

### BSI Alternatives Analysis Preliminary Project Cost Summary

Alternative No. 1 <sup>(1)</sup>	
Description of Work	Preliminary Project Cost Estimate
Engineering Design Services	\$444,982
Preliminary Construction Cost Estimate	\$7,216,903
Engineering Services During Construction	\$998,399
Uniformed Police Officers	\$339,716
<b>Total Project Cost Estimate</b>	<b>\$9,000,000</b>
Alternative No. 2 <sup>(2)</sup>	
Description of Work	Preliminary Project Cost Estimate
Engineering Design Services	\$925,652
Preliminary Construction Cost Estimate	\$13,745,276
Engineering Services During Construction	\$1,823,403
Uniformed Police Officers	\$505,668
<b>Total Project Cost Estimate</b>	<b>\$17,000,000</b>
Alternative No. 3 <sup>(3)</sup>	
Description of Work	Preliminary Project Cost Estimate
Engineering Design Services	\$1,511,500
Preliminary Construction Cost Estimate	\$19,890,836
Engineering Services During Construction	\$2,466,100
Uniformed Police Officers	\$1,131,564
<b>Total Project Cost Estimate</b>	<b>\$25,000,000</b>

1. A breakdown of the preliminary project cost estimate for Alternative No. 1, Rehabilitation of Existing BSI, is provided in Table E-1.
2. A breakdown of the preliminary project cost estimate for Alternative No. 2, Replacement of Existing BSI, is provided in Table E-2.
3. A breakdown of the preliminary project cost estimate for Alternative No. 3, Rehabilitation and Realignment of Existing BSI, is provided in Table E-3.1 through Table E-3.6.

**Table E-1: Alternative No. 1 - Rehabilitation of Existing BSI  
Preliminary Project Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Total Cost</b>
Sewer Cleaning CIP	LF	9,500	\$15	\$142,500
Sewer Cleaning RCP	LF	900	\$10	\$9,000
Sewer Cleaning VCP	LF	1,100	\$12	\$13,200
CCTV Inspection	LF	11,500	\$10	\$115,000
CIPPL 16"	LF	1,200	\$130	\$156,000
CIPPL 18"	LF	2,300	\$150	\$345,000
CIPPL 20"	LF	1,000	\$180	\$180,000
CIPPL 24"	LF	7,000	\$250	\$1,750,000
Temporary Bypass Pumping Operations	LS	1	\$300,000	\$300,000
New 18" PVC Gravity Sewer	LF	900	\$750	\$675,000
New Sanitary Sewer Manhole	Ea.	5	\$15,000	\$75,000
CIPPL Warranty Inspection	LF	11,500	\$10	\$115,000
Reinstatement of Service Connections	Ea.	30	\$500	\$15,000
Cutting of Protruding Service Connection	Ea.	10	\$1,500	\$15,000
Lateral Connection Liner (LCL)	Ea.	30	\$12,000	\$360,000
Manhole Rehabilitation	VF	610	\$400	\$244,000
Flex Coat Chimney Seal	Ea.	60	\$1,500	\$90,000
New Frame and Covers	Ea.	30	\$3,000	\$90,000
Manhole Warranty Inspection	Ea.	60	\$250	\$15,000
Easement Improvements	LS	1	\$350,000	\$350,000
Traffic Control	LS	1	\$75,000	\$75,000
Contingency (25%)				\$1,282,425
<i>Subtotal</i>				<b>\$6,412,125</b>
Inflation to Midpoint of Construction - 2024 (3% per year)				\$804,778
Total Construction Cost Estimate				\$7,216,903
Technical Services (Design, Bidding and Construction Services) (20%)				\$1,443,381
Uniformed Police Officers				\$339,716
<b>Total</b>				<b>\$9,000,000</b>

**Table E-2: Alternative No. 2 - Replacement of Existing BSI  
Preliminary Project Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Total Cost</b>
New PVC Sewer 16"	LF	1,200	\$350	\$420,000
New PVC Sewer 18"	LF	3,200	\$450	\$1,440,000
New PVC Sewer 20"	LF	1,000	\$550	\$550,000
New PVC Sewer 24"	LF	7,000	\$650	\$4,550,000
Temporary Bypass Pumping Operations	LS	1	\$650,000	\$650,000
New Sanitary Sewer Manhole	Ea.	60	\$12,000	\$720,000
New Service Connection	Ea.	30	\$8,000	\$240,000
Easement Improvement	LS	1	\$600,000	\$600,000
Pavement Restoration (Local Road)	SY	5,000	\$100	\$500,000
Traffic Control	LS	1	\$100,000	\$100,000
Contingency (25%)				\$2,442,500
<i>Subtotal</i>				<i>\$12,212,500</i>
Inflation to Midpoint of Construction - 2024 (3% per year)				\$1,532,776
Total Construction Cost Estimate				\$13,745,276
Technical Services (Design, Bidding and Construction Services) (20%)				\$2,749,055
Uniformed Police Officers				\$505,668
<b>Total</b>				<b>\$17,000,000</b>

**Table E-3.1: Alternative No. 3 - Rehabilitation and Realignment of Existing BSI  
Preliminary Project Cost Estimate Breakdown Summary**

<b>Description of Work</b>	<b>Estimated Cost</b>
Rehabilitation / Replacement of Existing Gravity Sewers and Manholes <sup>(1)</sup>	\$2,948,200
Construction of New Gravity Sewers and Manholes <sup>(2)</sup>	\$1,532,500
Construction of Beaver Street Pump Station and Force Main <sup>(3)</sup>	\$6,955,000
Construction of Grove Street Pump Station #3 and Force Main <sup>(4)</sup>	\$1,505,000
Construction of Franklin Village Plaza Pump Station and Force Main <sup>(5)</sup>	\$1,197,500
Contingency (25%)	\$3,534,550
<i>Subtotal</i>	\$17,672,750
Inflation to Midpoint of Construction - 2024 (3% per year)	\$2,218,086
<b>Total Construction Cost Estimate</b>	<b>\$19,890,836</b>
Technical Services (Design, Bidding and Construction Services) (20%)	\$3,977,600
Uniformed Police Officers	\$1,131,564
<b>Total</b>	<b>\$25,000,000</b>

1. A breakdown of the preliminary project cost estimate for rehabilitation/replacement of existing gravity sewers and manholes associated with Alternative No. 3 is provided in Table E-3.2.
2. A breakdown of the preliminary project cost estimate for construction of new gravity sewers and manholes associated with Alternative No. 3 is provided in Table E-3.3.
3. A breakdown of the preliminary project cost estimate for construction of the Beaver Street Pump Station and force main associated with Alternative No. 3 is provided in Table E-3.4.
4. A breakdown of the preliminary project cost estimate for construction of the Grove Street Pump Station #3 and force main associated with Alternative No. 3 is provided in Table E-3.5.
5. A breakdown of the preliminary project cost estimate for construction of the Franklin Village Mall Pump Station and force main associated with Alternative No. 3 is provided in Table E-3.6.

**Table E-3.2: Alternative No. 3 - Rehabilitation/Replacement of Existing Gravity Sewers and Manholes**  
**Preliminary Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Cost</b>	<b>Estimated Cost</b>
Sewer Cleaning CIP	LF	4,500	\$15	\$67,500
Sewer Cleaning RCP	LF	900	\$10	\$9,000
Sewer Cleaning VCP	LF	1,100	\$12	\$13,200
CCTV Inspection	LF	6,500	\$10	\$65,000
CIPPL 16"	LF	1,200	\$130	\$156,000
CIPPL 18"	LF	2,300	\$150	\$345,000
CIPPL 20"	LF	1,000	\$180	\$180,000
CIPPL 24"	LF	2,000	\$250	\$500,000
CIPPL Warranty Inspection	LF	6,500	\$5	\$32,500
Reinstatement of Service Connections	Ea.	30	\$500	\$15,000
Lateral Connection Liner (LCL)	Ea.	30	\$8,000	\$240,000
Manhole Rehabilitation	VF	400	\$400	\$160,000
Flex Coat Chimney Seal	Ea.	40	\$1,500	\$60,000
New Frame and Covers	Ea.	25	\$3,000	\$75,000
Manhole Warranty Inspection	Ea.	40	\$250	\$10,000
New 18" PVC Gravity Sewer	LF	900	\$500	\$450,000
Horizontal Directional Drilling of Gravity Sewer	LF	100	\$2,000	\$200,000
New Service Connections	Ea.	1	\$10,000	\$10,000
New Sanitary Sewer Manhole	Ea.	5	\$10,000	\$50,000
Bypass Pumping Operations	LS	1	\$250,000	\$250,000
Traffic Control	LS	1	\$60,000	\$60,000
<b>Subtotal</b>				<b>\$2,948,200</b>

**Table E-3.3: Alternative No. 3 - Construction of New Gravity Sewers and Manholes**  
**Preliminary Project Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Cost</b>	<b>Estimated Cost</b>
New 18-inch Gravity Sewer (Panther Way to Beaver Street)	LF	1,000	\$450	\$450,000
New Manholes (Panther Way to Beaver Street)	Ea.	8	\$10,000	\$80,000
New 24-inch pipe (Beaver Street to BPS)	LF	500	\$650	\$325,000
New Manholes (Beaver Street to BPS)	Ea.	5	\$10,000	\$50,000
New 15-inch Gravity Sewer (along Old West Central Street)	LF	1,000	\$350	\$350,000
New Manholes (along Old West Central Street)	Ea.	10	\$10,000	\$100,000
Additional Site Work	LS	1	\$40,000	\$40,000
Pavement Restoration (Local Road)	SY	1,500	\$75	\$112,500
Traffic Control	LS	1	\$25,000	\$25,000
<b>Subtotal</b>				<b>\$1,532,500</b>

**Table E-3.4: Alternative No. 3 - Construction of Beaver Street Pump Station and Force Main  
Preliminary Cost Estimate Breakdown**

Description of Work	Units	Estimated Quantity	Unit Cost	Estimated Cost
New PVC Sewer - 24" (Beaver Street to BSPS)	LF	700	\$650	\$455,000
New Gravity Sewer Manholes (Beaver Street to BSPS)	Ea.	5	\$10,000	\$50,000
Installation of 20" New Force Main	LF	5,000	\$700	\$3,500,000
Installation of New Wet Well	LS	1	\$40,000	\$40,000
Installation of New Pump Station and Appurtenances	LS	1	\$2,000,000	\$2,000,000
Installation of Valve Chamber	LS	1	\$100,000	\$100,000
New Onsite Generator	LS	1	\$80,000	\$80,000
Additional Site Work / Clearing	LS	1	\$150,000	\$150,000
Temporary Bypass Pumping Operations	LS	1	\$15,000	\$15,000
Pavement Restoration (Local Road)	SY	1,500	\$75	\$112,500
Pavement Restoration (State Road)	SY	3,500	\$115	\$402,500
Traffic Control	LS	1	\$50,000	\$50,000
<b>Subtotal</b>				<b>\$6,955,000</b>

**Table E-3.5: Alternative No. 3 - Construction of Grove Street Pump Station #3 and Force Main  
Preliminary Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Cost</b>	<b>Estimated Cost</b>
New PVC Sewer - 12"	LF	200	\$250	\$50,000
New Gravity Sewer Manholes	Ea.	4	\$10,000	\$40,000
Installation of New Force Main (Direct Bury)	LF	2,000	\$250	\$500,000
Installation of New Wet Well	LS	1	\$20,000	\$20,000
Installation of New Pump Station and Appurtenances	LS	1	\$550,000	\$550,000
Installation of Valve Chamber	LS	1	\$60,000	\$60,000
New Onsite Generator	LS	1	\$50,000	\$50,000
Additional Site Work	LS	1	\$50,000	\$50,000
Temporary Bypass Pumping Operations	LS	1	\$10,000	\$10,000
Pavement Restoration (Local Road)	SY	2,000	\$75	\$150,000
Traffic Control	LS	1	\$25,000	\$25,000
<b>Subtotal</b>				<b>\$1,505,000</b>



**Table E-3.6: Alternative No. 3 - Construction of Franklin Village Plaza Pump Station and Force Main  
Preliminary Cost Estimate Breakdown**

<b>Description of Work</b>	<b>Units</b>	<b>Estimated Quantity</b>	<b>Unit Cost</b>	<b>Estimated Cost</b>
Installation of New Force Main (Direct Bury)	LF	500	\$200	\$100,000
Installation of New Force Main (Horizontal Directional Drilling)	LS	200	\$2,250	\$450,000
Installation of New Wet Well	LS	1	\$20,000	\$20,000
Installation of New Pump Station and Appurtenances	LS	1	\$450,000	\$450,000
Installation of Valve Chamber	LS	1	\$60,000	\$50,000
New Onsite Generator	LS	1	\$20,000	\$20,000
Additional Work to Gravity Sewer	LS	1	\$10,000	\$10,000
Additional Site Work	LS	1	\$25,000	\$25,000
Temporary Bypass Pumping Operations	LS	1	\$10,000	\$10,000
Pavement Restoration (Local Road)	SY	500	\$75	\$37,500
Traffic Control	LS	1	\$25,000	\$25,000
<b>Subtotal</b>				<b>\$1,197,500</b>