



Innovative Contracting Practices
SPECIAL EXPERIMENTAL PROJECT - 14



CONSTRUCTION MANAGER AT RISK
for
NEW PUBLIC DOCK & TERMINAL BUILDING
DETROIT, MICHIGAN

FINAL REPORT



Detroit Wayne County Port Authority
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This report has been prepared by the Detroit Wayne County Port Authority and its Director of Economic Development, John Kerr. The following assisted in the project and this report:

- Program Managers: SDG Associates LLC assisted by The Mannik & Smith Group.
- Architects: Hamilton-Anderson Associates.
- Geotechnical, Seawall and Wharf Engineers: NTH
- Testing Engineers: NTH
- Construction Manager at Risk (CM@R): White-Olson-Korneffel Joint Venture.

The Detroit Wayne County Port Authority acknowledges the invaluable assistance on this complex project from the following:

- MDOT Central Office, Lansing (Chris Youngs and Kim Johnson)
- MDOT Regional Office, Southfield (Vince Ranger)
- MDOT Transportation Service Center, Detroit (Victor Judnic succeeded by Tia Klein)
- FHWA Lansing Office (Phil Lynwood)

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1. SUMMARY

PROJECT OVERVIEW

The project comprised designing, permitting and constructing facilities for accommodating a proposed ferry service to Canada and berthing for cruise ships frequenting the Great Lakes Waterways. It included an off-shore wharf, seawall repair, new Terminal Building including international processing, and site work including extension of Detroit's RiverWalk.

PROJECT SUCCESS AND LESSONS

The project had a high degree of complexity as described in this report. Despite the ultimate complexity, the project was successfully completed within the allocated funding, achieving the required scope and quality. In operation the project has and continues to successfully fulfill its functions – refer to illustrations.



View along RiverWalk Project 'E' with Projects 'D' and 'G' to the right, and Projects 'A' and 'C' to the left.

The Construction Manager at Risk (CM@R) method of project delivery successfully achieved the following:

- Delivered all the projects within the funding budgets, with the approved scope and quality, and according to the schedule.

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- Accommodated additional projects ('E' through 'H') as additional funding became available.
- Had a basis for competitive fees and competitive bidding of all work for added projects.
- Concurrently constructed and coordinated nine separate projects on the same site.
- Concurrently, separately and regularly reported on and documented nine separate projects on the same site.
- Competitively bid all the work with an open book process.
- Complied with the requirements from the various agreements applicable to the project including but not limited to reporting, monitoring, special construction procedures, etc:
 - RHI Development Agreement.
 - DWJBA Raw Water Easement Agreements and monitoring.
 - Detroit Windsor Tunnel impact monitoring.
 - USCAE requirements.
 - MDEQ requirements.
 - USCG requirements.
 - Detroit Riverfront Conservancy requirements.



View along RiverWalk Project 'E' towards Project 'F' with Project 'D' to the left, and Projects 'A' and 'C' to the right.

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- Established a series of guaranteed maximum prices within funding limits for scopes acceptable to the Owner.
- Assisted in developing design decisions for constructability, resolution of unique site issues, etc.
- Ensured a safe work environment with no reported injuries or work hours lost due to injury.
- Bonded and insured the projects.

A design-bid-build project delivery system would have had great difficulty delivering the complexity of this project for the following reasons:

- The design-bid-build project delivery system requires 100% documents prior to bidding. Unit price bidding is impracticable for an entire building project. The funding-driven multiple projects would have resulted in the substantial part of the overall project being non-competitive change orders to the original contract. It would have been impractical to have multiple contractors on the same site.
- The design-bid-build project delivery system would not have had the flexibility to assist in resolving the complex site and stakeholder issues.



View along Offshore Wharf Project 'G'.

GUARANTEED MAXIMUM PRICE PERFORMANCE

The following summarizes the Guaranteed Maximums Price (GMP) performance:

PROJECT	GUARANTEED MAXIMUM PRICE	FINAL PRICE
Project 'A'	\$5,396,754	\$5,377,404.60
Project 'B'	\$2,501,098	\$2,501,098.00
Project 'C'	\$1,105,145	\$1,103,145.00
Project 'D'	\$937,500	\$937,500.00
Project 'E-1'	\$217,849	\$215,262.78
Project 'E-2'	\$318,739	\$307,390.58
Project 'F'	\$534,880	\$489,963.00
Project 'G'	\$5,323,972	\$5,298,972.00
Project 'H'	\$1,000,000	\$992,597.63

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The success under the GMP requirements is due in part to the selected CM@R's skills in estimating the probable cost/purchasing the project and in part to the state of the economy during the project. The process from initial conceptual design to agreement on each GMP was somewhat confrontational with DWCPA wanting more and the CM@R wanting to guarantee less. There was agreement on the minimum general scope of the project – processing a certain capacity of passengers, etc. – but details such as a level of finishes, type of systems, energy saving features, etc. resulted in extended discussions. Also the designers of each project provided cost estimates. Two alternative Construction Management project delivery systems, CM-Agency (no guarantee) and CM-Bid GMP (scope defined in detail by bid documents), avoid this but have other disadvantages as discussed in Section 6. Prior to the GMP certain features desired by DWCPA were eliminated but as the actual trades work bids came in very favorably during the downturn in the economy these were able to be reinstated later in the project. The “open book” bid process ensured all savings from the low bids accrued to DWCPA and not to the Construction Manager.

The following additional lessons applicable to future such projects were learned:

1. The quality of the selected CM@R is crucial to the success of the project. A CM@R who was excessively conservative in protecting his/her risk would result in a project with funds unspent at the end of the project with the resultant loss of quality and/or functionality. Funds may be available too late to implement desirable features such as energy efficiency improvements that may have been eliminated in the negotiations leading up to the GMP.
2. The project was complex, particularly the site issues and the impacts from the various adjacent stakeholder agreements applicable to the site. The CM@R delivery process was highly effective in assisting with alternative solutions to these issues. A design-bid-build approach would have been incapable of handling these issues.
3. The self-perform requirements are very difficult to achieve on a building project. A building prime contractor is unlikely to undertake structural steel, elevator construction, curtain wall, roofing, electrical, mechanical, plumbing, fire protection, communications, or architectural finishes – the bulk of the project. This project having the seawall, offshore wharf and site work allowed the self-perform requirements to be met but probably restricted the number of responders to the RFQ/P. It was definitely a factor in determining the composition of the successful CM@R team.
4. The CM@R's primary concern is to minimize his/her risk. Though construction is purchased based on “open book” competitive bids, the CM@R's risk mitigation desire may reduce the initial scope on which the GMP is based. On this project that resulted in lengthy negotiations prior to the GMPs and ultimately reasonable scopes were included in the GMPs – a combination of having a CM@R who valued his reputation and the negotiations. Ultimately an Owner will receive full value but the timing is an issue. If the availability of additional funding (within the GMP) is not known until late in the process, then options that may be highly desirable (e.g. energy reduction strategies,

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deleted functionality, etc.) may be too late to implement. The CM@R-Agency and CM@R-Bid GMP approaches eliminate this concern – see Section 6.

5. Each GMP was composed of approximately sixty line items representing budgets for each trade plus general conditions items. See example in Appendix 'B'. The guarantee was only applicable to the total project cost. Each line item was not guaranteed and the CM@R had the ability to fund any line item for which a bid came over that GMP line item value by savings in bids from other line items. It was agreed that it was unrealistic to guarantee each line item. This is the typical practice for building construction.

INNOVATIVE FEATURES

The complexity of the project required several innovative features as follows:

1. The project was generally funded through MDOT and FHWA. Reporting had to be transparent to those agencies and therefore it was decided to use the FieldManager system of record keeping and documentation. Both agencies were familiar with those systems and their output in detail. The FieldManager software is an award-winning, comprehensive electronic construction management system for managing and tracking construction projects,



View down onto RiverWalk Project 'E' with Project 'G' to the right.

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documenting progress, initiating contractor payments and communicating with an agency's central office contract administration system. FieldManager software is a Microsoft® Certified solution designed for use by state transportation agencies, local governments, engineering consultants and large contractors. That software was primarily developed for civil engineering projects but as it and its output were familiar to MDOT/FHWA, it was decided to use that for this building construction project. The software developer, InfoTech, assisted in adapting the software for use by this project and is now marketing that feature to others. The FieldManager records supported AIA-type documentation used by the Architect in effectively monitored quality, submittals, testing, payment requests and produced the necessary documentation to facilitate payments.

2. As a building project was a significant portion of the overall project AIA documentation might have been appropriate but would have been unfamiliar to those overseeing the funding management. The FieldManager software developer assisted in adapting the software for use on a building project (with its large number of separate trades). The contract documents were completed using the AIA documentation as a basis of the contractual requirements and the Architect/Engineers undertook their roles using the standard AIA documentation. The PM (SDG with the Mannik and Smith Group) translated the AIA documentation into FieldManager documentation for onward transmission to MDOT and FHWA.
3. FHWA has a minimum 30% "self-perform" requirement on all federally funded work. MDOT has a minimum 40% "self-perform" requirement on MDOT projects. The MDOT requirement was adjusted on this project to impose a minimum requirement of 35% "self-perform" – a number that met the FHWA requirement. This is a laudable requirement on civil engineering limited trades projects to avoid "brokers" but difficult to achieve on a building construction project. The building contractor (general contractor) is unlikely to have the experience and the forces to undertake mechanical trades work (typically about 24% of a project), electrical trades work (typically about 10% of a project), structural steel trades work (typically about 8% of a project), curtain wall or other exterior enclosure (typically about 27% of a project), or other specialist work such as roofing, elevators, architectural finishes, etc. Rules allowed "special construction" to be deleted from the base construction cost on which the 35% was to be calculated. Cooperation by MDOT and FHWA allowed a base construction cost to be defined that would create a reasonable target that building contractors could achieve. The successful CM@R achieved this requirement but it definitely influenced the CM@R procurement, probably excluding a number of potential contractors. The successful CM@R achieved the required performance by creating a joint venture between three firms each having skills that when combined met the requirement.

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4. Contingency: A building construction project using a Construction Manager project delivery system typically has two or perhaps three contingencies as follows:
- 1) Owner's Contingency: This contingency is under the sole control of the Owner and is used to pay for additional unforeseen costs not reasonably included in the Construction Manager's Guaranteed Maximum Price. Unknowns could include but would not be limited to the following:
 - Sub-surface obstructions or changed sub-surface conditions not reasonably inferable from the geotechnical report. This was particularly applicable to this project which was constructed over numerous past wharf constructions. Short of excavating the entire site the subsurface conditions were known only generally at specific locations and were unknown in detail.
 - Boulder impacts during piling (on this project occurring at a depth of approximately 100 feet).
 - Unforeseen utility costs.
 - Design changes (controlled on this project as MDOT TSC approval was required for such change orders – not used).
 - Added scope: Used on this project to add back some scope eliminated during the development of the GMP. This required MDOT-TSC approval.
 - 2) Construction Manager's Contingency: This could be avoided by adding an undeclared estimating contingency to each trades line item. However it is more effective to manage the project in this "open book" bidding process to develop a realistic estimated cost for each trades line item and to have a contingency for use as a first recourse should a bid exceed a line item. The second recourse should the contingency be exhausted is to manipulate between line items, i.e. reduce one unbid line item to pay the overage on the bid for another.
 - 3) Design Contingency: A third contingency common on building projects but not approved for use on this project is a designer's contingency. This applies before the construction documents are completed and funds increased costs should subsequent estimates show the development of the design has increased a particular element cost. It is used to maintain the design integrity of a project.

The funding agencies for this project typically do not use or approve contingencies on projects. However as this was in part a building construction project the Owner's Contingency and the Construction Manager's Contingency were approved for inclusion provided they were included within the GMP.

Rules were established to carefully control the use of the contingencies and these are included in this report as Appendix 'C'.

2. ABBREVIATIONS AND DEFINITIONS

The following abbreviations and definitions are used in this report:

AIA	American Institute of Architects. Used in the context of this project related to documentation for quality control, payment request, etc.
CCTV	Closed circuit television.
CM@R	Construction Manager at Risk. A joint venture of White Construction, J.M.Olson Corporation and E. C. Korneffel Company (White-Olson-Korneffel) was selected in this role. The need for such a joint venture was driven by the FHWA and MDOT "self-perform" requirements on what was generally a building construction project - refer to comments in Section 13.
DWCPA	Detroit Wayne County Port Authority, a public body established in 1978 pursuant to Michigan Public Act 234 of 1925. In the report DWCPA is sometimes referred to as the Owner.
DWJBA	Detroit Wayne Joint Building Authority. A raw water line ran from a pump station through the center of the site to the DWJBA City/County Building, the local governmental headquarters.
DWTC	Detroit-Windsor Tunnel Company. The project is constructed adjacent and in part over the tunnel connecting Detroit to Windsor, Ontario, Canada operated by this company.
FBD	The American Recovery and Reinvestment Act FY 2009, Public Law 111-5, Ferry Boat Discretionary Program.
FHWA	Federal Highway Administration, a division of the United States Department of Transportation. References are generally to the Lansing, Michigan office.
FSP	Facility Security Plan
GMP	Guaranteed maximum price.
HVAC	Heating, ventilating and air conditioning.
MARSEC	33CFR Part 101 Maritime Security
MDEQ	Michigan Department of Environmental Quality, Land and Water Management Division
MDOT	Michigan Department of Transportation
MDOT TSC	Michigan Department of Transportation Detroit Transportation Service Center
PD	Planned Development as defined in Chapter 61 of the Detroit City Code, Ordinance 17-H and Ordinance 21-89.
RFQ/P	Request for Qualifications/Proposals. This was prepared and issued to select the CM@R. The request was for a combination of qualifications and proposed fees.
RHI	Riverfront Holdings Incorporated, a subsidiary of General Motors Corporation. The project was constructed on land purchased from RHI adjacent to the General Motors Headquarters, Renaissance Center.. As a part of the purchase agreement, a Development Agreement was signed between RHI and DWCPA that controlled certain aspects of the

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development. Also as the project developed, RHI's obligation to construct a part of Detroit's RiverWalk through the site and west of the site was passed to DWCPA and became the privately funded Projects 'E' and 'F' – see Sections 3 and 5. The State of Michigan wished to enhance Project 'E' and this was divided into the privately funded Project 'E-1' and the jointly funded Project 'E-2'. RHI utilized their own Program Managers overseeing work in the GM Headquarters, Renaissance Center, to monitor the DWCPA Team on Projects 'E' and 'F'. The DWCPA Project team including the CM@R had to coordinate and report to RHI's PM Hines succeed during the project by CB-RE.

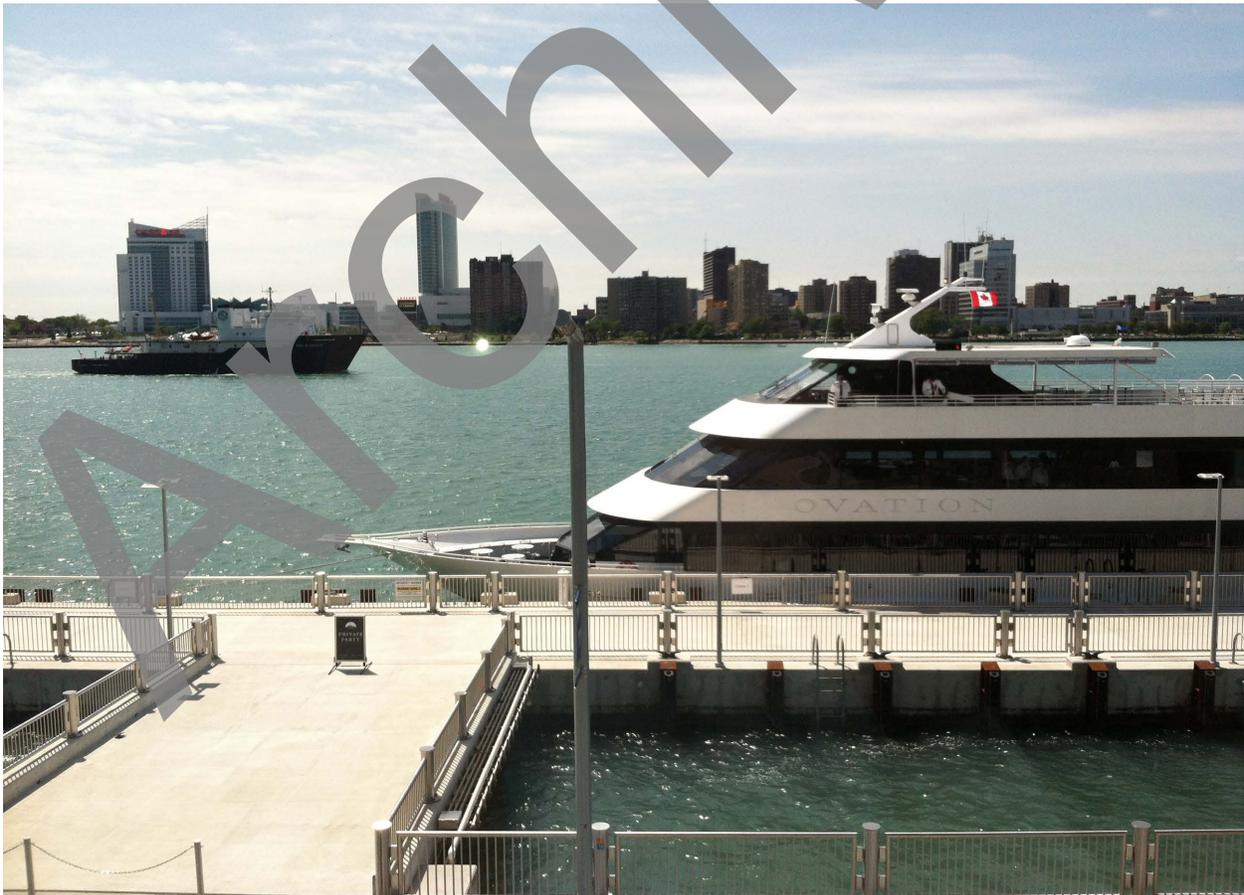
SDG/M&S SDG Associates, LLC, assisted by The Mannik & Smith Group, the program manager acting for DWCPA.
USCAE United States Corps of Army Engineers, Department of Army.
USCG United States Coast Guard

3. PROJECT BACKGROUND AND HISTORY

PROJECT PURPOSE

Two major transportation problems existed in Michigan at the border with Canada in Detroit.

One was the connection across the Detroit River to Windsor, Ontario. The existing connections via the Tunnel or the Ambassador Bridge discourage Canadians from visiting Michigan and discourage residents of Michigan and visitors to Detroit from experiencing Canada. This close proximity to Canada could attract a larger number of visitors. Though a bus service does exist it is difficult to access and provides a limited connection. Economic growth in southeastern Michigan relies to some extent on tourism and the proximity of a foreign country, Canada, could be a significant benefit in attracting visitors if access between the USA and Canada was simplified. Solutions considered in the past included a cable car system across the Detroit River. The most viable system was agreed to be a ferry boat system as used elsewhere. To implement such a system required a suitable dock and a facility to house the border protection functions. This project was developed to solve those problems.



View of Project 'G' with proximity of Canada across the Detroit River shown.

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The second problem was the inability in the Detroit area to berth the cruise ships that frequent the Great Lakes waterways. Those vessels do berth at Windsor, Ontario across the river but not in Detroit or Michigan. A facility that solved the ferry problems would simultaneously solve the cruise ship problems as the same features would be necessary – suitable berthing, border protection facilities, etc. Also if facilities were provided to “home port” a cruise ship in Detroit, significant regional economic benefits would accrue from visitors travelling to the region, staying in the region’s hotels and using the region’s hospitality facilities.

As this project developed a further benefit became apparent. Over 1,400 of the Detroit region’s health care workers live in Canada. Should a catastrophic event occur and should such an event disrupt the connections via the tunnel or the bridge, the ferry would provide a back-up system and thereby would be a homeland security asset. Plans are being developed on this basis.

PROJECT INITIATION

The project was initiated in 2005 with an initial Federal High Priority Project (HPP) Earmark of \$6,000,000 and local funding. A riverfront site in downtown Detroit was then identified (owned by General Motors Corporation adjacent to their headquarters) and this was purchased using funds provided by the State of Michigan Department of Environmental Quality under the Clean Michigan Initiative Bond Program. The site was chosen for its location and transportation functionality. However it did come with considerable problems to be solved as follows:



- No utilities were adjacent to the site but were located at a considerable distance. The reason for this was the continual movement of the shoreline in Detroit which from the nineteenth century on had been filled, moving the land edge into the river. This movement was only halted by the USCAE establishing a harbor line to protect the waterway beyond which all development was prohibited.
- The sub-surface conditions on the site which consisted of a series of wharf constructions (generally on frequent 40-foot deep wooden piles) as the land was continually filled and moved into the river.

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- A major raw water line that extended from a pump station immediately east of the site to provide cooling water to the Detroit/Wayne County Building, the governmental headquarters located inland from the site. The line extended along the center of the site and was established there by easement. Also on the eastern edge of the site a similar raw water line extended from the pump station to provide cooling water for the 2-million square foot General Motors Headquarters.
- Shallow water at the river edge.
- A seawall in need of repair.
- The Detroit RiverWalk separating the site from the river. The Detroit RiverWalk is a major local initiative to make the riverfront accessible to the public and extends a walkway along the river edge for several miles.
- Sub-surface conditions that required foundations for even a modest building to extend over 100 feet below grade.
- The site being adjacent and in part over the tunnel connecting Detroit to Windsor, Ontario, Canada.

FINAL FUNDING

As the scope of the project was developed, the funding was secured from a variety of sources. Funding rules required each funding use to be treated as a separate project. The project eventually ended up with eight projects as follows:

- Project 'A': Terminal Building Shell & Core.
- Project 'B': Terminal Building Interiors
- Project 'C': Terminal Building Site
- Project 'D': Seawall Repair.
- Project 'E': RiverWalk through Terminal Building site.
- Project 'F': RiverWalk adjacent to Terminal Building site (privately funded).
- Project 'G': Offshore Wharf (ARRA funded).
- Project 'H': Addition to Terminal Building (ARRA funded).

The State of Michigan wished to enhance Project 'E' and this was divided into the privately funded Project 'E-1" and the jointly funded Project 'E-2". This increased the total number of projects to nine.

All the above projects were separately managed. All records were kept separately.

The Construction Manager at Risk (CM@R) construction procurement approach proved capable of handling the above complexity.

4. PROJECT DESCRIPTION

To meet the needs described in Section 3 “Project Background and History”, the project had the following elements:

- Seawall repair.
- Offshore wharf.
- Terminal building with the following components:
 - Passenger embarkation area with passenger reception, baggage drop-off, ticketing, passenger waiting and toilets.
 - Passenger disembarkation areas with international security screening, baggage screening and baggage pick-up.
 - International security screening support areas.
 - Terminal operations areas.
 - Terminal building and site infrastructure.
- Vehicular curbside/drop-off area.
- Site zone for sterile area (for processing international passengers through border security).
- RiverWalk.

The site size and site proportions required a two-story design in which embarkation and terminal operations were on the second floor and disembarkation and international security screening were on the first floor. The second floor extends over a sheltered vehicle drop-off area adjacent to the baggage reception space.

The building is steel framed with a supported concrete floor poured on metal deck. Due to its size and the provision of sprinkler fire protection it could be constructed with unprotected steel under the Michigan Building Code (IBC). The columns within the building are therefore exposed painted steel – an economical solution. The roof is metal deck with a high degree of thermal insulation and single membrane plastic roof covering. The first floor slab is a concrete slab supported on grade.



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The exterior wall is a combination of coated metal highly insulated panels and aluminum framed thermal-break curtain wall glazed with a high performance insulated glazing system with internal low-e coating for improved thermal performance. Solar gain is controlled by exterior sun shades and interior roller blinds. The glazed curtain wall takes advantage of the spectacular views over the Detroit River and to Windsor, Ontario, Canada to the south.

The foundation system was complex even for this relatively small building. It had to bear on pile foundations extending down over 100 feet to the rock/hard pan below. The engineer's choice was driven piles (the nature of the subsurface down to the hard pan would not allow an augered system) and this imposed vibration concerns during construction on the adjacent Detroit-Windsor tunnel, raw water pump station, and raw water line to Renaissance Center and the Detroit Wayne County Building. Installing the piles was problematic for other reasons as below the site surface were old wharf constructions that were typically a concrete slab supported on short walls (forming a series of 5'-0" high open cells) supported on a 3'-0" thick concrete slab supported on 40-foot closely spaced wooden piles. Openings had to be cored through this construction to ensure any new pile was not located directly over an existing wooden pile. The open cells had to be filled and filling with sand would have imposed excessive load on the original wooden pile system (causing excessive settlement). The solution was to remove the top concrete slab and fill the cells with geo-foam capable of supporting the new floor slab.

As noted in Section 3, there were no utilities close to the site. The following were the solutions to this problem:

- Sanitary sewer: Absence of any sanitary sewer within a reasonable distance of the site required negotiation with the City of Detroit Civic Center Department for installation of a pumped force main connecting to the Civic Center Department Hart Plaza Police Station force main sanitary system. That system had been installed to address the same problem being encountered by this project.
- Storm sewer: Required negotiation of an agreement to discharge into an adjacent outfall.
- Electrical power: Required negotiations with the City of Detroit's Public Lighting Department to utilize their system. Due to the unavailability of gas or steam services the building was eventually designed to be all-electric using as many energy saving features as possible.
- Gas: None available to the site and therefore none used.
- Steam: None available to the site and therefore none used.
- Telephone: The only easily available utility provided by AT&T.

In addition to the above there were two unique requirements as follows:

- DWCPA will provide the security processing of international passengers. DWCPA communications had to be designed as wireless connecting to the adjacent Detroit-Windsor Tunnel security facility and other security facilities in Detroit.

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- Detroit RiverWalk Security: The RiverWalk passes through the site but is integral to the sterile area connecting the international arriving vessels to the Terminal Building during international operations. RiverWalk security is provided throughout the three mile riverfront area through CCTV monitoring from a central RiverWalk security station. The cameras in the Project 'E' area had to have the ability to meet international security standards monitored from the Terminal Building and also RiverWalk security standards monitored from the RiverWalk security station. These were inevitably different. The RiverWalk CCTV monitoring had also to extend to the alternate RiverWalk implemented during international arrivals when the primary RiverWalk was secured as a sterile area.

As noted above the building energy source is all electric. The HVAC system consisted of roof top mounted air handling units (visually screened on this prominent site) with resistance heating and electrically driven compressor cooling serving a variable air volume distribution system. Electric perimeter radiation and electric above soffit heaters over the vehicle drop-off area compensated for perimeter heat losses. Exhaust ventilation was provided as needed in toilet rooms, etc.

The plumbing installation was a straightforward traditional system, but connected to the unique force main sanitary sewer system. A grinder pump system was installed under the street to the north of the building and the force main was extended along the street to the Hart Plaza Police Station.

The building per code was fully fire sprinkler protected with a dry pipe system in the soffit over the vehicle drop-off area.

Electrical power within the building was a straightforward traditional system. Lighting was chosen to maximize energy efficiency. This included automatic sensor controls in this building with variable occupancy.

Low voltage systems were complex with the following being required:

- A telephone system.
- A digital CCTV system to comply with the FSP of MARSEC.
- A CCTV system to provide security to Detroit RiverWalk standards for both the RiverWalk and the Alternate RiverWalk (during international arrivals). The complication was the inability of the Detroit RiverWalk Security Station to process digital signals. A translator had to be installed as a part of the privately funded Projects 'E-1' and 'F'.
- A perimeter intrusion detection security system as the building will be unoccupied at night.
- An access control system for limiting access to appropriate areas for public, passengers, vessel crew and Terminal Building operating staff.
- An access control system complying with international security requirements for creating a sterile area for processing international passengers.

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- Data communications for Terminal Building operations, Terminal Building user operations and international security operations.
- A building management system to operate HVAC, lights, etc.
- A passenger information system.

Site work comprised paving for the vehicle passenger drop-off areas and service access. Also paving was installed in the passenger movement area between the vessels and the Terminal Building. The remainder of the tight site was landscaped.

The RiverWalk (privately funded except for the State of Michigan Enhancement Grant) followed the RiverWalk standards as used throughout its three-mile length. These standards were extended onto the contiguous off-shore wharf by using identical railings, lighting fixtures, etc. This required a waiver of the requirement to specify a minimum of three alternatives (plus "or equal") for all elements of the project. A waiver was given for the railings and the pole light fixtures as it was visually important that these matched the RiverWalk.

The project was initiated with a full Environmental Impact Statement (EIS).

After the design concept had been developed, it was submitted to the City of Detroit Planning Commission and to the Detroit City Council for approval as a "Planned Development" (PD) under the Zoning Code.

Work on the seawall and to construct the offshore wharf and connecting bridge required permits from the USCAE and from MDEQ, plus the approval of the USCG.

In compliance with 33CFR Part 101 Maritime Security (MARSEC), a Facility Security Plan (FSP) was developed and submitted to USCG for approval.

A large diameter raw water line ran from a pump station, immediately east of the site, through the center of the site to the DWJBA City/County Building, the local governmental headquarters north of the site. The line existed pursuant to an easement. A detailed analysis concluded that the best course of action was to retain the line in its existing location and construct the building over it. This required the negotiation of an encroachment agreement for the encroachment of the building into the easement and the subsequent work plan agreement that controlled the construction operations relative to the line. The work plan included continuous monitoring of vibrations during piling and subsequent construction operations, and a back-up emergency plan should the raw water line be disrupted.

The site is adjacent to and in part over the tunnel connecting Detroit to Windsor, Ontario, Canada, beneath the Detroit River. The RHI Site Development Agreement required agreement between DWCPA and the Tunnel Company for safeguards during construction. CM@R actions included surveying the condition of the tunnel prior to construction and the placing of vibration monitoring devices at strategic tunnel locations to monitor construction activities, particularly the pile driving

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activity. During construction as a result of the CM@R's piling mitigation measures, vibrations never exceeded one tenth of the alarm value set on the devices by the geotechnical engineers.



Aerial view showing proximity of Raw Water Pump Station in foreground. Raw Water Line to DWJBA building runs along center of site directly under the Terminal Building. Raw Water Line to General Motors Headquarters runs along east side of site. Detroit-Windsor Tunnel is under east end of site. All land visible is filled construction over a series of wharfs as the river edge was continuously built out into the river until such encroachment was halted by the USCAE harbor line.

5. FUNDING HISTORY

The following summarizes the initial funding.

Michigan Department of Environmental Quality - \$3,000,000 – Direct
Source: Clean Michigan Initiative
Use: Purchase of Property

Subsequent funding included the following:

Michigan Department of Transportation - \$2,411,570 – Direct
Source: Comprehensive Transportation Fund
Use: Match Federal Funds for project activities summarized below:
Project 'A' - \$1,500,000 to match HPP Earmark of \$6,000,000 – (Program Management, Design, Site Work, Building Shell)
Project 'B' - \$503,041 to match FY 2008 Ferry Boat Discretionary Funds of \$2,012,165 (Building Interior)
Project 'C' - \$221,029 to match Transportation Enhancement Grant (application # ENH200600101) of \$884,116 (Walkways, Landscaping, Lights, etc.)
Project 'D' - \$750,000 to match City of Detroit TEA-21 Earmark (Seawall Rehabilitation)

Federal Funds (Non-Ferry Boat Discretionary) - \$7,634,116 Direct
Source: Congressional Earmarks & Enhancement Grant
Use: See project activities summarized below:
Project 'A' - \$6,000,000 HPP Earmark – (Program management, Design, Site Work, Building Shell)
Project 'C' - \$884,116 Transportation Enhancement Grant (application # ENH200600101) (Walkways, Landscaping, Lights, etc.)
Project 'D' - \$750,000 TEA-21 Earmark to City of Detroit (Seawall Rehabilitation)

Private funding included the following:

Riverfront Holding Inc. (RHI) - \$1,100,000 – Direct
Source: Riverfront Holdings Inc.
Use: Construction of RiverWalk Projects 'E' and 'F'.

Projects 'E' and 'F', the RiverWalk completion, were privately funded by RHI. The State of Michigan chose to enhance Project 'E' and this was divided into the privately funded Project 'E-1' and the jointly funded Project 'E-2'.

ARRA funding included the following:

The American Recovery and Reinvestment Act FY 2009, Public Law 111-5, Ferry Boat Discretionary Program (FBD) funded the Offshore Wharf (Project 'G' for

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\$5,929,205 and the Building Addition (the deleted portion of Projects 'A' and 'B') for \$1,210,250.



Proximity of General Motors Headquarters. Riverfront Holdings Inc. who funded Projects 'E' and 'F' are a subsidiary of the General Motors Corporation.

6. CONSTRUCTION MANAGER PROJECT DELIVERY SYSTEM ALTERNATIVES

CONSTRUCTION PROCUREMENT METHOD

The construction procurement method had to satisfy the following criteria:

- Construct multiple concurrent projects on the same site.
- Maintain clear separation of records for each project.
- Assist in finalizing the project scope within the authorized funding.
- Competitively bid all the work.
- Deliver the various projects within the authorized funding.
- Accommodate the very complex site with multiple sub-surface unknowns (known in general terms but unknown in detail) and risks.

The following construction procurement methods were considered:

- Design-bid-build (unrealistic for multiple concurrent projects, requires 100% complete scope documents, difficult to ensure budget control, little or no contractor input into design or constructability including on complex site issues).
- Design-build (requires comprehensive scope documents that were not available).
- Construction Manager (the preferred approach common on this type of construction).

CONSTRUCTION MANAGER ALTERNATIVE CONTRACT STRUCTURES CONSIDERED

The structure of a Construction Manager project delivery method can vary. Alternative structures include but are not limited to the following. These were the ones considered for this project:

- Construction Manager Agency – Qualifications-fee selected/Bid trades work.
- Construction Manager at Risk – Qualifications-fee selected/Bid trades work.
- Construction Manager at Risk – Bid GMP.

Construction Manager Agency – Qualifications-fee selected/Bid trades work.

Under this approach the Construction Manager is competitively selected on a combination of qualifications and proposed fees. In delivering the project the Construction Manager acts as the Owner's Agent and is not at risk. The Construction Manager is providing services. All trades contracts are directly with the Owner but managed by the Construction Manager. They are each competitively bid.

The following are the advantages and disadvantages of this method:

- Advantages:
 - The Construction Manager is not at risk and therefore exclusively acts in the Owner's interests. As noted earlier and below, a Construction Manager at Risk's primary interest is minimizing his/her risk.

- The Owner can implement an Owner Controlled Insurance Program (OCIP) that in certain circumstances can reduce the trades's costs by not requiring their insurance.
- The Owner can control the safety program, and if self-funded and affective can reduce costs.
- Disadvantages:
 - The Owner does not have a guarantee on the final project cost.
 - The Owner holds all the trades contacts and is responsible for managing/coordinating them. The CM-A actually undertakes that function for the Owner but the Owner is responsible.

Construction Manager at Risk – Qualifications-fee selected/Bid trades work.

Under this approach the Construction Manager is competitively selected on a combination of qualifications and proposed fees. The Construction Manager provides a Guaranteed Maximum Price (GMP). All trades contracts are directly with the Construction Manager as the CM is at risk. They are each competitively bid in a "open book" process.

The following are the advantages and disadvantages of this method:

- Advantages:
 - The Owner nominally has a maximum guaranteed price.
 - The Construction Manager is responsible for managing/coordinating all trades work.
- Disadvantages:
 - The Construction Manager at Risk's primary interest is minimizing his/her risk.
 - The final scope is subject to some negotiation.

Construction Manager at Risk – Bid GMP.

Under this approach the Guaranteed Maximum Price (GMP) is competitively bid. The level of GMP bid documentation is that necessary to define the scope in detail (typically about 50% complete documents or completion of "design development" under the AIA definition).

The following are the advantages and disadvantages of this method:

- Advantages:
 - The Owner has a maximum guaranteed price based on a scope defined in detail.
 - The Construction Manager is responsible for managing/coordinating all trades work.
- Disadvantages:
 - The Construction Manager at Risk is not involved in all the preconstruction activities prior to completing documents sufficient to bid a GMP. This makes this approach really only suitable for projects without significant

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issues that would need Construction Manager input during preconstruction activities. This project was not one of those.

- The Construction Manager at Risk's primary interest is still minimizing his/her risk.

SUMMARY OF CONSTRUCTION MANAGER PROCESS

"The Construction Manager at Risk delivery method is an alternative procurement process similar to longstanding private sector construction contracting. It allows the Owner to choose the Construction Manager at Risk before the design stage is complete. The Construction Manager at Risk is chosen based on qualifications, and then the entire operation is centralized. The architect, engineer (AE) and Construction Manager at Risk work together in order to complete the design and the construction documents. Then the Construction Manager gives the Owner a guaranteed maximum price and coordinates all subcontract work. Cost savings can be realized in a number of ways. By hiring the Construction Manager during the design phase early coordination is possible, which can increase speed of the project and strengthen coordination between the AE and Construction Manager at Risk. Finally, transparency is enhanced, because all costs and fees are in the open, which diminishes adversarial relationships between components working on the project, while at the same time eliminating bid shopping."

(Ref Issue Brief The American Institute of Architects August 2005)

"This system, adopted and promoted by many large general contracting firms, is similar in many ways to the traditional system, in that the Construction Manager at Risk acts as a general contractor during construction. That is, the Construction Manager at Risk holds the risk of subletting the construction work to trade subcontractors and guaranteeing completion of the project for a fixed, negotiated price following completion of the design. However, in this scenario, the Construction Manager at Risk also provides advisory professional management assistance to the owner prior to construction, offering schedule, budget and constructability advice during the project-planning phase. Thus, instead of a traditional general contractor, the owner deals with a hybrid construction manager/general contractor.

In addition to providing the owner with the benefit of design phase services, which may result in advantageous changes to the project, the Construction Manager at Risk scenario offers the opportunity to begin construction prior to completion of the design. The Construction Manager at Risk can bid and subcontract portions of work at a time, often while design of unrelated portions is still not complete. In this circumstance, the Construction Manager at Risk and Owner negotiate a guaranteed maximum price (GMP) based on a partially completed design, which includes the Construction Manager at Risk estimate of the cost for the remaining design features.

An Owner wishing to use the Construction Manager at Risk approach can realize many benefits. Chief among them are the opportunity to incorporate a contractor's

perspective and input to planning and design decisions and the ability to quote "fast-track" early components of construction prior to full completion of design. However, since a commitment is made to a contractor earlier in the process, a premium is placed on the proper selection of the Construction Manager at Risk to provide the best value to the Owner."

(Ref: "Choosing the Best Delivery Method for your Facility Project", Blake Peck, CCM, McDonough Bolyard Peck, Inc.)

The criteria for selecting the Construction Manager at Risk are identified in Section 7.

WHY CONSTRUCTION MANAGER AT RISK FOR THIS PROJECT?

DWCPA did not have the staff expertise to undertake such a project itself. This project is composed of multiple projects; the terminal building with its site work and the dock/wharf in the Detroit River. This project scope does not fit the mold of a typical civil engineering project and will require coordination for phasing of construction. The opportunity to have one contractor manage the construction will reduce costs by reducing conflicts.

The proposed Construction Manager at Risk method of award is an innovative public facilities project delivery process. This approach should significantly reduce conflicts on the site and help prevent cost overruns. A reduction in design errors and omissions, change orders, and warranty issues is also anticipated.

The Construction Manager at Risk process primary emphasis is to integrate design and construction phases of the project, allowing creativity in developing the design that achieves the Owner's goals.

The benefits of Construction Management at Risk are:

- Reliable cost control early in the project.
- Often results in lower cost than traditional design-bid-build because of the contractor involvement during the design phase.
- Construction Manager at Risk as the General Contractor will self-perform work that is critical to quality and schedule.
- Improve coordination of construction between dock, building and site.
- Provides the opportunity for accelerated project delivery and/or phased construction.
- A spirit of cooperation between the owner, architect, construction contractor and trade contractors due to a defined allocation of project responsibilities and the CM at Risk interest in obtaining strong references for future work.

Construction Management at Risk allows the Owner to establish total cost, materials and schedule before the design stage is complete. Conversely, design-bid-build cost is not known until bids are received at the end of the construction document phase. The Construction Manager at Risk is chosen based on qualifications, and then the entire operation is centralized under a single contract. The Owner's representative, architect and Construction Manager at Risk work together in order to review and

refine the design. Then, the Construction Manager at Risk gives the Owner a guaranteed maximum price, and coordinates all subcontract work. The Construction Manager at Risk then acts as the general contractor during the construction of the project and pre-qualifies and establishes procedures for all the construction trade contractors. Cost savings can be realized in a number of ways. By hiring the Construction Manager at Risk during the design phase, early coordination is possible, which can increase the speed of the project and strengthen coordination between the architect & engineer (AE) and the Construction Manager at Risk.

INNOVATIVE CONTRACT FEATURES

The Construction Manager at Risk will provide advisory professional management assistance prior to construction (design phase services). The Construction Manager at Risk will have the latitude to recommend and implement design changes, provided a benefit is recognized.

The Construction Manager at Risk approach will enable certain construction activities like utility relocation to begin before the 100% completion of design drawings thus allowing for a shorter completion schedule.

Disadvantages of traditional "low bid" contract award:

- It discourages (or precludes) innovation in design and construction or installation methods.
- It does not allow the owner to consider any factors other than price in selecting the contractor (except at a fairly low responsibility pre qualification level),
- The contractor is likely to feel they left too much money on the table and may try to cut costs during design and construction, adversely affecting quality, and,
- It does not permit a meaningful dialogue between the owner and the individual bidders to work out the appropriate solution to the transportation agency's needs.

SCOPE

The Construction Management at Risk will begin with the firm in an agency support role for design phase services and will hold the construction contract with the authority for construction of the project. At some point prior to construction, the Construction Manager at Risk will assume the risk of delivering the project through a guaranteed maximum price contract. The Construction Manager at Risk will be responsible for construction means and methods, and will be required to solicit bids from pre-qualified subcontractors to perform the work. The Construction Manager at Risk is responsible for self-performing a minimum of 35% of the construction work.

- A. Design phase services by the Construction Manager at Risk will include the following:
- Provide detailed cost estimating and knowledge of marketplace conditions;
 - Provide project planning and scheduling;

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- Provide for construction phasing and scheduling that will minimize interruption to traffic operations and concurrent project construction;
 - Provide alternate systems evaluation and constructability studies;
 - Advise Authority of ways to gain efficiencies in project delivery.
- B. Construction phase services by the Construction Manager at Risk will include:
- Bid, award, and manage all construction related contracts while meeting Authority bid requirements including DBE participation goals;
 - Provide quality controls;
 - Bond and insure the construction;
 - Address all federal, state and local permitting requirements; and
 - Maintain a safe work site for all project participants.

The Construction Manager at Risk Process will include.

- The call for qualifications will advertise according to FHWA and MDOT requirements.
- The Contact will be awarded with the approval of FHWA and MDOT.
- The Pre- Construction services include reviewing plans, specifications and special provisions. Recommend changes and modifications if needed.
- CM at Risk will negotiate a GMP based on the design of the Dock and Terminal building.
- Provide a construction duration schedule
- The Port Authority will provide a Final report evaluating the over all process within six months of project completion.
- Provide information needed for an Audit.

7. CONSTRUCTION MANAGER PROCUREMENT PROCESS

TIMING FOR CONSTRUCTION MANAGER PROCUREMENT

As indicated in the Work Plan the selection of the Construction Manager at Risk was desirable to a schedule to allow the CM@R to participate in the following:

- Contribute in the design phases of the project specifically with advice and input on availability of materials and labor, constructability in developing design solutions, probable cost estimating, and value engineering.
- Identify need for early purchase of long lead time items.
- Provide a guaranteed maximum price (GMP) at the earliest possible time.
- Schedule planning.
- Assistance in approvals. On this project this was particularly important when dealing with the Detroit/Wayne County Building Raw Water Easement. The raw water line was located along the center of the site and a detailed evaluation concluded that this should remain in place with the building being constructed over it. The need for driven pile foundations (the sub-surface was unsuitable for augured caissons, etc.) required a resolution the resulting vibrations on the raw water line and this was addressed by a combination of the geotechnical engineer and the CM@R.

Selection was undertaken early in the project as soon as the initial project concepts had been developed.

SELECTION PROCESS

The selection process had the following steps

- Prepare and issue a Request for Qualifications/Proposals (RFQ/P).
- Evaluate responses and short list (if required) interviewees.
- Undertake interviews.
- Develop evaluation scores and report.
- Select CM@R.

REQUEST FOR QUALIFICATIONS./PROPOSALS

The program manager prepared and issued the RFQ/P. It was publically advertised in Michigan Contractor & Builder, and Michigan Chronicle. A mandatory pre-submittal conference was held at which the program manager described the proposed project, the DWCPA expectations and the submittal process/requirements. The submission was requested in two separate sealed envelopes as follows:

1. Qualifications
2. Fees

The qualifications information to be submitted was required to include an American Institute of Architects Form 305 (Qualifications Statement), evidence of experience on similar projects, description of approach to securing most qualified and competitive bids to meet Owner's budget, approach to compliance with regulatory requirements, approach and ability to manage a complex project, financial capability, ability to provide performance and payment bond, insurance compliance,

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ability to provide guarantee, proposed construction team with resumes, and commitment to involved Detroit based businesses.

The RFQ/P outlined the scope of services under the following headings:

1. Phase 1 – Preconstruction services.
2. Phase 2 – Construction with guaranteed maximum price.

The fee proposal was required to include a proposed lump sum fee for Phase 1 and a percentage fee based on the cost of the work (including general conditions work) for Phase 2. It was indicated the Phase 2 fee would be converted to a lump sum fee at the time of establishing the GMP.

EVALUATION

The RFQ/P included the following statement on the evaluation criteria to be used:

Proposal – Selection & Evaluation Criteria

1. *Statement of Avoidance of personal and organizational conflict of interest (Mandatory statement to be submitted on company letterhead).*
2. *Provide a complete organization of the proposed team for both preconstruction and construction phases. Experience working as a Construction Manager.*
3. *Capacity and resources of the firm to perform the work. Describe composition of total staff for this project.*
4. *Technical competence of key personnel expected to be assigned to project. The qualifications of the key members of the project team and especially the day to day Project Manager should be present in a complete and concise manner.*
5. *The qualifications of the construction management firm's experience with similar projects, in a complete and concise manner.*
6. *Please provide an organizational chart for your company showing how the financial lead project manager relates to the firm's chief executive officer.*

Experience 40 points

- a. *Multiple Phase construction*
- b. *Similar projects/Offices*
- c. *Construction Management At-Risk*
- d. *Work in Detroit Area*
- e. *Success in minority participation*
- f. *References*

Resources 20 points

- a. *Key Personnel*
- b. *Workload*
- c. *Consultants (if any)*
- d. *Special techniques or equipment*

Management Systems 20 points

- a. *Scope Management*

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- b. Cost Management (including estimating)*
- c. Time Management*
- d. Quality Management*
- e. Risk Management (including safety)*

Financial 20 points

- a. Bonding Capability*
- b. Fees*
- c. Litigation Status*

Proposals were received from five teams and all were interviewed. The interview team consisted of representatives from DWCPA's Board of Directors, DWCPA Staff, SDG/M&S and the Architect.

The interview team scored both the RFQ/P Responses and the interview in accordance with the above criteria. The following were the results of the evaluation:

- White/Olson/Korneffel 86 points
- Jenkins Construction 84 points
- Walbridge/Lakeshore 78 points
- Walsh Construction 74 points
- KEO-XCEL 64 points

White/Olson/Korneffel was recommended to the DWCPA Board of Directors and, after their approval, was proposed to MDOT for authorization to proceed with a contract.



Wharf and Seawall were generally constructed from barges as self-perform by Korneffel.

8. SUCCESS EVALUATION CRITERIA

The success of the project can be judged by evaluation against the following criteria:

- Was the project delivered within the available funding?
- Did the project deliver the required scope?
- Did the project deliver the required quality?
- Did the project meet schedule expectations?
- Did the project delivery comply with all applicable rules and regulations?
- Was the contracting community afforded equal opportunity to bid and participate in this project?
- Were adequate records maintained?
- Does the project function as anticipated?
- Was the site a safe work environment?

WAS THE PROJECT DELIVERED WITHIN THE AVAILABLE FUNDING?

Yes. See summary in Section 1.

DID THE PROJECT DELIVER THE REQUIRED SCOPE?

Yes. See qualifications described in Section 6 related to a CM@R's natural desire to minimize his/her risk. The required scope was delivered and the project functions well. The "open book" process ensured the Owner received the most competitive value for the funding.

DID THE PROJECT DELIVER THE REQUIRED QUALITY?

Yes. Quality was defined in detail in the construction documents and specifications. The FieldManager project management system ensured all requirements including submittals, certifications and testing were successfully accomplished before accepting the construction.

DID THE PROJECT MEET SCHEDULE EXPECTATIONS?

As noted in Section 11 this project was not primarily schedule driven. The schedule was controlled by the funding process and the resolution of the complex site agreements and stakeholder interests. Within the limits of these other controls the construction proceeded expeditiously.

DID THE PROJECT DELIVERY COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS?

Yes. The project complied with the following:

- City of Detroit zoning code
- State of Michigan building code
- USCAE requirements
- MDEQ requirements
- USCG requirements
- All requirements of the various agreements applicable to the site

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The project was overseen the MDOT and FHWA for compliance with the requirements of those agencies.

WAS THE CONTRACTING COMMUNITY AFFORDED EQUAL OPPORTUNITY TO BID AND PARTICIPATE IN THIS PROJECT?

Yes with one qualification. The qualification relates to the "self-perform" requirements on this building project. It is probable that the requirement limited those proposing for Construction Manager. See narrative in Section 1.

For the execution of the project the bidding of all the trades work ensured that the community was afforded equal opportunity to bid and participate in the project.

WERE ADEQUATE RECORDS MAINTAINED?

Prior to construction, detailed bound submittals were made to MDOT defining the entire project scope with sealed drawings, sealed specifications, designer's cost estimate, quality control requirements, construction procedures, GMP, contract, etc. Those submittals, Volume 1 through Volume 35, for all projects are listed in Appendix 'A'. Those form a complete record of the Construction Manager at Risk's obligations.

During construction DWCPA's PM, SDG with The Mannik & Smith Group, maintained construction phase records using FieldManager software. The FieldManager software is an award-winning, comprehensive electronic construction management system for managing and tracking construction projects, documenting progress, initiating contractor payments and communicating with an agency's central office contract administration system. FieldManager software is a Microsoft® Certified solution designed for use by state transportation agencies, local governments, engineering consultants and large contractors. That software was primarily developed for civil engineering projects but as it and its output were familiar to MDOT/FHWA, it was decided to use that for this building construction project. The software developer, InfoTech, assisted in adapting the software for use by this project and is now marketing that feature to others. The FieldManager records supported AIA-type documentation used by the Architect in effectively monitored quality, submittals, testing, payment requests and has produced the necessary documentation to facilitate payments.

DOES THE PROJECT FUNCTION AS ANTICIPATED?

The project has been operational for over one year and has successfully accommodated cruise ships including the clearing of international passengers. It also has satisfactorily accommodated the staff necessary to operate the Terminal Building and process vessels.

The RiverWalk through the site has been utilized by the public for over one year to access the riverfront.

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DWCPA has received an initial grant for purchase of a ferry boat and is currently negotiating with Canadian Authorities to operate such a service.

WAS THE SITE A SAFE WORK ENVIRONMENT?

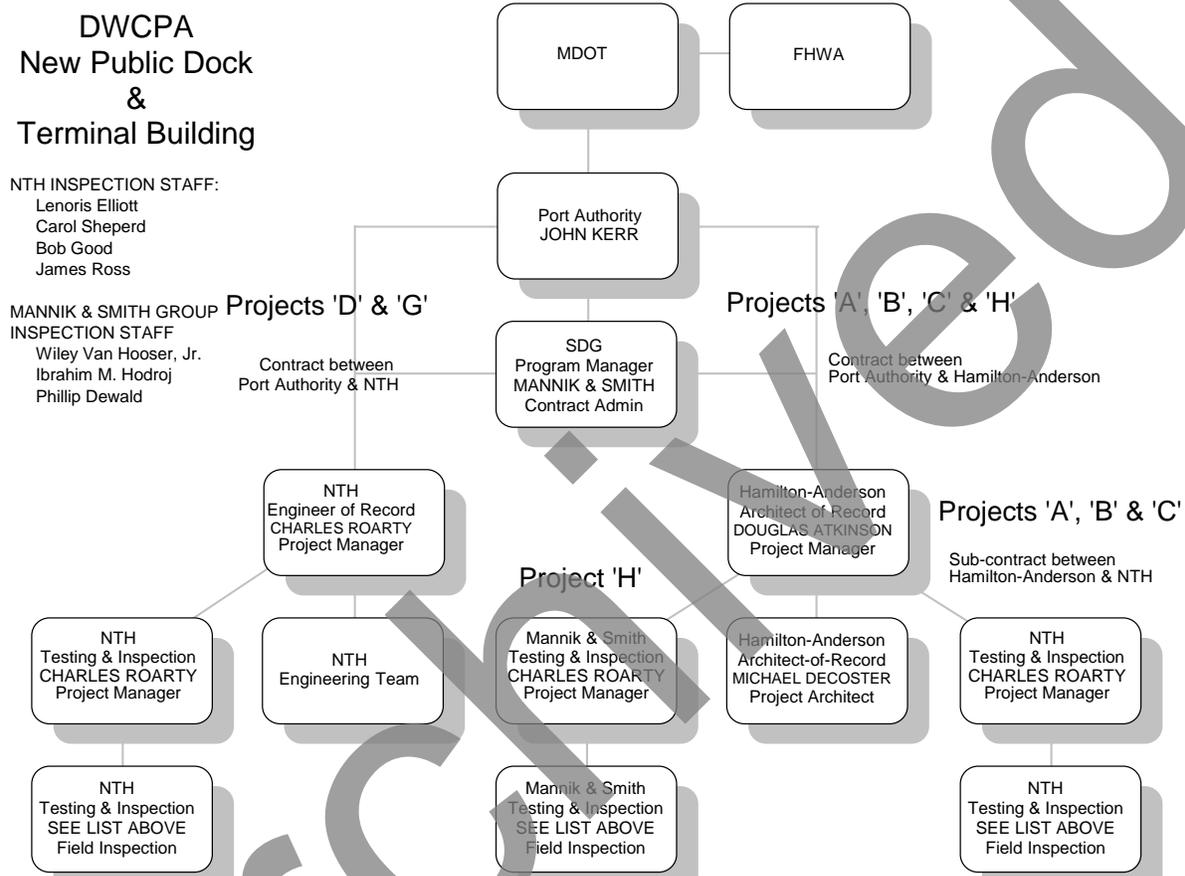
There were no recordable injuries or work hours lost due to injuries on the project.



Project 'G' on left and Project 'D' on right. Construction barge with crane in background.

9. QUALITY EVALUATION

The following chart shows the DWCPA's team organization that includes the Quality Assurance inspection structure and staff.



Standards for the quality of construction were defined in the technical specifications by the Architect and the various Engineers.

Quality control was undertaken by testing companies engaged by the trades contractors as necessary and through the review of trades contractor's submittals of proposed materials, systems and equipment by the Architect and Engineers.

Quality assurance was undertaken by testing companies engaged by the Owner and by on site (or shop) inspections by the team shown on the above chart.

The quality control and assurance programs were monitored by the Program Manager with all records being kept by the Program Manager using the "FieldManager" system.

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The “FieldManager” system was designed for civil engineering projects. It was used on this project because MDOT/FHWA were familiar with its processes and output. The Program Managers worked with the software developer in adapting its use for a building construction project with its many varied trades. The adaptation proved to be very successful and has been publicized and promoted nationally by the software developer.



A high quality of construction was maintained.

10. VALUE EVALUATION

As noted under other sections, the project delivered the required scope and quality. Value was assured under the CM@R project delivery system by an "open book" bidding process.

With the few exceptions noted in Section 13, all materials and systems were specified to have a minimum of three alternatives and had to include the "or equal" requirements to ensure materials and systems not named but of equal performance were afforded an equal opportunity to bid and be included in the project. MDOT's Office of Special Projects and the FHWA Lansing Office were particularly diligent in reviewing the documents for compliance with these requirements.

All line items in the GMP (see appendix 'B') were competitively bid. The CM@R maintained these records which were open to inspection at any time. Therefore every item in the projects was awarded to the lowest bidder on bidding documents that allowed anyone meeting the performance requirements to bid.

The technical specifications listed submittals each GMP line item sub-contractor had to submit for detailed review of the architect and/or engineers. Non-named products and systems had a procedure for substitution review allowing the architect and/or engineers to confirm performance equivalency to those specified.

The DWCPA Program Manager's adapted FieldManager software allowed all the submittals and substitutions to be recorded and tracked. Payment requests for line items were not enabled until all such documentation had been satisfactorily completed and had received the required approvals.

The MDOT Division 01 requirements included with each bidding package included instructions for protesting sub-contract awards and for reporting fraud and abuse.

11. SCHEDULE EVALUATION

This project was not schedule driven. Unlike most transportation projects in which time is critical and early delivery offers enormous community and economic benefits, this project had no event as a target for its completion.

Initially the project was driven by the timescale for realization of the necessary funding. As that was being secured, the pre-construction activities in which the CM@R took a major role were developing a detailed scope that matched the assigned budgets.

In parallel with the above, the complexity of the site required multiple agreements to be negotiated including the following:

- Approval as a "Planned Development (PD)" under the City of Detroit Zoning Code negotiated with the City of Detroit Planning Commission and Detroit City Council.
- Compliance of the design with the conditions of the RHI Development Agreement negotiated with RHI and their representatives.
- Facility security plan negotiated with USCG.
- International passenger processing plan and sterile area creation plan negotiated with international security operator.
- Working methodology to minimize and monitor impacts of the construction on the raw water pump station negotiated with DWJBA and RHI. Vibration monitoring was installed and monitored.
- Seawall repair work plan negotiated with USCAE.
- Seawall repair work plan negotiated with MDEQ.
- Seawall repair work plan negotiated with USCG.
- In the absence of any sanitary sewer within reasonable distance of the site, negotiation with the City of Detroit Civic Center Department for installation of a pumped force main connecting to the Civic Center Department Hart Plaza Police Station force main sanitary system.
- Route of alternative RiverWalk (a) during the construction and (b) during international vessel arrivals (international security requirement for creation of sterile area between vessel and security processing within the building) negotiated with Detroit Riverfront Conservancy.
- Approval to encroach into raw water line easement negotiated with DWJBA.
- Working methodology to minimize and monitor impacts of the construction on the raw water line negotiated with DWJBA. Vibration monitoring was installed and monitored.
- Emergency action plan in case of raw water line disruption negotiated with DWJBA
- Working methodology to minimize and monitor impacts of the construction on the Detroit-Windsor Tunnel negotiated with DWTC. Vibration monitoring was installed and monitored.
- Encroachment of the off-shore wharf into the Detroit River beyond the harbor line and approval of the construction work plan negotiated with USCAE.

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- Encroachment of the off-shore wharf into the Detroit River and approval of the construction work plan negotiated with MDEQ.
- Encroachment of the off-shore wharf into the Detroit River beyond the harbor line and approval of the construction work plan negotiated with USCG.

The CM@R played a major role in the above as many of the issues were unique construction procedures. A design-bid-build project delivery method would have not been able to effectively address these issues.

The funding schedule plus the above resulted in a pre-construction phase that extended from 2005 until construction could start in 2009.

12. CM@R PROCUREMENT LESSONS

The process was successful as demonstrated by the delivery of the project within the available funding and from its successful functioning in over one year from its completion.

For projects using the Construction Manager project delivery system the following recommendation is proposed for consideration.

Section 6 describes three possible forms of a Construction Manager project delivery system. The one used on this project, Construction Manager at Risk – Qualifications/Fee Selected/ Guaranteed Maximum Price, was successful and was the one chosen for specific reasons as noted below. However the potential weakness of this system is the CM@R's natural desire to minimize his/her risk. Because of the "open book" bidding process the Owner will receive full competitive value but the CM@R's conservative estimating may only be truly recognized at a late stage in the project despite the Designer's Cost Estimate up front. Funding availability may only be realized too late to make some desirable decisions.

The most desirable Construction Manager at Risk project delivery system may be the bid Guaranteed Maximum Price. This has been used successfully. Bidding typically occurs at 50% completion of the construction documents (end of AIA-definition Design Development). Such systems forego the considerable advantage of having the Construction Manager as a part of the team at an early stage when systems selection, constructability and similar issues are being decided. A solution to this problem has been to hire a Construction Manager for the preconstruction services only and then bid the GMP. The preconstruction services Construction Manager is typically allow to bid the GMP and it has been known that other Construction Managers have underbid the original Construction Manager. The bid GMP provides a strong basis for enforcing the guarantee in the Guaranteed Maximum Price provided the quality of the bid documents was adequate.

This approach was not used on this project because of the multiple project nature of the overall project.

An alternative that also eliminates the impacts of a CM@R minimizing his/her risks is the Construction Manager – Agency project delivery system. Under this approach the Construction Manager is not at risk and therefore has no motivation to act to minimize his/her risk. The Construction Manager acts in the Owner's best interests at all times. All trades contracts are with the Owner and sometimes this is a concern.

This approach was not used on this project because a Guaranteed Maximum Price was required.

The value of the "guarantee" should be considered in a qualifications based CM@R. At selection of such a CM@R there is no detailed scope on which to base a

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guarantee. That is the subject of negotiations in which the CM@R will naturally seek to minimize his/her risk. The Owner eventually will receive full value but the advantages of a CM-Agency should be considered if documents cannot be developed to a stage in time to bid a GMP.

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13. CONSTRUCTION PROCUREMENT AND VALUE CONTROL LESSONS

All lines items of the GMP (see Appendix 'B') were competitively bid using technical specifications and drawings prepared by the Architect/Engineers, and Bid Documents/Division 01 Documents prepared by the Program Manager/CM@R and as listed in Appendix 'A'. Bidding was an "open book" process. This was entirely successful.

The above process ensured all construction was procured for the best value. The only issue was that previously noted under the CM@R process in which the CM@R naturally seeks to minimize his/her risk and though ultimately the full value will be achieved for the Owner, it may be recognized too late to make certain desirable decisions.

Payment control and the payment control process utilized and successfully integrated two systems. The CM@R's payment request was based on AIA Standard Documents G702 and G703 with an approved schedule of values based on received bids. This is the typical payment process for buildings. The CM@R submitted the G702/703 payment request to the Architect/Engineer as appropriate. Those documents include the Architect/Engineer's certification as to the quality and quantities for which payment is requested. When signed by the Architect or Engineer copies were provided to DWCPA's Program Manager. The DWCPA Program Manager reviewed the completeness of the documentation and added a cover sheet developed specifically for this project. That included certain language and was signed by the DWCPA Program Manager and then DWCPA. DWCPA's signature was a request for MDOT to make the payment. That information was then input into FieldManager. The FieldManager system checked the request against the required submittals and test reports. When everything was confirmed as being acceptable a typical FieldManager coversheet familiar to MDOT and FHWA was produced and attached to the AIA G702/703 payment request. That package was sent to the MDOT TSC who had direct oversight of the project. The custom cover sheet for the project had a line for the MDOT TSC signature. When approved the package was sent to Lansing and the cover had a further line item for the MDOT Office of Special Projects signature. Payment was then processed in the normal manner. It should be appreciated that with nine separate projects (separate being required by funding) as many as six project payment requests were being processed concurrently each month.

One issue that arose was the necessity for two "sole source" items.

Both of these related to the Detroit RiverWalk which ran through the site and was Project 'E' and 'F' of which Project 'E' was subsequently divided into the privately funded Project 'E-1' and the jointly funded project 'E-2'. The Detroit RiverWalk is a three-mile initiative along the Detroit River creating public access where it had previously been private land. Development of the RiverWalk east of downtown

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Detroit is at an advanced stage. Though it has been accomplished (and continues to be accomplished) through multiple projects it has a consistent image as a single entity. This has been achieved by consistent elements such as lighting. After the initial competitive selection of the lighting poles and fixtures, these have been "sole sourced" on all subsequent projects. This applied to Project 'E-2' and was reviewed with MDOT. After a detailed explanation had been prepared and submitted, sole sourcing was authorized. Similarly on Project 'C' the exterior pavers had to match existing pavers and this was approved for sole sourcing.

These anomalies to normal public bidding had to be accommodated by the procedures.

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14. QUALITY CONTROL LESSONS

Quality control was covered in the technical specifications and certain Division 01 sections. It was satisfactorily carried out and effectively monitored by the adapted FieldManager software processes. Payment requests for specific items were not enabled until the successful quality control measures had been achieved.

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APPENDICES

- APPENDIX 'A' - LIST OF SUBMITTALS PROVIDED TO MDOT PRIOR TO AUTHORIZATION FOR CONSTRUCTION OF EACH PROJECT
- APPENDIX 'B' - SAMPLE LINE ITEMS FOR EACH GMP
- APPENDIX 'C' - CONSTRUCTION PHASE - CONTINGENCY PROCEDURES

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APPENDIX 'A'

LIST OF SUBMITTALS PROVIDED TO MDOT PRIOR TO AUTHORIZATION FOR CONSTRUCTION OF EACH PROJECT

VOLUME 1

DWCPA Letter of Approval for Project 'A'

DWCPA Letter of Approval for Project 'D'

Letter with following:

- Information to clarify scope of work in Project 'A'
- Statement on intended use of Ferry Boat funds (Project 'B')
- Statement of functionality of Project 'A'

Certification of Functionality

Certification of Compliance with ADA (enclosing Architect's certification)

Signed permits from MDEQ for Project 'A' and 'D'

Form 0366 Request to Award

Program Application – Project 'A'

Program Application – Project 'D'

Third party agreement between DWCPA and CM@R for each project

Listing of MDOT 2003 Division 1 standards that are not applicable.

MDOT Frequently Used Special Provisions, Notice to Bidders, and Supplementary Specifications

State and FHWA requirements as follows:

- Required Contract Provisions Federal-Aid Construction Contracts including:
 - Appendix A Prohibition of discrimination in State contracts
 - Appendix B
 - Appendix C
- General requirements for recipients (excerpts from USDOT Regulation 49 CFR, Part 26)
- Anti-discrimination clause for City of Detroit contracts
- Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)
- Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)
- Non-compliance with soil erosion and sedimentation control requirements
- Non-collusion statement
- Labor rates
- Notice to Bidders- labor compliance
- Notice to Bidders – asbestos – metro region only
- Notice to Bidders – certified payrolls
- Notice to Bidders- report forms
- Notice to Bidders – utility coordination clause
- Notice to Bidders – fraud and abuse hotline

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VOLUME 2

Sealed drawings for Project 'A'

VOLUME 3

Sealed specifications Division 1 and trade sections (including materials requirements and testing) for Project 'A'

VOLUME 4

Designer's cost estimate for Project 'A'

VOLUME 5

Sealed drawings for Project 'D'

VOLUME 6

Sealed specifications Division 1 and trade sections (including materials requirements and testing) for Project 'D'

VOLUME 7

Designer's cost estimate for Project 'D'

VOLUME 8

GMP for Project 'A' with breakdown (including contingency language)

VOLUME 9

GMP for Project 'D' with breakdown (including contingency language)

VOLUME 10

Performance and lien bond
General liability insurance certificate
Builder's risk insurance certificate

VOLUME 11

DWCPA Letter of Approval for Projects 'B' and 'C'
Form 0366 Request to Award – Project 'B'
Form 0366 Request to Award – Project 'C'
Program Application – Project 'B'
Program Application – Project 'C'
Third party Agreement between DWCPA and CM@R for each project (contract amendment)
Sole Sourcing Letter

The following included with Volume 1 were applicable to these projects but were not resent:

1. Letter with the following:
 - Information to clarify scope of work in projects 'A' and 'B'
 - Statement on intended use of Ferry Boat Funds

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- Statement on functionality of Project 'A'
- Certification of functionality (Item 1 of enclosure 'A')
- 2. Certification of compliance with ADA (enclosing Architect's certification)
- 3. Signed permits from MDEQ
- 4. Utility coordination document
- 5. Listing of MDOT 2003 Division 1 standards that are not applicable.
- 6. MDOT Frequently Used Special Provisions, Notice to Bidders, and Supplementary Specifications.
- 7. State and FHWA requirements as follows:
 - Required Contract Provisions Federal-Aid Construction Contracts including:
 - Appendix A Prohibition of discrimination in State contracts
 - Appendix B
 - Appendix C
 - General requirements for recipients (excerpts from USDOT Regulation 49 CFR, Part 26)
 - Anti-discrimination clause for City of Detroit contracts
 - Standard Federal equal opportunity Construction Contract Specifications (Executive Order 11246)
 - Notice of Requirements for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)
 - Non-compliance with soil erosion and sedimentation control requirements
 - Non-collusion statement
 - Labor rates
 - Notice to Bidders – labor compliance
 - Notice to Bidders – asbestos – metro region only
 - Notice to Bidders – certified payrolls
 - Notice to Bidders – report forms
 - Notice to Bidders – utility coordination clause
 - Notice to Bidders – fraud and abuse hotline
 - Notice to Bidders – bid rigging
 - Progress clause
 - Special provision 23 CFR Chapter 1, Appendix A to Subpart A of Part 230
 - Special provision for on-the-job training program
 - Special provision for obtaining required NPDES permits for storage areas, disposal areas and borrow areas
 - Special provision for maintaining traffic
 - Special provision for taxes
 - Special bonding provision
 - Special provision for Indemnification, damage liability and insurance
 - Special Notice insurance

VOLUME 12
Sealed drawings for Project 'B'

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VOLUME 13

Sealed specifications Division 1 and trade sections (including materials requirements and testing)

VOLUME 14

Designer's cost estimate

VOLUME 15

Sealed drawings for Project 'C'

VOLUME 16

Sealed specifications Division 1 and trade sections (including materials requirements and testing)

VOLUME 17

Designer's cost estimate

VOLUME 18

GMP for Project 'B' with breakdown (including contingency language)
GMP for Project 'C' with breakdown (including contingency language)

VOLUME 19

Performance and lien bond (for projects 'A' through 'D' combined)
General liability insurance certificate
Builder's risk insurance certificate

VOLUME 20

Not used.

VOLUME 21

Third party agreement between DWCPA and SDG for Projects 'G' & 'H'
Third party agreement between DWCPA and NTH for Project 'G'
Third party agreement between DWCPA and HAA for Project 'H'

VOLUME 22

Project 'G' DWCPA information

1. DWCPA Letter of Approval for Project 'G'
2. Program Application – Project 'G'
3. Signed permit from Corps of Engineers for Project 'G'
4. Signed permit from MDEQ for Project 'G'
5. Form 0366 Request to Award for Project 'G'
6. Third party agreement between DWCPA and CM@R for Project 'G'
7. Certification of Functionality for Project 'G'
8. Certification of Compliance with ADA (enclosing Architect's certification)

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VOLUME 23

Sealed drawings for Project 'G'

VOLUME 24

Designer's cost estimate for Project 'G'

VOLUME 25

Project 'H' DWCPA information

1. DWCPA Letter of Approval for Project 'H'
2. Program Application – Project 'H'
3. Form 0366 Request to Award for Project 'H'
4. Third party agreement between DWCPA and CM@R for Project 'H'
5. Certification of Functionality for Project 'H'
6. Certification of Compliance with ADA (enclosing Architect's certification)

VOLUME 26

Sealed drawings for Project 'H'

VOLUME 27

Sealed specifications Division 1 and trade sections (including materials requirements and testing) for Project 'H'

VOLUME 28

Designer's cost estimate for Project 'H'

VOLUME 29

GMP for Project 'G' with breakdown (including contingency language)
GMP for Project 'H' with breakdown (including contingency language)

VOLUME 30

Performance and lien bond (for Projects 'G' and 'H')
General liability insurance certificate
Builder's risk insurance certificate

VOLUME 31

DWCPA Letter of Approval for Projects 'E-2'
Form 0366 Request to Award – Project 'E-2'
Program Application – Project 'E-2'
Third party Agreement between DWCPA and CM@R for Project 'E-2' (contract amendment)
Sole Sourcing Letter
Letter with the following:

- Information to clarify scope of work in projects 'E-1' and 'E-2'
- Statement on functionality of Project 'E-2'
- Certification of functionality

Certification of compliance with ADA (enclosing Architect's certification)

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Utility coordination document

Listing of MDOT 2003 Division 1 standards that are not applicable.

MDOT Frequently Used Special Provisions, Notice to Bidders, and Supplementary Specifications.

State and FHWA requirements as follows:

- Required Contract Provisions Federal-Aid Construction Contracts including:
 - Appendix A Prohibition of discrimination in State contracts
 - Appendix B
 - Appendix C
- General requirements for recipients (excerpts from USDOT Regulation 49 CFR, Part 26)
- Anti-discrimination clause for City of Detroit contracts
- Standard Federal equal opportunity Construction Contract Specifications (Executive Order 11246)
- Notice of Requirements for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)
- Non-compliance with soil erosion and sedimentation control requirements
- Non-collusion statement
- Labor rates
- Notice to Bidders – labor compliance
- Notice to Bidders – asbestos – metro region only
- Notice to Bidders – certified payrolls
- Notice to Bidders – report forms
- Notice to Bidders – utility coordination clause
- Notice to Bidders – fraud and abuse hotline
- Notice to Bidders – bid rigging
- Progress clause
- Special provision 23 CFR Chapter 1, Appendix A to Subpart A of Part 230
- Special provision for on-the-job training program
- Special provision for obtaining required NPDES permits for storage areas, disposal areas and borrow areas
- Special provision for maintaining traffic
- Special provision for taxes
- Special bonding provision
- Special provision for Indemnification, damage liability and insurance
- Special Notice insurance

VOLUME 32

Sealed drawings for Project 'E-2'

VOLUME 33

Sealed specifications Division 1 and trade sections (including materials requirements and testing) for Project 'E-2'

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VOLUME 34

Designer's cost estimate for Project 'E-2'

VOLUME 35

GMP for Project 'E-2' with breakdown (including contingency language)

Performance and lien bond (for projects 'E-2')

General liability insurance certificate

Builder's risk insurance certificate

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APPENDIX 'B'

SAMPLE LINE ITEMS FOR EACH GMP

Below is a sample listing of line items within each GMP.

WHITE / OLSON - CONCEPTUAL ESTIMATE

NEW PORT AUTHORITY BUILDING DETROIT, MI PROJECT B/C GMP				DATE PRINTED: 30-Jul-08 DATE UPDATED: 31-Jul-08 TIME: 11:13 AM	
Conceptual Estimate					
SPEC	DESCRIPTION	TI & MISC. B	SITE ENHANC C	TOTAL COST	REMARKS
1000	TEMPORARY FACILITIES	\$0	\$0	\$0	
1200	QUALITY CONTROL	\$103,500	\$5,000	\$108,500	
1400	SURVEYING	\$0	\$3,500	\$3,500	
2060	BUILDING & SITE DEMOLITION	\$0	\$2,600	\$2,600	
2200	EARTHWORK	\$0	\$15,894	\$15,894	
2250	CLASS II SPOIL REMOVAL	\$75,000	\$25,000	\$100,000	Allowance
2511	ASPHALT PAVING	\$0	\$0	\$0	
2513	SITE CONCRETE	\$0	\$368,462	\$368,462	
2515	PAVERS	\$0	\$217,500	\$217,500	
2600	ON-SITE UTILITIES	\$0	\$14,000	\$14,000	
2610	OFF-SITE UTILITIES	\$300,000	\$0	\$300,000	Allowance
2700	PILES & MARINE WORK	\$210,000	\$0	\$210,000	
2900	LANDSCAPE & IRRIGATION	\$0	\$25,927	\$25,927	
2940	SITE FURNISHINGS	\$0	\$114,700	\$114,700	
2950	WATER FEATURES / FOUNTAINS	\$0	\$0	\$0	
3300	CAST IN PLACE CONCRETE	\$0	\$0	\$0	
3450	PRECAST CONCRETE	\$0	\$0	\$0	
4200	MASONRY	\$12,936	\$0	\$12,936	
5100	STRUCTURAL, MISC. STEEL & DECK	\$10,000	\$3,000	\$13,000	
5500	ORNAMENTAL METALS	\$0	\$0	\$0	
6100	CARPENTRY & MILLWORK	\$32,400	\$0	\$32,400	
7400	METAL SIDING	\$0	\$0	\$0	
7500	ROOFING	\$2,000	\$0	\$2,000	
7900	JOINT SEALERS	\$600	\$2,000	\$2,600	
8100	DOORS & HARDWARE	\$29,855	\$0	\$29,855	
8300	OVERHEAD DOORS	\$24,000	\$0	\$24,000	
8410	GLASS & GLAZING	\$2,500	\$0	\$2,500	
9200	DRYWALL & ACOUSTICAL	\$90,873	\$0	\$90,873	
9300	TILE	\$0	\$0	\$0	
9600	CARPET & RESILIENT	\$43,162	\$0	\$43,162	
9900	PAINTING & WALLCOVERING	\$9,789	\$0	\$9,789	
10100	SPECIALTIES	\$21,320	\$0	\$21,320	
10200	LOUVERS	\$0	\$0	\$0	
10350	FLAG POLES	\$0	\$4,000	\$4,000	
10400	DIRECTORIES & SIGNAGE	\$170,325	\$54,400	\$224,725	
10550	DIVIDER CURTAINS	\$0	\$0	\$0	
11160	LOADING DOCK EQUIPMENT	\$0	\$0	\$0	
14200	ELEVATORS & ESCALATORS	\$0	\$0	\$0	
15300	FIRE PROTECTION	\$16,060	\$0	\$16,060	
15400	PLUMBING	\$26,144	\$0	\$26,144	
15500	HVAC	\$214,000	\$0	\$214,000	
16000	ELECTRICAL & SECURITY	\$495,000	\$105,500	\$600,500	
16050	PLD COSTS	\$160,000	\$0	\$160,000	Allowance
SUBTOTAL COST #1		\$2,033,464	\$981,483	\$3,014,947	
0%	PROJECT ESCALATION	\$0	\$0	\$0	Based on 2006 construction
0%	DESIGN CONTINGENCY	\$0	\$0	\$0	w/below
	HIDDEN CONDITION CONTINGENCY	\$50,000	\$25,000	\$75,000	w/below
	CM CONTINGENCY	\$50,000	\$25,000	\$75,000	
0%	LEED PREMIUM	\$0	\$0	\$0	Not required
	GENERAL CONDITIONS (B, C)	\$213,346	\$19,992	\$233,338	
	WINTER PROTECTION	\$32,826	\$0	\$32,826	Based on Fall 2008 start
SUBTOTAL COST #2		\$2,379,636	\$1,051,475	\$3,431,111	
0.00%	BUILDING PERMIT ALLOWANCE	\$0	\$0	\$0	By Owner
	TAP FEES	\$0	\$0	\$0	By Owner
	ARCHITECT/ENGINEERS FEE	\$0	\$0	\$0	By Owner
	FURNITURE, FIXTURES & EQUIPMENT	\$0	\$0	\$0	By Owner
	OWNER RELOCATION/MOVING	\$0	\$0	\$0	By Owner
0.00%	BOND ON WHITE/OLSON	\$23,796	\$10,515	\$34,311	
0.00%	BOND ON SUBCONTRACTORS	\$0	\$0	\$0	
0.20%	GENERAL LIABILITY INSURANCE	\$4,759	\$2,103	\$6,862	
0.35%	BUILDERS RISK	\$5,329	\$3,660	\$8,989	
SUBTOTAL COST #3		\$2,416,520	\$1,057,773	\$3,474,293	
	W/O PRECONSTRUCTION FEE	\$0	\$0	\$0	Separate budget
3.50%	OH&P	\$84,578	\$37,372	\$121,950	
PRELIMINARY TOTAL BUDGET		\$2,501,098	\$1,105,145	\$3,606,243	

APPENDIX 'C'

CONSTRUCTION PHASE – CONTINGENCY PROCEDURES

The approved contingencies are divided into two parts: the Owner Contingency and the CM@R Contingency.

Contingencies can only be utilized in accordance with the language in the GMP as approved by MDOT.

PROCESS – OWNER CONTINGENCY

1. For each project, the Owner Contingency will appear as a line item in the schedule of values.
2. When circumstances arise in which it is necessary to expend a portion of the Owner Contingency, White-Olson-Korneffel must notify SDG immediately by e-mail. This must state the following:
 - Reason for the anticipated expenditure
 - Time frame for approving the expenditure and undertaking the work
 - Estimated cost of the expenditure
3. As soon as practicable after determining that a portion of the Owner Contingency is required, White-Olson-Korneffel must submit to SDG a written estimate for the work in sufficient detail for it to be evaluated.
4. SDG will review the proposed work and the estimate, including any necessary review with HAA, NTH, MDOT TSC and DWCPA.
5. DWCPA will issue an authorization to undertake the work from the Owner contingency.
6. The schedule of values should then be adjusted to add the approved cost to the trade values and delete the approved costs from the owner contingency line item.

If the time frame is such that the work has to be carried out prior to the possibility of an approval following the above process, then SDG should be contacted by telephone. SDG will then give direction directly.

If SDG considers that an issue is being raised on the above “emergency” basis that could have been anticipated sufficiently in advance to allow the normal process to be followed, SDG may require the normal process be followed without any claim for additional cost for delay of the construction.

PROCESS – CM@R CONTINGENCY

This contingency is under the control of the CM@R. The use of this contingency is to be reported monthly with the payment requests on a separate form that lists the following:

1. Original contingency

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2. Reduction prior to this reduction
3. Available contingency
4. Proposed changes to contingency with reasons for each.
5. Contingency remaining after these reductions

The payment request is to reflect the reduced CM@R contingency and the increased trades line items.

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