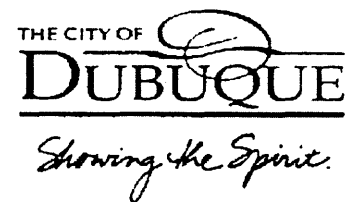


**Opinion of Probable
Construction Costs**

**Drainage Basin
Master Plan**

City of Dubuque, Iowa



Fall 2001

HDR

HDR Engineering, Inc.

TABLE OF CONTENTS

NORTH FORK CATFISH CREEK DRAINAGE BASIN

- Table A-1. Preliminary Construction Cost Estimate, Pennsylvania Detention (Excavation Only), Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-2. Preliminary Construction Cost Estimate, Pennsylvania Detention (Excavation Only), Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-3. Preliminary Construction Cost Estimate, NW Arterial Detention, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-4. Preliminary Construction Cost Estimate, NW Arterial Detention (Excavation Only), Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-5. Preliminary Construction Cost Estimate, NW Arterial Detention, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-6. Preliminary Construction Cost Estimate, Rosemont between St. Celia and Winnie, Expand Storage Upstream of Rosemont
- Table A-7. Preliminary Construction Cost Estimate, Rosemont and Hillcrest, Expand Storage Upstream of Rosemont
- Table A-8. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Northwest Arterial to Rosemont, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-9. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Northwest Arterial to Rosemont, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-10. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Northwest Arterial to Rosemont, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

TABLE OF CONTENTS

- Table A-11. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Rosemont to Keyway, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-12. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Rosemont to Keyway, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-13. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Rosemont to Keyway, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-14. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Keyway to Pennsylvania, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-15. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Keyway to Pennsylvania, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-16. Preliminary Construction Cost Estimate, Channel Improvements, Channel Reach: Keyway to Pennsylvania, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-17. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Rosemont, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-18. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Rosemont, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-19. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Rosemont, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-20. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Keyway, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-21. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Keyway, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-22. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Keyway, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

TABLE OF CONTENTS

- Table A-23. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Pennsylvania/J.F. Kennedy, Expand Storage Upstream of Pennsylvania - Alternative 1
- Table A-24. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Pennsylvania/J.F. Kennedy, Expand Storage Upstream of NW Arterial - Alternative 2
- Table A-25. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Pennsylvania/ J.F. Kennedy, Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3
- Table A-26. Preliminary Construction Cost Estimate, Channel Clearing and Grubbing Reach: Pennsylvania/J.F. Kennedy to University Optional for Alternative Nos. 1, 2 and 3
- Table A-27. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Saratoga, Add an additional 36-inch Culvert
- Table A-28. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Intersection of Rosemont and Hillcrest, Construct a 42" storm pipe
- Table A-29. Preliminary Construction Cost Estimate, Structure Improvements, Structure Location: Rosemont between St. Celia and Winnie, Replace 84" RCP with 108" RCP
- Table A-30. Preliminary Construction Cost Estimate, North Fork Catfish Creek Drainage Basin: RCB Culvert for North Fork Catfish Creek at University Avenue

BEE BRANCH DRAINAGE BASIN

- Table A-31. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin Upstream Improvements and Excavate West 32nd Street Detention - Alternative W32-1
- Table A-32. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin Upstream Improvements and Build Berm at West 32nd Street Detention - Alt. W32-2

TABLE OF CONTENTS

- Table A-33. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin Upstream Improvements and Excavate West 32nd Street Detention - Alternative W32-3
- Table A-34. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin Upstream Improvements and Build Berm at West 32nd Street Detention - Alt. W32-4
- Table A-35. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin Upstream Improvements and Build Berm and Excavate at West 32nd Street Detention - Alt. W32-5
- Table A-36. Preliminary Construction Cost Estimate Kaufmann Avenue Subarea: Grandview/Kaufmann Detention Cell
- Table A-37. Preliminary Construction Cost Estimate Bee Branch Storm Sewer Trunkline Improvements: Alternative 1 - Parallel Storm Sewer
- Table A-38. Preliminary Construction Cost Estimate Bee Branch Storm Sewer Trunkline Improvements: Alternative 2 - Flood Control Channel, Phase I - 16th Street Detention Cell to Garfield Ave.
- Table A-39. Preliminary Construction Cost Estimate Bee Branch Storm Sewer Trunkline Improvements: Alternative 3 - Flood Control Channel, Phase II - 16th Street Detention Cell to 24th Street
- Table A-40. Preliminary Construction Cost Estimate Bee Branch Storm Sewer Trunkline Improvements: Alternative 4 - 90-ft. x 10-ft. Box Culvert from 16th Street Detention Cell to 24th Street
- Table A-41. Preliminary Construction Cost Estimate Bee Branch Storm Sewer Trunkline Improvements: Alternative 5 - Parallel Storm Sewer and 500 SF Channel

NORTH FORK CATFISH CREEK DRAINAGE BASIN
OPINION OF PROBABLE CONSTRUCTION COSTS

**Table A-1. Preliminary Construction Cost Estimate, Pennsylvania Detention (Excavation Only)
Expand Storage Upstream of Pennsylvania - Alternative 1**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$5.00	35,000	\$175,000.00
2	Area Clearing & Grubbing	AC	\$2,000.00	10	\$20,000.00
3	Topsoil	AC	\$3,000.00	10	\$30,000.00
4	Seeding	AC	\$3,000.00	10	\$30,000.00
	Subtotal				\$255,000.00
5	25% Contingency				\$63,750.00
6	25% Administration, Legal, Engineering				\$63,750.00
	Total				\$382,500.00

**Table A-2. Preliminary Construction Cost Estimate, Pennsylvania Detention (Excavation Only)
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$5.00	70,000	\$350,000.00
2	Area Clearing & Grubbing	AC	\$2,000.00	13	\$26,000.00
3	Topsoil	AC	\$3,000.00	13	\$39,000.00
4	Seeding	AC	\$3,000.00	13	\$39,000.00
	Subtotal				\$454,000.00
5	25% Contingency				\$113,500.00
6	25% Administration, Legal, Engineering				\$113,500.00
	Total				\$681,000.00

**Table A-3. Preliminary Construction Cost Estimate, NW Arterial Detention
Expand Storage Upstream of Pennsylvania - Alternative 1**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove Outlet Constriction	LS	\$2,500.00	1	\$2,500.00
	Subtotal				\$2,500.00
2	25% Contingency				\$625.00
3	25% Administration, Legal, Engineering				\$625.00
	Total				\$3,750.00

* Unit costs based on 1999 dollars.

**Table A-4. Preliminary Construction Cost Estimate, NW Arterial Detention (Excavation Only)
Expand Storage Upstream of NW Arterial - Alternative 2**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$3.00	95,500	\$286,500.00
2	Area Clearing & Grubbing	AC	\$2,000.00	10	\$20,000.00
3	Improved Drainage Inlet	LS	\$25,000.00	1	\$25,000.00
4	Topsoil	AC	\$3,000.00	10	\$30,000.00
5	Seeding	AC	\$3,000.00	10	\$30,000.00
	Subtotal				\$391,500.00
6	25% Contingency				\$97,875.00
7	25% Administration, Legal, Engineering				\$97,875.00
	Total				\$587,250.00

**Table A-5. Preliminary Construction Cost Estimate, NW Arterial Detention
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$3.00	95,500	\$286,500.00
2	Area Clearing & Grubbing	AC	\$2,000.00	10	\$20,000.00
3	Improved Drainage Inlet	LS	\$25,000.00	1	\$25,000.00
4	Topsoil	AC	\$3,000.00	10	\$30,000.00
5	Seeding	AC	\$3,000.00	10	\$30,000.00
	Subtotal				\$391,500.00
6	25% Contingency				\$97,875.00
7	25% Administration, Legal, Engineering				\$97,875.00
	Total				\$587,250.00

**Table A-6. Preliminary Construction Cost Estimate, Rosemont between St. Celia and Winnie
Expand Storage Upstream of Rosemont**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$3.00	15,500	\$46,500.00
2	Area Clearing & Grubbing	AC	\$2,000.00	1	\$1,000.00
4	Topsoil	AC	\$3,000.00	1	\$1,500.00
5	Seeding	AC	\$3,000.00	1	\$1,500.00
	Subtotal				\$50,500.00
6	25% Contingency				\$12,625.00
7	25% Administration, Legal, Engineering				\$12,625.00
	Total				\$75,750.00

* Unit costs based on 1999 dollars.

**Table A-7. Preliminary Construction Cost Estimate, Rosemont and Hillcrest
Expand Storage Upstream of Rosemont**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Embankment	CY	\$5.00	2,300	\$11,500.00
2	Area Clearing & Grubbing	AC	\$2,000.00	1	\$1,000.00
3	Topsoil	AC	\$3,000.00	1	\$1,500.00
4	Seeding	AC	\$3,000.00	1	\$1,500.00
	Subtotal				\$15,500.00
5	25% Contingency				\$3,875.00
6	25% Administration, Legal, Engineering				\$3,875.00
	Total				\$23,250.00

* Unit costs based on 1999 dollars.

Table A-8. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Northwest Arterial to Rosemont
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	1,300	\$6,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	0.63	\$3,150.00
3	Topsoil	AC	\$3,000.00	0.63	\$1,890.00
4	Seeding	AC	\$3,000.00	0.63	\$1,890.00
	Subtotal				\$13,430.00
5	25% Contingency				\$3,357.50
6	25% Administration, Legal, Engineering				\$3,357.50
	Total				\$20,145.00

Table A-9. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Northwest Arterial to Rosemont
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	1,300	\$6,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	0.63	\$3,150.00
3	Topsoil	AC	\$3,000.00	0.63	\$1,890.00
4	Seeding	AC	\$3,000.00	0.63	\$1,890.00
	Subtotal				\$13,430.00
5	25% Contingency				\$3,357.50
6	25% Administration, Legal, Engineering				\$3,357.50
	Total				\$20,145.00

* Unit costs based on 1999 dollars.

Table A-10. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Northwest Arterial to Rosemont
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	1,300	\$6,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	0.63	\$3,150.00
3	Topsoil	AC	\$3,000.00	0.63	\$1,890.00
4	Seeding	AC	\$3,000.00	0.63	\$1,890.00
	Subtotal				\$13,430.00
5	25% Contingency				\$3,357.50
6	25% Administration, Legal, Engineering				\$3,357.50
	Total				\$20,145.00

Table A-11. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Rosemont to Keyway
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	26,000	\$130,000.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	5.9	\$29,700.00
3	Topsoil	AC	\$3,000.00	5.9	\$17,820.00
4	Seeding	AC	\$3,000.00	5.9	\$17,820.00
	Subtotal				\$195,340.00
5	25% Contingency				\$48,835.00
6	25% Administration, Legal, Engineering				\$48,835.00
	Total				\$293,010.00

* Unit costs based on 1999 dollars.

Table A-12. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Rosemont to Keyway
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	26,000	\$130,000.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	5.9	\$29,700.00
3	Topsoil	AC	\$3,000.00	5.9	\$17,820.00
4	Seeding	AC	\$3,000.00	5.9	\$17,820.00
	Subtotal				\$195,340.00
5	25% Contingency				\$48,835.00
6	25% Administration, Legal, Engineering				\$48,835.00
	Total				\$293,010.00

Table A-13. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Rosemont to Keyway
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	26,000	\$130,000.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	5.9	\$29,700.00
3	Topsoil	AC	\$3,000.00	5.9	\$17,820.00
4	Seeding	AC	\$3,000.00	5.9	\$17,820.00
	Subtotal				\$195,340.00
5	25% Contingency				\$48,835.00
6	25% Administration, Legal, Engineering				\$48,835.00
	Total				\$293,010.00

* Unit costs based on 1999 dollars.

Table A-14. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Keyway to Pennsylvania
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	13,300	\$66,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	1.4	\$6,900.00
3	Topsoil	AC	\$3,000.00	1.4	\$4,140.00
4	Seeding	AC	\$3,000.00	1.4	\$4,140.00
	Subtotal				\$81,680.00
5	25% Contingency				\$20,420.00
6	25% Administration, Legal, Engineering				\$20,420.00
	Total				\$122,520.00

Table A-15. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Keyway to Pennsylvania
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	13,300	\$66,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	1.4	\$6,900.00
3	Topsoil	AC	\$3,000.00	1.4	\$4,140.00
4	Seeding	AC	\$3,000.00	1.4	\$4,140.00
	Subtotal				\$81,680.00
5	25% Contingency				\$20,420.00
6	25% Administration, Legal, Engineering				\$20,420.00
	Total				\$122,520.00

* Unit costs based on 1999 dollars.

Table A-16. Preliminary Construction Cost Estimate, Channel Improvements
Channel Reach: Keyway to Pennsylvania
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Channel Excavation	CY	\$5.00	13,300	\$66,500.00
2	Channel Clearing & Grubbing	AC	\$5,000.00	1.4	\$6,900.00
3	Topsoil	AC	\$3,000.00	1.4	\$4,140.00
4	Seeding	AC	\$3,000.00	1.4	\$4,140.00
	Subtotal				\$81,680.00
5	25% Contingency				\$20,420.00
6	25% Administration, Legal, Engineering				\$20,420.00
	Total				\$122,520.00

* Unit costs based on 1999 dollars.

Table A-17. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Rosemont
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	130	\$3,900.00
2	Rehabilitation of Existing Structure	LS	\$5,000.00	1	\$5,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.5	\$2,300.00
4	2-72" RCP	LF	\$182.00	154	\$28,028.00
5	Concrete Apron	EA	\$1,500.00	4	\$6,000.00
6	Riprap	SY	\$20.00	350	\$7,000.00
7	Topsoil	AC	\$3,000.00	0.2	\$600.00
8	Seeding	AC	\$3,000.00	0.2	\$600.00
9	Channel Excavation	CY	\$5.00	1,100	\$5,500.00
	Subtotal				\$58,928.00
10	25% Contingency				\$14,732.00
11	25% Administration, Legal, Engineering				\$14,732.00
	Total				\$88,392.00

Table A-18. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Rosemont
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	160	\$4,800.00
2	Rehabilitation of Existing Structure	LS	\$5,000.00	1	\$5,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.4	\$2,200.00
4	72" RCP	LF	\$182.00	77	\$14,014.00
5	Concrete Apron	EA	\$1,500.00	2	\$3,000.00
6	Riprap	SY	\$20.00	350	\$7,000.00
7	Topsoil	AC	\$3,000.00	0.2	\$600.00
8	Seeding	AC	\$3,000.00	0.2	\$600.00
9	Channel Excavation	CY	\$5.00	800	\$4,000.00
	Subtotal				\$41,214.00
10	25% Contingency				\$10,303.50
11	25% Administration, Legal, Engineering				\$10,303.50
	Total				\$61,821.00

* Unit costs based on 1999 dollars.

Table A-19. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Rosemont
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	160	\$4,800.00
2	Rehabilitation of Existing Structure	LS	\$5,000.00	1	\$5,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.4	\$2,200.00
4	72" RCP	LF	\$182.00	77	\$14,014.00
5	Concrete Apron	EA	\$1,500.00	2	\$3,000.00
5	Riprap	SY	\$20.00	350	\$7,000.00
6	Topsoil	AC	\$3,000.00	0.2	\$600.00
7	Seeding	AC	\$3,000.00	0.2	\$600.00
9	Channel Excavation	CY	\$5.00	800	\$4,000.00
	Subtotal				\$41,214.00
10	25% Contingency				\$10,303.50
11	25% Administration, Legal, Engineering				\$10,303.50
	Total				\$61,821.00

Table A-20. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Keyway
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	200	\$6,000.00
2	Remove Existing Structure	LS	\$12,000.00	1	\$12,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.9	\$4,450.00
4	3- 10'x8' RCB (Includes concrete apron)	LF	\$530.00	297	\$157,410.00
5	Riprap	SY	\$20.00	800	\$16,000.00
6	Topsoil	AC	\$3,000.00	0.3	\$900.00
7	Seeding	AC	\$3,000.00	0.3	\$900.00
8	Channel Excavation	CY	\$5.00	4,700	\$23,500.00
	Subtotal				\$221,160.00
9	25% Contingency				\$55,290.00
10	25% Administration, Legal, Engineering				\$55,290.00
	Total				\$331,740.00

* Unit costs based on 1999 dollars.

Table A-21. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Keyway
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	200	\$6,000.00
2	Remove Existing Structure	LS	\$12,000.00	1	\$12,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.9	\$4,450.00
4	3- 10'x8' RCB (Includes concrete apron)	LF	\$530.00	297	\$157,410.00
5	Riprap	SY	\$20.00	800	\$16,000.00
6	Topsoil	AC	\$3,000.00	0.3	\$900.00
7	Seeding	AC	\$3,000.00	0.3	\$900.00
8	Channel Excavation	CY	\$5.00	4,700	\$23,500.00
	Subtotal				\$221,160.00
9	25% Contingency				\$55,290.00
10	25% Administration, Legal, Engineering				\$55,290.00
	Total				\$331,740.00

Table A-22. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Keyway
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	200	\$6,000.00
2	Remove Existing Structure	LS	\$12,000.00	1	\$12,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.9	\$4,450.00
4	3- 10'x8' RCB (Includes concrete apron)	LF	\$530.00	297	\$157,410.00
5	Riprap	SY	\$20.00	800	\$16,000.00
6	Topsoil	AC	\$3,000.00	0.3	\$900.00
7	Seeding	AC	\$3,000.00	0.3	\$900.00
8	Channel Excavation	CY	\$5.00	4,700	\$23,500.00
	Subtotal				\$221,160.00
8	25% Contingency				\$55,290.00
9	25% Administration, Legal, Engineering				\$55,290.00
	Total				\$331,740.00

* Unit costs based on 1999 dollars.

Table A-23. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Pennsylvania/J.F. Kennedy
Expand Storage Upstream of Pennsylvania - Alternative 1

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$5.00	1,700	\$8,500.00
2	Area Clearing and Grubbing	AC	\$5,000.00	0.2	\$1,000.00
3	Improved Inlet	LS	\$20,000.00	1.0	\$20,000.00
4	Riprap	SY	\$20.00	840	\$16,800.00
5	Structural Wall	LF	\$140.00	410	\$57,400.00
6	Topsoil	AC	\$3,000.00	0.2	\$600.00
7	Seeding	AC	\$3,000.00	0.2	\$600.00
	Subtotal				\$104,900.00
8	25% Contingency				\$26,225.00
9	25% Administration, Legal, Engineering				\$26,225.00
	Total				\$157,350.00

Table A-24. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Pennsylvania/J.F. Kennedy
Expand Storage Upstream of NW Arterial - Alternative 2

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$5.00	1,700	\$8,500.00
2	Area Clearing and Grubbing	AC	\$5,000.00	0.2	\$1,000.00
3	Improved Inlet	LS	\$20,000.00	1.0	\$20,000.00
4	Riprap	SY	\$20.00	840	\$16,800.00
5	Structural Wall	LF	\$140.00	410	\$57,400.00
6	Topsoil	AC	\$3,000.00	0.2	\$600.00
7	Seeding	AC	\$3,000.00	0.2	\$600.00
	Subtotal				\$104,900.00
8	25% Contingency				\$26,225.00
9	25% Administration, Legal, Engineering				\$26,225.00
	Total				\$157,350.00

* Unit costs based on 1999 dollars.

Table A-25. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Pennsylvania/J.F. Kennedy
Expand Storage Upstream of Pennsylvania & NW Arterial - Alternative 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Excavation	CY	\$5.00	1,700	\$8,500.00
2	Area Clearing and Grubbing	AC	\$5,000.00	0.2	\$1,000.00
3	Constrict Culvert Inlet	LS	\$20,000.00	1.0	\$20,000.00
4	Riprap	SY	\$20.00	840	\$16,800.00
5	Structural Wall	LF	\$140.00	410	\$57,400.00
6	Topsoil	AC	\$3,000.00	0.2	\$600.00
7	Seeding	AC	\$3,000.00	0.2	\$600.00
	Subtotal				\$104,900.00
8	25% Contingency				\$26,225.00
9	25% Administration, Legal, Engineering				\$26,225.00
	Total				\$157,350.00

Table A-26. Preliminary Construction Cost Estimate, Channel Clearing and Grubbing
Reach: Pennsylvania/J.F. Kennedy to University
Optional for Alternative Nos. 1, 2 and 3

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Area Clearing and Grubbing (5000' x 50')	AC	\$5,000.00	6.0	\$30,000.00
2	Topsoil	AC	\$3,000.00	6.0	\$18,000.00
3	Seeding	AC	\$3,000.00	6.0	\$18,000.00
	Subtotal				\$66,000.00
4	25% Contingency				\$16,500.00
5	25% Administration, Legal, Engineering				\$16,500.00
	Total				\$99,000.00

* Unit costs based on 1999 dollars.

Table A-27. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Saratoga
Add an additional 36-inch Culvert

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	200	\$6,000.00
2	Excavation for new pipe	CY	\$10.00	50	\$500.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.1	\$500.00
4	Culvert, Concrete Roadway Pipe, 36"	LF	\$60.00	100	\$6,000.00
5	Granular Backfill	CY	\$16.00	10	\$160.00
6	Riprap	SY	\$20.00	5	\$100.00
7	Topsoil	AC	\$3,000.00	0.1	\$300.00
8	Seeding	AC	\$3,000.00	0.1	\$300.00
9	Channel Excavation	CY	\$5.00	10	\$50.00
	Subtotal				\$13,910.00
10	25% Contingency				\$3,477.50
11	25% Administration, Legal, Engineering				\$3,477.50
	Total				\$20,865.00

* Unit costs based on 1999 dollars.

Table A-28. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Intersection of Rosemont and Hillcrest
Construct a 42" storm pipe

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	650	\$19,500.00
2	Excavation for new pipe	CY	\$10.00	50	\$500.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.1	\$500.00
4	Culvert, Concrete Roadway Pipe, 42"	LF	\$100.00	375	\$37,500.00
5	Granular Backfill	CY	\$16.00	30	\$480.00
6	Riprap	SY	\$20.00	5	\$100.00
7	Topsoil	AC	\$3,000.00	0.1	\$300.00
8	Seeding	AC	\$3,000.00	0.1	\$300.00
9	Channel Excavation	CY	\$5.00	10	\$50.00
	Subtotal				\$59,230.00
10	25% Contingency				\$14,807.50
11	25% Administration, Legal, Engineering				\$14,807.50
	Total				\$88,845.00

* Unit costs based on 1999 dollars.

Table A-29. Preliminary Construction Cost Estimate, Structure Improvements
Structure Location: Rosemont between St. Celia and Winnie
Replace 84" RCP with 108" RCP

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Remove and Replace Roadway Surface	SY	\$30.00	300	\$9,000.00
2	Remove Existing Structure	LS	\$12,000.00	1	\$12,000.00
3	Area Clearing and Grubbing	AC	\$5,000.00	0.1	\$500.00
4	Culvert, RCP, 108"	LF	\$500.00	100	\$50,000.00
5	Granular Backfill	CY	\$16.00	10	\$160.00
6	Riprap	SY	\$20.00	5	\$100.00
7	Topsoil	AC	\$3,000.00	0.1	\$300.00
8	Seeding	AC	\$3,000.00	0.1	\$300.00
9	Channel Excavation	CY	\$5.00	10	\$50.00
	Subtotal				\$72,410.00
10	25% Contingency				\$18,102.50
11	25% Administration, Legal, Engineering				\$18,102.50
	Total				\$108,615.00

* Unit costs based on 1999 dollars.

**Table A-30. Preliminary Construction Cost Estimate, North Fork Catfish Creek Drainage Basin:
RCB Culvert for North Fork Catfish Creek at University Avenue**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal and Replacement	LF	\$180.00	30	\$5,400.00
2	Excavation	LF	\$75.00	280	\$21,000.00
3	Utility Relocations	LF	\$150.00	280	\$42,000.00
4	Bedding	LF	\$100.00	280	\$28,000.00
5	Backfill	LF	\$75.00	280	\$21,000.00
6	Seeding (50' @ \$2,500/AC)	LF	\$3.00	280	\$840.00
7	Box Culvert -- 144 sq. ft.	LF	\$850.00	280	\$238,000.00
8	Riprap - 110' Ave. Channel Bottom Width - 2' thick (136 lb/CF)	LF	\$380.00	150	\$57,000.00
	Subtotal				\$413,240.00
	25% Contingency				\$103,310.00
	25% Administration, Legal, Engineering				\$103,310.00
	Total				\$619,860.00

Note: Box culvert -- 2 CY/LF @ \$425/CY

Description: Install Additional 12' x 12' x 280' RCB Culvert for North Fork Catfish Creek at University Ave.
Alignment of Proposed Box Culvert Runs Parallel to Existing 12' x 12' RCB Culvert

* Unit costs based on 1999 dollars.

BEE BRANCH DRAINAGE BASIN
OPINION OF PROBABLE CONSTRUCTION COSTS

**Table A-31. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin
Upstream Improvements and Excavate West 32nd Street Detention - Alternative W32-1**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Northwest Arterial (W32_ST_15)					
1	Modify Drainage Inlet	LS	\$ 2,000.00	1	\$2,000.00
2	Subtotal Northwest Arterial Improvements				\$2,000.00
J.F. Kennedy (W32_ST_14)					
3	Excavation	CY	\$3.00	80,000	\$240,000.00
4	Area Clearing & Grubbing	AC	\$2,000.00	3.0	\$6,000.00
5	Improved Drainage Inlet	LS	\$15,000.00	1	\$15,000.00
6	Topsoil	AC	\$3,000.00	3.0	\$9,000.00
7	Seeding	AC	\$3,000.00	3.0	\$9,000.00
8	Subtotal J.F. Kennedy Improvements				\$279,000.00
Pedestrian Crossing (W32_ST_13)					
9	Embankment	CY	\$5.00	9,000	\$45,000.00
10	Area Clearing & Grubbing	AC	\$2,000.00	1	\$2,000.00
11	Extend Drainage Pipe	LF	\$101.65	170.0	\$17,280.50
12	Culvert Wingwall/Headwall	LS	\$2,600.00	1	\$2,600.00
13	Topsoil	AC	\$3,000.00	1	\$3,000.00
14	Seeding	AC	\$3,000.00	1	\$3,000.00
15	Subtotal Pedestrian Crossing Improvements				\$72,880.50
Detention Storage (W32_DET_4)					
16	Embankment	CY	\$5.00	70,000	\$350,000.00
17	Area Clearing & Grubbing	AC	\$2,000.00	3.5	\$7,000.00
18	48-IN PCCP	LF	\$170.00	270.0	\$45,900.00
19	48-IN Controlled Gate with Sensor	LS	\$20,000.00	1	\$20,000.00
20	Intake Structure (concrete riser)	LS	\$60,000.00	1	\$60,000.00
21	Outlet Structure (energy dissipater)	LS	\$44,000.00	1	\$44,000.00
22	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
23	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
24	Topsoil	AC	\$3,000.00	3.5	\$10,500.00
25	Seeding	AC	\$3,000.00	3.5	\$10,500.00
26	Subtotal Detention Storage W32_DET_4				\$582,900.00
West 32nd Street Detention					
27	Remove Existing Drainage Outlet	LS	\$10,000.00	1	\$10,000.00
28	Buyout of Residential Homes (15)	LS	\$1,400,000.00	1	\$1,400,000.00
29	Excavation	CY	\$5.00	146,000	\$730,000.00
30	Area Clearing & Grubbing	AC	\$2,000.00	12	\$24,000.00
31	Automatic Controlled Gate (12' x 12')	LS	\$192,000.00	1	\$192,000.00
32	Monitoring Manhole with Modem	LS	\$10,000.00	4	\$40,000.00
33	Outlet Weir Structure	CY	\$350.00	120	\$42,000.00
34	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
35	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
36	Topsoil	AC	\$3,000.00	12	\$36,000.00
37	Seeding	AC	\$3,000.00	12	\$36,000.00
38	Subtotal West 32nd Street Detention				\$2,545,000.00
39	Subtotal all Improvements - Alternative 1				\$3,481,780.50
40	25% Contingency				\$870,445.13
41	25% Administration, Legal, Engineering				\$870,445.13
42	Total				\$5,222,670.75

* Unit costs based on 1999 dollars.

**Table A-32. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin
Upstream Improvements and Build Berm at West 32nd Street Detention - Alt. W32-2**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Northwest Arterial (W32_ST_15)					
1	Modify Drainage Inlet	LS	\$ 2,000.00	1	\$2,000.00
2	Subtotal Northwest Arterial Improvements				\$2,000.00
J.F. Kennedy (W32_ST_14)					
3	Excavation	CY	\$3.00	80,000	\$240,000.00
4	Area Clearing & Grubbing	AC	\$2,000.00	3.0	\$6,000.00
5	Improved Drainage Inlet	LS	\$15,000.00	1	\$15,000.00
6	Topsoil	AC	\$3,000.00	3.0	\$9,000.00
7	Seeding	AC	\$3,000.00	3.0	\$9,000.00
8	Subtotal J.F. Kennedy Improvements				\$279,000.00
Pedestrian Crossing (W32_ST_13)					
9	Embankment	CY	\$5.00	9,000	\$45,000.00
10	Area Clearing & Grubbing	AC	\$2,000.00	1	\$2,000.00
11	Extend Drainage Pipe	LF	\$101.65	170.0	\$17,280.50
12	Culvert Wingwall/Headwall	LS	\$2,600.00	1	\$2,600.00
13	Topsoil	AC	\$3,000.00	1	\$3,000.00
14	Seeding	AC	\$3,000.00	1	\$3,000.00
15	Subtotal Pedestrian Crossing Improvements				\$72,880.50
Detention Storage (W32_DET_4)					
16	Embankment	CY	\$5.00	70,000	\$350,000.00
17	Area Clearing & Grubbing	AC	\$2,000.00	3.5	\$7,000.00
18	48-IN PCCP	LF	\$170.00	270.0	\$45,900.00
19	48-IN Controlled Gate with Sensor	LS	\$20,000.00	1	\$20,000.00
20	Intake Structure (concrete riser)	LS	\$60,000.00	1	\$60,000.00
21	Outlet Structure (energy dissipater)	LS	\$44,000.00	1	\$44,000.00
22	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
23	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
24	Topsoil	AC	\$3,000.00	3.5	\$10,500.00
25	Seeding	AC	\$3,000.00	3.5	\$10,500.00
26	Subtotal Detention Storage W32_DET_4				\$582,900.00
West 32nd Street Detention					
27	Remove Existing Drainage Outlet	LS	\$10,000.00	1	\$10,000.00
28	Buyout of Residential Homes (15)	LS	\$1,400,000.00	1	\$1,400,000.00
29	Embankment	CY	\$5.00	3,000	\$15,000.00
30	Area Clearing & Grubbing	AC	\$2,000.00	2	\$4,000.00
31	Automatic Controlled Gate (12' x 12')	LS	\$192,000.00	1	\$192,000.00
32	Monitoring Manhole with Modem	LS	\$10,000.00	4	\$40,000.00
33	Outlet Weir Structure	CY	\$350.00	120	\$42,000.00
34	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
35	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
36	Topsoil	AC	\$3,000.00	2	\$6,000.00
37	Seeding	AC	\$3,000.00	2	\$6,000.00
38	Subtotal West 32nd Street Detention				\$1,750,000.00
39	Subtotal all Improvements - Alternative 2				\$2,686,780.50
40	25% Contingency				\$671,695.13
41	25% Administration, Legal, Engineering				\$671,695.13
42	Total				\$4,030,170.75

* Unit costs based on 1999 dollars.

**Table A-33. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin
Upstream Improvements and Excavate West 32nd Street Detention - Alternative W32-3**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Northwest Arterial (W32_ST_15)					
1	Modify Drainage Inlet	LS	\$ 2,000.00	1	\$2,000.00
2	Subtotal Northwest Arterial Improvements				\$2,000.00
Detention Storage (W32_DET_4)					
3	Embankment	CY	\$5.00	70,000	\$350,000.00
4	Area Clearing & Grubbing	AC	\$2,000.00	3.5	\$7,000.00
5	48-IN PCCP	LF	\$170.00	270.0	\$45,900.00
6	48-IN Controlled Gate with Sensor	LS	\$20,000.00	1	\$20,000.00
7	Intake Structure (concrete riser)	LS	\$60,000.00	1	\$60,000.00
8	Outlet Structure (energy dissipater)	LS	\$44,000.00	1	\$44,000.00
9	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
10	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
11	Topsoil	AC	\$3,000.00	3.5	\$10,500.00
12	Seeding	AC	\$3,000.00	3.5	\$10,500.00
13	Subtotal Detention Storage W32_DET_4				\$582,900.00
West 32nd Street Detention					
14	Remove Existing Drainage Outlet	LS	\$10,000.00	1	\$10,000.00
15	Buyout of Residential Homes (15)	LS	\$1,400,000.00	1	\$1,400,000.00
16	Excavation	CY	\$5.00	146,000	\$730,000.00
17	Area Clearing & Grubbing	AC	\$2,000.00	12	\$24,000.00
18	Automatic Controlled Gate (12' x 12')	LS	\$192,000.00	1	\$192,000.00
19	Monitoring Manhole with Modem	LS	\$10,000.00	4	\$40,000.00
20	Outlet Weir Structure	CY	\$350.00	120	\$42,000.00
21	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
22	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
23	Topsoil	AC	\$3,000.00	12	\$36,000.00
24	Seeding	AC	\$3,000.00	12	\$36,000.00
25	Subtotal West 32nd Street Detention				\$2,545,000.00
26	Subtotal all Improvements - Alternative 3				\$3,129,900.00
27	25% Contingency				\$782,475.00
28	25% Administration, Legal, Engineering				\$782,475.00
29	Total				\$4,694,850.00

* Unit costs based on 1999 dollars.

**Table A-34. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin
Upstream Improvements and Build Berm at West 32nd Street Detention - Alt. W32-4**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Northwest Arterial (W32_ST_15)					
1	Modify Drainage Inlet	LS	\$ 2,000.00	1	\$2,000.00
2	Subtotal Northwest Arterial Improvements				\$2,000.00
Detention Storage (W32_DET_4)					
3	Embankment	CY	\$5.00	70,000	\$350,000.00
4	Area Clearing & Grubbing	AC	\$2,000.00	3.5	\$7,000.00
5	48-IN PCCP	LF	\$170.00	270.0	\$45,900.00
6	48-IN Controlled Gate with Sensor	LS	\$20,000.00	1	\$20,000.00
7	Intake Structure (concrete riser)	LS	\$60,000.00	1	\$60,000.00
8	Outlet Structure (energy dissipater)	LS	\$44,000.00	1	\$44,000.00
9	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
10	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
11	Topsoil	AC	\$3,000.00	3.5	\$10,500.00
12	Seeding	AC	\$3,000.00	3.5	\$10,500.00
13	Subtotal Detention Storage W32_DET_4				\$582,900.00
West 32nd Street Detention					
14	Remove Existing Drainage Outlet	LS	\$10,000.00	1	\$10,000.00
15	Buyout of Residential Homes (15)	LS	\$1,400,000.00	1	\$1,400,000.00
16	Embankment	CY	\$5.00	3,000	\$15,000.00
17	Area Clearing & Grubbing	AC	\$2,000.00	2	\$4,000.00
18	Automatic Controlled Gate (12' x 12')	LS	\$192,000.00	1	\$192,000.00
19	Monitoring Manhole with Modem	LS	\$10,000.00	4	\$40,000.00
20	Outlet Weir Structure	CY	\$350.00	120	\$42,000.00
21	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
22	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
23	Topsoil	AC	\$3,000.00	2	\$6,000.00
24	Seeding	AC	\$3,000.00	2	\$6,000.00
25	Subtotal West 32nd Street Detention				\$1,750,000.00
26	Subtotal all Improvements - Alternative 4				\$2,334,900.00
27	25% Contingency				\$583,725.00
28	25% Administration, Legal, Engineering				\$583,725.00
29	Total				\$3,502,350.00

* Unit costs based on 1999 dollars.

**Table A-35. Preliminary Construction Cost Estimate, West 32nd Street Drainage Basin
Upstream Improvements, Build Berm & Excavate at West 32nd Street Detention - Alt. W32-5**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Northwest Arterial (W32_ST_15)					
1	Modify Drainage Inlet	LS	\$ 2,000.00	1	\$2,000.00
2	Subtotal Northwest Arterial Improvements				\$2,000.00
Detention Storage (W32_DET_4)					
3	Embankment	CY	\$5.00	70,000	\$350,000.00
4	Area Clearing & Grubbing	AC	\$2,000.00	3.5	\$7,000.00
5	48-IN PCCP	LF	\$170.00	270.0	\$45,900.00
6	48-IN Controlled Gate with Sensor	LS	\$20,000.00	1	\$20,000.00
7	Intake Structure (concrete riser)	LS	\$60,000.00	1	\$60,000.00
8	Outlet Structure (energy dissipater)	LS	\$44,000.00	1	\$44,000.00
9	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
10	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
11	Topsoil	AC	\$3,000.00	3.5	\$10,500.00
12	Seeding	AC	\$3,000.00	3.5	\$10,500.00
13	Subtotal Detention Storage W32_DET_4				\$582,900.00
West 32nd Street Detention					
14	Remove Existing Drainage Outlet	LS	\$10,000.00	1	\$10,000.00
15	Buyout of Residential Homes (15)	LS	\$1,400,000.00	1	\$1,400,000.00
16	Excavation	CY	\$5.00	146,000	\$730,000.00
17	Embankment	CY	\$3.00	3,000	\$9,000.00
18	Area Clearing & Grubbing	AC	\$2,000.00	12	\$24,000.00
19	Automatic Controlled Gate (12' x 12')	LS	\$192,000.00	1	\$192,000.00
20	Monitoring Manhole with Modem	LS	\$10,000.00	4	\$40,000.00
21	Outlet Weir Structure	CY	\$350.00	120	\$42,000.00
22	Control Building (8' x 8')	LS	\$15,000.00	1	\$15,000.00
23	Controller and Control Manhole	LS	\$20,000.00	1	\$20,000.00
24	Topsoil	AC	\$3,000.00	12	\$36,000.00
25	Seeding	AC	\$3,000.00	12	\$36,000.00
26	Subtotal West 32nd Street Detention				\$2,554,000.00
27	Subtotal all Improvements - Alternative 5				\$3,138,900.00
28	25% Contingency				\$784,725.00
29	25% Administration, Legal, Engineering				\$784,725.00
30	Total				\$4,708,350.00

* Unit costs based on 1999 dollars.

**Table A-36. Preliminary Construction Cost Estimate Kaufmann Avenue Subarea:
Grandview/Kaufmann Detention Cell**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal	LF	\$20.00	550	\$11,000.00
2	Curb and Gutter	LF	\$20.00	500	\$10,000.00
3	Excavation of Unusable Material	CY	\$4.00	3,000	\$12,000.00
4	Excavation of Existing Sanitary Sewer	LF	\$20.00	300	\$6,000.00
5	Utility Relocations	LF	\$150.00	550	\$82,500.00
6	Bedding	LF	\$25.00	150	\$3,750.00
7	48-inch RCP Storm Sewer	LF	\$100.00	150	\$15,000.00
8	Backfill for Storm Sewer	LF	\$45.00	150	\$6,750.00
9	Placement of Embankment	CY	\$10.00	17,000	\$170,000.00
10	Traffic Warning Signals and Add'l Lighting	LS	\$30,000.00	1	\$30,000.00
11	Seeding	ACRE	\$2,500.00	2	\$5,000.00
	Subtotal				\$352,000.00
	25% Contingency				\$88,000.00
	25% Administration, Legal, Engineering				\$88,000.00
	Total				\$528,000.00

* Unit costs based on 1999 dollars.

Description: Construct detention cell at Grandview/Kaufmann Connector road.

**Table A-37. Preliminary Construction Cost Estimate
Bee Branch Storm Sewer Trunkline Improvements:
Alternative 1 - Parallel Storm Sewer**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal and Replacement	LF	\$180.00	5,300	\$954,000.00
2	Excavation	LF	\$75.00	5,300	\$397,500.00
3	Bedding	LF	\$100.00	5,300	\$530,000.00
4	Storm Sewer Trunk Line	LF	\$1,800.00	5,300	\$9,540,000.00
5	Utility Relocations	LF	\$150.00	5,300	\$795,000.00
6	Backfill	LF	\$45.00	5,300	\$238,500.00
7	Seeding	LF	\$2.50	5,300	\$13,250.00
	Subtotal				\$12,468,250.00
	25% Contingency				\$3,117,062.50
	25% Administration, Legal, Engineering				\$3,117,062.50
	Total				\$18,702,375.00

* Unit costs based on 1999 dollars.

Alternative 1 with 5 Sewer Lines:

\$93,511,875.00

Description: Additional Parallel Storm Sewer from 16th Street Detention Cell to 24th Street to Supplement Existing Bee Branch Storm Sewer

**Table A-38. Preliminary Construction Cost Estimate
Bee Branch Storm Sewer Trunkline Improvements:
Alternative 2 - Flood Control Channel, Phase I - 16th Street Detention Cell to Garfield Ave.**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal	LF	\$20.00	2,500	\$50,000.00
2	Excavation	LF	\$200.00	2,500	\$500,000.00
3	Utility Relocations	LF	\$150.00	2,500	\$375,000.00
4	Relocate Railroad Track	LF	\$50.00	2,000	\$100,000.00
5	Bridge Construction - Roadway	LS	\$700,000.00	1	\$700,000.00
6	Bridge Construction - 2 Track Railroad	LS	\$1,000,000.00	1	\$1,000,000.00
7	Riprap - 72' Channel Bottom - 2' thick (136 lb/CF)	LF	\$250.00	2,500	\$625,000.00
8	Seeding (75' @ \$2,500/AC)	LF	\$4.50	2,500	\$11,250.00
9	Landscaping	LS	\$70,000.00	1	\$70,000.00
10	Pedestrian/Bike Trail (10' wide)	SF	\$2.00	25,000	\$50,000.00
11	Paving	LF	\$100.00	2,500	\$250,000.00
	Subtotal				\$3,731,250.00
	25% Contingency				\$932,812.50
	25% Administration, Legal, Engineering				\$932,812.50
12	Purchase/Relocate Residential Homes and Businesses	EACH	\$100,000.00	13	\$1,300,000.00
	Total				\$6,896,875.00

* Unit costs based on 1999 dollars.

Note: Roadway Bridge -- 150' x 68' @ \$65/sq. ft.

Description: Replace Existing Bee Branch Storm Sewer System with Flood Control Channel.
Alignment of Proposed Flood Control Channel Extends from 16th St. Detention Cell to 24th St.
Phase II Only Includes the First 2500' of Flood Control Channel Starting at the 16th St. Detention Cell.

Table A-39. Preliminary Construction Cost Estimate
Bee Branch Storm Sewer Trunkline Improvements:
Alternative 3 - Flood Control Channel, Phases I & II - 16th Street Detention Cell to 24th Street

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal	LF	\$20.00	4,500	\$90,000.00
2	Excavation	LF	\$200.00	4,500	\$900,000.00
3	Utility Relocations	LF	\$150.00	4,500	\$675,000.00
4	Relocate Railroad Track	LF	\$50.00	2,000	\$100,000.00
5	Bridge Construction - Roadway	LS	\$700,000.00	3	\$2,100,000.00
6	Bridge Construction - 2 Track Railroad	LS	\$1,000,000.00	1	\$1,000,000.00
7	Riprap - 72' Channel Bottom - 2' thick (136 lb/CF)	LF	\$250.00	4,500	\$1,125,000.00
8	Seeding (75' @ \$2,500/AC)	LF	\$4.50	4,500	\$20,250.00
9	Landscaping	LS	\$125,000.00	1	\$125,000.00
10	Pedestrian/Bike Trail (10' wide)	SF	\$2.00	45,000	\$90,000.00
11	Paving	LF	\$100.00	4,500	\$450,000.00
	Subtotal				\$6,675,250.00
	25% Contingency				\$1,668,812.50
	25% Administration, Legal, Engineering				\$1,668,812.50
12	Purchase/Relocate Residential Homes and Businesses	EACH	\$100,000.00	71	\$7,100,000.00
	Total				<u><u>\$17,112,875.00</u></u>

* Unit costs based on 1999 dollars.

Notes:

1. Roadway Bridge -- 150' x 68' @ \$65/sq. ft.
2. Flood Control Channel Assumed to Begin at 16th St. Detention Cell and End at 24th St.

Description: Replace Existing Bee Branch Storm Sewer System with 4500' Flood Control Channel.
Alignment of Proposed Flood Control Channel Extends from 16th St. Detention Cell to 24th St.

**Table A-40. Preliminary Construction Cost Estimate
Bee Branch Storm Sewer Trunkline Improvements:
Alternative 4 - 90-ft. x 10-ft. Box Culvert from 16th Street Detention Cell to 24th Street**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
1	Pavement Removal and Replacement	LF	\$180.00	4,500	\$810,000.00
2	Excavation	LF	\$180.00	4,500	\$810,000.00
3	Utility Relocations	LF	\$150.00	4,500	\$675,000.00
4	Bedding	LF	\$500.00	4,500	\$2,250,000.00
5	Backfill	LF	\$200.00	4,500	\$900,000.00
6	Seeding	LF	\$10.00	4,500	\$45,000.00
7	Box Culvert -- 900 sq. ft.	LF	\$6,500.00	4,500	\$29,250,000.00
	Subtotal				\$34,740,000.00
	25% Contingency				\$8,685,000.00
	25% Administration, Legal, Engineering				\$8,685,000.00
8	Purchase/Relocate Residential Homes and Businesses	EACH	\$100,000.00	50	\$5,000,000.00
	Total				\$57,110,000.00

* Unit costs based on 1999 dollars.

Note: Box culvert -- 14.8 CY/LF @ \$425/CY

Description: Replace Existing Bee Branch Storm Sewer System. Alignment of Proposed Box Culvert Extends from 16th St. Detention Cell to 24th St.

**Table A-41. Preliminary Construction Cost Estimate
Bee Branch Storm Sewer Trunkline Improvements:
Alternative 5 - Parallel Storm Sewer and 500 SF Channel**

No.	Description	Unit	Unit Cost*	Quantity	Item Cost
Storm Sewer					
1	Pavement Removal and Replacement	LF	\$180.00	5,300	\$954,000.00
2	Excavation	LF	\$75.00	5,300	\$397,500.00
3	Bedding	LF	\$100.00	5,300	\$530,000.00
4	Storm Sewer Trunk Line	LF	\$1,800.00	5,300	\$9,540,000.00
5	Utility Relocations	LF	\$150.00	5,300	\$795,000.00
6	Backfill	LF	\$45.00	5,300	\$238,500.00
7	Seeding	LF	\$2.50	5,300	\$13,250.00
Flood Control Channel					
1	Pavement Removal	LF	\$11.00	4,500	\$49,500.00
2	Excavation	LF	\$111.00	4,500	\$499,500.00
3	Utility Relocations	LF	\$150.00	4,500	\$675,000.00
4	Relocate Railroad Track	LF	\$50.00	2,000	\$100,000.00
5	Bridge Construction - Roadway	LS	\$412,000.00	3	\$1,236,000.00
6	Bridge Construction - 2 Track Railroad	LS	\$590,000.00	1	\$590,000.00
7	Riprap - 40' Channel Bottom - 2' thick (136 lb/CF)	LF	\$140.00	4,500	\$630,000.00
8	Seeding (75' @ \$2,500/AC)	LF	\$2.50	4,500	\$11,250.00
9	Landscaping	LS	\$125,000.00	1	\$125,000.00
10	Pedestrian/Bike Trail (10' wide)	SF	\$2.00	45,000	\$90,000.00
11	Paving	LF	\$100.00	4,500	\$450,000.00
	Subtotal				\$16,924,500.00
	25% Contingency				\$4,231,125.00
	25% Administration, Legal, Engineering				\$4,231,125.00
12	Purchase/Relocate Residential Homes and Businesses	EACH	\$100,000.00	40	\$4,000,000.00
	Total				\$29,386,750.00

* Unit costs based on 1999 dollars.

Description: Replace Existing Bee Branch Storm Sewer System with Parallel Storm Sewer and Flood Control Channel. Alignments of Parallel Storm Sewer and Flood Control Channel extend from 16th St. Detention Cell to 24th St.