

ATTACHMENT B

**CONTRACT MODIFICATION/CHANGE ORDER LOG
GATEWAY BUILDING MANAGEMENT SYSTEM**

GATEWAY LIGHTING RETROFIT PROJECT

Mod no.	Description	Status	Cost
1	Add Trend Log	Approved	\$6,000.00
2	Equipment Upgrades	Approved by Board	\$1,153,845.00
3	Additional Control System Maintenance	Approved	\$94,000.00
4	Add Union Station East Complex	Approved by Board	\$135,500.00
5	LED Lighting Retrofit Project	Pending	TBD
Subtotal – Approved Modifications			\$1,389,345.00
Subtotal – Pending Changes/Modifications			\$1,000,000.00
Subtotal Totals: Mods. + Pending Changes/Modifications			\$2,389,345.00
Previously Authorized CMA			\$100,000.00
CMA Necessary to Execute Pending Changes/Mods + Possible Claims			\$1,000,000.00
Total CMA including this Action			\$1,100,000.00
CMA Remaining for Future Changes/Mods after this Action			\$1,000,000.00

ATTACHMENT C

Gateway Lighting Retrofit Project - Cost-Benefit Analysis for 5,000 2x4 Fixtures

Cost of Fixtures & Installation	Return on Investment (years)	Location / Area		Existing Conditions	Conditions After Retrofits	Projected Annual Savings
\$1,044,808.20	4.276	Gateway Office Spaces (2) T8, low watt	Energy Usage (kWh)	3,248,708	1,399,833	1,848,875
			Operating Costs	\$448,438.05	\$204,090.30	\$244,347.75
			GHGe (metric tons)	1,814.87	782.01	1,032.86
\$1,426,426.20	4.873	Gateway Office Spaces Volumetric LED	Energy Usage (kWh)	3,248,708	990,845	2,257,862
			Operating Costs	\$448,438.05	\$155,711.24	\$292,726.80
			GHGe (metric tons)	1,814.87	553.53	1,261.34

Energy and Operational Cost Savings Over the Operational Life

Year	Energy Cost (per kWh)	Existing	Option A - (2) T8, low watt		Option B - Volumetric LED	
			Cost	Savings	Cost	Savings
2015	\$0.125	\$448,438	\$204,090	\$244,348	\$155,711	\$292,727
2016	\$0.132	\$470,952	\$213,845	\$257,106	\$162,672	\$308,279
2017	\$0.139	\$494,691	\$224,129	\$270,562	\$170,008	\$324,684
2018	\$0.140	\$499,419	\$226,220	\$273,199	\$171,544	\$327,875
2019	\$0.142	\$504,192	\$228,331	\$275,861	\$173,095	\$331,097
2020	\$0.143	\$509,010	\$230,462	\$278,548	\$174,659	\$334,351
2021	\$0.145	\$513,874	\$232,612	\$281,262	\$176,237	\$337,637
2022	\$0.146	\$518,785	\$234,782	\$284,003	\$177,830	\$340,955
2023	\$0.147	\$523,743	\$236,973	\$286,770	\$179,437	\$344,306
2024	\$0.149	\$528,748	\$239,184	\$289,564	\$181,058	\$347,690
2025	\$0.150	\$533,801	\$241,415	\$292,386	\$182,694	\$351,107
2026	\$0.152	\$538,902	\$243,668	\$295,235	\$184,344	\$354,558
2027	\$0.153	\$544,053	\$245,941	\$298,111	\$186,010	\$358,043
2028	\$0.155	\$549,252	\$248,236	\$301,016	\$187,690	\$361,562
2029	\$0.157	\$554,502	\$250,552	\$303,949	\$189,386	\$365,116
2030	\$0.158	\$559,802	\$252,890	\$306,911	\$191,097	\$368,705
2031	\$0.160	\$565,152	\$255,250	\$309,902	\$192,824	\$372,329
2032	\$0.161	\$570,555	\$257,632	\$312,922	\$194,566	\$375,988
2033	\$0.163	\$576,008	\$260,037	\$315,972	\$196,324	\$379,684
2034	\$0.165	\$581,515	\$262,464	\$319,051	\$198,098	\$383,416
2035	\$0.166	\$587,074	\$264,913	\$322,161	\$199,889	\$387,185
2036	\$0.168	\$592,687	\$267,386	\$325,301	\$201,695	\$390,991
2037	\$0.169	\$598,353	\$269,882	\$328,471	\$203,518	\$394,835
2038	\$0.171	\$604,074	\$272,402	\$331,673	\$205,358	\$398,717
2039	\$0.173	\$609,851	\$274,945	\$334,906	\$207,214	\$402,636
2040	\$0.175	\$615,683	\$277,512	\$338,171	\$209,088	\$406,595
TOTAL		\$14,193,116	\$6,415,756	\$7,777,360	\$4,852,047	\$9,341,069

Installation, Annual Lamp Replacement and Annual Maintenance Costs

	Total Existing	(2) T8, low watt usage	(2) T8, low watt savings	Volumetric LED usage	Volumetric LED savings
Fixtures/Installation	\$0	\$1,044,808		\$1,426,426	
Lamps/Maintenance	\$43,011.74	\$29,396.55	\$13,615.20	\$32,057.54	\$10,954.21
TOTAL	\$43,012	\$1,074,205		\$1,458,484	
Power Usage (kWh/yr)	Existing Lighting (kWh)	Consumption (kWh)	Savings (kWh)	Consumption (kWh)	Savings (kWh)
	3,248,708	1,399,833	1,848,875	990,845	2,257,862