City of Troy

CITY COUNCIL REPORT

November 22, 2011

TO: The Honorable Mayor and City Council

FROM: John Szerlag, City Manager
Mark Miller, Director of Economic and Community Development
Steven Vandette, City Engineer
Bill Huotari, Deputy City Engineer

SUBJECT: Troy Multi-Modal Transit Facility – Estimated Project Costs

Additional information relative to the estimated costs for the transit center project is provided for City Council's review.

ESTIMATED PROJECT COSTS

A detailed cost summary of each major work item is attached. This estimate was prepared and submitted to the Michigan Department of Transportation (MDOT) as well as the Federal Railroad Administration (FRA) for approval as part of the Environmental Assessment. The major work items are grouped into primary project components, which are shown below along with the cost of each component and its percentage of the total project cost:

	Primary Project Components	Estimated Cost	Percent
1.	Civil and Site Work (including bridge)	$2,870,708	33.8%
2.	Platform and Canopy Work	$552,668	6.5%
3.	Transit Center Building and Elevators	$1,911,000	22.5%
4.	Utility Relocation	$201,000	2.4%
5.	Canadian National Railroad	$140,000	1.6%
6.	Contingency	$851,832	10%
7.	Design and Construction Management	$1,958,004	23.1%

Also attached is a detailed list of the items that are included in the major work items. The Civil and Site Work for example contains new storm sewers, sanitary and water services, site lighting, Doyle Drive reconstruction, bus slip construction, pedestrian bridge, stairways, parking lot paving, site landscaping, information kiosk, benches, bike racks and bus shelters among others.

The building itself, without the elevators to the bridge, is estimated at $1,310,000 or 15.4% of the total project cost. The building utilizes all commercial grade materials, green roof, geothermal heating/cooling, LED lighting, fire suppression system and security cameras. Some of these items can be removed to lower cost, however the LED lighting is one that should be retained as this will reduce energy costs over the long run.

The estimated bridge cost is $1,094,000 and is included in the Civil and Site Work. The cost of the bridge, as with most highway bridges, reflects the restrictions of constructing a bridge over an active roadway, in this case an active rail line, and also under high voltage power lines, within a tight working area. Very little design work

has been done on the bridge so this cost is one that may be subject to the most change, and possible utilization of some of the project contingency.

The cost of AT&T, DTE and underground fiber optic utility relocations at $201,000 is as estimated by the utility companies. This cost is subject to change depending of site conditions at the time of construction, and may utilize some of the project contingency.

The estimated cost of the platform and canopy work is not something that should be changed. It is possible that this cost could even go up as there are new ADA accessibility requirements that will have to be incorporated into the final design. The rules for this have yet to be written by the Federal Rail Administration.

POTENTIAL COST SAVINGS

As stated during the Council Study Meeting, the cost of the project can be reduced so long as the functionality of the Transit Center is maintained. In reviewing the estimated costs, potential savings could be realized in the following areas:

1. Reducing sustainable/green design elements
2. Reducing site landscaping and amenities
3. Restricting building treatments to lower cost items

Attached is a revised cost estimate that reflects these reductions. The green roof, geo-thermal heating/cooling system and water reuse systems are eliminated as is the electric car charging station and LEED certification. The cost of landscaping and building treatments could also be reduced by 10% or more depending on cost goals are desired by the city. The attached REVISED cost estimate reflects elimination of the foregoing items and a 10% reduction in landscaping and building treatments. The revised cost with these reductions is $7,881,100. The revised building cost per square foot is $425.41 and compares with an estimated industry average of $378 to $462 for similar sized commercial buildings.

DESIGN & CONSTRUCTION COST CONTAINMENT MEASURES

A statement made at the Council Study Meeting last week requires clarification. While the MDOT agreement limits funding to $8,485,212 and all additional costs become city costs, the contract for the Construction Manager at Risk eliminates the City's financial risk, unless changes in scope are made by the city during construction. The Architect/Engineering contract also eliminates financial risks except when scope changes are made by the City.

The Architect & Engineering (A/E) services and Construction Manager at Risk (CMR) contracts both include cost containment directives that protect the city from cost overages not covered by federal funds, thereby reducing risk.

Under the A/E contract the A/E is required to complete the final design such that the project can be constructed within the established project budget. If estimated project costs during final design exceed the budget, then the A/E would perform redesign work to permit construction contract awards to be within the project budget. If the project being designed exceeds or is likely to exceed the project budget, and it is unable to design a usable facility within these limitations, then a change in scope or materials would be authorized by the City to reduce the estimated construction cost to an amount within the estimated budget.

While the A/E is responsible to design the project within the budget, the Construction Manager at Risk is responsible for building the project within the budget AND within a Guaranteed Maximum Price (GMP), which the CMR establishes. The Construction Manager at Risk is committed to deliver the project at or below the Guaranteed Maximum Price. Using the CMR approach to construction the CMR initially acts as a consultant to

the owner, assisting the A/E in the development of the final design to keep the project within budget, and then acts as the equivalent of a general contractor during the construction phase. In addition to acting in the owner's interest during the design phase, the construction manager must manage and control construction costs to not exceed the Guaranteed Maximum Price. If the project does exceed the GMP, the CMR must absorb the additional cost. Conversely, if the project comes in below the GMP, the cost savings belong to the City. This is different from a fixed price contract where cost savings are retained by the contractor and essentially become additional profits. Since the Construction Manager, not the City, is ultimately assuming the responsibility for cost overruns, hence the name Construction Manager at Risk.

The CMR is also subject to liquidated damages of $2,650 per day for each and every calendar day beyond the final contract completion date, which is on or before October 1, 2013 as established by the CMR. In addition to the foregoing, the CMR will be responsible for one hundred percent (100%) of penalties or loss of federal funds due to the failure of the CMR to complete the project by the contract completion date (on or before October 1, 2013). Therefore, the CMR, not the City, will be at risk for additional costs.

OPERATION & MAINTENANCE COSTS

The operation and maintenance costs were estimated by the Building Operations and Department of Public Works Directors based on historical costs of other comparable city facilities. The basis for these costs, which is $31,594 is attached.

It is anticipated that the operation and maintenance costs will be offset by lease agreements with Amtrak as well as potential vendors interested in locating at the site (concessions, rental agencies, etc.). These offsetting costs will not be known until the final design of the facility is near complete and these lease agreements can be negotiated.

PROJECT OVERSIGHT

As mentioned previously, the CMR functions as the owner's representative during construction with the onus on the CMR to build the project within the budget. The City has assigned staff to work jointly with the A/E and CMR throughout the life of the project. There is significant federal and state oversight of the project due to the obligation of the federal funds. Monthly reports providing employment information are required throughout the life of the project. Additionally, FRA requires quarterly reports on expenditures and project progress.

TROY INTERMODAL TRANSIT FACILITY PROJECT
HSR2010000178 - CHICAGO: CHICAGO-DETROIT

SUMMARY OF
PRELIMINARY CONSTRUCTION COST ESTIMATE

SITE UTILITIES	$	547,754
DOYLE DRIVE RECONSTRUCTION	$	133,011
DOYLE DRIVE BUS SLIPS	$	149,127
SITE PAVING	$	468,586
PEDESTRIAN BRIDGE & STAIRWAYS	$	1,094,000
SITE LANDSCAPING & AMENITIES	$	303,350
GENERAL ITEMS	$	174,880
SUBTOTAL CIVIL & SITE WORK	$	2,870,708
TRAIN PLATFORM DEMOLITION	$	40,000
TRAIN PLATFORM STRUCTURE	$	216,668
TRAIN PLATFORM CANOPY	$	296,000
SUBTOTAL PLATFORM/CANOPY WORK	$	552,668
TRANSIT CENTER BUILDING	$	1,310,000
ELEVATOR BUILDINGS	$	601,000
SUBTOTAL TRANSIT CENTER BUILDING & ELEVATORS	$	1,911,000
DTE O.H. RELOCATION	$	76,000
ATT O.H. RELOCATION	$	50,000
SPRINT F.O. RELOCATION	$	75,000
SUBTOTAL UTILITY RELOCATION COSTS	$	201,000
CN RAILROAD PERMITTING COSTS	$	50,000
CN RAILROAD TEMP. CONSTRUCTION CROSSING	$	90,000
SUBTOTAL CN RAILROAD COSTS	$	140,000
ESTIMATED CONSTRUCTION COST	$	5,675,376
15% CONTINGENCY	$	851,832
TOTAL ESTIMATED CONSTRUCTION COST	**$**	**6,527,208**
A/E COST (15%)	$	979,002
CM AT RISK (15%)	$	979,002
TOTAL ESTIMATED DESIGN & CONSTRUCTION MGMT.	$	1,958,004
TOTAL PROJECT COST	$	8,485,212
HIGH SPEED RAIL AWARD	$	8,485,212
TOTAL GRANT FUNDING	$	8,485,212

TROY INTERMODAL TRANSIT FACILITY
HSR2010000178 – CHICAGO: CHICAGO-DETROIT

PRELIMINARY CONSTRUCTION COST ESTIMATE
DESCRIPTION OF WORK INCLUDED

CIVIL & SITE WORK

- Site Utilities: includes new storm sewer, manholes, drainage structures, pavement underdrain system, roadway edgedrain, domestic water supply, sanitary service line, site lighting, emergency generator, and high-speed internet service allowance
- Doyle Drive Reconstruction: includes removal of existing paving materials in Doyle Drive, and replacement with new concrete pavement and raised crosswalks
- Doyle Drive Bus Slips: includes removal of sidewalks and trees, and earth excavation in area of proposed bus slips, and replacement with new concrete pavement and concrete curb & gutter
- Site Paving (parking lot and site excluding Doyle Drive/bus slips): includes removal of existing paving materials, site clearing & grubbing, earth excavation, new asphalt paving with concrete curb & gutter, decorative paving, sidewalk, handicap ramps, brick pavers, sidewalk snow-melt system, subgrade drainage layer below pedestrian plaza, decorative security fencing, decorative fencing
- Pedestrian Bridge & Stairways: includes bridge and stair tower foundation systems, site embankment for pathway leading to stairs, bridge support and stair tower structures, prefabricated pedestrian bridge, bridge erection, bridge deck, bridge and stairway enclosure system, HVAC allowance for bridge and stairways, lighting allowance for bridge and stairways
- Site Landscaping & Amenities: includes trees, shrubs, perennials, annuals, ground cover, topsoil and sod, benches, flag poles, bike racks, litter/recycling receptacles, tree grates, signage kiosk, information kiosk, transit facility sign, wayfinding signage allowance, bus shelters and bike rack shelters
- General Items: includes contractor mobilization allowance, temporary traffic maintenance & control allowance, temporary soil erosion & sedimentation control allowance, and contaminated material handling and disposal allowance

PLATFORM/CANOPY WORK

- Train Platform Demolition: includes cost for removing pedestrian stairs/ramps and platform at existing Amtrak station in Birmingham
- Train Platform Structure: includes removal of existing materials, excavation, installation of foundation system, placement of concrete slab with high-visibility detectable edge
- Train Platform Canopy: includes shelter construction, canopy structure, lighting allowance

TRANSIT CENTER BUILDING & ELEVATORS

- Transit Center Building: includes foundation, building structure, membrane roof system, exterior finishes, interior finishes, seating, plumbing, fire protection, electrical, interior lighting, HVAC, communications, and security cameras
- Elevator Buildings: includes foundations, elevator tower structures, membrane roof system, exterior finishes, interior finishes, energy efficient elevators, fire protection, HVAC, and interior lighting

REVISED

TROY INTERMODAL TRANSIT FACILITY PROJECT
HSR2010000178 - CHICAGO: CHICAGO-DETROIT

SUMMARY OF
PRELIMINARY CONSTRUCTION COST ESTIMATE
*****REVISED*****

SITE UTILITIES	$	500,354
DOYLE DRIVE RECONSTRUCTION	$	133,011
DOYLE DRIVE BUS SLIPS	$	149,127
SITE PAVING	$	468,586
PEDESTRIAN BRIDGE & STAIRWAYS	$	1,094,000
SITE LANDSCAPING & AMENITIES	$	271,000
GENERAL ITEMS	$	170,892
SUBTOTAL CIVIL & SITE WORK	$	2,786,970
TRAIN PLATFORM DEMOLITION	$	40,000
TRAIN PLATFORM STRUCTURE	$	216,668
TRAIN PLATFORM CANOPY	$	296,000
SUBTOTAL PLATFORM/CANOPY WORK	$	552,668
TRANSIT CENTER BUILDING	$	1,021,000
ELEVATOR BUILDINGS	$	570,000
SUBTOTAL TRANSIT CENTER BUILDING & ELEVATORS	$	1,591,000
DTE O.H. RELOCATION	$	76,000
ATT O.H. RELOCATION	$	50,000
SPRINT F.O. RELOCATION	$	75,000
SUBTOTAL UTILITY RELOCATION COSTS	$	201,000
CN RAILROAD PERMITTING COSTS	$	50,000
CN RAILROAD TEMP. CONSTRUCTION CROSSING	$	90,000
SUBTOTAL CN RAILROAD COSTS	$	140,000
ESTIMATED CONSTRUCTION COST	$	5,271,638
15% CONTINGENCY	$	790,746
TOTAL ESTIMATED CONSTRUCTION COST	**$**	**6,062,384**
A/E COST (15%)	$	909,358
CM AT RISK (15%)	$	909,358
TOTAL ESTIMATED DESIGN & CONSTRUCTION MGMT.	$	1,818,716
TOTAL PROJECT COST	$	7,881,100
HIGH SPEED RAIL AWARD	$	8,485,212
TOTAL GRANT FUNDING	$	8,485,212

TROY INTERMODAL TRANSIT FACILITY
HSR2010000178 – CHICAGO: CHICAGO-DETROIT

PRELIMINARY CONSTRUCTION COST ESTIMATE
COST REDUCTION EXPLANATION FOR 11/22/11 ESTIMATE

As requested, we have eliminated certain items from the project scope and have revised the preliminary construction cost estimate accordingly. Following is a brief description of the items removed, and their impact to the estimate:

GREEN ROOF

Replacing the green roof with a membrane roofing system will reduce the cost of the **TRANSIT CENTER BUILDING** by $52,945. This reduction reflects a cost savings due to the change in the roofing materials plus the savings in the roof support structure resulting from the reduced design load.

GEOTHERMAL HEATING & COOLING SYSTEM

Replacing the geothermal heating and cooling system with a standard natural gas furnace and electric air conditioner will reduce the cost of the **TRANSIT CENTER BUILDING** by $15,120, and the **ELEVATOR BUILDINGS** by $8,000.

HARVESTED RAIN WATER RE-USE SYSTEM

Eliminating the harvested rain water re-use system will reduce the cost of the **TRANSIT CENTER BUILDING** by $12,000, and the **SITE UTILITIES** by $12,400.

ELECTRIC VEHICLE CHARGING STATION

Eliminating the electric vehicle charging stations will reduce the cost of the **SITE UTILITIES** by $35,000.

LEED CERTIFICATION FEE

Modifying the scope of the project as described above will eliminate a number of LEED credits from being available, thereby eliminating the opportunity to achieve LEED Silver certification. If LEED certification will not be pursued, some savings to the project can be realized for not having to go through the certification process. Elimination of the LEED certification fee will reduce the cost of the **TRANSIT CENTER BUILDING** by $75,000, and the **ELEVATOR BUILDINGS** by $21,440.

MOBILIZATION/GENERAL CONDITIONS COST

In the estimate, mobilization and general conditions are items based on a percentage of construction cost. Reducing the costs of the project as described above will also reduce these costs, resulting in reducing the cost of **GENERAL ITEMS** by $2,370, **TRANSIT CENTER BUILDING** by $20,935, and the **ELEVATOR BUILDINGS** by $1,560.

In summary, the total savings to the **ESTIMATED CONSTRUCTION COST** for the project would be $256,770.

TROY MULTI MODAL TRANSIT FACILITY
OPERATION AND MAINTENANCE COST ESTIMATE

	Item	Quantity	Unit	Unit Price	Total Cost
1	Building Maintenance and Custodial	2400	SF	$3.07	$7,368.00
2	Custodial supplies	2400	SF	$0.20	$480.00
3	Mowing (one acre or less)	21	EA	$28.00	$588.00
4	Snow and Ice Removal - Parking Lot and Doyle Drive (65,812 SF x $3.20 per 1,000 SF = $210.60 per removal)	30	EA	$210.60	$6,318.00
5	Snow and Ice Removal - Sidewalks (13,000 SF x $.20 per SF = $130 per removal x 30/year x 50% benefit from heated sidewalks)	15	EA	$130.00	$1,950.00
6	Electric	1	Lsum	$5,200.00	$5,200.00
7	Gas Utility	1	Lsum	$2,800.00	$2,800.00
8	Elevator Maintenance	2	EA	$1,875.00	$3,750.00
9	Relief Valve Testing	2	EA	$1,570.00	$3,140.00
		Total Estimated O&M Costs			**$31,594.00**