

INFRASTRUCTURE SERVICES DIVISION - TRANSPORTATION  
 DEPARTMENT OF PUBLIC WORKS - CITY OF MILWAUKEE  
 STATE PROJECT I.D.#2066-04-90  
 W. CENTER ST.- N. 92nd ST. to N. 76th ST.

**SUMMARY COST ESTIMATE - TRAFFIC SIGNALS**

DRAWING #: F-03-578-T  
 F-03-577-T  
 F-03-576-T

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>TOTAL UNIT COST</u>
71062L	312 SIG. HOUS. LED	EACH	14	\$622.37	\$8,713.18
71066L	COMBINATION DW-W 12" SIG. HOUS. LED	EACH	16	\$479.22	\$7,667.52
71071L	38 SIG. HOUS. LED	EACH	8	\$538.80	\$4,310.40
71066RL	COMBINATION DW-W 12" SIG. LED RETRO-FIT	EACH	8	\$260.65	\$2,085.20
71125	PUSH BUTTON	EACH	4	\$120.36	\$481.44
71156	LEAD IN CABLE (PROBE)	PER LF	530	\$1.92	\$1,017.60
71170	9#14 LTP	PER LF	180	\$2.13	\$383.40
71172	17#14 LTP	PER LF	815	\$2.38	\$1,939.70
71173	20#14 LTP	PER LF	945	\$2.48	\$2,343.60
71197	SS 13'	EACH	8	\$850.74	\$6,805.92
90030B	INSTALL 3#4/1#8 LTP UNDERGROUND CABLE	PER LF	240	\$3.46	\$830.40
90030P	INSTALL 2.5" P.V.C. CONDUIT (HOLE HOF/BORE)	PER LF	20	\$6.30	\$126.00
90030Q	INSTALL 2.5" P.V.C. CONDUIT (TRENCH)	PER LF	1440	\$6.74	\$9,705.60
71064RL	112 SIG. HOUS. LED RETRO-FIT RED	EACH	10	\$213.32	\$2,133.20
71064YL	112 SIG. HOUS. LED RETRO-FIT YELLOW	EACH	10	\$97.72	\$977.20
71064GL	112 SIG. HOUS. LED RETRO-FIT GREEN	EACH	10	\$142.97	\$1,429.70
71064GAL	112 SIG. HOUS. LED RETRO-FIT GREEN ARROW	EACH	4	\$124.68	\$498.72
71064YAL	112 SIG. HOUS. LED RETRO-FIT YELLOW ARROW	EACH	4	\$91.92	\$367.68
71072RL	18 SIG. HOUS. RETRO-FIT RED	EACH	6	\$100.89	\$605.34
71072YL	18 SIG. HOUS. RETRO-FIT YELLOW	EACH	6	\$105.77	\$634.62
71072GL	18 SIG. HOUS. RETRO-FIT GREEN	EACH	6	\$133.82	\$802.92

**TOTAL \$53,859.34**

ESTIMATED COST OF 2004 PAVING PROGRAM

APPROVED BY:



ROBERT W. BRYSON  
 STREET LIGHTING DESIGN MANAGER

TRANSPORTATION SECTION  
 TRAFFIC & LIGHTING DESIGN UNIT  
 JOSEPH A. BONDOWSKI  
 July 6, 2004

DRAWING #: F-00-571-T  
 F-03-571-T  
 F-03-574-T  
 F-03-583-T

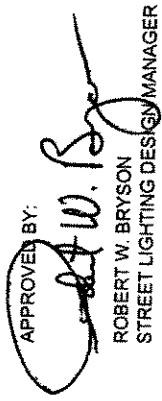
SERVICE AND SUPPLY CONTRACT - UNIT COST ANALYSES  
 INFRASTRUCTURE SERVICES DIVISION - TRANSPORTATION  
 DEPARTMENT OF PUBLIC WORKS - CITY OF MILWAUKEE  
 STATE PROJECT I.D.#2410-08-80  
 SOUTH 27TH STREET (EAST ROADWAY) S.T.H. 241  
 BRIDGE OVER U.P. R.R. TO WEST LINCOLN AVENUE  
 WEST FOREST HOME AVENUE S.T.H. 24  
 SOUTH 31ST STREET TO SOUTH 27TH STREET

SUMMARY COST ESTIMATE - TRAFFIC SIGNALS

ITEM	DESCRIPTION	UNIT	QUANTITY	MATERIAL COST	LABOR COST	EQUIPMENT COST	TOTAL UNIT COST *	TOTAL COST
71060L	512 SIG. HOUS. LED	EACH	4	\$ 655.97	\$ 363.45	\$ 8.42	\$ 1,073.77	\$ 4,295.08
71062L	312 SIG. HOUS. LED	EACH	18	\$ 418.07	\$ 201.59	\$ 4.71	\$ 649.36	\$ 11,688.48
71066L	COMBINATION DW-W 12" SIG. HOUS. LED	EACH	14	\$ 289.09	\$ 203.06	\$ 7.07	\$ 500.50	\$ 7,007.00
71071L	38 SIG. HOUS. LED	EACH	4	\$ 411.95	\$ 122.14	\$ 4.71	\$ 561.62	\$ 2,246.48
71066RL	COMBINATION DW-W 12" SIG. HOUS. LED RETRO-F	EACH	2	\$ 129.97	\$ 123.61	\$ 7.07	\$ 272.36	\$ 544.72
71125	PUSH BUTTON	EACH	10	\$ 36.47	\$ 82.40	\$ 4.71	\$ 129.38	\$ 1,293.80
71156	LEAD IN CABLE (PROBE)	PER LF	1,315	\$ 1.77	\$ 0.07	\$ 0.08	\$ 2.00	\$ 2,630.00
71158	4 PR. #16 DSTP	PER LF	870	\$ 1.77	\$ 0.43	\$ 0.07	\$ 2.37	\$ 2,061.90
71170	9#14 LTP	PER LF	1,890	\$ 0.26	\$ 1.84	\$ 0.03	\$ 2.23	\$ 4,214.70
71171	12#14 LTP	PER LF	215	\$ 0.36	\$ 1.84	\$ 0.03	\$ 2.34	\$ 503.10
71172	17#14 LTP	PER LF	1,430	\$ 0.51	\$ 1.84	\$ 0.03	\$ 2.49	\$ 3,560.70
71173	20#14 LTP	PER LF	845	\$ 0.61	\$ 1.84	\$ 0.03	\$ 2.60	\$ 2,197.00
71197	SS 13'	EACH	5	\$ 485.80	\$ 353.17	\$ 11.78	\$ 888.45	\$ 4,442.25
90030P	INSTALL 2.5" P.V.C. CONDUIT (HOLE HOG/BORE)	PER LF	1,255	\$ 0.48	\$ 5.64	\$ 0.18	\$ 6.61	\$ 8,285.55
90030Q	INSTALL 2.5" P.V.C. CONDUIT (TRENCH)	PER LF	495	\$ 0.48	\$ 6.07	\$ 0.19	\$ 7.07	\$ 3,489.65
90005GQ	INSTALL RECTANGULAR VAULT	EACH	9	\$ 132.69	\$ 112.72	\$ 1.91	\$ 259.68	\$ 2,337.12
71064RL	112 SIG. HOUS. LED RETRO-FIT RED	EACH	1	\$ 169.76	\$ 41.20	\$ 2.36	\$ 222.28	\$ 222.28
71064YL	112 SIG. HOUS. LED RETRO-FIT YELLOW	EACH	5	\$ 54.16	\$ 41.20	\$ 2.36	\$ 102.06	\$ 510.30
71064GL	112 SIG. HOUS. LED RETRO-FIT GREEN	EACH	1	\$ 99.41	\$ 41.20	\$ 2.36	\$ 149.12	\$ 149.12
71072RL	18 SIG. HOUS. LED RETRO-FIT RED	EACH	2	\$ 57.33	\$ 41.20	\$ 2.36	\$ 105.35	\$ 210.70
71072YL	18 SIG. HOUS. LED RETRO-FIT YELLOW	EACH	2	\$ 62.21	\$ 41.20	\$ 2.36	\$ 110.43	\$ 220.86
71072GL	18 SIG. HOUS. LED RETRO-FIT GREEN	EACH	2	\$ 90.27	\$ 41.20	\$ 2.36	\$ 139.61	\$ 279.22
							<b>TOTAL</b>	<b>\$ 62,410.01</b>

\* TOTAL UNIT COST INCLUDES 1% OF LABOR COST FOR SMALL TOOLS  
 AND 4% OF SUB-TOTAL FOR ADMINISTRATIVE SUPPORT.

ESTIMATED COST OF 2004 PAVING PROGRAM  
 THERE ARE NO EXCLUDED COSTS IN THIS PROJECT

APPROVED BY:  
  
 ROBERT W. BRYSON  
 STREET LIGHTING DESIGN/MANAGER

TRANSPORTATION SECTION  
 TRAFFIC & LIGHTING DESIGN UNIT  
 JOSEPH A. BONDOWSKI  
 July 7, 2004

SERVICE AND SUPPLY CONTRACT - UNIT COST ANALYSES  
 INFRASTRUCTURE SERVICES DIVISION - TRANSPORTATION  
 DEPARTMENT OF PUBLIC WORKS - CITY OF MILWAUKEE  
 STATE PROJECT I.D.#2020-01-90  
 WEST BLUEMOUND ROAD-U.S. HIGHWAY 18  
 NORTH 66th STREET TO  
 NORTH STORY PARKWAY

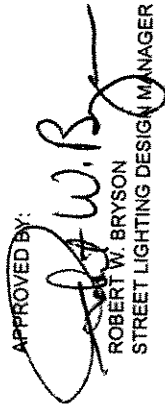
DRAWING #: F-97-501-T  
 F-01-532-T  
 F-03-575-T

SUMMARY COST ESTIMATE - TRAFFIC SIGNALS

ITEM	DESCRIPTION	UNIT	QUANTITY	MATERIAL COST	LABOR COST	EQUIPMENT COST	TOTAL UNIT COST *	TOTAL COST
71053A	303-8 CONTROLLER ACT. WITH FOUNDATION	EACH	1	\$ 8,082.31	\$2,073.24	\$ 10.88	\$ 10,594.65	\$10,594.65
71060L	512 SIG. HOUS. LED	EACH	6	\$ 655.97	\$ 363.45	\$ 9.42	\$ 1,073.77	\$ 6,442.62
71063L	212 SIG. HOUS. LED	EACH	1	\$ 552.40	\$ 282.52	\$ 7.07	\$ 878.61	\$ 878.61
71062L	312 SIG. HOUS. LED	EACH	4	\$ 416.07	\$ 201.59	\$ 4.71	\$ 649.36	\$ 2,597.44
71074L	36 SIG. HOUS. LED	EACH	10	\$ 411.95	\$ 122.14	\$ 4.71	\$ 561.62	\$ 5,616.20
71066L	COMBINATION DW-W 12" SIG. HOUS. LED	EACH	16	\$ 289.09	\$ 203.06	\$ 7.07	\$ 500.50	\$ 8,008.00
71125	PUSH BUTTON	EACH	4	\$ 36.47	\$ 82.40	\$ 4.71	\$ 129.38	\$ 517.52
71156	LEAD IN CABLE (PROBE)	PER LF	1,750	\$ 1.77	\$ 0.07	\$ 0.08	\$ 2.00	\$ 3,500.00
71170	9#14 LTP	PER LF	1,960	\$ 0.26	\$ 1.94	\$ 0.03	\$ 2.23	\$ 4,370.80
71172	17#14 LTP	PER LF	780	\$ 0.51	\$ 1.84	\$ 0.03	\$ 2.49	\$ 1,942.20
71173	20#14 LTP	PER LF	1,080	\$ 0.61	\$ 1.84	\$ 0.03	\$ 2.60	\$ 2,756.00
71197	SS 13"	EACH	6	\$ 485.80	\$ 353.17	\$ 11.78	\$ 888.45	\$ 5,330.70
90030B	INSTALL 3/4"1#8 LTP UNDERGROUND CABLE	PER LF	560	\$ 1.60	\$ 1.84	\$ 0.03	\$ 3.63	\$ 2,032.80
90030P	INSTALL 2.5" P.V.C. CONDUIT (HOLE HOGBORE)	PER LF	150	\$ 0.48	\$ 5.64	\$ 0.18	\$ 6.61	\$ 991.50
90030Q	INSTALL 2.5" P.V.C. CONDUIT (TRENCH)	PER LF	3,120	\$ 0.48	\$ 6.07	\$ 0.19	\$ 7.07	\$22,058.40
90005GQ	INSTALL RECTANGULAR VAULT	EACH	16	\$ 132.69	\$ 112.72	\$ 1.91	\$ 259.68	\$ 4,154.88
71033	FIRE DEPT. OPTICOM (711)	EACH	4	\$ 448.75	\$ 82.41	\$ 4.71	\$ 558.16	\$ 2,232.64
71034	FIRE DEPT. OPTICOM (721)	EACH	4	\$ 585.78	\$ 82.41	\$ 4.71	\$ 700.67	\$ 2,802.68
71072YL	18 SIG. HOUS. LED YELLOW	EACH	4	\$ 62.21	\$ 41.20	\$ 2.36	\$ 110.43	\$ 441.72
71072GL	18 SIG. HOUS. LED GREEN	EACH	4	\$ 90.27	\$ 41.20	\$ 2.36	\$ 139.61	\$ 558.44
							TOTAL	\$87,827.80

\* TOTAL UNIT COST INCLUDES 1% OF LABOR COST FOR SMALL TOOLS  
 AND 4% OF SUB-TOTAL FOR ADMINISTRATIVE SUPPORT.

ESTIMATED COST OF 2004 PAVING PROGRAM  
 THERE ARE NO EXCLUDED COSTS IN THIS PROJECT

APPROVED BY:   
 ROBERT W. BRYSON  
 STREET LIGHTING DESIGN MANAGER

TRANSPORTATION SECTION  
 TRAFFIC & LIGHTING DESIGN UNIT  
 JOSEPH A. BONDOWSKI  
 July 7, 2004

INFRASTRUCTURE SERVICES DIVISION - TRANSPORTATION  
 DEPARTMENT OF PUBLIC WORKS - CITY OF MILWAUKEE  
 STATE PROJECT I.D.#1060-25-74  
 W. HIGHLAND AVE. AND N. 10th ST.

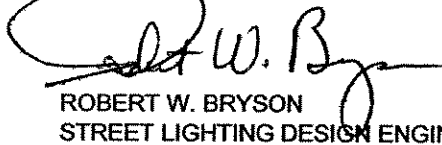
COST ESTIMATE - TRAFFIC SIGNALS

DRAWING #: F-02-557-T

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>TOTAL UNIT COST</u>
71052A	303-8 CONTROLLER F.T. WITH FOUNDATION	EACH	1	\$8,778.93	\$8,778.93
71062L	312 SIG. HOUS. LED	EACH	9	\$622.37	\$5,601.33
71066L	COMBINATION DW-W 12" SIG. HOUS. LED	EACH	4	\$479.22	\$1,916.88
71158	4 PR. #16 DSTP	PER LF	685	\$2.27	\$1,554.95
90030B	INSTALL 3#4/1#8 LTP UNDERGROUND CABLE	PER LF	685	\$3.46	\$2,370.10
71170	9#14 LTP	PER LF	685	\$2.13	\$1,459.05
71172	17#14 LTP	PER LF	436	\$2.38	\$1,037.68
71173	20#14 LTP	PER LF	413	\$2.48	\$1,024.24
71190	MAST ARM FABRICATED	EACH	1	\$1,773.17	\$1,773.17
71197	SS 13'	EACH	5	\$850.74	\$4,253.70
71191	MAST ARM POLE INSTALLED	EACH	1	\$212.54	\$212.54
				<b>TOTAL</b>	<b>\$29,982.57</b>

ESTIMATED COST OF 2003/2004 PAVING PROGRAM

APPROVED BY:

  
 ROBERT W. BRYSON  
 STREET LIGHTING DESIGN ENGINEER

TRANSPORTATION SECTION  
 TRAFFIC & LIGHTING DESIGN UNIT  
 JOSEPH A. BONDOWSKI  
 July 6, 2004

INFRASTRUCTURE SERVICES DIVISION - TRANSPORTATION  
 DEPARTMENT OF PUBLIC WORKS - CITY OF MILWAUKEE  
 STATE PROJECT I.D.#1060-25-71  
 MQIC-CONTRACT CLAC

**SUMMARY COST ESTIMATE - TRAFFIC SIGNALS**

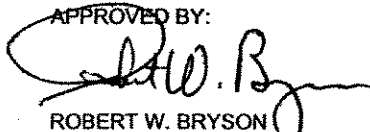
DRAWING #: F-98-543-T  
 F-98-542-T  
 F-98-522-T

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>TOTAL UNIT COST</u>
71062L	312 SIG. HOUS. LED	EACH	16	\$622.37	\$9,957.92
71066L	COMBINATION DW-W 12" SIG. HOUS. LED	EACH	14	\$479.22	\$6,709.08
71081	312M SIG. HOUS.	EACH	8	\$1,496.06	\$11,968.48
71156	LEAD IN CABLE (PROBE)	PER LF	3015	\$1.92	\$5,788.80
71158	4 PR. #16 DSTP	PER LF	150	\$2.27	\$340.50
90030B	INSTALL 3#4/1#8 LTP UNDERGROUND CABLE	PER LF	95	\$3.46	\$328.70
71170	9#14 LTP	PER LF	390	\$2.13	\$830.70
71172	17#14 LTP	PER LF	1165	\$2.38	\$2,772.70
71173	20#14 LTP	PER LF	1010	\$2.48	\$2,504.80
71190	MAST ARM FABRICATED	EACH	2	\$1,773.17	\$3,546.34
71191	MAST ARM POLE INSTALLED	EACH	2	\$212.54	\$425.08
71197	SS 13'	EACH	10	\$850.74	\$8,507.40
71724	170 SOLID STATE CONTROLLER RELOCATED	EACH	2	\$323.37	\$646.74
71033	FIRE DEPT. OPTICOM (711)	EACH	1	\$503.69	\$503.69
71034	DETECTOR 4-CHANNEL	EACH	2	\$631.89	\$1,263.78
71064RL	112 SIG. HOUS. LED RETRO-FIT RED	EACH	6	\$213.32	\$1,279.92
71064YL	112 SIG. HOUS. LED RETRO-FIT YELLOW	EACH	6	\$97.72	\$586.32
71064GL	112 SIG. HOUS. LED RETRO-FIT GREEN	EACH	6	\$142.97	\$857.82
71064YAL	112 SIG. HOUS. LED RETRO-FIT YELLOW ARROW	EACH	2	\$91.92	\$183.84
71064GAL	112 SIG. HOUS. LED RETRO-FIT GREEN ARROW	EACH	2	\$124.68	\$249.36
71066RL	COMBINATION DW-W 12" SIG. HOUS. LED RETRO-FIT	EACH	2	\$260.65	\$521.30
71072RL	18 SIG. HOUS. LED RETRO-FIT RED	EACH	3	\$100.89	\$302.67
71072YL	18 SIG. HOUS. LED RETRO-FIT YELLOW	EACH	3	\$105.77	\$317.31
71072GL	18 SIG. HOUS. LED RETRO-FIT GREEN	EACH	3	\$133.82	\$401.46

**TOTAL \$60,794.71**

ESTIMATED COST OF 2004 PAVING PROGRAM

APPROVED BY:



ROBERT W. BRYSON  
 STREET LIGHTING DESIGN MANAGER

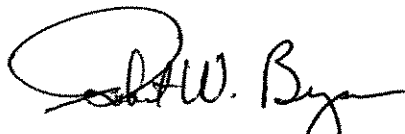
TRANSPORTATION SECTION  
 TRAFFIC & LIGHTING DESIGN UNIT  
 JOSEPH A. BONDOWSKI  
 July 7, 2004

INFRASTRUCTURE SERVICES DIVISION  
DEPARTMENT OF PUBLIC WORKS  
STATE PROJECT I.D.#1060-25-73  
2004 SURFACE TRANSPORTATION PROGRAM  
MARQUETTE INTERCHANGE - NORTH

<u>COST ESTIMATE</u>		<u>TRAFFIC SIGNALS</u>		<u>TOTAL</u>
<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUAN.</u>	<u>UNIT COST</u>	<u>ITEM COST</u>
<u>COST ESTIMATE</u>				
71033	DETECTOR, 2-CHANNEL OPTICOM (711)	13 EA	\$ 503.69	\$ 6,547.97
71034	DETECTOR, 4-CHANNEL OPTICOM (721)	1 EA	\$ 631.89	\$ 631.89
71055A	330 CONTROLLER ACT WITH FOUNDATION	3 EA	\$ 12,355.77	\$ 37,067.31
71055B	330 CONTROLLER ACT WITHOUT FOUNDATION	1 EA	\$ 12,094.90	\$ 12,094.90
71061L	412 SIGNAL HOUSING LED	2 EA	\$ 841.98	\$ 1,683.96
71062	312 SIG. HOUS.	1 EA	\$ 408.70	\$ 408.70
71062L	312 SIGNAL HOUSING LED	50 EA	\$ 622.37	\$ 31,118.50
71071L	38 SIGNAL HOUSING LED	31 EA	\$ 538.80	\$ 16,702.80
71078L	DW-W 8" SIGNAL HOUSING LED	64 EA	\$ 479.22	\$ 30,670.08
71081	312 M SIGNAL HOUSING	21 EA	\$ 1,430.87	\$ 30,048.27
71082	212 M SIGNAL HOUSING	2 EA	\$ 922.53	\$ 1,845.06
71125	PUSH BUTTON MUSHROOM HEAD (ADA 2")	8 EA	\$ 120.36	\$ 962.88
71156	LEAD IN CABLE (PROBE)	5885 LF	\$ 1.92	\$ 11,299.20
71170	9#14 LTP	6146 LF	\$ 2.13	\$ 13,090.98
71171	12#14 LTP	295 LF	\$ 2.23	\$ 657.85
71172	17#14 LTP	4321 LF	\$ 2.38	\$ 10,283.98
71173	20#14 LTP	6135 LF	\$ 2.48	\$ 15,214.80
71190	MAST ARM, FABRICATED	10 EA	\$ 1,773.17	\$ 17,731.70
71191	MAST ARM POLE INSTALLED	4 EA	\$ 212.54	\$ 850.16
71197	SS 13'	36 EA	\$ 850.74	\$ 30,626.64
71712	312 Sig. Hous. Relocated	14 EA	\$ 212.31	\$ 2,972.34
71721	38 Sig. Hous. Relocated	7 EA	\$ 169.85	\$ 1,188.95
71728	DW-W 8" Sig. Hous. Relocated	12 EA	\$ 212.31	\$ 2,547.72
71827	SS 13' Relocated	5 EA	\$ 254.78	\$ 1,273.90
71828	1' Ext Relocated	5 EA	\$ 42.46	\$ 212.30
71724	170 Solid State Controller Relocated	1 EA	\$ 323.37	\$ 323.37
90030A	Install 3#2/1#8 LTP underground cable	1898 LF	\$ 3.81	\$ 7,231.38
90030B	Install 3#4/1#8 LTP underground cable	590 LF	\$ 3.46	\$ 2,041.40
90005EQ	Remove Pole Complete	1 EA	\$ 313.76	\$ 313.76
90005GQ	Installation of a rectangular vault	1 EA	\$ 247.32	\$ 247.32
73000	30" x 30" Stop Sign	3 EA	\$ 52.59	\$ 157.77
71066RL	COMBINATION DW-W 12" SIG. HOUS. LED RETRO-FIT	12 EA	\$ 260.65	\$ 3,127.80
71064RL	112 SIG. HOUS. LED RETRO-FIT RED	8 EA	\$ 213.32	\$ 1,706.56
71064YL	112 SIG. HOUS. LED RETRO-FIT YELLOW	8 EA	\$ 97.72	\$ 781.76
71064GL	112 SIG. HOUS. LED RETRO-FIT GREEN	8 EA	\$ 142.97	\$ 1,143.76
71064GAL	112 SIG. HOUS. LED RETRO-FIT GREEN ARROW	2 EA	\$ 124.68	\$ 249.36
71064YAL	112 SIG. HOUS. LED RETRO-FIT YELLOW ARROW	2 EA	\$ 91.92	\$ 183.84
71062RL	18 SIG. HOUS. LED RETRO-FIT RED	6 EA	\$ 100.89	\$ 605.34
71062YL	18 SIG. HOUS. LED RETRO-FIT YELLOW	6 EA	\$ 105.77	\$ 634.62
71062GL	18 SIG. HOUS. LED RETRO-FIT GREEN	6 EA	\$ 133.82	\$ 802.92
				\$ 297,283.80
<u>COST ESTIMATE</u>				
2004 SURFACE TRANSPORTATION PROGRAM=				<u>\$ 297,283.80</u>

THERE ARE NO EXCLUDED COSTS IN THIS PROJECT

APPROVED BY:



ROBERT W. BRYSON  
STREET LIGHTING DESIGN MANAGER

TRANSPORTATION SECTION  
TRAFFIC & LIGHTING DESIGN UNIT  
JOSEPH A. BONDOWSKI  
JULY 7, 2004