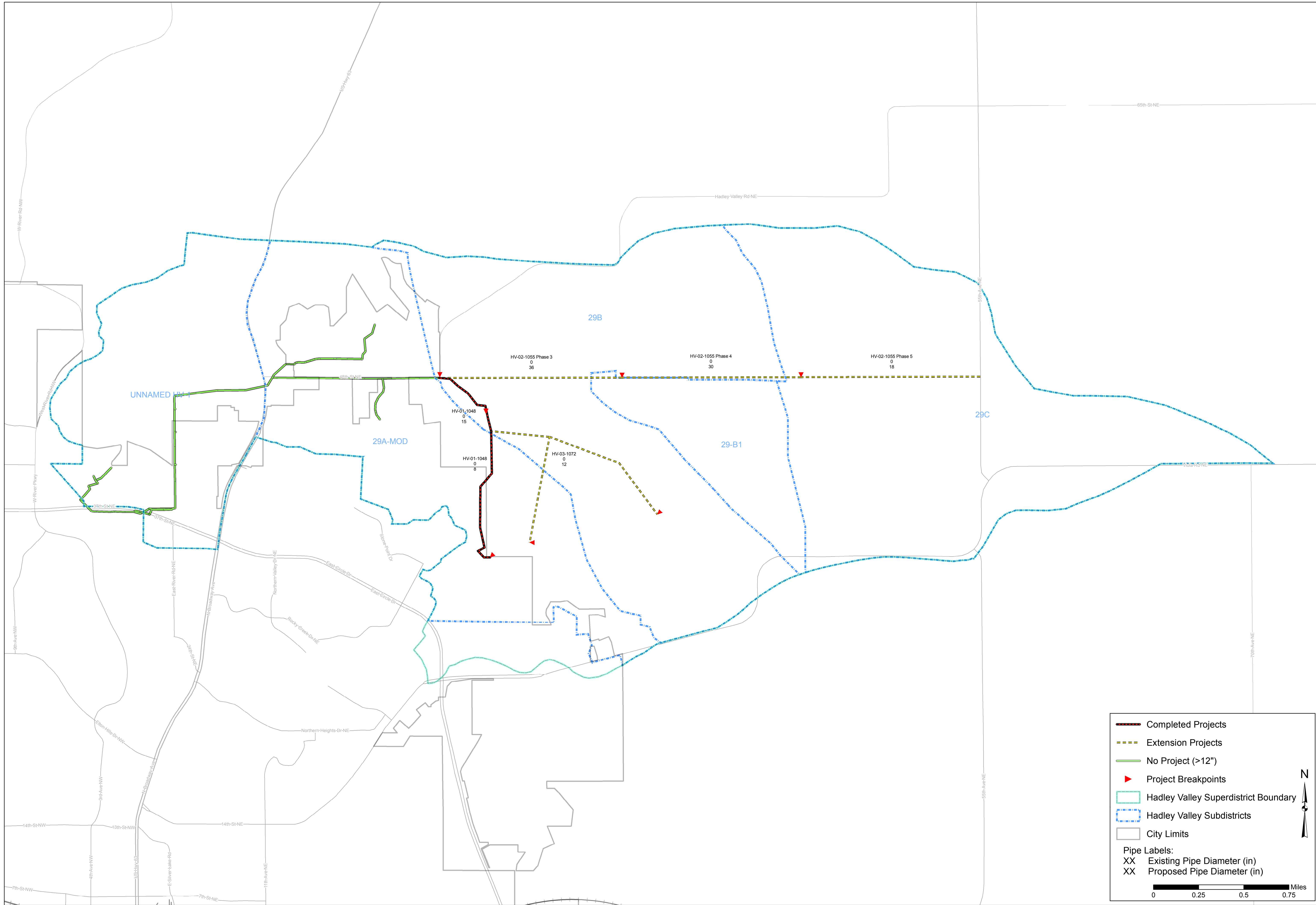
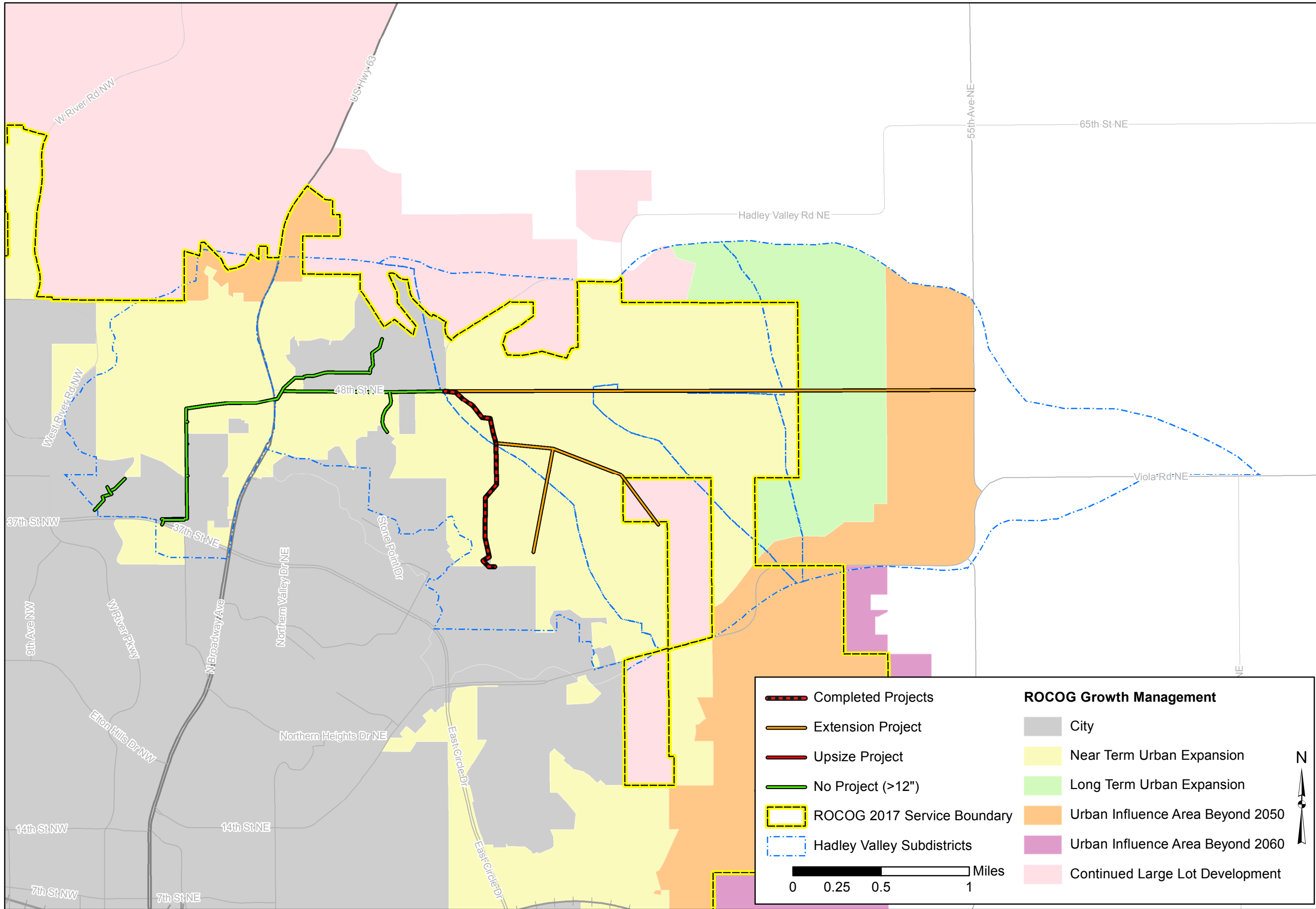


OVERALL MAP



XII.D.1
Hadley Valley
Sanitary Sewer Pipe Network
Ultimate Sewer Service Area

ULTIMATE SEWER SERVICE AREA AND ROCOG PLANNING AREAS MAP



**XII.D.2
Hadley Valley
Ultimate Sewer Service Area and
ROCOG Urban Planning Areas**

PROJECT LIST

Hadley Valley Project List

GIS No. Project Name

HV-XX- 1048	Emerald Hills J7816 (currently under construction as of July 2019)
HV-XX- 1055	HV Extension N (J7712) (east half of Phase 3, Phase 4 and 5)
HV-XX- 1072	HV Extension S

PRIORITIZATION LIST

Project Sources: 7712 Feasibility Report and J7816 bid costs

Master Plan Project Name	GIS No.	Project Name
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Impact to Major Users (Previously Consequence of Failure) Notes	Existing SSO or Basement Backup Risk Notes	SSO or Basement Backup Quantity Notes	Condition Score or Other Risks Notes	Utilization/Remaining Capacity Notes	Qty of Trunkline Upsize Projects Upstream of This Project Notes	Developable Acres to be gained by String of Projects	Developable Acres to be gained by This Project Alone	Developable acres to be Gained by this project No Downstream Restrictions Notes	Capacity to be Gained	Capacity to be Gained Notes	Sewer Trunk Rate	Capacity Recovery Rate	DA's to be directly gained in General Development Plan (GDP) area (Valid Only) Notes	Cost	Cost Notes	Tied to Other Sanitary Projects	Opportunity Project Notes
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Projects that passed screening sorted by total score - Additional

There are no projects that passed screening in Hadley Valley.		
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Projects that did not pass screening sorted by total score

HV-01-	1048	Emerald Hills J7816 (currently under construction as of July 2019)
HV-02-	1055	HV Extension N (J7712) (east half of Phase 3, Phase 4 and 5)
HV-03-	1072	HV Extension S

none	none	none	n/a	n/a	1 (HV Extension S)	307 from Ext S	0 (replacing ex. L.S.)	0 (replacing ex. L.S.)	8" (<1MGD)	approx based on pipe size	\$ 7,029	\$711k / 1 mgd = \$711k	Y	\$ 711,000	from J7816 bid costs		
none	none	none	n/a	n/a	0	2,579 in HV (from J7712)	3600*48%=1728	3600*48%=1728	36" (~8 MGD)	approx based on pipe size	\$ 7,029	\$7.5 m / 8 mgd = \$94k	N	\$7,577,000 (2019 CCI)	from J7712		
none	none	none	n/a	n/a	0	640*48%=307	640*48%=307	640*48%=307	Assumed ~1 MGD	approx based on pipe size	\$ 7,029	\$1.299 m / 1 mgd = \$1.299 m	Y	\$ 1,299,000	see cost opinion		

COST OPINIONS

Preliminary Cost Opinion for Pipe Segment "HV-01-1048 Emerald Hills (J7816)"

J7816-2018 - J7816 Emerald Hills Trunk Sanitary Sewer				Elcor Construction, Inc	
Item No.	Item	Units	Quantity	Unit Price	Total Price
2021.501	MOBILIZATION	LS	1	\$16,750.00	\$16,750.00
2101.505	GRUBBING	ACRE	0.6	\$3,000.00	\$1,800.00
2101.505	CLEARING	ACRE	0.6	\$6,000.00	\$3,600.00
2104.502	REMOVE SURGE BASIN	EACH	1	\$100.00	\$100.00
2104.502	REMOVE LIFT STATION	EACH	1	\$10,000.00	\$10,000.00
2104.503	SALVAGE FENCE	L F	500	\$5.00	\$2,500.00
2104.503	REMOVE SEWER PIPE (STORM)	L F	90	\$10.00	\$900.00
2104.503	SALVAGE PIPE CULVERT	L F	130	\$20.00	\$2,600.00
2104.504	REMOVE CONCRETE SLAB	S Y	150	\$6.00	\$900.00
2105.507	COMMON EXCAVATION (P)	C Y	1,929	\$4.00	\$7,716.00
2105.507	COMMON BORROW (LV)	C Y	200	\$4.00	\$800.00
2105.602	CONSTRUCT TEMPORARY BYPASS	EACH	1	\$2,700.00	\$2,700.00
2211.509	AGGREGATE BASE CLASS 5	TON	100	\$20.00	\$2,000.00
2501.502	36" RC PIPE APRON	EACH	1	\$2,360.00	\$2,360.00
2501.502	48" RC PIPE APRON	EACH	1	\$3,505.00	\$3,505.00
2501.502	A-S DIAPHRAGM FOR 48" PIPE	EACH	2	\$780.00	\$1,560.00
2501.502	36" GS SAFETY APRON & GRATE DES 3148	EACH	4	\$3,580.00	\$14,320.00
2501.502	A-S DIAPHRAGM FOR 8" PIPE	EACH	2	\$460.00	\$920.00
2501.503	36" CS PIPE CULVERT	L F	276	\$64.00	\$17,664.00
2501.571	INSTALL PIPE CULVERT	L F	130	\$36.00	\$4,680.00
2501.573	INSTALL PIPE APRON	EACH	4	\$600.00	\$2,400.00
2503.503	36" RC PIPE SEWER DES 3006 CL III	L F	32	\$120.00	\$3,840.00
2503.503	48" RC PIPE SEWER DES 3006 CL III	L F	105	\$176.00	\$18,480.00
2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	1	\$1,000.00	\$1,000.00
2511.507	RANDOM RIPRAP CLASS IV	C Y	110	\$56.00	\$6,160.00
2531.504	4" CONCRETE DRIVEWAY PAVEMENT	S Y	150	\$65.00	\$9,750.00
2563.601	TRAFFIC CONTROL	LS	1	\$1,250.00	\$1,250.00
2572.503	TEMPORARY FENCE	L F	780	\$9.00	\$7,020.00
2573.501	STABILIZED CONSTRUCTION EXIT	LS	4	\$1.00	\$4.00
2573.503	SILT FENCE; TYPE MS	L F	4,300	\$1.80	\$7,740.00
2575.504	TURF REINFORCEMENT MAT CATEGORY 3	S Y	225	\$3.50	\$787.50
2575.504	EROSION CONTROL BLANKETS CATEGORY 3	S Y	5,500	\$1.40	\$7,700.00
2575.604	SITE RESTORATION TYPE 8	S Y	4,400	\$1.65	\$7,260.00
2575.604	SITE RESTORATION TYPE 6	S Y	13,000	\$0.30	\$3,900.00
S100.507	SOLID ROCK EXCAVATION	C Y	100	\$1.00	\$100.00
S100.511	AGGREGATE FOR PIPE FOUNDATION GRADATION A	C Y	150	\$30.00	\$4,500.00
S100.520	FURNISH & INSTALL 15IN ALTERNATE PIPE SEWER	L F	2,146	\$42.00	\$90,132.00
S100.520	FURNISH & INSTALL 36IN ALTERNATE PIPE SEWER	L F	337	\$165.00	\$55,605.00
S100.520	FURNISH & INSTALL 8IN ALTERNATE PIPE SEWER	L F	4,056	\$28.00	\$113,568.00
S100.545	CONSTRUCT STRUCTURE TYPE 3	STR	22	\$5,479.00	\$120,538.00
S100.545	CONSTRUCT STRUCTURE TYPE 4 (72IN) 17FT TO 19FT DEEP	STR	1	\$11,723.00	\$11,723.00
S100.545	CONSTRUCT STRUCTURE TYPE SPECIAL	STR	1	\$14,789.00	\$14,789.00
S100.545	CONSTRUCT STRUCTURE TYPE 3A	STR	1	\$7,796.00	\$7,796.00
Totals for project J7816-2018					\$593,417.50
Contract Total:					\$593,417.50

12% Engineering	\$	71,000
8% Administrative	\$	47,000
Total		\$711,000

Preliminary Cost Opinion for Pipe Segment "HV-02-1055 HV Extension N"

Cost Information from Feasibility Report J7712 - 2005

J7712	Construction Costs	Engineering, Interest & Contingencies	Easement	Total (2005)	Total (2019)	Notes
Phase 1	\$ 8,545,003	\$ 2,563,501	\$ 50,000	\$ 11,158,504	\$ -	Phase Completed
Phase 2	\$ 2,374,000	\$ 712,200	\$ 50,000	\$ 3,136,200	\$ -	Phase Completed
Phase 3	\$ 2,936,000	\$ 880,800	\$ -	\$ 3,816,800	\$ 2,861,169	50% Completed
Phase 4	\$ 1,384,000	\$ 415,200	\$ 25,000	\$ 1,824,200	\$ 2,734,933	0% Completed
Phase 5	\$ 997,200	\$ 299,160	\$ 25,000	\$ 1,321,360	\$ 1,981,049	0% Completed
Total	\$ 16,236,203	\$ 4,870,861	\$ 150,000	\$ 21,257,064		
Probable Cost Opinion \$ 7,577,000					(100/66.7)*2005 Costs	

RSMeans Construction Cost Index	
2019	100
2005	66.7

Preliminary Cost Opinion for Pipe Segment "HV-03-1072 HV Extension S"				
Grading and Base				
Item	Unit	Unit Price	Quantity	Amount
Mobilization	Lump Sum	\$ 50,000	1	\$ 50,000
Traffic Control	Lump Sum	\$ 9,000	1	\$ 9,000
Remove Bituminous Pavement	Sq. Yd.	\$ 5	0	\$ -
Remove Concrete Pavement	Sq. Yd.	\$ 12	0	\$ -
Remove Concrete Curb & Gutter	Lin. Ft.	\$ 8	0	\$ -
Remove Concrete Walk	Sq. Yd.	\$ 4	0	\$ -
Common Excavation	Cu. Yd.	\$ 6	0	\$ -
Aggregate Base (CV)	Cu. Yd.	\$ 32	0	\$ -
Aggregate Base Breaker Run (CV)	Cu. Yd.	\$ 32	0	\$ -
Bituminous Paving	Ton	\$ 80	0	\$ -
Bike Path Restoration	Sq. Yd.	\$ 50	0	\$ -
Concrete Curb & Gutter	Lin. Ft.	\$ 18	0	\$ -
Concrete Walk	Sq. Ft.	\$ 6	0	\$ -
Concrete Driveway	Sq. Yd.	\$ 60	0	\$ -
Concrete Pavement	Sq. Yd.	\$ 80	0	\$ -
Erosion Control	Lin. Ft.	\$ 5	9500	\$ 48,000
Sod	Lin. Ft.	\$ 27	4800	\$ 130,000
Seed & Mulch	Lin Ft.	\$ 3	4800	\$ 14,000
Erosion Control Supervisor	Lum Sum	\$ 5,000	1	\$ 5,000
Grading & Base				\$ 256,000
Sanitary Sewer				
Item	Unit	Unit Price	Quantity	Amount
Remove Sanitary Sewer Manholes	Each	\$ 1,000	0	\$ -
Remove Sanitary Sewer Pipe	Lin. Ft.	\$ 10	0	\$ -
Construct 12" Sanitary Sewer Pipe	Lin. Ft.	\$ 55	9500	\$ 523,000
Construct 48" Manhole	Each	\$ 6,000	25	\$ 150,000
Manhole Waterproofing	Each	\$ 1,000	25	\$ 25,000
Bypass Pumping	MGD	\$ 10,000	0	\$ -
Solid Rock Excavation	Lin. Ft.	\$ -	0	\$ -
Dewatering	Lin. Ft.	\$ 20	0	\$ -
Highway Crossing	Lin. Ft.	\$ -	0	\$ -
Railroad Crossing	Lin. Ft.	\$ -	0	\$ -
Stream Crossing (non-siphon)	Lin. Ft.	\$ 300	100	\$ 30,000
Stream Crossing (siphon)	Lin. Ft.	\$ -	0	\$ -
Sanitary Sewer				\$ 728,000
Total Grading & Base & Sewer				\$ 984,000
10% Contingency				\$ 98,000
Sub-total				\$ 1,082,000
12% Engineering				\$ 130,000
8% Administrative				\$ 87,000
Probable Cost Opinion				\$ 1,299,000

5% of project cost, rounded to nearest \$10,000

1% of project cost, rounded to nearest \$1,000

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

Set rate

40' width / 9 sq. ft. / sq. yd. x \$6 / sq. yd.

40' width / 43,560 sq. ft. /acre x \$2,000/acre

Set rate

Set rate

Set rate

Based on rate table

Based on rate table

Set rate

Set rate

Based on rate table

Set rate

Based on rate table

Based on rate table

Based on rate table

Use separate probable cost spreadsheet

Preliminary Cost Opinion for Pipe Segment "HV-XX-1072 HV Extension S"

Pipe Dia. & Material		Rate Table					
		F&I Cost	Manhole Dia/ F&I Cost	Rock Exc.	Trenchless Steel Casing Hwy & RR	Open Cut Streams	
12	PVC	\$ 55	48 \$ 6,000	\$ 80	\$ 250	\$ 300	
15	PVC	\$ 65	48 \$ 6,000	\$ 85	\$ 500	\$ 400	
18	PVC	\$ 75	48 \$ 6,000	\$ 90	\$ 750	\$ 500	
21	PVC	\$ 100	60 \$ 8,000	\$ 95	\$ 1,000	\$ 600	
24	PVC	\$ 150	60 \$ 8,000	\$ 105	\$ 1,250	\$ 700	
27	PVC	\$ 175	60 \$ 8,000	\$ 110	\$ 1,500	\$ 800	
30	PVC	\$ 200	72 \$ 10,000	\$ 120	\$ 1,750	\$ 900	
36	Hobas	\$ 250	84 \$ 12,000	\$ 130	\$ 2,000	\$ 1,200	
42	Hobas	\$ 350	96 \$ 14,000	\$ 145	\$ 2,250	\$ 1,400	
48	Hobas	\$ 400	108 \$ 16,000	\$ 155	\$ 2,500	\$ 1,600	
54	Hobas	\$ 450	108 \$ 16,000	\$ 170	\$ 2,750	\$ 1,800	
60	Hobas	\$ 500	120 \$ 18,000	\$ 180	\$ 3,000	\$ 2,000	
66	Hobas	\$ 550	120 \$ 18,000	\$ 195	\$ 3,250	\$ 2,200	

pipe size + 24"
10 foot depth
\$70/cu. yd.

Linear Feet	9500
Pipe Size	12
# of MH	25
New Manhole Size	48
Bypass Flow (MGD)	
Major Impacts? (1 or 0)	

Rdwy Alignment	0	LF:	0
HWY XING	0	LF:	0
RR XING	0	LF:	0
Stream XING	1	LF:	100
Rock Excavation		LF:	
Dewatering		LF:	

Width (ft)
 Driveways (#)
 Drvwy Width (ft)
 ROW (ft)
 Curb and Gutter?
 Sidewalk Length
 Bike Path Width

5 ft Width
 60 ft disturbance

SEWER TRUNK RATE CALCULATION

Hadley Valley Sewer Trunk Rate Calculation

Trunk Line	Pipe Section	Cost	Developable Acres	\$/Acre	With Outstanding Project Balances
Hadley Valley	HV-01-1048	\$ 711,000			
	HV-02-1055, HV-03-1072	\$ 8,876,000			
	Emerald Hills Extensions	\$ 9,587,000	2,579	\$ 3,717	\$ 7,029

D.A. from J7712

OUTSTANDING PROJECT BALANCE FOR HV	\$ 8,539,690	=(\$/All Dev. Acres)	\$ 3,311
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Example Calculation

$$\frac{\text{Project Costs}}{\text{Developable Acres}} + \frac{\text{Outstanding Project Balance}}{\text{Developable Acres}} = \text{Sewer Trunk Rate with Outstanding Project}$$

Outstanding Trunk Sewer Project Balances

J No.	Project Description	Balance	NW Territory	Kings Run	Hadley Valley	West Zumbro	South Zumbro	East Zumbro	Total
2170	Reconstruct 1st Ave SW from 4th St SW to Soldier's Field Park	\$ 397,400.00					\$ 397,400		\$ 397,400
2175	East Zumbro River Sanitary Sewer Interceptor from 37th St NW to 13 1/2 St NW	\$ 3,911,805.33					\$ 271,936	\$ 3,639,870	\$ 3,911,805
4366	Pump Station to Serve NW & Hadley Valley Area	\$ 1,400,000.00	\$ 504,000	\$ 546,000	\$ 350,000				\$ 1,400,000
7703	Subtrunkline Sanitary Sewer to Serve Portions of Sewer Service District 24 (Silver Creek)	\$ 820,000.00						\$ 820,000	\$ 820,000
7708	Construction of Kings Run Trunkline Relief Sanitary Sewer	\$ 2,100,000.00		\$ 2,100,000					\$ 2,100,000
7712	Gravity Interceptor Sewer Phase 1	\$ 5,150,000.00	\$ 1,372,949	\$ 1,487,361	\$ 2,289,690				\$ 5,150,000
7713	Trunk Sanitary Sewer & Watermain to Serve portion of Section 7, Cascade Township west of 60th Ave NW (Sewer Service Area 28G)	\$ 250,000.00		\$ 250,000					\$ 250,000
7721	Relocate the T.H. 63 South Sanitary Sewer Trunkmain from 40th St SW to approximately 1000 feet north of 48th St SW	\$ 150,000.00						\$ 150,000	\$ 150,000
7733	Construct Sanitary Sewer Diverter in 12th Street North from West Silver Lake Drive NE to 2nd Ave NW and north along 2nd Ave NW to Cascade Creek	\$ 1,050,000.00					\$ 72,992	\$ 977,008	\$ 1,050,000
7739	Lift Station No. 4 Essex Park Lift Station Replacement								
7744	Hadley Valley Trunk Sanitary Sewer to Serve portions of Sections 7, 8, 9, 16, 17, 18, 19, 20, & 21, Haverhill Township (Sewer Service Area 29A) - PHASE 2	\$ 4,300,000.00		\$ 4,300,000					\$ 4,300,000
7751	Bear Creek Sub-trunkline Sanitary Sewer to Serve Portions of Sewer District 16 in Marion Township, Phase II.	\$ 1,486,680.00						\$ 1,486,680	\$ 1,486,680
7754	Parkwood Hills Sub-Trunkline Sanitary Sewer	\$ 112,309.94						\$ 112,310	\$ 112,310
7758	Hadley Valley trunkline sanitary sewer Phase 3A from 1/4 mile east of TH 63 easterly along 48th Street NE to Hadley Valley Road NE to serve portions of Sewer Service Area 29A.	\$ 1,600,000.00			\$ 1,600,000				\$ 1,600,000
7759	Construction of Interceptor 60 inch Sanitary Sewer from New Lift Station #4 to King's Run Trunkline Sanitary Sewer and the future NW Territory Trunkline Sanitary Sewer	\$ 984,581.58	\$ 472,599	\$ 511,982					\$ 984,582
7772	Parkwood Hills Sub-Trunkline Sanitary Sewer - Phase II	\$ 325,000.00						\$ 325,000	\$ 325,000
9657	Trunk sanitary sewer and watermain to serve portions of section 17, 18, 19 and 20 of Cascade Township, Sewer Service Area 28F	\$ 775,000.00		\$ 775,000					\$ 775,000
9751	Sub Trunkline SSA 6G Phase 1	\$ 1,139,500.00				\$ 1,139,500			\$ 1,139,500
9869	Bear Creek Sub-Trunkline Sanitary Sewer to Serve Portions of Sewer District 16 in Marion Township.	\$ 638,320.00						\$ 638,320	\$ 638,320
	Totals	\$ 26,590,596.85	\$ 2,349,548	\$ 5,670,343	\$ 8,539,690	\$ 1,139,500	\$ 742,328	\$ 8,149,187	\$ 26,590,597