

## **Appendix 1 – Conceptual Cost Estimate**

PROJECT	25-yr LOP	50-yr LOP	100-yr LOP
Northeast Park Area	\$ 5,779,149	\$ 7,352,399	\$ 8,925,649
Northwest Park Area	\$ 15,709,865	\$ 15,709,865	\$ 15,709,865
Crescent & Chester	\$ 7,975,993	\$ 9,778,488	\$ 12,341,095
Sibley Storm Sewer	\$ 12,010,186	\$ 12,010,186	\$ 12,010,186
Sibley - Milton/Irwin/Babetta	\$ 2,205,965	\$ 2,205,965	\$ 2,205,965
Sibley - Cherry Street	\$ 3,916,697	\$ 4,719,119	\$ 5,742,616
Sibley - PRCC Storage	\$ 24,624,996	\$ 29,839,722	\$ 35,874,458
Sibley - Delphia/Laverne/Lahon	\$ 1,870,290	\$ 1,910,564	\$ 1,933,039
Sibley - Austin Street	\$ 510,328	\$ 510,328	\$ 628,140
Sibley - Hastings Street	\$ 1,307,523	\$ 1,450,065	\$ 1,464,754
Marvin Parkway	\$ 1,731,568	\$ 2,301,998	\$ 2,301,998
Southwest Park	\$ 3,097,744	\$ 3,792,453	\$ 4,447,665
Mayfield	\$ 2,506,412	\$ 2,506,412	\$ 2,506,412
<b>TOTAL</b>	<b>\$ 83,246,715</b>	<b>\$ 94,087,564</b>	<b>\$ 106,091,842</b>

**Northeast Park Area - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	6	\$ 2,700,000	8	\$ 3,600,000	10	\$ 4,500,000
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	9	\$ 72,000	9	\$ 72,000	9	\$ 72,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95	25	\$ 2,375	25	\$ 2,375	25	\$ 2,375
24" RCP	LF	\$ 105	201	\$ 21,105	201	\$ 21,105	201	\$ 21,105
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140	735	\$ 102,900	735	\$ 102,900	735	\$ 102,900
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190	99	\$ 18,810	99	\$ 18,810	99	\$ 18,810
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	329	\$ 98,700	329	\$ 98,700	329	\$ 98,700
Intersection Drainage	EA	\$ 25,000	3	\$ 75,000	3	\$ 75,000	3	\$ 75,000
Trench Backfill	CY	\$ 35	2942	\$ 102,970	2942	\$ 102,970	2942	\$ 102,970
Pavement Patching	SY	\$ 50	1556	\$ 77,800	1556	\$ 77,800	1556	\$ 77,800
Water Service Adjustment	EA	\$ 3,000	18	\$ 54,000	18	\$ 54,000	18	\$ 54,000
Excavation	CY	\$ 10	16776	\$ 167,760	22368	\$ 223,680	27960	\$ 279,600
Haul off	CY	\$ 40	9680	\$ 387,200	12907	\$ 516,280	16134	\$ 645,360
Topsoil (Furnish and Place)	SY	\$ 8	10000	\$ 75,000	10000	\$ 75,000	10000	\$ 75,000
Seeding	SY	\$ 3	10000	\$ 30,000	10000	\$ 30,000	10000	\$ 30,000
			<b>Total</b>	<b>\$ 3,985,620</b>	<b>Total</b>	<b>\$ 5,070,620</b>	<b>Total</b>	<b>\$ 6,155,620</b>
Contingency & Minor Items - 25%				\$ 996,405.00		\$ 1,267,655.00		\$ 1,538,905.00
Subtotal				\$ 4,982,025.00		\$ 6,338,275.00		\$ 7,694,525.00
Permitting/Engineering (8%)				\$ 398,562.00		\$ 507,062.00		\$ 615,562.00
Construction Engineering (8%)				\$ 398,562.00		\$ 507,062.00		\$ 615,562.00
<b>TOTAL</b>				<b>\$ 5,779,149.00</b>		<b>\$ 7,352,399.00</b>		<b>\$ 8,925,649.00</b>

# Northwest Park Sewer Separation\_100yr\_Updated for 2017

(No outfall sewer, 100-yr storage in park)

City of Park Ridge, Illinois

Christopher B. Burke Engineering, Ltd.

10/10/2013

## Engineer's Opinion of Approximate Cost (Conceptual)

Item	Unit	Quantity	Unit Price	Cost	
Pond Excavation/Grading/Underdrainage	Cu Yd	72,675	\$35	\$2,543,625	
Trench Backfill	Cu Yd	17,455	\$35	\$610,925	
Storm Sewer, 18"	Foot	2,975	\$80	\$238,000	
Storm Sewer, 24"	Foot	2,525	\$95	\$239,875	
Storm Sewer, 30"	Foot	300	\$110	\$33,000	
Storm Sewer, 36"	Foot	800	\$140	\$112,000	
Storm Sewer, 54"	Foot	175	\$235	\$41,125	
Storm Sewer, 72"	Foot	2,330	\$275	\$640,750	
RCBC, 1' x 4'	Foot	30	\$500	\$15,000	
RCBC, 5' x 10'	Foot	525	\$750	\$393,750	
Precast Sewer Manholes, 5'-Diameter	Each	26	\$5,000	\$130,000	
Precast Sewer Base Tee (48" and Larger)	Each	2	\$5,500	\$11,000	
CIP Sewer Junction Chambers (90^ mainline pipe angle) - Small	Each	5	\$25,000	\$125,000	
CIP Sewer Junction Chambers (90^ mainline pipe angle) - Large	Each	10	\$60,000	\$600,000	
Headwall/Wingwall (5'x10' BC)	Each	1	\$75,000	\$75,000	
Precast Manhole, 8'-Diameter, with Check Valve	Each	1	\$20,000	\$20,000	
Intersection Drainage	Each	15	\$25,000	\$375,000	
Midblock Drainage	Each	14	\$15,000	\$210,000	
River Outfall	L Sum	1	\$100,000	\$100,000	
Pump Station Modifications	L Sum	1	\$100,000	\$100,000	
Ductile Iron Water Main, 8"	Foot	1,550	\$90	\$139,500	
Ductile Iron Water Main, 12"	Foot	0	\$125	\$0	
Valve in Vault, 12" or Less	Each	7	\$5,500	\$38,500	
Remove and Replace Fire Hydrants and Auxilliary Valves	Each	25	\$5,000	\$125,000	
Water Service Replacement	Each	112	\$3,000	\$336,000	
Sanitary Service Replacement	Each	49	\$3,000	\$147,000	
Pavement Patching	Sq Yd	12,791	\$55	\$703,505	
HMA Pavement Resurfacing	Sq Yd	32,412	\$35	\$1,134,420	
Curb and Gutter Removal & Replacement	Foot	11,511	\$28	\$322,308	
Landscape Restoration	Sq Yd	9,205	\$12	\$110,460	
Erosion and Sediment Control	L Sum	1	\$50,000	\$50,000	
Traffic Control (4%)	L Sum	1	\$388,830	\$388,830	4%
Mobilization (4%)	L Sum	1	\$388,830	\$388,830	4%
Railroad Land Agreement	L Sum	1	\$250,000	\$250,000	
Sub-Total				\$10,748,402	
20% Contingency & Minor Items				\$2,149,680	
Construction Total				\$12,898,083	
Permitting/Engineering (8%)				\$1,031,847	
Construction Engineering (8%)				\$1,031,847	
Engineering Total				\$2,063,693	
Construction Total				\$12,898,083	
Engineering Total				\$2,063,693	
Total Estimated Project Cost - 2014				\$14,961,776	
Total Estimated Project Cost - 2017 (add 5%)				\$15,709,865	

### Assumptions:

1. Estimate is conceptual only, without any topographic survey, soil information or extensive utility information.
2. All costs in 2014 dollars.
3. Estimate assumes that all existing combo sewers, regardless of size, will remain in place and be utilized as sanitary sewers.
4. Easement cost of \$10/sq ft assumed.

Crescent & Chester Area - Concept Level Cost Estimate

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	7.2	\$ 3,240,000	9	\$ 4,050,000	12	\$ 5,400,000
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	14	\$ 112,000	14	\$ 112,000	14	\$ 112,000
12" RCP	LF	\$ 75	100	\$ 7,500	100	\$ 7,500	100	\$ 7,500
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140		\$ -		\$ -		\$ -
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	2597	\$ 779,100		\$ -		\$ -
66" RCP	LF	\$ 350		\$ -		\$ -		\$ -
72" RCP	LF	\$ 400		\$ -	2597	\$ 1,038,800		\$ -
84" RCP	LF	\$ 450		\$ -		\$ -	2597	\$ 1,168,650
Intersection Drainage	EA	\$ 25,000	6	\$ 150,000	6	\$ 150,000	6	\$ 150,000
Trench Backfill	CY	\$ 35	4787	\$ 167,545	4787	\$ 167,545	5034	\$ 176,190
Pavement Patching	SY	\$ 50	3358	\$ 167,900	3663	\$ 183,150	3968	\$ 198,400
Water Service Adjustment	EA	\$ 3,000	39	\$ 117,000	39	\$ 117,000	39	\$ 117,000
Excavation	CY	\$ 10	16795	\$ 167,950	20994	\$ 209,940	27991	\$ 279,910
Haul off	CY	\$ 40	11616	\$ 464,640	14520	\$ 580,800	19360	\$ 774,400
Topsoil (Furnish and Place)	SY	\$ 8	12100	\$ 90,750	12100	\$ 90,750	12100	\$ 90,750
Seeding	SY	\$ 3	12100	\$ 36,300	12100	\$ 36,300	12100	\$ 36,300
			<b>Subtotal</b>	<b>\$ 5,500,685</b>	<b>Subtotal</b>	<b>\$ 6,743,785</b>	<b>Subtotal</b>	<b>\$ 8,511,100</b>
Contingency & Minor Items - 25%				\$ 1,375,171	\$ 1,685,946		\$ 2,127,775	
Subtotal				\$ 6,875,856	\$ 8,429,731		\$ 10,638,875	
Permitting/Engineering (8%)				\$ 550,069	\$ 674,379		\$ 851,110	
Construction Engineering (8%)				\$ 550,069	\$ 674,379		\$ 851,110	
<b>TOTAL</b>			<b>\$ 7,975,993.25</b>		<b>\$ 9,778,488.25</b>		<b>\$ 12,341,095.00</b>	

# Sibley 84" Storm Sewer for 2017 SMP - Concept Cost Estimate

City of Park Ridge, Illinois  
Christopher B. Burke Engineering, Ltd.

10/15/2013

## Engineer's Opinion of Approximate Cost (Conceptual)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Cost</u>
Trench Backfill	Cu Yd	20,980	\$35	\$734,300
Storm Sewer, 12"	Foot	0	\$60	\$0
Storm Sewer, 18"	Foot	600	\$75	\$45,000
Storm Sewer, 24"	Foot	0	\$90	\$0
Storm Sewer, 36"	Foot	375	\$130	\$48,750
Storm Sewer, 48"	Foot	590	\$175	\$103,250
Storm Sewer, 60"	Foot	400	\$230	\$92,000
Storm Sewer, 72"	Foot	330	\$275	\$90,750
Storm Sewer, 72" (Jacked)	Foot	0	\$2,500	\$0
Storm Sewer, 84"	Foot	3,180	\$325	\$1,033,500
RCBC, 1' x 8'	Foot	0	\$800	\$0
RCBC, 3' x 10'	Foot	0	\$1,000	\$0
Combo Sewer, 42"	Foot	0	\$160	\$0
Combo Sewer, 84"	Foot	1,700	\$350	\$595,000
Sanitary Sewer, 12"	Foot	4,900	\$90	\$441,000
Precast Sewer Manholes, 5'-Diameter	Each	18	\$5,000	\$90,000
Precast Sewer Base Tee (48" and Larger)	Each	19	\$6,500	\$123,500
CIP Sewer Junction Chambers (90^ mainline pipe angle) - Small	Each	5	\$25,000	\$125,000
CIP Sewer Junction Chambers (90^ mainline pipe angle) - Large	Each	11	\$60,000	\$660,000
Intersection Drainage	Each	18	\$25,000	\$450,000
Midblock Drainage	Each	0	\$15,000	\$0
High-Capacity Inlets w/12" Laterals	Each	0	\$8,000	\$0
River Outfall	L Sum	1	\$100,000	\$100,000
Ductile Iron Water Main, 12"	Foot	1,700	\$125	\$212,500
Valve in Vault, 12" or Less	Each	15	\$5,500	\$82,500
Remove and Replace Fire Hydrants and Auxilliary Valves	Each	15	\$5,000	\$75,000
Water Service Replacement	Each	50	\$3,000	\$150,000
Sanitary Service Replacement	Each	50	\$3,000	\$150,000
Remove 84" Combo Sewer	Foot	1,700	\$125	\$212,500
Pavement Patching	Sq Yd	15,855	\$55	\$872,025
HMA Pavement Resurfacing	Sq Yd	16,985	\$35	\$594,475
Curb and Gutter Removal & Replacement	Foot	5,626	\$28	\$157,528
Landscape Restoration	Sq Yd	12,800	\$12	\$153,600
Erosion and Sediment Control	L Sum	1	\$50,000	\$50,000
Traffic Control (4%)	L Sum	1	\$297,687	\$297,687
Mobilization (4%)	L Sum	1	\$297,687	\$297,687
Railroad Land Agreement	L Sum	0	\$250,000	\$0
			Sub-Total	\$8,037,552
			20% Contingency & Minor Items	\$1,607,510
			<b>Construction Total</b>	<b>\$9,645,063</b>
			Permitting/Engineering (8%)	\$771,605
			Construction Engineering (8%)	\$771,605
			<b>Engineering Total</b>	<b>\$1,543,210</b>
			Utility Easements (Legal)	\$50,000
			Utility Easements (Purchase) <sup>4</sup>	\$200,000
			<b>Land Acquisition Total</b>	<b>\$250,000</b>
			Construction Total	\$9,645,063
			Engineering Total	\$1,543,210
			Land Acquisition Total	\$250,000
			<b>Total Estimated Project Cost (2013)</b>	<b>\$11,438,273</b>
			<b>Adjust 5% for 2017 costs</b>	<b>\$12,010,186</b>

### Assumptions:

1. Estimate is conceptual only, without any topographic survey, soil information or extensive utility information.
2. All costs in 2014 dollars.
3. Estimate assumes that all existing combo sewers, regardless of size, will remain in place and be utilized as sanitary sewers.
4. Easement cost of \$10/sq ft assumed.

**Sibley Corridor - Milton/Irwin/Babetta - Concept Level Cost Estimate**

			25-yr LOP		50-yr LOP		100-yr LOP	
ITEM	UNIT	UNIT COST	QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	0	\$ -	0	\$ -	0	\$ -
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	15	\$ 120,000	15	\$ 120,000	15	\$ 120,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140	2375	\$ 332,500	2375	\$ 332,500	2375	\$ 332,500
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190	1340	\$ 254,600	1340	\$ 254,600	1340	\$ 254,600
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300		\$ -		\$ -		\$ -
66" RCP	LF	\$ 325		\$ -		\$ -		\$ -
72" RCP	LF	\$ 400		\$ -		\$ -		\$ -
84" RCP	LF	\$ 500		\$ -		\$ -		\$ -
Intersection Drainage	EA	\$ 25,000	9	\$ 225,000	9	\$ 225,000	9	\$ 225,000
Trench Backfill	CY	\$ 35	4763	\$ 166,705	4763	\$ 166,705	4763	\$ 166,705
Pavement Patching	SY	\$ 50	4251	\$ 212,550	4251	\$ 212,550	4251	\$ 212,550
Water Service Adjustment	EA	\$ 3,000	70	\$ 210,000	70	\$ 210,000	70	\$ 210,000
			<b>Subtotal</b>	<b>\$ 1,521,355</b>	<b>Subtotal</b>	<b>\$ 1,521,355</b>	<b>Subtotal</b>	<b>\$ 1,521,355</b>
Contingency & Minor Items - 25%				\$ 380,338.75		\$ 380,338.75		\$ 380,338.75
Subtotal				\$ 1,901,693.75		\$ 1,901,693.75		\$ 1,901,693.75
Permitting/Engineering (8%)				\$ 152,135.50		\$ 152,135.50		\$ 152,135.50
Construction Engineering (8%)				\$ 152,135.50		\$ 152,135.50		\$ 152,135.50
<b>TOTAL</b>				<b>\$ 2,205,964.75</b>		<b>\$ 2,205,964.75</b>		<b>\$ 2,205,964.75</b>

**Sibley Corridor - Cherry St - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	2.2	\$ 990,000	3.2	\$ 1,440,000	4.6	\$ 2,070,000
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	10	\$ 80,000	10	\$ 80,000	10	\$ 80,000
12" RCP	LF	\$ 75	100	\$ 7,500	100	\$ 7,500	100	\$ 7,500
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105	1904	\$ 199,920		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140	1632	\$ 228,480	3536	\$ 495,040	2879	\$ 403,060
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -	657	\$ 124,830
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300		\$ -		\$ -		\$ -
66" RCP	LF	\$ 325		\$ -		\$ -		\$ -
Intersection Drainage	EA	\$ 25,000	7	\$ 175,000	7	\$ 175,000	7	\$ 175,000
Trench Backfill	CY	\$ 35	6834	\$ 239,190	6985	\$ 244,475	7083	\$ 247,905
Pavement Patching	SY	\$ 50	3658	\$ 182,900	3813	\$ 190,650	3893	\$ 194,650
Water Service Adjustment	EA	\$ 3,000	49	\$ 147,000	49	\$ 147,000	49	\$ 147,000
Excavation	CY	\$ 10	5930	\$ 59,300	8302	\$ 83,020	11860	\$ 118,600
Haul off	CY	\$ 40	7907	\$ 316,280	7907	\$ 316,280	7907	\$ 316,280
Topsoil (Furnish and Place)	SY	\$ 8	7200	\$ 54,000	7200	\$ 54,000	7200	\$ 54,000
Seeding	SY	\$ 3	7200	\$ 21,600	7200	\$ 21,600	7200	\$ 21,600
<b>Subtotal</b>				<b>\$ 2,701,170</b>	<b>Subtotal</b>	<b>\$ 3,254,565</b>	<b>Subtotal</b>	<b>\$ 3,960,425</b>

Contingency & Minor Items - 25%	\$ 675,292.50	\$ 813,641.25	\$ 990,106.25
Subtotal	\$ 3,376,462.50	\$ 4,068,206.25	\$ 4,950,531.25

Permitting/Engineering (8%)	\$ 270,117.00	\$ 325,456.50	\$ 396,042.50
Construction Engineering (8%)	\$ 270,117.00	\$ 325,456.50	\$ 396,042.50

<b>TOTAL</b>	<b>\$ 3,916,696.50</b>	<b>\$ 4,719,119.25</b>	<b>\$ 5,742,616.25</b>
--------------	------------------------	------------------------	------------------------



**Sibley Corridor - PRCC Main Storage - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	32.6	\$ 14,670,000	39.9	\$ 17,955,000	48.3	\$ 21,735,000
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	6	\$ 48,000	3	\$ 24,000	3	\$ 24,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140		\$ -		\$ -		\$ -
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	38	\$ 11,400	38	\$ 11,400	38	\$ 11,400
72" RCP	LF	\$ 400	177	\$ 70,800	177	\$ 70,800	177	\$ 70,800
Intersection Drainage	EA	\$ 25,000	1	\$ 25,000	1	\$ 25,000	1	\$ 25,000
Trench Backfill	CY	\$ 35	250	\$ 8,750	250	\$ 8,750	250	\$ 8,750
Pavement Patching	SY	\$ 50	0	\$ -	0	\$ -	0	\$ -
Water Service Adjustment	EA	\$ 3,000	0	\$ -	0	\$ -	0	\$ -
Excavation	CY	\$ 10	96755	\$ 967,550	118602	\$ 1,186,020	143571	\$ 1,435,710
Haul off	CY	\$ 40	52595	\$ 2,103,800	64372	\$ 2,574,880	77924	\$ 3,116,960
Restoration	L.SUM	\$ 750,000	1	\$ 750,000	1	\$ 750,000	1	\$ 750,000
<b>Subtotal</b>				<b>\$ 18,655,300</b>	<b>Subtotal</b>	<b>\$ 22,605,850</b>	<b>Subtotal</b>	<b>\$ 27,177,620</b>
Contingency & Minor Items - 20%				\$ 3,731,060.00	\$ 4,521,170.00		\$ 5,435,524.00	
Subtotal				\$ 22,386,360.00	\$ 27,127,020.00		\$ 32,613,144.00	
Permitting/Engineering (5%)				\$ 1,119,318.00	\$ 1,356,351.00		\$ 1,630,657.20	
Construction Engineering (5%)				\$ 1,119,318.00	\$ 1,356,351.00		\$ 1,630,657.20	
<b>TOTAL</b>				<b>\$ 24,624,996.00</b>	<b>\$ 29,839,722.00</b>		<b>\$ 35,874,458.40</b>	

**Sibley Corridor - Delphia/Laverne/Lahon - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 400,000		\$ -		\$ -		\$ -
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	13	\$ 104,000	13	\$ 104,000	13	\$ 104,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95	26	\$ 2,470	26	\$ 2,470	26	\$ 2,470
24" RCP	LF	\$ 105	675	\$ 70,875		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140	310	\$ 43,400	985	\$ 137,900	675	\$ 94,500
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190	10	\$ 1,900	10	\$ 1,900	320	\$ 60,800
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	1433	\$ 429,900	1433	\$ 429,900	1433	\$ 429,900
72" RCP	LF	\$ 400		\$ -		\$ -		\$ -
Intersection Drainage	EA	\$ 25,000	8	\$ 200,000	8	\$ 200,000	8	\$ 200,000
Trench Backfill	CY	\$ 35	4606	\$ 161,210	4606	\$ 161,210	4606	\$ 161,210
Pavement Patching	SY	\$ 50	2882	\$ 144,100	2965	\$ 148,250	2965	\$ 148,250
Water Service Adjustment	EA	\$ 3,000	44	\$ 132,000	44	\$ 132,000	44	\$ 132,000
			<b>Subtotal</b>	<b>\$ 1,289,855</b>	<b>Subtotal</b>	<b>\$ 1,317,630</b>	<b>Subtotal</b>	<b>\$ 1,333,130</b>
Contingency & Minor Items - 25%				\$ 322,463.75		\$ 329,407.50		\$ 333,282.50
Subtotal				\$ 1,612,318.75		\$ 1,647,037.50		\$ 1,666,412.50
Permitting/Engineering (8%)				\$ 128,985.50		\$ 131,763.00		\$ 133,313.00
Construction Engineering (8%)				\$ 128,985.50		\$ 131,763.00		\$ 133,313.00
<b>TOTAL</b>				<b>\$ 1,870,289.75</b>		<b>\$ 1,910,563.50</b>		<b>\$ 1,933,038.50</b>

**Sibley Corridor - Austin street - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000		\$ -		\$ -		\$ -
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	2	\$ 16,000	2	\$ 16,000	2	\$ 16,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140		\$ -		\$ -		\$ -
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	800	\$ 240,000	800	\$ 240,000		\$ -
72" RCP	LF	\$ 400		\$ -		\$ -	800	\$ 320,000
Intersection Drainage	EA	\$ 25,000	1	\$ 25,000	1	\$ 25,000	1	\$ 25,000
Trench Backfill	CY	\$ 35	700	\$ 24,500	700	\$ 24,500	700	\$ 24,500
Pavement Patching	SY	\$ 50	269	\$ 13,450	269	\$ 13,450	294	\$ 14,700
Topsoil (Furnish and Place)	SY	\$ 8	2000	\$ 15,000	2000	\$ 15,000	2000	\$ 15,000
Seeding	SY	\$ 6	2000	\$ 12,000	2000	\$ 12,000	2000	\$ 12,000
Water Service Adjustment	EA	\$ 3,000	2	\$ 6,000	2	\$ 6,000	2	\$ 6,000
<b>Subtotal</b>				<b>\$ 351,950</b>	<b>Subtotal</b>	<b>\$ 351,950</b>	<b>Subtotal</b>	<b>\$ 433,200</b>
Contingency & Minor Items - 25%				\$ 87,987.50		\$ 87,987.50		\$ 108,300.00
Subtotal				\$ 439,937.50		\$ 439,937.50		\$ 541,500.00
Permitting/Engineering (8%)				\$ 35,195.00		\$ 35,195.00		\$ 43,320.00
Construction Engineering (8%)				\$ 35,195.00		\$ 35,195.00		\$ 43,320.00
<b>TOTAL</b>				<b>\$ 510,327.50</b>		<b>\$ 510,327.50</b>		<b>\$ 628,140.00</b>

Sibley Corridor - Hastings Street - Concept Level Cost Estimate

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 400,000		\$ -		\$ -		\$ -
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	14	\$ 112,000	14	\$ 112,000	14	\$ 112,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105	2213	\$ 232,365	236	\$ 24,780		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140		\$ -	1977	\$ 276,780	2213	\$ 309,820
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300		\$ -		\$ -		\$ -
Intersection Drainage	EA	\$ 25,000	5	\$ 125,000	5	\$ 125,000	5	\$ 125,000
Trench Backfill	CY	\$ 35	3605	\$ 126,175	4091	\$ 143,185	4103	\$ 143,605
Pavement Patching	SY	\$ 50	2164	\$ 108,200	2406	\$ 120,300	2435	\$ 121,750
Water Service Adjustment	EA	\$ 3,000	66	\$ 198,000	66	\$ 198,000	66	\$ 198,000
			<b>Subtotal</b>	<b>\$ 901,740</b>	<b>Subtotal</b>	<b>\$ 1,000,045</b>	<b>Subtotal</b>	<b>\$ 1,010,175</b>
Contingency & Minor Items - 25%				\$ 225,435.00		\$ 250,011.25		\$ 252,543.75
Subtotal				\$ 1,127,175.00		\$ 1,250,056.25		\$ 1,262,718.75
Permitting/Engineering (8%)				\$ 90,174.00		\$ 100,004.50		\$ 101,017.50
Construction Engineering (8%)				\$ 90,174.00		\$ 100,004.50		\$ 101,017.50
<b>TOTAL</b>				<b>\$ 1,307,523.00</b>		<b>\$ 1,450,065.25</b>		<b>\$ 1,464,753.75</b>

**Sibley Corridor - Marvin Parkway - Concept Level Cost Estimate**

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	2	\$ 900,000	2.8	\$ 1,260,000		\$ -
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	2	\$ 16,000	2	\$ 16,000		\$ -
12" RCP	LF	\$ 75	270	\$ 20,250	270	\$ 20,250		\$ -
15" RCP	LF	\$ 85		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140		\$ -		\$ -		\$ -
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300		\$ -		\$ -		\$ -
66" RCP	LF	\$ 325		\$ -		\$ -		\$ -
Intersection Drainage	EA	\$ 25,000	2	\$ 50,000	2	\$ 50,000		\$ -
Trench Backfill	CY	\$ 35	297	\$ 10,395	297	\$ 10,395		\$ -
Pavement Patching	SY	\$ 50	231	\$ 11,550	231	\$ 11,550		\$ -
Water Service Adjustment	EA	\$ 3,000	23	\$ 69,000	23	\$ 69,000		\$ -
Excavation	CY	\$ 10	5930	\$ 59,300	8302	\$ 83,020		\$ -
Haul off	CY	\$ 40	807	\$ 32,280	1049	\$ 41,960		\$ -
Topsoil (Furnish and Place)	SY	\$ 8	2420	\$ 18,150	2420	\$ 18,150		\$ -
Seeding	SY	\$ 3	2420	\$ 7,260	2420	\$ 7,260		\$ -
<b>Subtotal</b>				<b>\$ 1,194,185</b>	<b>Subtotal</b>	<b>\$ 1,587,585</b>	<b>Subtotal</b>	<b>\$ 1,587,585</b>
Contingency & Minor Items - 25%				\$ 298,546.25	\$ 396,896.25		\$ 396,896.25	
Subtotal				\$ 1,492,731.25	\$ 1,984,481.25		\$ 1,984,481.25	
Permitting/Engineering (8%)				\$ 119,418.50	\$ 158,758.50		\$ 158,758.50	
Construction Engineering (8%)				\$ 119,418.50	\$ 158,758.50		\$ 158,758.50	
<b>TOTAL</b>				<b>\$ 1,731,568.25</b>	<b>\$ 2,301,998.25</b>		<b>\$ 2,301,998.25</b>	

Southwest Park Area - Concept Level Cost Estimate

ITEM	UNIT	UNIT COST	25-yr LOP		50-yr LOP		100-yr LOP	
			QTY	COST	QTY	COST	QTY	COST
Storage Vault	AC-FT	\$ 450,000	3	\$ 1,350,000	4	\$ 1,800,000	5	\$ 2,250,000
Manholes (avg cost for <6' and >7' dia)	EA	\$ 8,000	4	\$ 32,000	4	\$ 32,000	4	\$ 32,000
12" RCP	LF	\$ 75		\$ -		\$ -		\$ -
18" RCP	LF	\$ 95		\$ -		\$ -		\$ -
24" RCP	LF	\$ 105		\$ -		\$ -		\$ -
30" RCP	LF	\$ 120		\$ -		\$ -		\$ -
36" RCP	LF	\$ 140	800	\$ 112,000	800	\$ 112,000	800	\$ 112,000
42" RCP	LF	\$ 160		\$ -		\$ -		\$ -
48" RCP	LF	\$ 190		\$ -		\$ -		\$ -
54" RCP	LF	\$ 250		\$ -		\$ -		\$ -
60" RCP	LF	\$ 300	200	\$ 60,000	200	\$ 60,000	200	\$ 60,000
Intersection Drainage	EA	\$ 25,000	6	\$ 150,000	6	\$ 150,000	6	\$ 150,000
Trench Backfill	CY	\$ 35	3605	\$ 126,175	4091	\$ 143,185	4103	\$ 143,605
Pavement Patching	SY	\$ 50	2164	\$ 108,200	2406	\$ 120,300	2435	\$ 121,750
Water Service Adjustment	EA	\$ 3,000	66	\$ 198,000	66	\$ 198,000	66	\$ 198,000
			<b>Subtotal</b>	<b>\$ 2,136,375</b>	<b>Subtotal</b>	<b>\$ 2,615,485</b>	<b>Subtotal</b>	<b>\$ 3,067,355</b>
Contingency & Minor Items - 25%				\$ 534,093.75		\$ 653,871.25		\$ 766,838.75
Subtotal				\$ 2,670,468.75		\$ 3,269,356.25		\$ 3,834,193.75
Permitting/Engineering (8%)				\$ 213,637.50		\$ 261,548.50		\$ 306,735.50
Construction Engineering (8%)				\$ 213,637.50		\$ 261,548.50		\$ 306,735.50
<b>TOTAL</b>				<b>\$ 3,097,743.75</b>		<b>\$ 3,792,453.25</b>		<b>\$ 4,447,664.75</b>

# Mayfield Sewer Improvements

City of Park Ridge, Illinois

Christopher B. Burke Engineering, Ltd.

updated fall 2017

## Engineer's Opinion of Approximate Cost (Conceptual)

Item	Unit	Quantity	Unit Price	Cost
MWRD Pipe Upsizing - 48x76 to 53x83 (equiv. 60" to 66")	Foot	820	\$60	\$49,200
Structure Demolition	L Sum	1	\$25,000	\$25,000
Trench Backfill	Cu Yd	1,181	\$35	\$41,326
Storm Sewer, 12"	Foot	240	\$60	\$14,400
Storm Sewer, 36"	Foot	1,201	\$140	\$168,140
Precast Sewer Manholes, 5'-Diameter	Each	8	\$8,000	\$64,000
Catch Basins, 4'-Diameter	Each	16	\$4,000	\$64,000
River Outfall	L Sum	0	\$75,000	\$0
Pump Station & 16" Force Main	L Sum	1	\$862,000	\$862,000
Water Service Replacement	Each	24	\$3,000	\$72,000
Sanitary Service Replacement	Each	24	\$3,000	\$72,000
Pavement Patching	Sq Yd	1,508	\$55	\$82,928
HMA Pavement Resurfacing	Sq Yd	2,667	\$35	\$93,333
Landscape Restoration	Sq Yd	800	\$12	\$9,600
Erosion and Sediment Control	L Sum	1	\$15,000	\$15,000
Traffic Control (4%)	L Sum	1	\$15,000	\$15,000
Mobilization (4%)	L Sum	1	\$63,349	\$63,349
			Sub-Total	\$1,662,077

4%

30% Contingency & Minor Items	\$498,623
<b>Construction Total</b>	<b>\$2,160,700</b>
Permitting/Engineering (8%)	\$172,856
Construction Engineering (8%)	\$172,856
<b>Engineering Total</b>	<b>\$345,712</b>
Construction Total	\$2,160,700
Engineering Total	\$345,712
<b>Total Estimated Project Cost</b>	<b>\$2,506,412</b>

### Assumptions:

1. Estimate is conceptual only, without any topographic survey, soil information or extensive utility information.
2. All costs in 2017 dollars.

**WITHOUT LAND COSTS \$2,506,412**

## **Appendix 2 – Benefit Cost Analysis**



# MEMORANDUM

December 26, 2017

Subject: Park Ridge 2017 Stormwater Master Plan  
Benefit Cost Analysis Methodology  
(CBBEL Project No. 160214)

This memorandum summarizes the results and methodology of the Benefits Cost Analysis (BCA) of the proposed projects for the 2017 Stormwater Master Plan (SMP) for the City of Park Ridge (City). Christopher B. Burke Engineering, Ltd. (CBBEL) utilized a flood damages Computer Program (Program) to determine an estimated cost of Damages, Averaged Annual Damages (AAD), and Present Value of AAD (PV AAD) due to overland flooding for the proposed project locations. The Program was used to compute the Damages, AAD, and PV AAD for each project area, for both existing and proposed conditions. The benefit is the dollar amount of damages avoided by flood level reductions. The output of the Program was analyzed and compared to determine the estimated benefits achieved from implementing the proposed flood reduction projects.

The methodology of projecting damages associated with flood events is similar with methodologies used by other agencies such as the US Army Corps of Engineers (ACOE) and the Federal Emergency Management Agency (FEMA). A BCA determines whether a project's benefit in terms of reduction in flood damages outweighs the project cost and is used by agencies such as FEMA to ensure a project exceeds if they are to provide grant funding. The City is not tied to such a threshold, and can fund a project without such an analysis. The calculations were used solely for the purpose of ranking the projects relative to each other.

The Program used is DOS based and utilizes various file inputs containing information for the parcels, water surface elevations (WSEL), and depth-damage curves. The model uses these various inputs to calculate the depth of flooding for each property in the general location of the project for various storm events. The theoretical financial damage associated with the flood depths is then determined from a depth-damage curve associated with a certain structure type, which estimates both structural and content damages. Various financial ratios are applied within the Program to express the flood damages in terms of present-day value. Detailed descriptions of the input are as follow:

**WSEL** – The WSEL for this analysis used the XP-SWMM hydrologic and hydraulic modeling output. The parcels were associated with the closest modeled node to provide a WSEL to determine damages.

**Depth-Damage Curve** – A depth-damage curve provides a relationship between the water depth verses structural damage, and the water depth versus content damage for various structure types. The Depth-Damage Curve input files used in the Program were developed by the US Army Corps of Engineering, Economic Guidance Memorandum (EGM) 04-01, Generic Depth-Damage Relationships for Residential Structures with Basements, dated October 10, 2003.



**CHRISTOPHER B. BURKE** ENGINEERING, LTD.

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

## MEMORANDUM

**Low Entry Elevation** – The Low Entry (LE) elevation corresponds to the lowest adjacent grade of the residential structure in which water can enter and damage the structure. When the WSEL associated with a parcel exceeds the LE elevation of the property, damages are assumed to occur.

**First Floor Elevation** – The First Floor (FF) elevation represents the finished floor, which the flood depth is based on for the depth-damage curves (i.e.  $WSEL - FF = \text{depth of damage}$ ; only if the  $WSEL > LE$ ).

**Parcel Information** – The parcel information used in the Program consisted of the property identification number (PIN), LE elevation, FF elevation, structure type, and property value. The PINs correspond to the different project areas and cumulatively determine the total extent of damages for a location. The structure type determines the depth-damage curve that is used for determining the ratio of content and structural damages when the WSEL exceeds the LE elevation. The property value is then multiplied by the depth-damage curve ratio to determine the estimated cost of content and structural damages.

Parcels within their respective areas of the proposed improvements were analyzed for both existing and proposed conditions to develop an estimate of the cost of damages with and without the flood reduction projects. The following assumptions were used in calculating the estimated damages:

- A median home value of \$379,700 was assumed for every property, based on Zillow.
- Every property was assumed to be a single family residential structure with a basement to use the same depth-damage curve.
- The LE elevation was assumed to be the lowest adjacent grade of the residential structure based on the digital terrain map (DTM) created from the 1-foot aerial topography. For properties with reverse sloped driveways, the overtopping elevation was used as the LE elevation.
- The FF elevation was assumed to be 1 foot higher than the LE.

The analysis compared the damages for the 10-, 25-, 50-, and 100-year critical design storm events for both the existing and proposed conditions. The resulting depth versus damage data were combined to determine the probability versus damage data for each area. The calculator computes the AAD in an area for each parcel assuming linear interpolation between the probability intervals versus average damage. **Figure 1** is an example of how the AAD is calculated for each parcel. Once again, damages are based on the depth of flooding, choosing a corresponding ratio from the depth-damage curve, and multiplying that ratio to the property value. The total damages and AAD are obtained by summing each parcel within a project area.



**CHRISTOPHER B. BURKE** ENGINEERING, LTD.

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

# MEMORANDUM

Flood Elevation Versus Probability

Storm	Probability	WSEL
100-yr	0.01	653.37
50-yr	0.02	653.34
25-yr	0.04	653.17
10-yr	0.1	653.00

FF = 654.1ft  
LE = 653.1ft

Depth
-0.73
-0.76
-0.93
---

Depth Versus Damage

Depth	Damages
-0.73	\$139,665.05
-0.76	\$131,892.59
-0.93	\$126,147.76
---	\$ -

Calculation of Average Annual Damage

Storm Frequency	Storm Probability	Delta Recurrence	Total Damage	Average Damage	Incremental AAD	Cumulative AAD
100	0.01		\$ 139,665.05			---
		0.01		\$135,778.82	\$ 1,357.79	
50	0.02		\$ 131,892.59			\$ 1,357.79
		0.02		\$129,020.18	\$ 2,580.40	
25	0.04		\$ 126,147.76			\$ 3,938.19
		0.06		\$ 63,073.88	\$ 3,784.43	
10	0.1		\$ -			\$ 7,722.62

**Figure 1. Calculation of AAD Methodology**

To determine what the PV AAD was for the project locations over a 50-year timespan, the AAD was divided by a factor. The existing conditions PV AAD for all the project locations is approximately \$105.7 Million, compared to the proposed conditions PV AAD, which is approximately \$2.0 Million. The reduction in PV AAD with the implementation of the proposed projects is approximately \$103.7 Million, which would be the approximate benefit. The benefit of each project area was compared to the estimated project cost to develop a BCR. **Table 1** shows the BCRs for the project locations, which was used as part of the prioritization ranking for completing the projects.

**Table 1. Benefit Cost Ratio Analysis PV AAD**

Project Area	Existing Conditions Damages*	Proposed Conditions Damages*	Benefit	Proposed Project Cost Estimate	Benefit Cost Ratio
Northeast Park	\$6.5 Million	\$0.5 Million	\$6.1 Million	\$8.9 Million	0.69
Northwest Park	\$13.9 Million	\$0.0 Million	\$13.9 Million	\$15.7 Million	0.89
Crescent Avenue	\$8.9 Million	\$0.0 Million	\$8.9 Million	\$12.3 Million	0.72
West Sibley Corridor <sup>1</sup>	\$27.9 Million	\$0.0 Million	\$27.9 Million	\$20.0 Million	1.39
East Sibley Corridor <sup>2</sup>	\$33.1 Million	\$1.3 Million	\$31.8 Million	\$39.9 Million	0.80
Marvin Parkway	\$2.5 Million	\$0.2 Million	\$2.3 Million	\$2.3 Million	1.00
Mayfield	\$12.9 Million	\$0.0 Million	\$12.9 Million	\$2.5 Million	5.16
<b>TOTAL:</b>	<b>\$105.7 Million</b>	<b>\$2.0 Million</b>	<b>\$103.7 Million</b>	<b>\$106.0 Million</b>	<b>0.98</b>

\*Damages correspond to the 100-year design storm event

<sup>1</sup> West Sibley Corridor consists of the following projects: Sibley Avenue Separate Storm Sewer, Cherry Street, and Milton/Babette/Irwin

<sup>2</sup> East Sibley Corridor consists of the following projects: PRCC Storage, Delphia/Laverne/Lahon, Austin Street, and Hastings Street.

BMK\JJJ  
N:\Park Ridge\160214\Water\Docs\Benefit Cost Analysis Memo.doc



**CHRISTOPHER B. BURKE ENGINEERING, LTD.**

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

### **Appendix 3 – Flood Survey Questionnaire**

# CITY OF PARK RIDGE

## FLOODING QUESTIONNAIRE

The purpose of this questionnaire is to help the City of Park Ridge identify areas with flooding problems. Although completing this questionnaire is voluntary, your response will help to determine potential solutions. This information will be used for internal planning purposes only and will not be distributed. Please return this questionnaire to the address at the end of the form.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

E-mail: \_\_\_\_\_

1. How many years have you lived at this address? \_\_\_\_\_
2. Does your home have a basement? \_\_\_\_\_ Yes \_\_\_\_\_ No
3. If yes, are there any plumbing fixtures in the basement, such as a bathroom, laundry or floor drain? \_\_\_\_\_ Yes \_\_\_\_\_ No
4. Does your home have a sump pump? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure
5. Does your home have an ejector pump? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure
6. Does your home have a flood control system such as a check valve or overhead sewers? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure
5. Has your house flooded in the past? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure
6. If yes, can you provide the approximate dates of flood events?
7. Has your house flooded due to sewer backup? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure
8. If yes, how often do you experience sewer backup? (Ex., every year, every few years, etc.)
9. Has your house flooded due to seepage or sump pump failure? \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Unsure

10. Has your house flooded from surface water (overland flooding)? \_\_\_\_\_ Yes \_\_\_\_\_ No  
\_\_\_\_\_ Unsure
11. If yes, how did the water enter the house? (Window well, front door, patio door, etc.)
12. If yes, was the street in front of your house also flooded? \_\_\_\_\_ Yes \_\_\_\_\_ No  
\_\_\_\_\_ Unsure
13. If yes, what depth of water in the street (approximate) results in flooding of your home?
14. If yes, how often has your house flooded from surface water (overland flooding)?
15. Please enter any additional information or description of flood events that may be helpful.
16. If you would like to leave any feedback on the Stormwater Master Plan process or the types of stormwater projects you would like to see the City pursue, please provide your comments.

**Completed surveys can be dropped off at City Hall (505 Butler Place) or mailed directly to:**

**Christopher B. Burke Engineering, Ltd.  
9575 W. Higgins Road, Suite 600  
Rosemont, IL 60018**

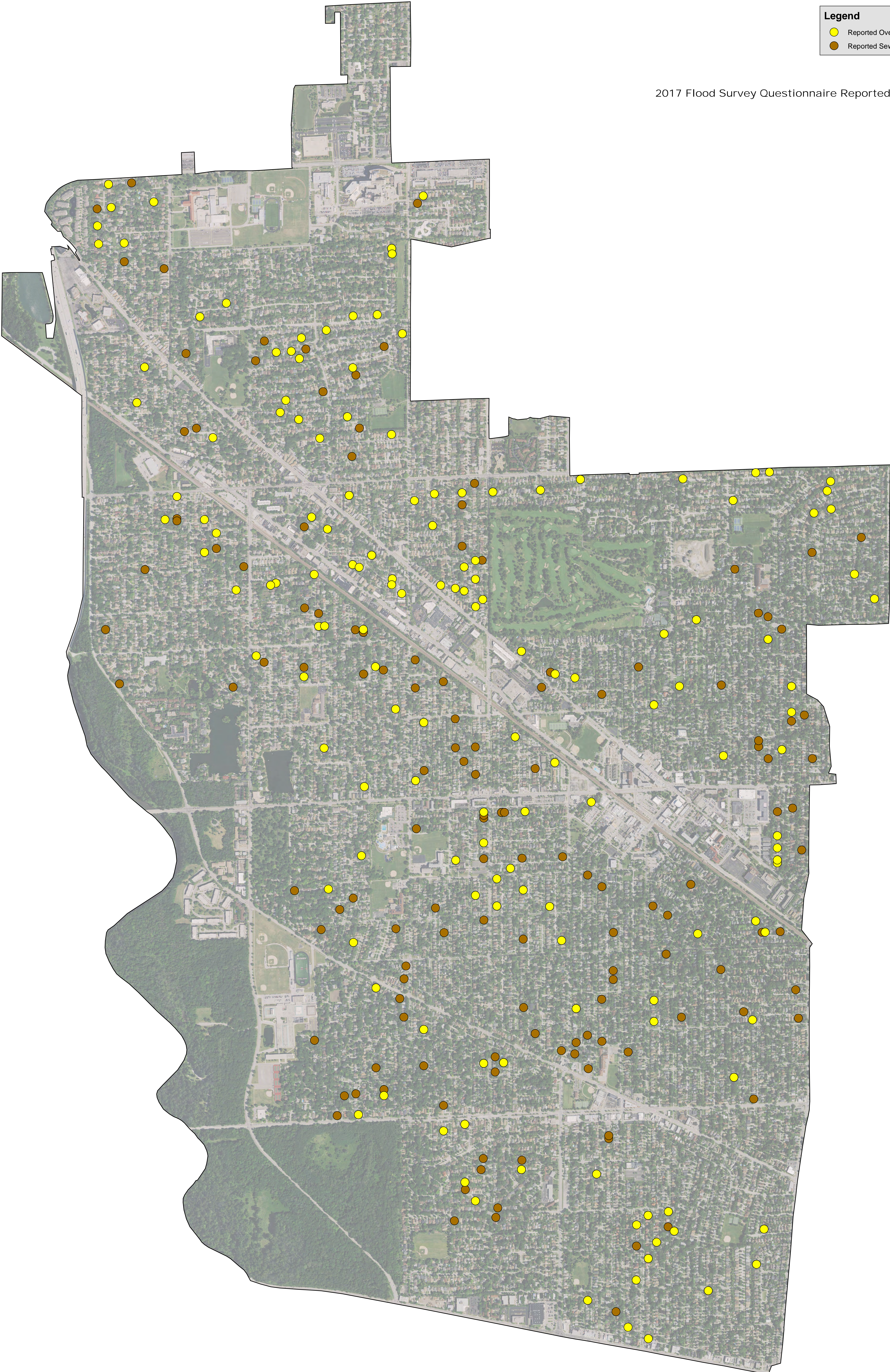
**Attention: Jeff Julkowski, PE**



**Legend**

- Reported Overland Flooding
- Reported Sewer Backup

2017 Flood Survey Questionnaire Reported Flooding



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community