



**PLANNING COMMISSION  
MEETING AGENDA  
SPECIAL MEETING**

500 W. Big Beaver  
Troy, MI 48084  
(248) 524-3364  
www.troymi.gov  
planning@troymi.gov

Mark Maxwell, Chair, and John J. Tagle, Vice Chair  
Donald Edmunds, Michael W. Hutson, Tom Krent, Philip Sanzica  
Gordon Schepke, Robert Schultz, Thomas Strat

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**March 27, 2012**

**7:30 P.M.**

**Council Board Room**

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1. ROLL CALL
2. MULTI-MODAL TRANSIT FACILITY PRESENTATION
  - A. Project Team Introductions
  - B. Project Background
  - C. Planning Commission Workshop Design Enhancement Items
    - a. Building façade articulation
    - b. A more identifiable building entrance
    - c. Enhancing the sense of arrival by focusing on a major point of interest
    - d. Establishing visual interest with human-scale elements in the building
    - e. Creating transitional features between the building, the bridge structure and platform
    - f. Offering additional cost effective, sustainable design features
  - D. Overview of Project Team Design Opportunity Sketches submitted with Proposal
  - E. Planning Commission Design Input
  - F. Public Comment

ADJOURN

**NOTICE:** People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at [clerk@troymi.gov](mailto:clerk@troymi.gov) or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.

DATE: March 23, 2012

TO: Planning Commission

FROM: Mark F. Miller, Economic & Community Development Director  
Steven J. Vandette, City Engineer  
William J. Huotari, Deputy City Engineer  
R. Brent Savidant, Planning Director

SUBJECT: TROY MULTI-MODAL TRANSIT FACILITY DESIGN WORKSHOP

**Background:**

The following is a summary of recent milestone dates related to the design and funding of the Troy Multi-Modal Transit Facility:

September 20, 2010 - City Council grants Preliminary Site Plan Approval

Preliminary Site Plan Approval was subject to a design workshop being held prior to Final Site Plan Approval (see attached City Council resolution). The goal of the workshop would be to discuss and incorporate further design enhancements into the plans for improved aesthetics and functionality of the project. The enhancements were to address:

- a. Building façade articulation
- b. A more identifiable building entrance
- c. Enhancing the sense of arrival by focusing on a major point of interest
- d. Establishing visual interest with human-scale elements in the building
- e. Creating transitional features between the building, the bridge structure and platform
- f. Offering additional cost effective, sustainable design features

The Transit Center was a joint project between the cities of Troy and Birmingham; the City of Birmingham Planning Board had previously granted Preliminary Site Plan Approval for improvements on the west side of the tracks. Total project budget based on the Federal Railroad Administration (FRA) grant award was \$8,485,212.

April, 2011 - City of Birmingham withdraws from the project

City of Birmingham was unable to acquire property on the west side of the tracks and withdrew from the project. The project had to be revised to eliminate the improvements in Birmingham. This included elimination of the tunnel, as the ramp system could not fit entirely within the railroad right-of-way.

August, 2011 – Project Scope Changes During EA Process

Various design alternatives were vetted during the Environmental Assessment (EA) process. The site plan was revised to add a bridge over the tracks to connect to the platform, which

remained on the Birmingham side within the CN right-of-way. No property from Birmingham was required for this design. There is no access to the platform from the Birmingham side, but the plan allows access in the future if Birmingham can acquire necessary property.

September 12, 2011 - City Council approves the MDOT Capital Contract

City Council approved an MDOT Capital Contract for \$8,485,212 for the specific purpose of designing and building the Transit Center at no cost to the City of Troy.

September 15, 2011 - Finding of No Significant Impact (FONSI)

The Federal Railroad Administration (FRA) determined that the Transit Center will have no foreseeable significant impact on the quality of the environment. This is a critical approval step for federally funded rail projects.

October 1, 2011 - Executed MDOT Capital Contract

City Council executed the capital contract with MDOT to use FRA funds to complete the Transit Center project. The contract required that the project be completed and all reimbursements made within two (2) years, with an October 1, 2013 deadline.

December 19, 2011 – City Council Fails to Approve Contract for Architect/Engineering Services

A City Council resolution to approve the MDOT subcontract with Hubbell, Roth & Clark, Inc. (HRC), for Architect/Engineering services for the final design of the Transit Center failed. HRC included the sub-consultants Neumann/Smith Architecture and Grissim Metz Andriese Associates in their design team. Their proposal included color renderings that were designed to communicate design intent for the Transit Center project, including incorporating the design enhancements suggested by the Planning Commission.

January 17, 2012 - City Council Approval of Architect/Engineering Services

City Council approved the MDOT subcontract with HRC for Architect/Engineering services for the final design of the Transit Center. City Council approval was subject to the total project cost not exceeding \$6,272,500.

Prior to approval, the HRC design team was asked to evaluate the project to reduce overall project cost without affecting aesthetics, functionality or durability of the Transit Center and also meet review agency requirements. The color renderings included in the HRC proposal were revised for this task. The result of this evaluation was a site design that included the following elements:

- 2,000 square foot building with waiting area, restrooms and utility/storage area
- Enclosed pedestrian bridge with ventilation
- Enclosed stairway and elevator to access pedestrian bridge
- Train platform on east side of tracks with 4 transit-style prefabricated shelters
- Bus slips on Doyle to accommodate up to 4 SMART buses at one time
- Sidewalks along Doyle at bus slips, with two bus shelters
- Sidewalks from Doyle to building entrance
- Site lighting and amenities, including several bike racks and benches

Many of the elements in the original design were eliminated or reduced in scale to meet the reduced project cost. The attached memo prepared by HRC summarizes the reduction in project scope.

The HRC design team considered the design enhancements stipulated during Preliminary Site Plan Approval while redesigning the site. The concept drawings developed during site evaluation are attached for your review.

February 20, 2012 - City Council Approval of Construction Manager at Risk (CMR) Services

City Council approved an MDOT subcontract with Tooles/Clark for Construction Manager at Risk Services for the Transit Center. It will be Tooles/Clark's responsibility to ensure that the project is constructed as designed, in time and within budget.

March 14, 2012 - Notice to Proceed issued by City to HRC/Neumann-Smith

The City of Troy gave the HRC design team official notice to proceed with design work for the Transit Center. Additionally, the City is waiting on MDOT approval of the contract for the Construction Manager at Risk Contract and will issue Notice to Proceed, once the contract is executed. This is expected to occur the week of March 26, 2012.

Fall, 2012 - Projected Groundbreaking

It is anticipated that construction will begin in Fall, 2012. The project has not been designed yet so it is difficult to provide accurate dates for construction commencement and completion. The City has applied to MDOT and FRA for a project extension, and awaits word on this issue.

**Intent of Design Workshop:**

The Design Workshop provides the Planning Commission with an opportunity to have input into the design of the Transit Center, based on the design enhancements recommended by Planning Commission and stipulated by City Council. It is important to note that this is the first step in project design. The HRC design team will develop a site plan based in part on input from the Planning Commission.

**Critical Points to Consider:**

The following critical points need to be considered by Planning Commission during the Design Workshop:

1. A revised site plan will not be coming back to Planning Commission for further review. The Design Workshop is the Planning Commission's opportunity for design input. The design team comprised of HRC, Neumann/Smith Architecture and Grissim Metz Andriese Associates will consider Planning Commission input in their design for the Transit Center, as they prepare the site plan.
2. Total project cost is \$6,272,500, including design and contingencies. Construction cost will be approximately \$4.2 million. This is a significant reduction from the

original FRA grant award of \$8,485,212. The project scope will need to be reduced accordingly for the project to meet budget.

3. The color renderings provided in the agenda packet are designed to communicate design intent. Further, they reflect a reduced project scope. The drawings provide a starting point to assist the Planning Commission with their discussion.
4. The focus of Planning Commission discussion, as directed by City Council, should be on the following design enhancements:
  - a. Building façade articulation
  - b. A more identifiable building entrance
  - c. Enhancing the sense of arrival by focusing on a major point of interest
  - d. Establishing visual interest with human-scale elements in the building
  - e. Creating transitional features between the building, the bridge structure and platform
  - f. Offering additional cost effective, sustainable design features

Attachments:

1. City Council Resolution #2010-09-202
2. Memo prepared by HRC, dated January 16, 2011
3. City Council Resolution #2012-01-009
4. Troy Multi-Modal Transit Facility, prepared by HRC design team

G:\Transit Center\Workshop March 27 2012\PC Workshop Memo 03 27 2012.docx

**I-4 Preliminary Site Plan Approval (File Number SP 957) – Troy/Birmingham Intermodal Transit Facility – South of Maple Road, West of Coolidge, Section 31, Zoned M-1 (Light Industrial) – Controlled by Consent Judgment**

Resolution

Moved by Schilling

Seconded by Slater

RESOLVED, That Troy City Council hereby **GRANTS** Preliminary Site Plan Approval, as requested for the proposed Troy/Birmingham Intermodal Transit Facility, located south of Maple Road, west of Coolidge Highway, in Section 31, within the M-1 Zoning District and controlled by Consent Judgment.

**Vote on Resolution to Amend Proposed Resolution A – As Recommended by City Management by Substitution**

Resolution #2010-09-202

Moved by Beltramini

Seconded by Kerwin

RESOLVED, That Troy City Council hereby **AMENDS** proposed Resolution A – *As Recommended by City Management* by **STRIKING** it in its entirety and **SUBSTITUTING** it with Resolution B – *As Recommended by the Planning Commission*.

Yes: McGinnis, Slater, Beltramini, Fleming, Kerwin

No: Schilling

Absent: Howrylak

**MOTION CARRIED**

**Vote on Resolution to Amend Proposed Resolution B – As Recommended by the Planning Commission**

Resolution #2010-09-203

Moved by Beltramini

Seconded by Kerwin

RESOLVED, That Troy City Council hereby **AMENDS** Resolution B - *As Recommended by the Planning Commission* by **INSERTING** "after the results of the environmental assessment so that changes required by the environmental assessment may be made in conjunction with any enhancements outlined at the workshop and then presented as a whole to Troy City Council and Birmingham's Planning Board prior to Final Site Plan Approval" **AFTER** "workshop" and **STRIKE** "so that the results of the workshop can be presented to the Troy City Council and Birmingham's Planning Board prior to Final Site Plan Approval in the second "BE IT FURTHER RESOLVED".

Yes: Slater, Beltramini, Fleming, Kerwin, McGinnis

No: Schilling  
Absent: Howrylak

**MOTION CARRIED****Vote on Resolution as Amended by Substitution**

Resolution #2010-09-204  
Moved by Schilling  
Seconded by Slater

RESOLVED, That Troy City Council hereby **GRANTS** Preliminary Site Plan Approval, requested for the proposed Troy/Birmingham Intermodal Transit Facility, located south of Maple Road, west of Coolidge Highway, in Section 31, within the M-1 Zoning District and controlled by Consent Judgment; and

BE IT FURTHER RESOLVED, That Troy City Council hereby **DIRECTS** City Management to conduct a design workshop prior to final approval, with members of the Planning Commission, the Planning Board, the Hubbell, Roth & Clark team and staff from the Cities of Birmingham and Troy. The goal of the workshop would be to discuss and incorporate further design enhancements into the plans for improved aesthetics and functionality of the project. In general, the enhancements will address:

- Building façade articulation to create a greater visual interest;
- A more identifiable building entrance;
- Enhancing the sense of arrival by focusing on a major point of interest;
- Establishing visual interest with human-scale elements at the building;
- Creating transitional features between the building, the ground plane and retaining wall; and
- Offering additional, cost effective, sustainable design features.

BE IT FURTHER RESOLVED, That Troy City Council hereby **DIRECTS** City Management to schedule the workshop after the results of the environmental assessment so that changes required by the environmental assessment may be made in conjunction with any enhancements outlined at the workshop and then presented as a whole to Troy City Council and Birmingham's Planning Board prior to Final Site Plan Approval; and

BE IT FINALLY RESOLVED, That the project **SHALL** be developed so that the construction cost does not exceed the approved funding amount.

Yes: Beltramini, Fleming, Kerwin, McGinnis, Slater  
No: Schilling  
Absent: Howrylak

**MOTION CARRIED**



**HUBBELL, ROTH & CLARK, INC**

**Consulting Engineers**

**Principals**

George E. Hubbell  
Thomas E. Biehl  
Walter H. Alix  
Peter T. Roth  
Michael D. Waring  
Keith D. McCormack  
Nancy M.D. Faught

**Senior Associates**

Gary J. Tressel  
Lawrence R. Ancypa  
Kenneth A. Melchior  
Randal L. Ford  
David P. Wilcox  
Timothy H. Sullivan

**Associates**

Jonathan E. Booth  
Michael C. MacDonald  
Marvin A. Olane  
William R. Davis  
Daniel W. Mitchell  
Jesse B. VanDeCreek  
Robert F. DeFrain  
Marshall J. Grazioli  
Thomas D. LaCross  
Dennis J. Benoit  
James F. Burton  
Jane M. Graham

January 16, 2011

City of Troy  
500 W. Big Beaver Road  
Troy, Michigan 48084

Attn: John Szerlag, City Manager

Re: Troy Multi-Modal Transit Facility

Dear Mr. Szerlag:

As requested, we have performed a review of the project costs for the Troy Multi-Modal Facility in order to address a number of concerns in regards to the \$8,485,212 grant amount and budgetary cost of the project that were expressed at the December 19, 2011 City Council meeting. It is our understanding that the intent of the review is to refine/tighten the cost estimate based on changes to the project scope that have been suggested by the City, the business community and our project team. We understood the goal is to not drastically reduce the project scope such that key elements of the facility are lost or such that the resulting facility becomes unattractive. In addition, the facility must meet the functionality as stipulated in the conditions of the grant funding approval for the project from the Federal Rail Administration.

This review was completed by HRC and our project team members Neumann/Smith and Quandel Consultants at no cost to the City to show our commitment to the project and to address potential cost savings that could not be fully studied at the last council meeting. In addition, we have reviewed the project with a local construction management group and they have prepared an independent estimate of the project based on their experience with the construction of similar rail/multi-modal projects.

A value engineering exercise for the project was completed, based on this review, and discussions with a construction manager, the preliminary estimated construction cost for the facility has been revised to \$4,973,750 for the facility, including contingency. The contingency is necessary to account for unknown construction conditions or agency modifications to rules the facility must follow and it is recommended and a common practice on City projects to retain a project contingency to cover these potential project costs. For a project of this complexity and at this stage of preliminary design, it is recommended that a contingency totaling 15% of the construction cost be retained. Attached is a copy of the revised Summary of the Preliminary Construction Cost Estimate (Revised 01-09-12) which provides costs for the various major components of the facility. Also included in the estimate are costs for the architectural/engineering design services and a budgetary allowance for the construction manager at risk services. The city recently received bids for the construction manager at risk services and staff will be reviewing the submittals and the cost for this service and a recommendation for selection is forthcoming. The total project cost including facility construction, contingency, architectural/engineering design and construction manager at risk services is \$6,271,250.

Y:\201105\20110519\Proposal\Corrs\Transit\_Center\_Estimate\_Review\_Letter\_January\_16.docx

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Also attached is a project outline which provides a summary of the major design elements currently included in the project as proposed and a summary of the project elements that have been modified to achieve the cost reduction of the facility while also maintaining the appearance and functionality of the facility.

Although the scope of the project and the cost of the facility have been reduced, we believe, based on interactions with reviewing bodies on similar projects, that the facility will still function as intended by the grant and meet the requirements of the following regulatory agencies:

- Federal Rail Administration
- Amtrak
- Michigan Department of Transportation
- CN Railroad
- City of Troy

The appearance and functionality of the facility will be as shown in the attached design sketches. The attached preliminary design sketches will be the standard that the facility will be designed to. The facility will be an attractive facility that the City will be proud of and will provide a gateway into the community desired by residents and the business community.

The HRC team is proposing to work with city staff to enter into a Contract with the City based on standard MDOT contract language, similar to MDOT contracts approved by the City Council for federally funded major road projects. MDOT will review and approve the consultant selection process used by the City along with the subcontract and derivation of costs.

Attached to this letter is the MDOT subcontract with Hubbell, Roth & Clark, Inc., who is the prime consultant for a cost of \$648,668.87.

It is our opinion that the revised project cost as outlined in this letter has met the goal of reducing project costs without jeopardizing the required functionality of the facility, the grant eligibility of the project, and without significantly affecting the overall form and appearance of the facility.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.



Walter H. Alix, P.E., P.S.  
Vice President/Principal



J. Michael Kirk, AIA, LEED AP  
Principal

MM/mm  
Attachment

**TROY INTERMODAL TRANSIT FACILITY PROJECT**  
**HSR201000178 – CHICAGO: CHICAGO-TROY**

**TRANSIT FACILITY PROJECT SCOPE**

The project cost for the original concept considered in the grant award for the final design phase, as described by the HRC design team in the sketches included in the proposal, was \$8.485 million. With the intent of reducing the overall project cost without affecting the aesthetics, functionality or durability of the facility and meeting the anticipated review agency requirements, the HRC design team was asked to evaluate the conceptual design elements. The result of this evaluation is a project that is still functional and attractive, with an estimated project cost of \$6.271 million. This concept will include the following major design elements:

- 2,000 square foot building with waiting area, restrooms and utility/storage area
- Enclosed pedestrian bridge with ventilation
- Enclosed stairway and elevator to access pedestrian bridge
- Train platform on east side of tracks with 4 transit-style prefabricated shelters (radiant heating provided)
- Bus slips on Doyle to accommodate up to 4 SMART buses at one time
- Sidewalks along Doyle at bus slips, with two bus shelters
- Sidewalks from Doyle to building entrance
- Site lighting and amenities, including several bike racks and benches

A depiction of the facility is provided in the attached concept sketches showing an aerial view and “eye-level” perspective view of the facility as currently proposed.

**PROPOSED REVISIONS TO REDUCE PROJECT COSTS**

The HRC design team has reviewed the original conceptual design elements to ascertain their required need and realistic bid costs. At this stage of project development, estimating actual costs for specific project elements can be a difficult task. We believe the original conceptual design costs were conservative in nature. This review process has resulted in a refinement of the cost estimate, allowing the design team to reduce some costs without actually changing specific design elements. In other cases, changing certain design elements can reduce the proposed costs. The following list of modifications to both estimated costs and design changes are listed to indicate what has been considered:

**CIVIL & SITE WORK**

- Eliminate the electric vehicle charging stations
- Reevaluation of quantity or expense of certain amenities in landscaping that would not affect the aesthetics, functionality, or durability of the development

**TROY INTERMODAL TRANSIT FACILITY PROJECT**  
**HSR201000178 – CHICAGO: CHICAGO-TROY**

- Modifications to the site layout will simplify the storm water drainage system needs (smaller pipes, fewer structures).
- Reevaluation of the site layout will reduce the number of pole-mounted lighting fixtures. Further cost savings could be realized with the use of standard metal-halide lighting fixtures in lieu of LED. Lighted bollards were eliminated.
- Use smaller emergency generator
- Eliminate complete reconstruction of Doyle Drive using decorative-scored concrete pavement or deep-strength asphalt pavement. Instead, propose to construct the bus slips with deep-strength asphalt and will mill Doyle and install a new asphalt overlay in the project area. Proposed raised crosswalks will be plain concrete to provide a color contrast for pedestrian safety.
- Eliminate all decorative concrete sidewalk finishes, using a broomed finish instead
- Eliminate the pedestrian plaza in front of the building, providing a 10 foot wide sidewalk from Doyle to the building entrance
- Delete heated sidewalks, which were determined to be not cost effective
- Minimize work in the existing parking lot and eliminate construction of second entrance. Will provide new striping for additional handicap parking spaces and provisions for emergency ingress/egress from the parking lot. Necessary pavement repairs and resurfacing in the parking lot will be completed to restore it to a “like-new” condition.
- Replacement of the proposed decorative security fence with 6’ high, vinyl-coated chain link fencing (along the railroad right-of-way)

**BRIDGE/ELEVATORS/STAIRS/PLATFORM/CANOPY WORK**

- Reevaluation of the site layout will reduce the footprint of the stairway and elevator structures supporting the pedestrian bridge. Furthermore, certain features for the stairs and bridge can be eliminated without a deterioration in functionality – including LED lighted handrails (use overhead lighting) and bridge heating (ventilation still required)
- Reduce platform length to 200 feet
- use transit-style prefabricated shelters on the platform that are heated
- Provide minimal heating in elevators only
- Reduce stair and elevator building heights
- Use 10’ wide bridge
- Reduce amount of glass on bridge a 4’ high horizontal band, remaining skin on bridge would be silver metal siding, like an Amtrak train

**TROY INTERMODAL TRANSIT FACILITY PROJECT**  
**HSR201000178 – CHICAGO: CHICAGO-TROY**

TRANSIT CENTER BUILDING

- Reduce size of building to 2,000 square feet (from 2,400)
- Reduce mech/support part of building to 18' height, waiting room part of building to 16' height
- Reduce amount of glass in waiting room by adding a more durable 2' high base of masonry
- Use single width 8" or 12" wide reinforced load bearing ground faced 4" high clay masonry
- Replace the green roof with a membrane roofing system, which includes the savings in the roof support structure resulting from the reduced design load
- Replace the geothermal heating and cooling system with a standard natural gas furnace and electric air conditioner
- Eliminate the harvested rain water re-use system and associated underdrain system
- Reevaluation of cost estimates of certain amenities in the building that would not affect the aesthetics, functionality, or durability of the development

GENERAL/PROFESSIONAL SERVICES

- Do not pursue LEED certification
- 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

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

**SUMMARY OF  
PRELIMINARY CONSTRUCTION COST ESTIMATE  
\*\*\*REVISED 01-09-12\*\*\***

SITE UTILITIES	\$ 310,000
DOYLE DRIVE RECONSTRUCTION	\$ 76,000
DOYLE DRIVE BUS SLIPS	\$ 101,000
SITE PAVING	\$ 255,000
PEDESTRIAN BRIDGE & STAIRWAYS	\$ 974,000
SITE LANDSCAPING & AMENITIES	\$ 144,000
GENERAL ITEMS	\$ 140,000
<b>SUBTOTAL CIVIL &amp; SITE WORK</b>	<b>\$ 2,000,000</b>
TRAIN PLATFORM DEMOLITION	\$ 40,000
TRAIN PLATFORM STRUCTURE	\$ 220,000
TRAIN PLATFORM CANOPY	\$ 151,000
<b>SUBTOTAL PLATFORM/CANOPY WORK</b>	<b>\$ 411,000</b>
TRANSIT CENTER BUILDING	\$ 898,000
ELEVATOR BUILDINGS	\$ 675,000
<b>SUBTOTAL TRANSIT CENTER BUILDING &amp; ELEVATORS</b>	<b>\$ 1,573,000</b>
DTE O.H. RELOCATION	\$ 76,000
ATT O.H. RELOCATION	\$ 50,000
SPRINT F.O. RELOCATION	\$ 75,000
<b>SUBTOTAL UTILITY RELOCATION COSTS</b>	<b>\$ 201,000</b>
CN RAILROAD PERMITTING COSTS	\$ 50,000
CN RAILROAD TEMP. CONSTRUCTION CROSSING	\$ 90,000
<b>SUBTOTAL CN RAILROAD COSTS</b>	<b>\$ 140,000</b>
<b>TOTAL ESTIMATED CONSTRUCTION COST</b>	<b>\$ 4,325,000</b>
A/E COST (15% Const)	\$ 648,750
CM AT RISK (15% Const)	\$ 648,750
<b>TOTAL ESTIMATED CONSTRUCTION, A/E &amp; CM COST</b>	<b>\$ 5,622,500</b>
<b>CONSTRUCTION CONTINGENCY (15%)</b>	<b>\$ 648,750</b>
<b>TOTAL PROJECT COST, INCLUDING CONTINGENCY</b>	<b>\$ 6,271,250</b>
HIGH SPEED RAIL AWARD	\$ 8,485,212
<b>TOTAL GRANT FUNDING</b>	<b>\$ 8,485,212</b>

# Troy Multi-Modal Transit Facility

**Amtrak**  
Wolverine Line  
Pontiac-Chicago

West Elev

West Stairs

East Elev

**Pedestrian Bridge**  
East Stairs  
Canopy

Shelter

Shelter

Support  
Waiting

Entry

Flags  
**Sidewalk to Transit Center**

Lawn Area

Info Kiosk

Seating

Shelter

Bollards

Sidewalk

Bikes

Bus/BRT

Cross Walk

Painted Stripes at Bus Spaces

Cross Walk

Bus/BRT

Shelter

Bollards

Taxi

**Existing Parking Lot**

**Doyle Drive**



**A. CALL TO ORDER:**

A Special Meeting of the Troy City Council was held Monday, January 17, 2012, at City Hall, 500 W. Big Beaver Road. Mayor Daniels called the meeting to order at 7:30 PM.

**B. ROLL CALL:**

Mayor Janice Daniels  
Jim Campbell  
Wade Fleming  
Dave Henderson  
Maureen McGinnis  
Dane Slater  
Doug Tietz

**C. DISCUSSION ITEM:**

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**C-1 Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility**

Moved by Slater  
Seconded by Fleming

WHEREAS, A 2.41 acre site was deeded to the City of Troy as part of a Consent Judgment, with the condition that it be developed as a transit facility; and

WHEREAS, The City of Troy received a \$8,485,212 federal grant for the final design and construction of the Troy Multi-Modal Transit Facility through the American Recovery and Reinvestment Act (ARRA) High-Speed Intercity Passenger Rail (HSIPR) Program, Federal Rail Administration (FRA), as secured through a TIGER grant; and

WHEREAS, The facility will be served by AMTRAK and the Suburban Mobility Authority for Regional Transportation (SMART), which will utilize the Troy Multi-Modal Transit Facility as a central hub for their bus network; and

WHEREAS, The Troy Multi-Modal Transit Facility complements transit oriented initiatives throughout southeast Michigan, including the Detroit Region Aerotropolis project; and

WHEREAS, The purpose of the project is to benefit intercity passenger rail service, and the City is committed to helping achieve, to the extent to which it is capable, the anticipated project benefits; and

WHEREAS, The highest rated bidder, Hubbell, Roth & Clark (HRC), Inc. of Pontiac, MI was selected using a Qualifications Based Selection process; a required process as a condition of the grant; and

WHEREAS, On December 19, 2011, City Council took no affirmative action on a proposed MDOT sub-contract between the City of Troy and HRC to provide architectural and engineering services for the final design of the Troy Multi-Modal Transit Facility; and

WHEREAS, Based on express statements made by City Council members at the December 19, 2011 City Council meeting, there was an indication that there may be support for the transit center project if there were cost reductions; and

WHEREAS, HRC volunteered to review the project, at no cost, to see if reductions could be made to the project that would meet the requirements of the federal grant and comply with federal, state and local requirements; and

WHEREAS, Councilman Wade Fleming and Troy Chamber of Commerce representative John Tagle met with Mark Miller, Director of Economic and Community Development on December 22, 2011, to request permission to meet with HRC to obtain some clarification as to the costs associated with rail projects; and

WHEREAS, On December 23, 2011, HRC hosted a meeting to explain some of the required costs of a rail project, and to discuss possible cost reduction ideas, which was attended by Troy City Council members Wade Fleming and Dane Slater, as well as architect/Troy Chamber of Commerce Representative/ Planning Commission member John Tagle and architect/Planning Commission member Tom Strat and Mark Miller, Director of Economic & Community Development; and

WHEREAS, Subsequent to this meeting, HRC prepared a letter dated January 3, 2012 containing a revised cost proposal that modified the scope of the project to be at an estimated cost of \$6,272,500, excluding contingency; and

WHEREAS, The City wishes to construct a Troy Multi-Modal Transit Center for a total cost not to exceed \$6,272,500 which includes contingencies, and will still meet State and Federal requirements, not jeopardize the functionality of the project, and which can be accomplished according to the attached letter from HRC dated January 16, 2012.

THEREFORE, BE IT RESOLVED, That Troy City Council hereby **AWARDS** the MDOT sub-contract between the City of Troy and HRC to provide architectural and engineering services for the final design of the Troy Multi-Modal Transit Facility at an estimated cost not to exceed \$648,668, a cost which is included as part of the total estimated Transit Center cost not to exceed \$6,272,500; and

BE IT FURTHER RESOLVED, That the total estimated cost of the Troy Multi-Modal Transit Center **SHALL NOT EXCEED** \$6,272,500; and

BE IT FURTHER RESOLVED, That the award is **CONTINGENT UPON** consultants' submission of properly executed proposal and contract documents, including agreements, insurance certificates and all other specified requirements; and

BE IT FINALLY RESOLVED, The Mayor and City Clerk are **DIRECTED** to execute the agreements once in acceptable form as approved by the Michigan Department of Transportation.

**Resolution to Amend Resolution Item [C-1](#) Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility by Substitution**

Moved by Henderson

Seconded by Fleming

RESOLVED, That Troy City Council hereby **AMENDS** Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility by **SUBSTITUTING** the following paragraph:

*THEREFORE, BE IT FURTHER RESOLVED, That the total estimated costs of the Troy Multi-Modal Transit Facility **SHALL NOT EXCEED** \$6,272,500; any overruns and project costs will be absorbed by the contractors, architect, and project manager as is to be specified in the project contract documents, and the City of Troy will not authorize or pay for any costs overruns associated with this project beyond \$6,272,500.*

**Resolution to Amend Resolution Item [C-1](#) Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility by Substitution**

Resolution #2012-01-008

Moved Tietz

Seconded by Fleming

RESOLVED, That Troy City Council hereby **AMENDS** Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility by **SUBSTITUTING** the following paragraph:

*THEREFORE, BE IT FURTHER RESOLVED, That the total estimated costs of the Troy Multi-Modal Transit Facility **SHALL NOT EXCEED** \$6,272,500; any overruns and project costs will be absorbed by the construction manager at risk as is to be specified in the project contract documents, and the City of Troy will not authorize or pay for any costs overruns associated with this project beyond \$6,272,500.*

Yes: Fleming, Henderson, Tietz, Daniels

No: Campbell, McGinnis, Slater

**MOTION CARRIED**

**Vote on Original Resolution Item [C-1](#) Resolution from Council Members Dane Slater and Wade Fleming for Approval of MDOT Sub-Contract with Hubbell, Roth & Clark, Inc. at a reduced amount for Architect & Engineering Services for the Final Design of the Troy Multi-Modal Transit Facility as Amended**

Resolution #2012-01-009

Moved by Slater

Seconded by Fleming

WHEREAS, A 2.41 acre site was deeded to the City of Troy as part of a Consent Judgment, with the condition that it be developed as a transit facility; and

WHEREAS, The City of Troy received a \$8,485,212 federal grant for the final design and construction of the Troy Multi-Modal Transit Facility through the American Recovery and Reinvestment Act (ARRA) High-Speed Intercity Passenger Rail (HSIPR) Program, Federal Rail Administration (FRA), as secured through a TIGER grant; and

WHEREAS, The facility will be served by AMTRAK and the Suburban Mobility Authority for Regional Transportation (SMART), which will utilize the Troy Multi-Modal Transit Facility as a central hub for their bus network; and

WHEREAS, The Troy Multi-Modal Transit Facility complements transit oriented initiatives throughout southeast Michigan, including the Detroit Region Aerotropolis project; and

WHEREAS, The purpose of the project is to benefit intercity passenger rail service, and the City is committed to helping achieve, to the extent to which it is capable, the anticipated project benefits; and

WHEREAS, The highest rated bidder, Hubbell, Roth & Clark (HRC), Inc. of Pontiac, MI was selected using a Qualifications Based Selection process; a required process as a condition of the grant; and

WHEREAS, On December 19, 2011, City Council took no affirmative action on a proposed MDOT sub-contract between the City of Troy and HRC to provide architectural and engineering services for the final design of the Troy Multi-Modal Transit Facility; and

WHEREAS, Based on express statements made by City Council members at the December 19, 2011 City Council meeting, there was an indication that there may be support for the transit center project if there were cost reductions; and

WHEREAS, HRC volunteered to review the project, at no cost, to see if reductions could be made to the project that would meet the requirements of the federal grant and comply with federal, state and local requirements; and

WHEREAS, Councilman Wade Fleming and Troy Chamber of Commerce representative John Tagle met with Mark Miller, Director of Economic and Community Development on December 22, 2011, to request permission to meet with HRC to obtain some clarification as to the costs associated with rail projects; and

WHEREAS, On December 23, 2011, HRC hosted a meeting to explain some of the required costs of a rail project, and to discuss possible cost reduction ideas, which was attended by Troy City Council members Wade Fleming and Dane Slater, as well as architect/Troy Chamber of Commerce Representative/ Planning Commission member John Tagle and architect/Planning Commission member Tom Strat and Mark Miller, Director of Economic & Community Development; and

WHEREAS, Subsequent to this meeting, HRC prepared a letter dated January 3, 2012 containing a revised cost proposal that modified the scope of the project to be at an estimated cost of \$6,272,500, excluding contingency; and

WHEREAS, The City wishes to construct a Troy Multi-Modal Transit Center for a total cost not to exceed \$6,272,500 which includes contingencies, and will still meet State and Federal requirements, not jeopardize the functionality of the project, and which can be accomplished according to the attached letter from HRC dated January 16, 2012.

THEREFORE, BE IT RESOLVED, That Troy City Council hereby **AWARDS** the MDOT sub-contract between the City of Troy and HRC to provide architectural and engineering services for the final design of the Troy Multi-Modal Transit Facility at an estimated cost not to exceed \$648,668, a cost which is included as part of the total estimated Transit Center cost not to exceed \$6,272,500; and

THEREFORE, BE IT FURTHER RESOLVED, That the total estimated costs of the Troy Multi-Modal Transit Facility **SHALL NOT EXCEED** \$6,272,500; any overruns and project costs will be absorbed by the construction manager at risk as is to be specified in the project contract documents, and the City of Troy will not authorize or pay for any costs overruns associated with this project beyond \$6,272,500; and

BE IT FURTHER RESOLVED, That the award is **CONTINGENT UPON** consultants' submission of properly executed proposal and contract documents, including agreements, insurance certificates and all other specified requirements; and

BE IT FINALLY RESOLVED, The Mayor and City Clerk are **DIRECTED** to execute the agreements once in acceptable form as approved by the Michigan Department of Transportation.

Yes: Campbell, Fleming, McGinnis, Slater

No: Daniels, Henderson, Tietz

**MOTION CARRIED**

The meeting **RECESSED** at 8:23 PM.

The meeting **RECONVENED** at 8:33 PM.

**D. PUBLIC COMMENT:**

Nowakowski, Anthony	Spoke in opposition of the Transit Facility.
Carrigan, Rob	Spoke in opposition of the Transit Facility.

Vert, John	Spoke about the Troy Chamber of Commerce and ALOeTERRA.
Beck, Paul	Spoke in opposition of the Transit Facility.
Reinhardt, Marvin	Spoke on various topics.
Peters, Richard	Spoke on various topics.
Wilsher, Cynthia	Spoke in support of the Transit Facility.
Bernardi, Mary Ann	Spoke about various topics.
Fair, Daniel G.,	Complimented the City of Troy for being the Safest City in Michigan.
Yagley, Barbara	Spoke in opposition of the Transit Facility.
Femminineo, Charlene	Spoke in opposition of the Transit Facility.
Graczyk, Ed	Spoke in opposition of the Transit Facility.
Hodges, Michele	Spoke in support of the Transit Facility.
Bloomingtondale, Bruce	Thanked Council Members Fleming & Slater for their due diligence and vote in support of the Transit Facility.
Lauve, John	Spoke in opposition of the Transit Facility.
Witz, Jonathan	Spoke in support of the Transit Facility.
Delaforte, Antoine	Spoke in opposition of the Transit Facility.
Binkowski, James	Spoke in opposition of the Transit Facility.
Kajma, Linda	Spoke in support of the Transit Facility.
McMasters, Bill	Spoke on behalf of Taxpayers United in opposition of the Transit Facility.
Davish, Andrew	Spoke in support of the Transit Facility.
Martin, Susan	Thanked Council Members Fleming & Slater for their due diligence and vote in support of the Transit Facility.
Cherasaro, Nicholas	Spoke in opposition of the Transit Facility.
Hodorek, Ellen	Spoke of City Manager and his outstanding leadership.

### E. ADJOURNMENT:

The meeting adjourned at 9:41 PM.

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Mayor Janice Daniels

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M. Aileen Bittner, CMC  
City Clerk

# Troy Multi-Modal Transit Facility

Planning  
Commission  
Study Session  
03-27-12



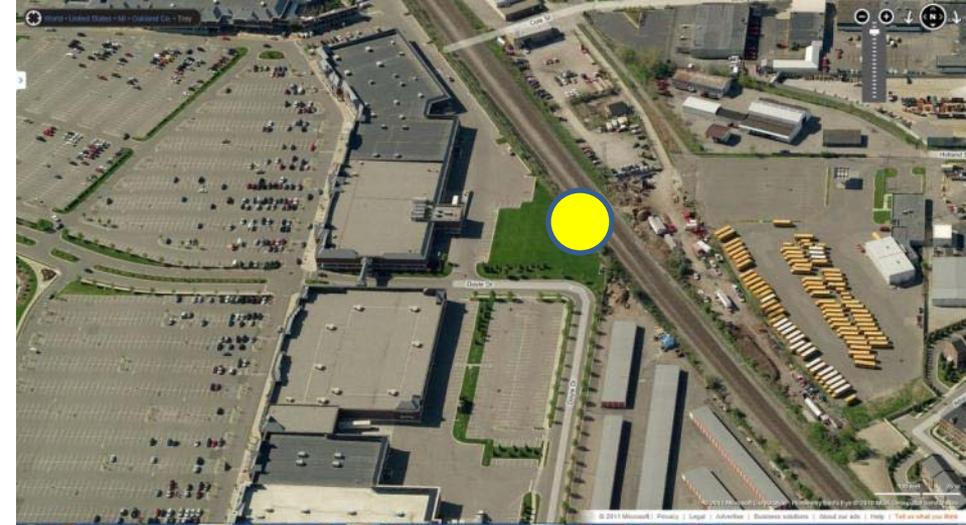
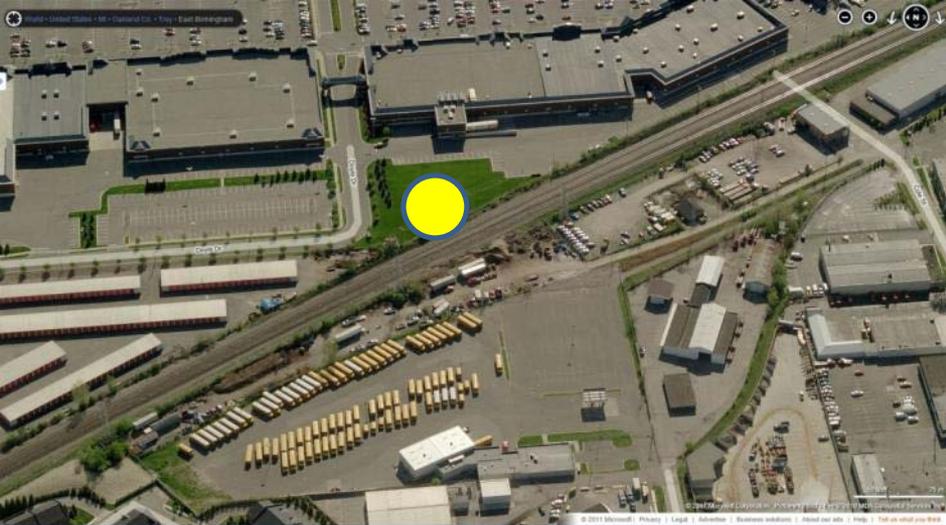
HUBBELL, ROTH & CLARK, INC  
Consulting Engineers



GRISSIM  
METZ ASSOCIATES  
ANDRIESE



Aerial View looking Northwest showing Transit Oriented Development Districts flanking the C.N. Railroad and adjacency to Downtown Birmingham & Somerset Collection



Looking East

Looking South

Looking West

# Bird's Eye Aerial Site Photos

# WOLVERINE SERVICE AND BLUE WATER

Wolverine	Wolverine	Blue Water	Wolverine	◀ Train Name ▶				Wolverine	Blue Water	Wolverine	Wolverine	
<b>350</b>	<b>352</b>	<b>364</b>	<b>354</b>	◀ Train Number ▶				<b>351</b>	<b>365</b>	<b>353</b>	<b>355</b>	
Daily	Daily	Daily	Daily	◀ Normal Days of Operation ▶				Daily	Daily	Daily	Daily	
				◀ On Board Service ▶								
Read Down				Mile	▼		Symbol	▲	Read Up			
7 30A	12 16P	4 10P	6 00P	0	Dp	Chicago, IL—Union Station (CT)	● & QT	Ar	11 24A	11 59A	4 16P	11 03P
L7 55A	L12 41P			16	↓	Hammond-Whiting, IN	○ & ♿	▲			L3 23P	L10 23P
	L1 22P		L7 03P	52	↓	Michigan City, IN (CT)	○	▲				9 38P
9 49A		6 23P	8 16P	62	↓	New Buffalo, MI (ET)	○			11 34A	3 43P	10 25P
10 14A	2 57P	6 51P	8 43P	89	↓	Niles, MI (South Bend)	● & ♿			11 09A	3 19P	10 00P
10 25A		7 03P		102	↓	Dowagiac, MI	○ & ♿			10 54A		9 47P
11 00A	3 43P	7 42P	9 32P	138	↓	Kalamazoo, MI ♿ Traverse City, St. Ignace—see back	● & QT	Ar	9 50A	10 23A	2 36P	9 18P
11 30A	4 13P		10 02P	160	Ar	Battle Creek, MI	● & QT	Dp	9 19A	9 54A	2 06P	8 48P
♿ 62 12 00N		8 17P	♿ 62 11 15P	208	Dp	East Lansing, MI	● & QT	Ar	▲		♿ 62 12 15P	♿ 62 12 30P
♿ 62 1 20P		9 29P	♿ 62 12 30A	238	↓	Durand, MI	○ & QT	▲		8 28A	♿ 62 12 15P	♿ 62 5 40P
		10 15P		256	↓	Flint, MI	● & ♿	▲		7 47A		
♿ 62 2 55P		10 40P	♿ 62 1 30A	274	↓	Lapeer, MI	○ & ♿			7 11A	♿ 62 11 05A	♿ 62 3 50P
		11 09P		319	Ar	Port Huron, MI	● & QT*	Dp		6 45A		
	▼	12 11A		184	Dp	Albion, MI	○	Ar		6 00A		
	↖ 4 41P			205	↓	Jackson, MI	● & QT	Ar			↖ 1 33P	
12 20P	5 05P		10 52P	243	↓	Ann Arbor, MI	● & QT	Ar	8 24A		1 10P	7 53P
1 04P	5 45P		11 32P	271	↓	Greenfield Village, MI <sup>63</sup>	○	Ar	7 48A		12 29P	7 17P
L1 35P	L6 19P		L11 59P	273	↓	Dearborn, MI	● & QT	Ar				
L2 08P	L6 46P		L12 30A	281	Ar	Detroit, MI	● & QT	Dp	7 11A		11 50A	6 40P
				292	Dp	Royal Oak, MI	○ QT	Ar	6 48A		11 23A	6 18P
L2 32P	L7 10P		L12 54A	296	↓	Birmingham, MI	○	Ar	6 45A		11 20A	6 15P
L2 40P	L7 17P		L1 01A	304	Ar	Pontiac, MI (ET)	○ & ♿	Dp	6 25A		11 02A	5 55P
3 07P	7 45P		1 31A						6 18A		10 54A	5 48P
									6 05A		10 40A	5 35P

Troy, MI

Northbound trains arrive in Troy, MI 02:40 PM, 07:17 PM & 01:01 AM

Southbound trains leave Troy, MI 06:18 AM, 10:54 AM & 05:48 PM

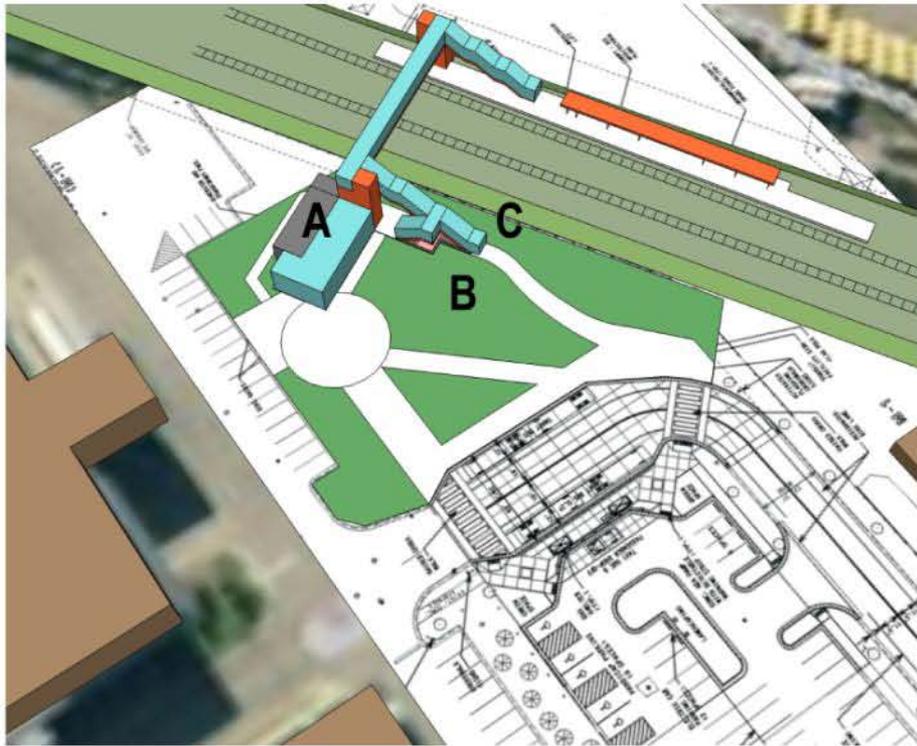
Current 2011 Amtrak Services serving Birmingham & Troy, MI

- 1 Building Façade Articulation
- 2 Identifiable Building Entrance
- 3 Create a Sense of Arrival
- 4 Visual Interest with Human Scale Elements
- 5 Transition Feature Between Building and Platform
- 6 Cost Effective, Sustainable Design Features

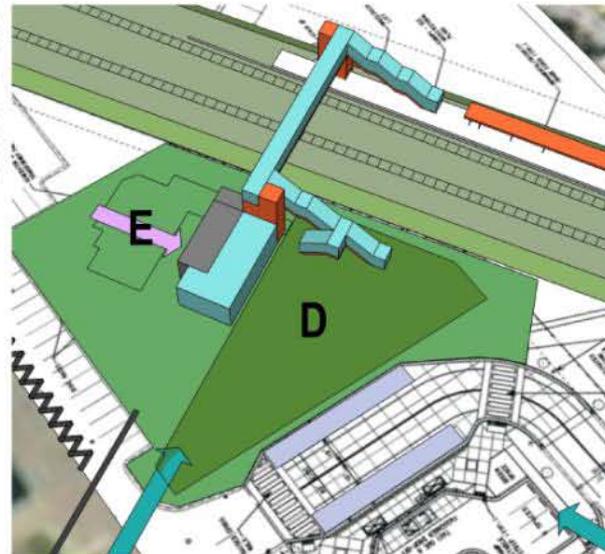
**Design Opportunites**

**BUILDING LOCATION SHIFT**

- A. Current proposed location of the transit center building consisting of a public waiting area, restrooms, storage, and mechanical room.
- B. Current landscape and hardscape area (previously incorporated a sidewalk ramp sloped down to the pedestrian tunnel to Birmingham).
- C. Stair element for access to pedestrian bridge.
- D. Forecourt area could be reduced with the elimination of the long sidewalk ramp, creating a more intimate and accessible building entry zone.
- E. Building could shift north to define the forecourt edge and reduce walking distance to building entry.



Current Building and Site Design (Preliminary Design - 40% Level)



Building Location Shift Alternative

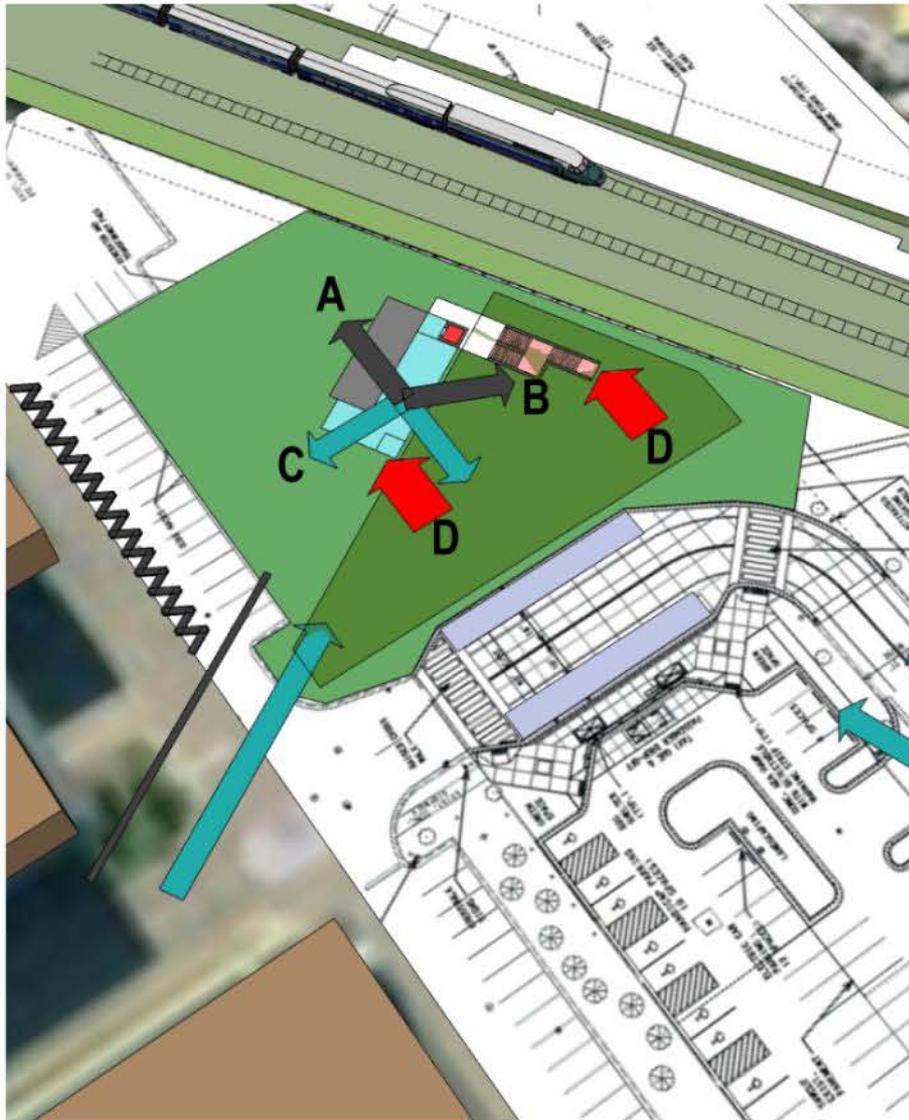
# City of Troy

## Multi-Modal Transit Facility

### Design Opportunities

#### BUILDING INTERIOR SPACE LAYOUT

- A. The placement of the building core prevents views to the south of the train tracks.
- B. The placement of the stair element prevents views to the north of the train tracks.
- C. The layout of the lobby allows for direct views into the loading area of the shopping center.
- D. The building has multiple entry points.



Current Building Design Interior Layout

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

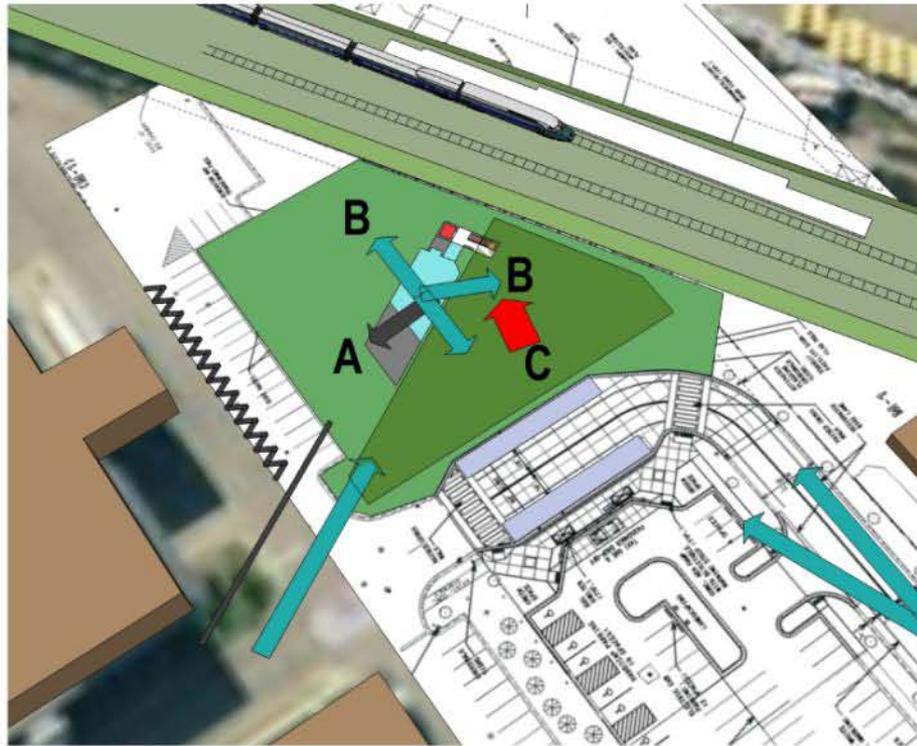
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METZ  
ANDRIESE

NEUMANN  
SMITH

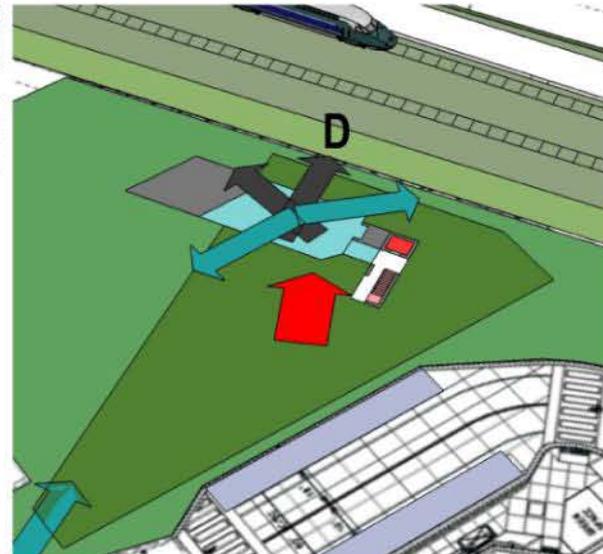
### Design Opportunitites

#### BUILDING INTERIOR SPACE LAYOUT & ALTERNATE POSITION ON SITE

- A. Rotation of the building core creates visual buffer to shopping center loading area.
- B. Lobby layout now allows views to on-coming trains from the north and south.
- C. Building has one primary entry point.
- D. Alternative plan rotates the building such that it is parallel to train tracks. We believe that this compromises the overall project design in that the views from the lobby are directly into the 7 feet high earth berm supporting the train tracks. views in the other direction are toward the shopping center loading dock, the building no longer "fronts" those approaching it from the parking lot/drop-off area, nor does it define the outdoor public space.



Building Interior Layout Modification Alternative

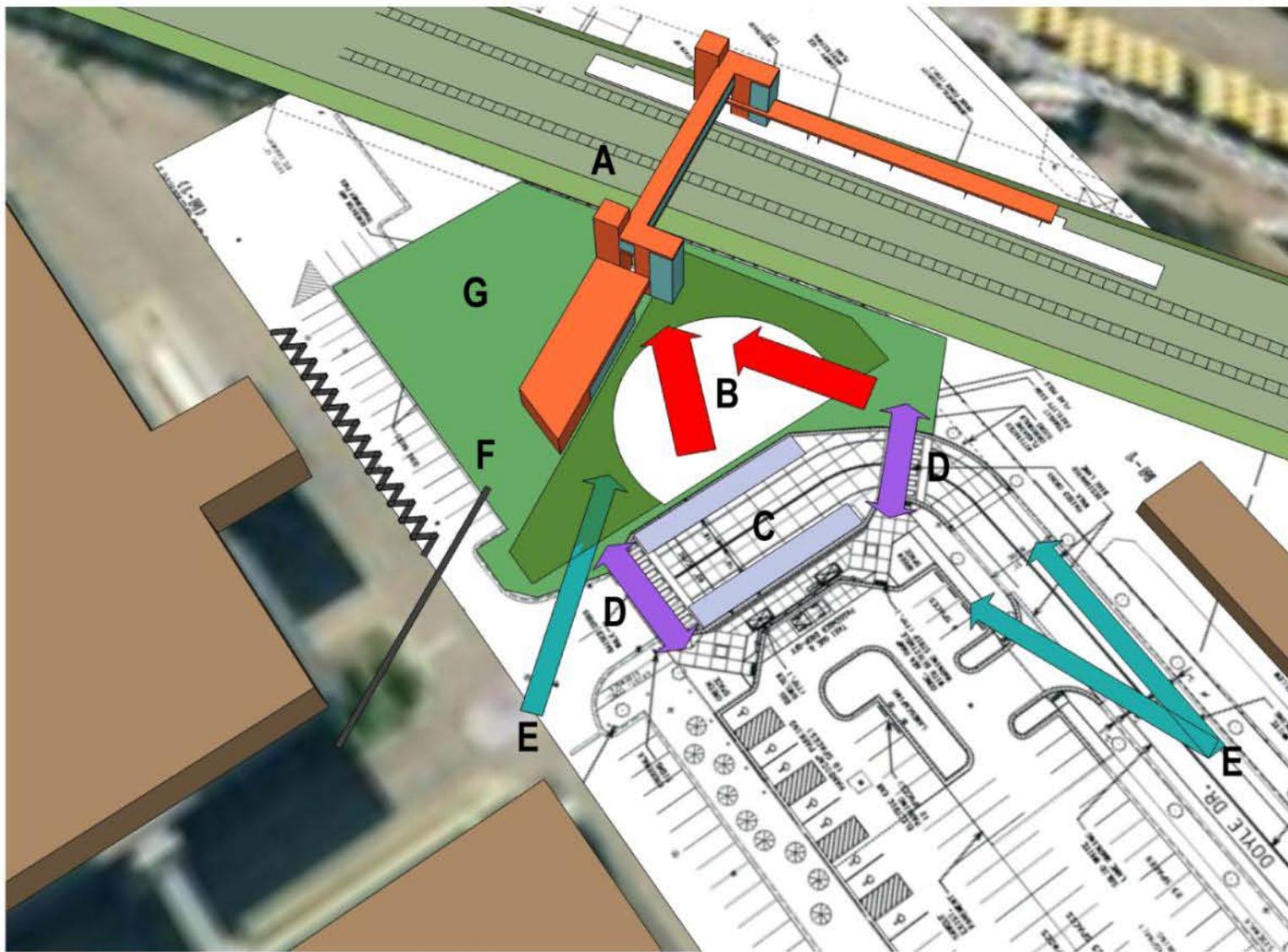


Building Orientation Alternative - Parallel to Train Track

**Design Opportunities**

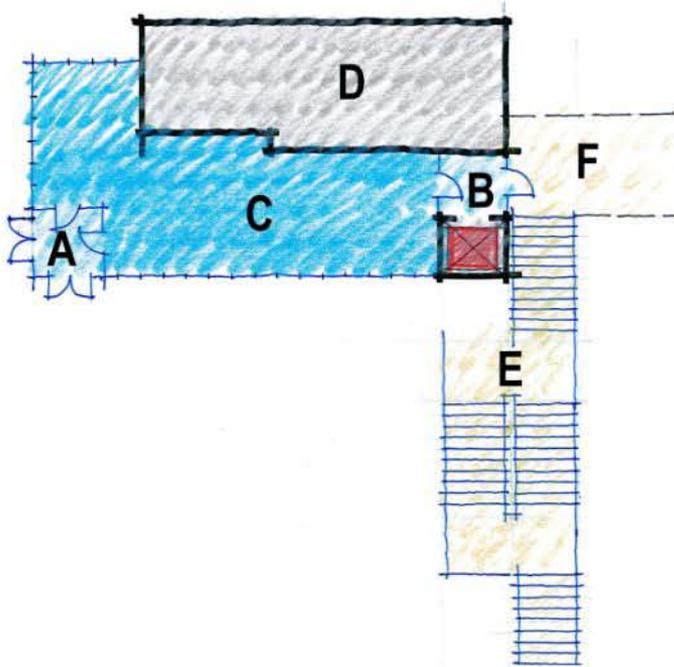
**BUILDING FORM & ENTRY PLAZA**

- A. Simple building form, stair/elevator towers, and platform canopy.
- B. Defined public entry plaza.
- C. Drop-off area
- D. Pedestrian crossing zones
- E. Prominent views to building from Doyle Drive.
- F. Building position minimizes view into shopping center loading area.
- G. Maximized greenspace pervious area and geothermal field location.

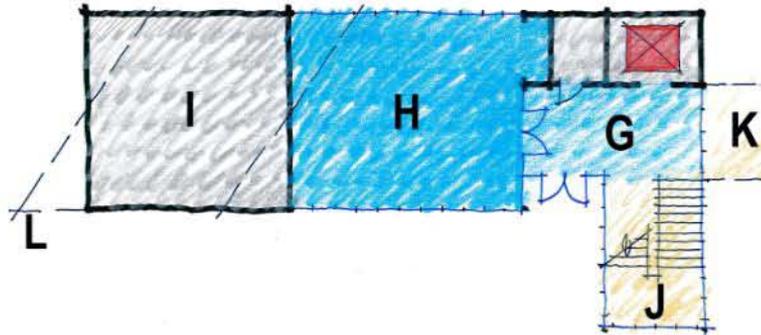


Site Layout and Building Form

**Design Opportunites**



Current Building Design Floor Plan



Proposed Floor Plan Design Opportunities

**INTERIOR SPACE LAYOUT**

Current Building Design Floor Plan

- A. Entrance Vestibule
- B. After-Hours Entrance Vestibule
- C. Lobby/Waiting Area
- D. Building Support Spaces
- E. Stair to Bridge
- F. Bridge (above)

**Proposed Floor Plan Design Opportunities**

The suggested floor plan changes improve visibility out from the lobby/waiting area as well as intuitive way-finding for transit center users without increasing the total building floor area, cost, or schedule.

- G. One Common Vestibule
- H. Lobby/Waiting Area
- I. Building Support Spaces
- J. Stair to Bridge
- K. Bridge (above)

L. Building support area shape could be manipulated to increase the façade length and visibility of the building with east wall corresponding to the orientation of the shopping center.

# City of Troy

## Multi-Modal Transit Facility

### Design Opportunities

#### ARCHITECTURAL CHARACTER AND EXPRESSION

**NeumannSmith Architecture** - we philosophically believe that the architectural character and expression of a building should be unique to the site, its context, and the vision of our clients. The following shows a variety of architecture styles in our work that were designed to meet the unique visions and goals of our clients.

- A Macomb Community Recreation Center (Traditional)
- B Livonia 52nd District Court (Traditional)
- C AAA Birmingham Branch Office (Transitional)
- D Livonia Community Recreation Center (Modern)
- E Oakland County International Airport (Modern)

#### Design Workshop

F We embrace the design workshop approach to work with our clients to understand the issues and make informed decisions.

#### Troy Transit Center

What is the appropriate architectural character and expression for the Troy Transit Center? There are many correct answers and together we will find the appropriate response befitting of the City of Troy.

- G. Historic  
Should the building be representative of the train stations of the past?
- H. Contexture  
Should the building be viewed as part of the shopping mall campus?
- I. Branding of Troy  
Should the building be representative of the unique character of the architecture of the greater Troy community?

**HRC**  
HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

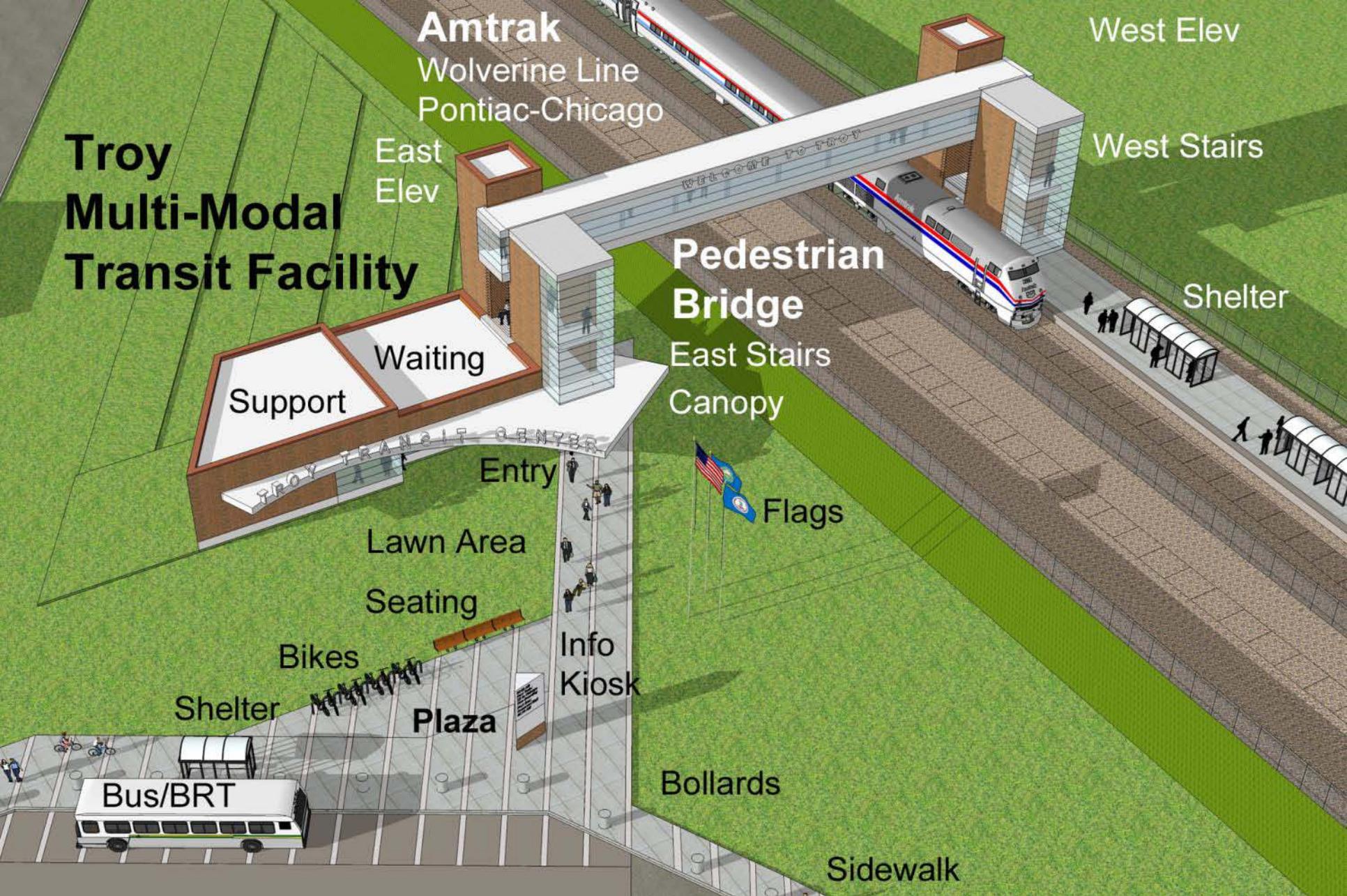
**GRISSIM  
METZ  
ANDRIESE**

**NEUMANN  
SMITH**





Aerial View looking South



# Troy Multi-Modal Transit Facility

Amtrak  
Wolverine Line  
Pontiac-Chicago

West Elev

East Elev

West Stairs

Pedestrian Bridge  
East Stairs  
Canopy

Shelter

Support  
Waiting

TROY TRANSIT CENTER  
Entry

Flags

Lawn Area  
Seating

Info Kiosk

Bikes

Shelter

Plaza

Bus/BRT

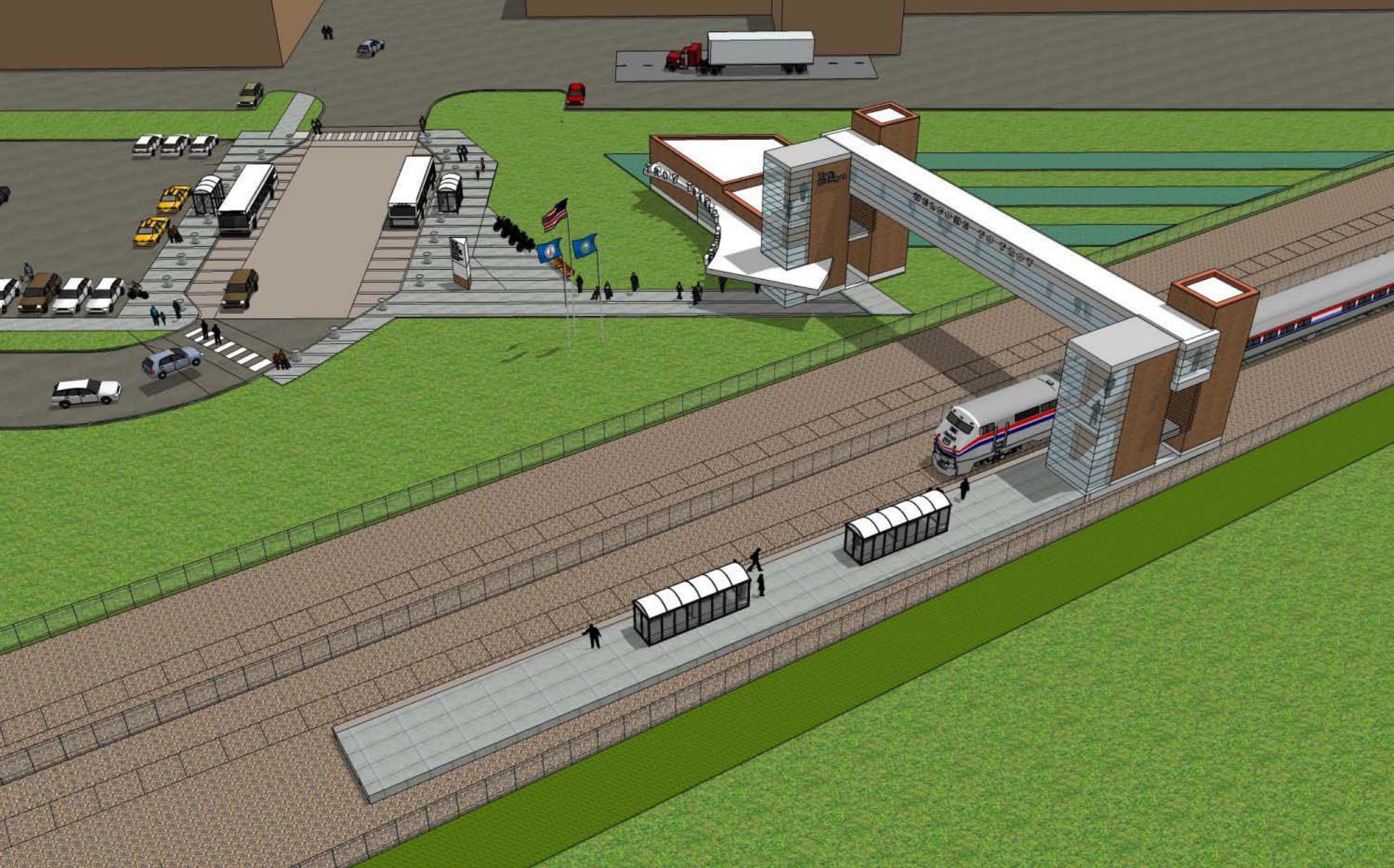
Bollards

Sidewalk

Enlarged Aerial View looking South



Aerial View of Stairs, Elevators and Bridge looking West



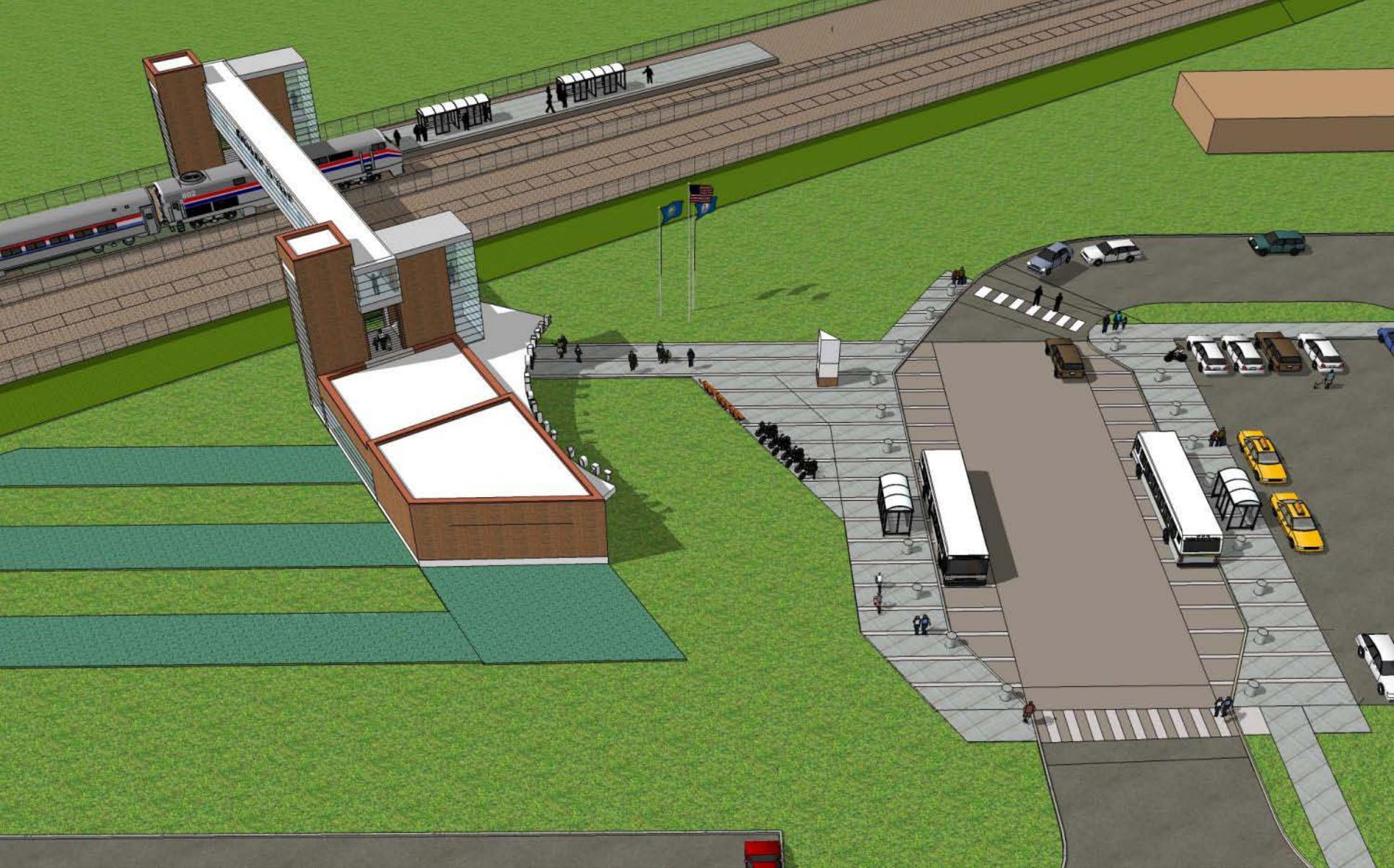
Aerial View looking East



Aerial View looking Northeast



Aerial View looking North



Aerial View looking West



Eye Level View looking West from WB Doyle Drive



Eye Level View looking West at South Bus Shelter



Eye Level View looking Southeast at North Bus Shelter



Eye Level View looking West at Building Sign and Lawn Area



Eye Level View looking South at Taxi Area and Plaza



Eye Level View looking South at Parking Lot Sidewalk



Eye Level View looking Southwest at Crosswalk



Eye Level View looking Southeast at Crosswalk and Plaza



Eye Level View looking South at Plaza



Eye Level View looking South at Information Kiosk



Eye Level View looking South from SB Doyle Drive



View of Train Platform and Canopies looking Southeast



Eye Level View looking East at Stairs and Bridge from Train Platform



View looking East at East Stair Landing and Bridge (above)



Eye Level Sectional View looking East into Bridge



Eye Level View looking North from Arriving NB Trains



Eye Level View looking Northwest from Parking Lot behind the Market



Eye Level View looking South at Plaza



Eye Level Rendered View looking West



Enlarged Eye Level Rendered View of Entry Plaza looking West



Welcome to Troy, Michigan...**The City of Tomorrow, Today**



- 1 Building Façade Articulation
- 2 Identifiable Building Entrance
- 3 Create a Sense of Arrival
- 4 Visual Interest with Human Scale Elements
- 5 Transition Feature Between Building and Platform
- 6 Cost Effective, Sustainable Design Features