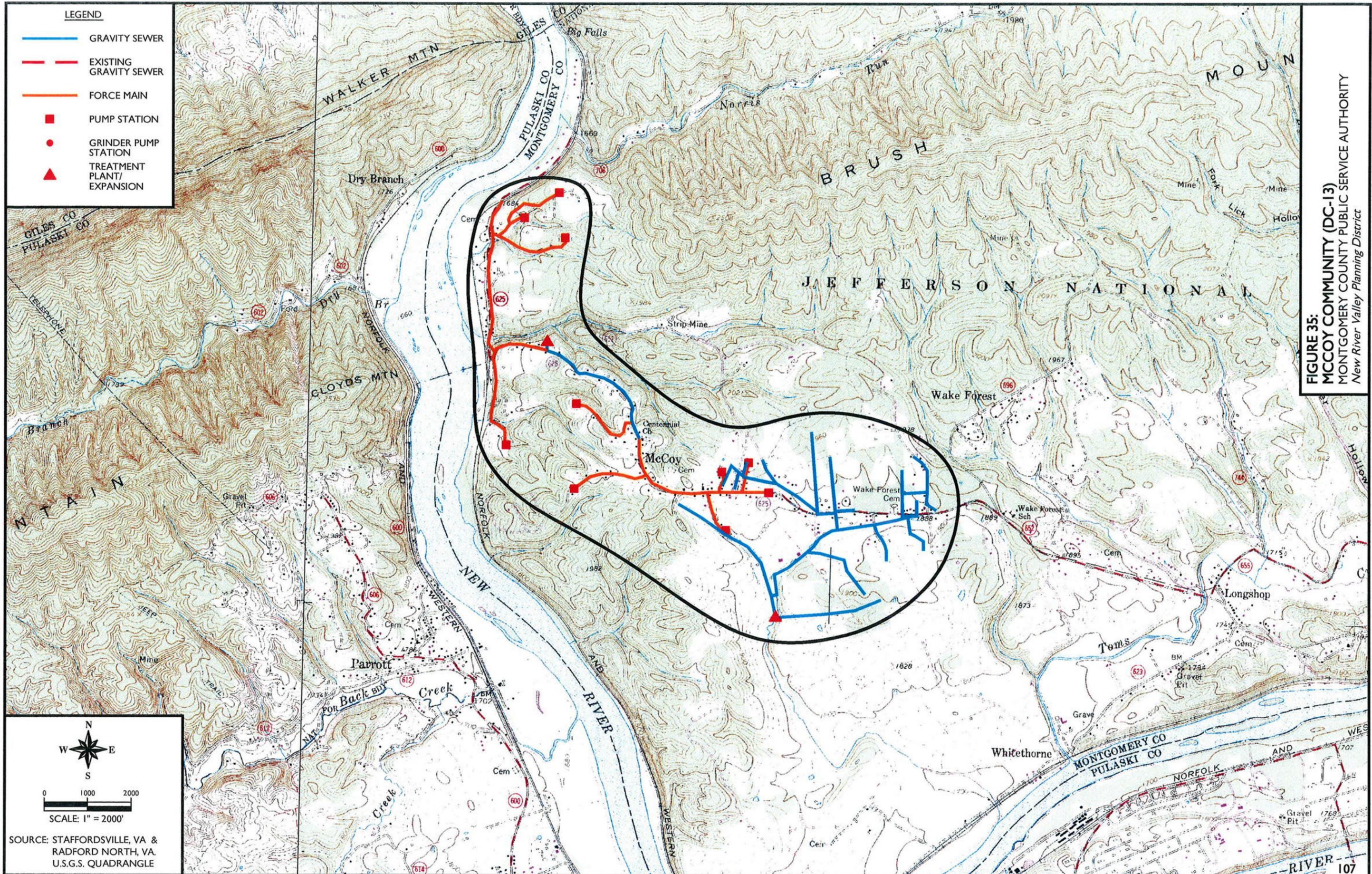


FIGURE 35:
MCCOY COMMUNITY (DC-13)
 MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
 New River Valley Planning District