Special Experimental Project No. 14 (SEP-14) – Final Report
Michigan Department of Transportation
Construction Manager / General Contractor
Detroit E. Riverwalk Project at Mt. Elliott Park
February 10, 2015

Jon Numbers: 111639A, 105721C (for design work)
Control Section: 82111
County: Wayne
Location: Mt. Elliott Park, City of Detroit
Negotiated Contract Cost: $10,583,914.54
Final Contract Cost: $11,341,682.19

Introduction

In November, 2011, the Michigan Department of Transportation (MDOT) was authorized to use a Construction Manager/General Contractor (CMGC) procurement construct the E. Riverwalk Project, in Mt. Elliott Park, in the City of Detroit.

The Project includes LEED, or Leadership in Energy and Environmental Design, certification, construction of a pavilion, universally accessible water feature/ playscape, tensile structure, a non-motorized path, lighting, security, site furnishings and seawall cap and platforms.

The purpose of utilizing CMGC was to design and construct the project as effectively and efficiently as possible given the specialty construction items on the Project.

Project Schedule

The project had the following key milestone dates.

Milestone Dates	
SEP-14 Approval	November 2011
Post CMGC RFQ	December, 2011
SOQ's Due	January, 2012
Award of Pre-Construction Phase	May, 2012
Development of Plans and Specifications	January, 2011 to June, 2012
Completed Price Negotiations	July, 2012
Award Construction Phase	September, 2012
Start of Con. Work to Substantial Completion	August, 2012 – May. 2014
Final Completion Date*	Sept. 2016

* The final completion dates includes a 2 year period for watering and cultivating trees and various turf restoration items.

CMGC Selection Process

MDOT solicited potential CMGC teams through a Request for Qualifications (RFQ). The final RFQ can be found at the following link: http://www.michigan.gov/mdot/0,4616,7-151-9625_21539_53226-267100--,00.html. The CMGC was selected through a quality based selection process. Six teams submitted Statements of Qualifications (SOQ).

The project had 2 distinct phases for the CMGC. The first phase is the preconstruction phase. During this phase the CMGC was required to assist MDOT in developing the plans, staging operations, review the constructability of the project, and to seek ways to reduce costs. Near the end of this phase, MDOT, with the assistance of an Independent Cost Estimator (ICE), conducted negotiations to determine the final price and structure of the final price. The final price included items that were paid by an established unit price and the actual quantity constructed in the field, and items of work included in a Guaranteed Maximum Price. Typically a CMGC is hired when the project design is in the early stages of completion. However, MDOT did not consider the use of CMGC until the design was well underway, and the CMGC was under contract when the plans were significantly completed. The design schedule was expanded to include time for the review by the CMGC and for evaluating and incorporating suggestions made by the CMGC during their review.

The CMGC completed the construction phase of the project based on the plans and specifications developed in during the preconstruction phase. This phase was completed in a manner similar to traditional design-bid-build projects

Evaluation of CMGC

In 2012, MDOT had utilized CMGC on a limited number of projects. MDOT committed to report on various aspects of the CMGC process including the overall quality of the final work, accuracy/timeliness of the project schedule, construction costs, impacts from the use if a CMGC procurement, industry reaction to CMGC, and any lessons learned from the project. These measures are discussed below.

Quality of Work

The following items were noted by project staff related to the quality of the work.

1. A QBS selection allowed MDOT to select a prime contractor that had special skills, experience and qualifications not normally available through MDOT's low-bid process.

2. MDOT's needs for quality and tight tolerances for the water play features and other public features were discussed in great detail during the preconstruction phase. These discussions lead to very high quality work during construction.

3. The contractor was able to fully understand MDOT's and other critical stakeholder's goals and needs through the integrated design process. Overall, the ability to have an open dialogue with the contractor provided a great opportunity and value on this project. Because there are so many specialty items with which MDOT has limited, if any, experience, the 'team' interaction was valuable.

4. The CMGC was able to bring their experience into the final design, which leads to a higher quality design.

Project Schedule

The following items were noted by project staff related to the project's schedule:

1. One challenge on this project regarding the schedule was MDOT's decision to use CMGC late in the design process. A consultant was used to develop the plans and their original scope did not include a CMGC procurement. When a CMGC was brought in, the designer had to evaluate suggestions and make changes to the design. MDOT had to modify their contract to account for the CMGC process.

2. The time for the price negotiations took longer than originally anticipated. The process took approximately 6 weeks, and MDOT anticipated this would take less time. MDOT's limited experience with the unique work of the project, and all partied limited experience with the CMGC process contributed to the lengthy negotiation process. Future projects will plan for a more realistic period for the negotiations.

3. Having an experienced contractor was valuable in determining the construction staging and duration. There was significant outreach with local groups, and being able to commit to a definite construction schedule was valuable.

4. The construction work was completed according to the schedule developed during the preconstruction phase with very little change. There were a few delays associated with obtaining local permits, but this had a minimal effect on the overall schedule. MDOT believes the timely and accurate completion of the work is significantly attributed to the CMGC process.

Cost Control during Construction

The following items were noted by project staff related to the construction costs:

1. There were several issues that were discovered during construction related to underground obstructions and contaminated soils. There was extensive discussion on this unknown risk occurring during the preconstruction phase, so when the issues were discovered during construction they were quickly addressed as a contingency item of work.

2. A major item of work was added when it was identified that environmental mitigation of the portion of Mt. Elliott Park, previously planned for a subsequent phase of the Riverwalk work, would best be done as part of this contract in order to avoid damage to the newly-installed park infrastructure if undertaken at a later date. This addition is the majority of the difference between the negotiated contract cost and the final contract cost.

Impacts from the use of CMGC

The following items were noted by project staff related to how the use of CMGC impacted the project:

1. Overall, the use of a CMGC added value to the project. The scope of the work is not typical MDOT work, and having a partner assist improved the design and construction efforts. The extensive discussions on the project's needs and goals help the contractor fully understand the project and how to price unique items of work.

2. Public outreach and coordination with local groups was improved by having the contractor on the team prior to the start of construction.

3. The QBS selection process added value by enabling MDOT to select the most qualified contractor.

Industry Reaction

The following items were noted by project staff related to the industry's reaction to this project:

1. Six teams submitted Statements of Qualifications (SOQs) showing MDOT's contracting industry is open to new and innovative contracting methods. MDOT would not anticipate receiving 6 bids on this project if we had used a traditional low-bid procurement.

2. MDOT did not receive any objections for contractors or industry associations when we decided to use CMGC on this project. There were no objections to the selection criteria or processes.

Lessons Learned

The following items are lessons learned from this project:

1. Key staff from both MDOT and the prime contractor were involved in all phases of the project which led to continuity and a firm understanding of the CMGC process during construction. This also was beneficial when issues came up during construction because of the discussions on risk and contingency items that were held during the preconstruction phase.

2. Some subcontractors did not understand the CMGC process and how the GMP items were paid. The CMGC should be strongly encouraged to educate their subcontractors on CMGC so they know how to price a project and address changes to the subcontractor's work.

3. The CMGC should be hired early in the design process. This allows them more opportunities to add value to the design process.

4. If a consultant designer is used, their scope should indicate that a CMGC process is being used, and they need to expect an iterative design process.

5. While the CMGC process can save time in certain areas, it can increase time in others. MDOT's experience is that additional time needs to be considered for the price negotiations, and reviewing and incorporating suggestions from the CMGC into the design.

6. While MDOT did not experience this, the schedule should consider the time that would be needed to move the project into a traditional procurement if a price cannot be negotiated. The owner and CMGC should also discuss the protocols (early in the preconstruction phase) that would be implemented if a price cannot be negotiated.

7. Identification of Scope Change Items: Items in the GMP can increase or decrease without a change to the price of the GMP. However, during construction there can be issues that occur, or changes to the project's scope, that increase the cost of the project. Discussions on this topic should be held during the preconstruction phase so all parties understand what is and what is not eligible for an increase or decrease to the contract price. This discussion may lead to items being included or excluded from the GMP.

8. Documentation of CMGC Preconstruction Suggestions: Most the CMGC's suggestions were provided at meetings. MDOT recommends requiring the CMGC to provide written reports to document their suggestions during the pre-construction phase.

9. Establishing the Project Goals: The RFQ should base the selection criteria on the unique needs of the project. The selection criteria on this project was very specific to the needs and goals of the project, and were intended to differentiate teams. MDOT recommends avoiding general selection criteria that will not differentiate teams. Early in the preconstruction phase the owner should expand on the key elements they want the CMGC to focus on so their efforts can be concentrated on the difficult parts of the project.

10. The use of an ICE was very valuable to determine a reasonable price. MDOT had very limited experience on this type of work, so the input from the ICE added credibility to the price negotiation process.

11. It is helpful to educate the owner's staff that will have a role in the CMGC process. The education needs to expand past the projects key staff into other areas that assist in the processing and awarding the project. MDOT's contracting process is established for design-bid-build projects, and new procurement like CMGC add a wrinkle that can delay the projects award if staff are not familiar with the project and what changes need to occur to award the project.

Unique Contract Documents

The plans and specifications were developed according to traditional methods with the exception of a CMGC Provision for Clarifications and Limitations to the Contract price (See Exhibit A). This contract document is unique to CMGC, and describes what work is included in a GMP and how the work is tied to other special provisions in the contract and the MDOT Standard Specifications for Construction. It also describes the unique risks associated with constructing the work in the GMP item.

EXHIBIT A:
MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CLARIFICATIONS AND LIMITATIONS TO THE CONTRACT PRICE

a. Description. The method of payment on Construction Manager/General Contractor (CMGC) projects will be as described in this special provision.

The Measurement and Payment section for this project will consist of three Contract Items (Pay Items): "Guaranteed Maximum Price (GMP)", "Adjustable Work", and "Contingency Work".

1. The contract item "Guaranteed Maximum Price (GMP)" consists of those work items required to complete the project which are to be constructed in accordance with the contract and compensated as a GMP given an agreed upon risk assessment by the Department and CMGC. These work items are identified in Exhibit A.

2. The contract item "Adjustable Work" consists of individual work items with estimated quantities and contractual unit prices which are to be constructed in accordance with the contract and compensated based on actual quantity placed, built, or constructed given an agreed upon risk assessment by the Department and CMGC. These work items are identified below and the work item and unit price are identified in Exhibit B.

A. Payment for Reimbursed Permit Fees will be based on the actual cost of necessary permits.

B. Payment for Tree, Rem, 6 inch to 18 inch and Stump, Rem, 6 inch to 18 inch will be based on the actual number of trees and stumps removed from the site.

C. Payment for Curb, Rem will be based on actual length of curb removed along the roadway.

D. Payment for Masonry and Conc Structure, Rem will be based on the actual cubic yards of material removed.

E. Payment for Embankment, CIP will be based on the actual cubic yards of embankment placed.

F. Payment for Excavation, Channel and Excavation, Earth will be based on the actual cubic yards of material removed.

G. Payment for Non Haz Contaminated Material Handling and Disposal, LM will be based on actual amount of material removed from the site.

H. Payment for Erosion Control, Gravel Access Approach will be based on the actual number of temporary access points used by the Contractor based on their approved staging plan.

I. Payment for Erosion Control, Inlet Protection, Fabric Drop will be based on actual number of fabric drops used to meet the soil erosion/sedimentation control for the site.

J. Payment for Erosion Control, Silt Fence will be based on actual length of silt fence placed on the site to meet the soil erosion/sedimentation control needs for the site.

K. Payment for Aggregate Base, 6 inch and Aggregate Base, 8 inch will be based on actual square yards of material placed on the project for base material.

L. Payment for Maintenance Gravel, LM will be based on actual cubic yards of material used for site access and/or maintenance of local traffic.

M. Payment for Geotextile, Stabilization will be based on actual square yards of material placed on the project.

N. Payment for Drainage Structure Epoxy Coating will be based on actual number of castings that need to be coated on the site.

O. Payment for Reinforcement, Steel, Epoxy Coated will be based on actual pounds of material used.

P. Payment for Fence, Temp will be based on actual feet of temporary fence installed to secure the project area.

Q. Payment for Barricade, Type III, High Intensity, Lighted, Furn ; Barricade, Type III, High Intensity, Lighted, Oper; Lighted Arrow, Type B, Furn; Lighted Arrow, Type B, Oper; Plastic Drum, High Intensity, Furn; Plastic Drum, High Intensity, Oper; Sign, Type B, Temp, Prismatic, Oper; and Sign, Type B, Temp, Prismatic, Oper will be based on the maximum actual devices placed at one given time based on the Contractor's plan for staging of the work.

R. Payment for Riprap, Heavy, Modified, will be based on the actual cubic yards of material placed on the shoreline.

S. Payment for Sodding and Topsoil Surface, Furn, 6 inch will be based on actual square yards of material placed on the site.

T. Payment for Conduit, DB, 1, 4 inch; Conduit, DB, 1, 2 inch; Cable, Fiber Optic, 144 Strand and Cable, Fiber Optic, 6 Strand will be based on actual length of conduit and fiber optic cabling installed on the site, outside the limits of the Mt. Elliott Pavilion, for electrical and communication needs.

U. Payment for Contractor Staking will be based on actual cost of staking operations performed by the Contactor for site layout work. The total price shall not exceed 2 percent of the GMP.

3. The contract item "Contingency Work" is only to be used as a means to pay for unanticipated events that may occur during the project. "Contingency Work" dollar amount will be $125,000 as a budget amount. The CMGC must not begin any work in which they expect payment from the "Contingency Work" item until receiving written approval to proceed from the Engineer. These work items are identified below and the work item and unit price are identified in Exhibit C.

A. Fence, Rem will only be used if, in the Engineer's opinion, removal of the fence located along the east side of the site is warranted to facilitate the Contractor's operations. Payment will be based on actual feet of fencing removed.

B. Subgrade Undercutting, Type II will be used only if unstable soil conditions are encountered. Payment will be based on actual number of cubic yards of material removed and replaced.

C. Fence, Protective will only be used if trees to be salvaged are located close to the Contractor's operations. Payment will be based on actual feet of fencing placed.

D. Conduit, Directional Bore, 2 inch and Conduit, Directional Bore, 4 inch will only be used if determined to be a better solution for placement of conduit than direct bury conduit (e.g. crossing an unforeseen utility that may be damaged by open cutting operations). Payment will be based on actual feet of conduit placed.

E. Gate Box, Adj, Case 2 will only be used if valve boxes are encountered within the limits of work that require adjustment. Payment will be based on actual number of boxes adjusted.

F. Staking Plan Errors and Extras, 1 Person; Staking Plan Errors and Extras, 2 Person; and Staking Plans and Errors and Extras, 3 Person will only be used if errors are encountered on the plans. Payment will be based on actual hours of staking required to correct the errors.

G. Dewatering System will only be used if high ground water elevations are encountered during construction and the Engineer determines that the Contractor cannot construct the proposed work without dewatering the excavated areas. Payment will be based on a lump sum amount to dewater the excavated area in accordance with the Special Provision for Dewatering System.

H. Extra work as directed by the Department that is beyond the scope of the project at the time the GMP is agreed upon by the CMGC and the Department.

The CMGC process deletes or modifies sections of the 2012 Standard Specifications for Construction as described below:

102.02 E: Delete 102.02 E

102.05: Delete 102.05 and replace with:
"The format of the Contractors proposal will be determined by the Department *and the Contractor during the negotiation of the GMP."*

102.07: Delete 102.07 and replace with:
"The Contractor's proposal must be delivered to the location determined by the Department *during the GMP negotiations."*

102.09: Delete 102.09

102.11: Delete 102.11 and replace with:
"If the Department and the Contractor do not agree on a price for the GMP and Contingency items the Department will reject the Contractors proposal. The Department may choose to let the project through traditional or other non-traditional means if a price is not agreed upon."

102.13: Delete the first sentence in 102.13 and replace with:
"To determine if the Contractor's GMP is reasonable, the Department will compare the Contractors proposed cost with average unit prices or unit prices based on similar work or the Engineers judgment if average unit prices do not apply."

102.17: Delete 102.17

103.02 A: Delete 103.02 A.

103.02 B.2: Delete 103.02 B.2.

103.02 B.3: Delete 103.02 B.3.

108.01.1: Delete the first sentence in the second paragraph of 108.01 and replace it with:
"Contract work amounting to not less than 35 percent of the original total contract price must be performed by the CMGC's own organization."

b. Materials. Provide materials in accordance with the contract and the 2012 Standard Specification for Construction.

c. Construction. Construction methods must be in accordance with the contract and the 2012 Standard Specification for Construction.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following contract item (pay item):

Contract Item (Pay Item)	Pay Unit
Guaranteed Maximum Price (GMP)	Dollar
Adjustable Work	Dollar
Contingency Work	Dollar

The contract item **Guaranteed Maximum Price (GMP)** has been developed through negotiations between the Department and CMGC and the work items are incorporated into Exhibit A. Progress payments for work items identified within the **Guaranteed Maximum Price (GMP)** will be made as milestone events are completed, as agreed upon by the Engineer and the CMGC. Full payment will be made for the work constructed in compliance with the contract, as described in the GMP, regardless of the final quantity of any of the work items.

The contract item **Adjustable Work** was developed through negotiations between the Department and CMGC and the individual work items that make up this contract item are incorporated into Exhibit B. Progress payments for work items identified within the **Adjustable Work** contract item will be made in accordance with subsection 109.06 of the 2012 Standard Specifications for Construction. Progress Payments and Final Payment will be based upon the actual quantities placed, built, or constructed of the individual work items that make up the **Adjustable Work** contract item that are in compliance with the contract.

The contract item **Contingency Work** was developed through negotiations between the Department and CMGC based on events that may occur, but are unlikely to occur or cannot be accurately quantified at the time the Guaranteed Maximum Price is submitted. Payment for **Contingency Work** will be made as determined by the Engineer at the time a written authorization to proceed is issued by the Engineer.

EXHIBIT A – Guaranteed Maximum Price Items

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
1500001	Mobilization, Max. ____	1	LS	1220297	$1,220,297.00
2010001	Clearing	0.2	Acre	59400	$11,880.00
2030011	Dr Structure, Rem	4	Ea	653	$2,612.00
2030015	Sewer, Rem, Less than 24 inch	367	Ft	22.55	$8,275.85
2040050	Pavt, Rem	134	Syd	3.65	$489.10
2040055	Sidewalk, Rem	3448	Syd	3.25	$11,206.00
2040061	Structures, Rem Portions (Mt. Elliott Park)	1	LS	370000	$370,000.00
2047001	_ Railing, Rem	314	Ft	15	$4,710.00
2047050	_Site Furniture, Rem	23	Ea	173	$3,979.00
2047050	_Steel Shelter, Rem	2	Ea	1940	$3,880.00
2047050	_Bollard, Rem	19	Ea	90	$1,710.00
2050018	Excavation, Rock	804	Cyd	20	$16,080.00
2057021	_Filter Material	440	Cyd	50	$22,000.00
2080024	Ero Con, Inlet Protection, Sediment Trap	11	Ea	115	$1,265.00
2080042	Ero Con,Turbidity Curtain, Deep	730	Ft	200	$146,000.00
2090001	Project Cleanup	1	LS	15,000	$15,000.00
4010012	Culv End Sect, 12 inch	1	Ea	995	$995.00
4020030	Sewer, Cl A, 6 inch, Tr Det B	475	Ft	23.95	$11,376.25
4020032	Sewer, Cl A, 10 inch, Tr Det B	178	Ft	27.65	$4,921.70
4020033	Sewer, Cl A, 12 inch, Tr Det B	266	Ft	30.65	$8,152.90
4020034	Sewer, Cl A, 15 inch, Tr Det B	32	Ft	43.45	$1,390.40
4020035	Sewer, Cl A, 18 inch, Tr Det B	63	Ft	36	$2,268.00
4021275	Video Taping Sewer and Culv Pipe	1306	Ft	1.15	$1,501.90
4027001	_San Sewer, PVC, 6 inch, Tr Det G	340	Ft	148.6	$50,524.00
4027001	_San Sewer, PVC, 6 inch, Tr Det F	245	Ft	37.5	$9,187.50
4027001	_San Structure, Add Depth of 48 inch dia, 8 foot to 15 foot	11	Ft	128.4	$1,412.40
4027050	_San Structure, 48 inch dia	2	Ea	2655	$5,310.00
4027050	_San Sewer Tap, 6 inch	1	Ea	13759	$13,759.00
4030006	Dr Structure Cover, Adj, Case 2	8	Ea	455	$3,640.00
4030010	Dr Structure Cover, Type B	7	Ea	376	$2,632.00
4030040	Dr Structure Cover, Type G	9	Ea	553	$4,977.00
4030065	Dr Structure Cover, Type Q	3	Ea	594	$1,782.00
4030200	Dr Structure, 24 inch dia	7	Ea	1104	$7,728.00

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
4030210	Dr Structure, 48 inch dia	14	Ea	1296	$18,144.00
4030220	Dr Structure, 60 inch dia	1	Ea	2305	$2,305.00
4030250	Dr Str, Add Depth of 48" dia, 8' - 15'	7	Ft	169	$1,183.00
4030306	Dr Structure, Tap, 6 inch	1	Ea	733	$733.00
4037050	_Dr Structure Cover, Modified	7	Ea	629	$4,403.00
4040093	Underdrain Outlet, 6 inch	54	Ft	25	$1,350.00
5010001	Pavt, Cleaning	1	LS	18000	$18,000.00
5010703	HMA, LVSP	44	Ton	235	$10,340.00
6020056	Conc Pavt, Misc, Nonreinf, 9 inch	9	Syd	110	$990.00
6020209	Joint, Expansion, E4	75	Ft	3	$225.00
7060001	Bridge Ltg, Furn and Rem (Mt. Elliott Park)	1	LS	1000	$1,000.00
7060002	Bridge Ltg, Oper and Maintain	75	Cyd	1	$75.00
7060010	Conc, Grade D	18	Cyd	395	$7,110.00
7060060	False Decking	2500	Sft	0.01	$25.00
7060100	Substructure Conc	7	Cyd	1500	$10,500.00
7060112	Supstr Conc,Form,Fin,and Cure,Night Cast (Mt. Elliott Park)	1	LS	330000	$330,000.00
7060113	Superstructure Conc, Night Casting	72	Cyd	3000	$216,000.00
7070040	Shear Developers (Mt. Elliott Park)	1	LS	10000	$10,000.00
7100010	Conc Surface Coating (Mt. Elliott Park)	1	LS	10000	$10,000.00
7117001	_Marine Railing, Stainless Steel	304	Ft	549	$166,896.00
7120100	Top Flanges and Beam Ends,Clean and Coat	30	Syd	100	$3,000.00
7130010	Beam Plate, Seal Perimeter	20	Ft	200	$4,000.00
7130071	Str Steel,Retrofit,Furn,Fab,& Erect	10	Lb	100	$1,000.00
7150045	Steel Str,Cleaning,Type 4 (Mt. Elliott Park)	1	LS	100000	$100,000.00
7150046	Steel Str,Coating,Type 4 (Mt. Elliott Park)	1	LS	100000	$100,000.00
8020038	Curb and Gutter, Conc, Det F4	97	Ft	19.8	$1,920.60
8037001	_Animal Track Print	691	Ft	3.76	$2,598.16
8037001	_Conc Header	284	Ft	36.38	$10,331.92
8037010	_Sidewalk, Conc, 6 inch, Decorative	14556	Sft	8.58	$124,890.48
8037010	_Sidewalk, Conc, 6 inch, Modified	19496	Sft	7.56	$147,389.76
8037010	_ Sidewalk, Conc, 8 inch, Modified	11415	Sft	8.36	$95,429.40
8037010	_Sidewalk, Conc, 6 inch, Decorative, Exposed Aggregate	5655	Sft	9.21	$52,082.55
8037010	_Sidewalk, Conc, 8 inch, Decorative	2413	Sft	9.08	$21,910.04
8037010	_Concrete Pavers	1314	Sft	32.11	$42,192.54

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
8037010	_Sidewalk, Conc, Reinf, 6 inch	4075	Sft	5.85	$23,838.75
8037010	_Sidewalk, Conc, Reinf, 8 inch	315	Sft	6.35	$2,000.25
8077050	_Bollard, Salv	5	Ea	118	$590.00
8087001	_ Fence, Decorative	79	Ft	95.25	$7,524.75
8107050	_ Bollard, Decorative Steel, Removable	13	Ea	1128.17	$14,666.21
8107050	_Riverfront Sign, Type PL-ID	1	Ea	31454	$31,454.00
8107050	_Riverfront Sign, Type L-PD/YAH	1	Ea	7403	$7,403.00
8107050	_Riverfront Sign, Type RW-ID	1	Ea	10425	$10,425.00
8107050	_Riverfront Sign, Type S-INF	9	Ea	392	$3,528.00
8107050	_Riverfront Sign, Type S-RG	3	Ea	1421	$4,263.00
8107050	_Riverfront Sign, Type DM	1	Ea	677	$677.00
8120170	Minor Traf Devices	1	LS	1424	$1,424.00
8150001	Site Preparation, Max. ____$23,500	1	LS	4749.65	$4,749.65
8150002	Watering&Cultivating,1st Seasn,Min. ____	1	LS	3150	$3,150.00
8150003	Watering&Cultivating,2nd Seasn,Min. ____	1	LS	4850	$4,850.00
8151277	Echinecea purpurpea 'Magnus', #1 cont.	32	Ea	10.5	$336.00
8150545	Betula nigra, 2" clump, 3 stem	2	Ea	335	$670.00
8157050	Clethra alnifolia 'Hummingbird', 30 inch	86	Ea	46	$3,956.00
8153793	Taxus x media 'Wardii', 24 inch	12	Ea	46	$552.00
8157050	_ Moveable Chair	88	Ea	386.66	$34,026.08
8157050	_Bench, Steel, Decorative	9	Ea	2641.65	$23,774.85
8157050	_Moveable Table "B"	13	Ea	1242.9	$16,157.70
8157050	_Recycling Receptacle, Steel, Decorative	13	Ea	2455.45	$31,920.85
8157050	_Trash Receptacle, Steel, Decorative	13	Ea	2312.53	$30,062.89
8157050	_Pipe Well, Shrub	1000	Ea	2.5	$2,500.00
8157050	_ Moveable Table "A"	9	Ea	1109.71	$9,987.39
8157050	_Bicycle Rack, Stainless Steel Tube	7	Ea	1385.82	$9,700.74
8157050	_Universally Accessible Table	5	Ea	1060	$5,300.00
8157050	_Acer rubrum 'Red Sunset', 2 1/2 inch	25	Ea	265	$6,625.00
8157050	_Pipe Well, Tree	176	Ea	11.5	$2,024.00
8157050	_Syringia patula 'Miss Kim', 30 inch	61	Ea	56	$3,416.00
8157050	Quercus bicolor, 2 1/2 inch	13	Ea	315	$4,095.00
8157050	_Bench, Steel, Decorative, Salv	6	Ea	110	$660.00
8157050	_Gleditsia triacanthos inermis 'Skyline', 2 1/2 inch	4	Ea	280	$1,120.00
8157050	Viburnum x birkwoodii 'Mohawk', 24 inch	28	Ea	40	$1,120.00
8157050	_Pennisetum 'Karley Rose', 18 inch	94	Ea	16	$1,504.00

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
8157051	_Mount Elliott Park Water Feature	1	LS	1217808	$1,217,808.00
8157051	_Mount Elliott Park Pavilion	1	LS	$1,396,005.20	$1,396,005.20
8157051	_Underground Storm Water Storage System	1	LS	87250	$87,250.00
8157051	_Storm Water Quality Unit	1	LS	29865	$29,865.00
8167001	_Landscape Edging, Steel	275	Ft	10.25	$2,818.75
8167011	_Mulch, Shredded Bark	370	Syd	6.85	$2,534.50
8167051	_Irrigation System	1	LS	210050	$210,050.00
8190033	Conduit, DB, 2, 4 inch	1316	Ft	51.2	$67,379.20
8190236	Cable, Equipment Grounding Wire, 1/C#6	105	Ft	7.69	$807.45
8190237	Cable, Equipment Grounding Wire, 1/C#8	2440	Ft	2.49	$6,075.60
8190238	Cable, Equipment Grounding Wire, 1/C#10	1524	Ft	2.06	$3,139.44
8190239	Cable, Equipment Grounding Wire, 1/C#12	550	Ft	2.7	$1,485.00
8190250	Hh, Polymer Conc	27	Ea	1338.92	$36,150.84
8190254	Hh, Rem	1	Ea	737.2	$737.20
8190279	Light Std Fdn	35	Ea	2355	$82,425.00
8190280	Light Std Fdn, Rem	30	Ea	175	$5,250.00
8190305	Light Std Shaft, Rem	30	Ea	335	$10,050.00
8190360	Luminaire, Rem	30	Ea	67.6	$2,028.00
8190406	Cable, Sec, 600V, 2, 1/C#6	1230	Ft	6.84	$8,413.20
8197001	_Cable, Sec, 600V, 6, 1/C#6	514	Ft	19.36	$9,951.04
8197001	_Cable, Sec, 600V, 2, 1/C#8	2812	Ft	3.64	$10,235.68
8197001	Cable, Sec, 600V, 1, 4/C#500 KCMIL	641	Ft	3.15	$2,019.15
8190233	Cable, Equipment Grounding Wire, 1/C#3	641	Ft	106.41	$68,208.81
8197001	_Cable, Sec, 600V, 4, 1/C#8	465	Ft	8.51	$3,957.15
8197001	_Conduit, DB, 2, 2 inch	322	Ft	20.56	$6,620.32
8197001	_Conduit, DB, 3, 2 inch	145	Ft	39.5	$5,727.50
8197001	_Cable, Sec, 600V, 2, 1/C#10	510	Ft	3.1	$1,581.00
8197001	_Cable, Sec, 600V, 2, 1/C#12	95	Ft	6.73	$639.35
8197050	_Luminaire Pole, Type D	35	Ea	422.17	$14,775.95
8197050	_Luminaire, LED, Type D	35	Ea	3599.28	$125,974.80
8197050	_Emergency Phone Tower with Security Camera	3	Ea	20899.29	$62,697.87
8197050	_Emergency Phone Tower with Security Camera, Salvage	1	Ea	684.85	$684.85
8197051	_Test Existing Fiber Optic Cabling	1	LS	337.48	$337.48
8217050	_Monitoring Well, Adj	2	Ea	580	$1,160.00

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
8230040	Fire Hydrant	1	Ea	2838	$2,838.00
8230050	Gate Valve and Box, 4 inch	2	Ea	978	$1,956.00
8230051	Gate Valve and Box, 6 inch	1	Ea	1469	$1,469.00
8230062	Gate Valve, 8 inch	1	Ea	1635	$1,635.00
8230150	Water Main, DI, 6 inch, Tr Det F	276	Ft	54.75	$15,111.00
8230151	Water Main, DI, 6 inch, Tr Det G	188	Ft	84.15	$15,820.20
8230156	Water Main, DI, 8 inch, Tr Det G	21	Ft	439.15	$9,222.15
8230440	Polyethylene Encasement	1085	Ft	0.45	$488.25
8237001	_Water Main, DI, 4 inch, Tr Det G	337	Ft	79.5	$26,791.50
8237001	_Water Main, DI, 4 inch, Tr Det F	263	Ft	42.9	$11,282.70
8237050	_Gate Well, 60 inch dia	1	Ea	1711	$1,711.00
8240001	Contractor Staking	1	LS	38693	$38,693.00
8507010	_Retaining Wall, Decorative Stone	522	Sft	60	$31,320.00
8507051	_Tensile Fabric Structure	1	LS	1005536	$1,005,536.00
8507051	_Mount Elliott Park Playground Equipment	1	LS	179100	$179,100.00

EXHIBIT B – Adjustable Work Items

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
1077060	Reimbursed Permit Fees	246825	Ea	1	$246,825.00
2020004	Tree, Rem, 6 inch to 18 inch	20	Ea	238	$4,760.00
2020008	Stump, Rem, 6 inch to 18 inch	18	Ea	238	$4,284.00
2040021	Curb, Rem	100	Ft	9.35	$935.00
2040045	Masonry and Conc Structure, Rem	2007	Cyd	23.1	$46,361.70
2050010	Embankment, CIP	1960	Cyd	3.3	$6,468.00
2050015	Excavation, Channel	1944	Cyd	73.55	$142,981.20
2050016	Excavation, Earth	13497	Cyd	4.68	$63,165.96
2050031	Non Haz Contam Mat'l Handling & Disp, LM	20649	Cyd	17.51	$361,563.99
2080016	Erosion Control, Gravel Access Approach	2	Ea	1796	$3,592.00
2080020	Ero Con, Inlet Protection, Fabric Drop	29	Ea	121	$3,509.00
2080036	Erosion Control, Silt Fence	681	Ft	1.9	$1,293.90
3020016	Aggregate Base, 6 inch	5452	Syd	9.56	$52,121.12
3020020	Aggregate Base, 8 inch	2101	Syd	15.91	$33,426.91
3060021	Maintenance Gravel, LM	100	Cyd	32.82	$3,282.00
3080010	Geotextile, Stabilization	500	Syd	10.5	$5,250.00
4037050	_ Drainage Structure Epoxy Coating	37	Ea	128	$4,736.00
7060092	Reinforcement, Steel, Epoxy Coated	11135	Lb	2.13	$23,717.55
8080004	Fence, Temp	480	Ft	23.00	$11,040.00
8120022	Barric,Type III,High Intens,Lighted,Furn	13	Ea	223	$2,899.00
8120023	Barric,Type III,High Intens,Lighted,Oper	13	Ea	2.48	$32.24
8120130	Lighted Arrow, Type B, Furn	1	Ea	1670	$1,670.00
8120131	Lighted Arrow, Type B, Oper	1	Ea	131.25	$131.25
8120250	Plastic Drum, High Intensity, Furn	62	Ea	31.17	$1,932.54
8120251	Plastic Drum, High Intensity, Oper	62	Ea	14.18	$879.16
8120350	Sign, Type B, Temp, Prismatic, Furn	382	Sft	5.2	$1,986.40
8120351	Sign, Type B, Temp, Prismatic, Oper	382	Sft	1.84	$702.88
8137021	_Riprap, Heavy, Modified	6449	Cyd	100	$644,900.00
8160055	Sodding	7918	Syd	3.26	$25,812.68
8160064	Topsoil Surface, Furn, 6 inch	7918	Syd	4.57	$36,185.26
8197001	Conduit, DB 1, 2 inch	3465	Ft	17.42	$60,360.30
8197001	_Cable, Fiber Optic, 144 Strand	1010	Ft	28.31	$28,593.10
8197001	_Conduit, DB, 1, 4 inch	200	Ft	29.81	$5,962.00
8197001	_Cable, Fiber Optic, 6 Strand	472	Ft	8.83	$4,167.76

EXHIBIT C – Contingency Work Items

Item Number	Item Description	Estimated Quantity	Item Unit	Unit Price	Cost
2040025	Fence, Rem	100	Ft	8.79	$879.00
2050041	Subgrade Undercutting, Type II	1000	Cyd	58.86	$58,860.00
8080007	Fence, Protective	100	Ft	18.38	$1,838.00
8190042	Conduit, Directional Bore, 2 inch	100	Ft	29.81	$2,981.00
8190046	Conduit, Directional Bore, 4 inch	100	Ft	37.67	$3,767.00
8230432	Gate Box, Adj, Case 2	2	Ea	320.6	$641.20
8240020	Staking Plan Errors and Extras, 1 Person	48	Hr	120.75	$5,796.00
8240021	Staking Plan Errors and Extras, 2 Person	20	Hr	183.75	$3,675.00
8240022	Staking Plan Errors and Extras, 3 Person	29	Hr	267.75	$7,764.75
8507051	_Dewatering System	1	LS	37349	$37,349.00