

US EPA ARCHIVE DOCUMENT

land revitalization

Region 5 Land Revitalization Technical Assistance Project

GREEN BUILDING AND HISTORIC PRESERVATION CASE STUDIES FOR MOLINE MULTI-MODAL STATION PROJECT (5 OF 5)

EPA provided technical assistance support to the City of Moline, Illinois in the areas of green building and historic preservation for the Moline Multi-Modal Station Project. This assistance was intended to strengthen the HUD-DOT-EPA Partnership for Sustainable Communities by providing the City of Moline access to technical resources and expertise. EPA's technical assistance activities focused on the development of five case studies on the renovation of existing/historic structures to meet Leadership in Energy and Environmental Design (LEED) standards for multi-modal transportation projects, where possible. These five case studies were presented at the Moline Developer Workshop held on October 18, 2011. This is the fifth case study in the series.

WABASH STATION COLUMBIA, MISSOURI

Project Summary

Originally opened in 1910 to serve trains, the Wabash Station is now the main hub of transit in Columbia, Missouri with fixed and paratransit bus systems. In 1979, the station had been sitting unused for a decade when the city bought it and the adjacent seven acres for \$250,000. In 1982, Columbia began using Wabash Station as a bus depot. Plans to restore the building began in late 1998.

Renovations and expansion were completed in 2007. They included the addition of a new administrative annex, an expanded waiting area in the historic depot, a covered walkway, and artwork created by local artists as part of the city's Percent for Art Project, a fifteen year old program which allocates one percent of every project cost to incorporate site specific art.

Historic Features

Historic renovations of Wabash Station included:

- Restoration of the clay roof
- Repointing and cleaning of the limestone exterior
- Renewal of historic millwork including windows and doors

Green Features

Using the U. S. Green Building Council metric system of Leadership in Energy and Environmental Design (LEED) v. 2.1, the project accomplished 28 out of 69 points to be LEED Certified.



Covered walkway and passenger waiting area
(Source: 360 Architecture)

Project Description

Elements: Transit, Historic, Green

Size of Community Served:

- Boone County 2010 = 162,642
- Within 50 Miles = 903,465

Current Owner: City of Columbia, MO

Square Footage: 2,900 sq.ft. Renovation; 1,600 sq.ft. Addition; 3,900 sq.ft. New Bus Canopy

Original Construction Date: 1910

Historic Designation: National Register of Historic Places, 1979

Project Completion Date: 2007

Construction Cost: \$2.5 Million

LEED or Other Green Certification: LEED Certified



Expanded lobby featuring public artwork (Source: 360 Architecture)

The LEED system recognizes projects based on the number of total points received. Under LEED v. 2.1, 26 to 32 points were required to meet the Certification level. Sustainability efforts focused on:

- Remediating the site's soil
- Implementing smart building technologies
- Conserving water through landscaping and plumbing solutions
- Diverting 75% of construction waste from landfills

Challenges and Solutions

Both the stewardship of the existing building and the implementation of sustainable strategies added complexity to the project even when not adding cost. Typical of many historic projects, finding space and routing for the new mechanical systems and distribution ducts was challenging. Restoration of the windows and millwork, cleaning and repainting of masonry and

installing new roofing felt while salvaging and reinstalling the clay roofing tiles required finding local craftsman with these skills and expertise. The use of materials with recycled content, reclaimed materials and materials manufactured and sourced locally required extra diligence from the design and construction teams.

Partnerships and Funding Strategies

The lead agency for the project was the City of Columbia, specifically its public works department. The city worked with Senator Kit Bond to get an earmark for the funding and with the Federal Transit Administration (FTA) to administer the grant once funding had been secured. There was no private source of funding. There were two sources of federal funding: one by way of an enhancement grant through the Federal Highway Administration (subsequently reassigned to the FTA for project administration); and the other (the majority of federal funding) by way of the earmark from Senator Bond. The 20% local match for the project came from a local transportation sales tax.

Restoration and redevelopment planning was completed with guidance and oversight from the FTA and the State Historic Preservation Office (SHPO), which the Advisory Council on Historic Preservation had deferred to. A memorandum of understanding was prepared and agreed to by the City Council, the SHPO, and the FTA.

Once funding and oversight agreements were in place, contracts for design, development and ultimately, construction could be secured. In 2006, with \$2.37 million in federal transportation funding, the city contracted with Jefferson City-based Sircal Contracting Inc. to refurbish and expand the bus depot. The FTA continued their oversight through on- and off-site (paperwork review) inspections.

The original structure—from its clay tile roof to its limestone foundation—were all beautifully restored. On July 16, 2010, Columbia celebrated the 100th birthday of the historic building.



Project renderings provide aerial views (Source: 360 Architecture)

Costs Attributed to Historic Character

The building required masonry repointing, lead and asbestos abatement, replacement of roofing felts, and other repairs and improvements. There were minor added costs for window and door restoration due to the historic significance of the wood trim.

Costs Attributed to LEED

The project team estimated an increased construction cost of 3% to meet the LEED certification, which is a city goal for all public buildings. The design team was also compensated for the additional effort in documenting the certification process.

Many of the features needed for the LEED certification, such as erosion and sedimentation control and alternate transportation did not add cost to the project. Items identified as adding cost included:

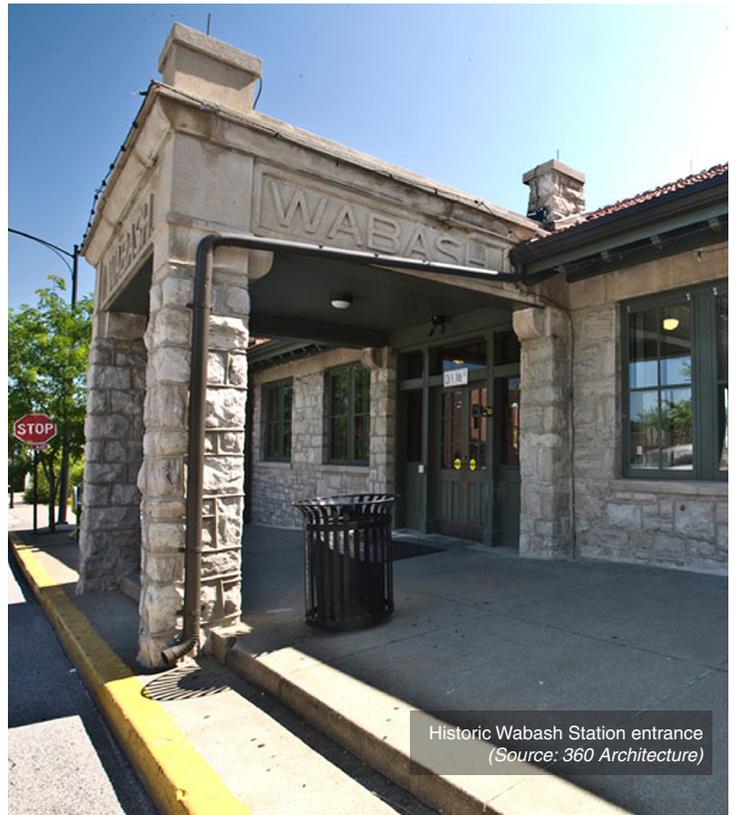
- Using concrete pavement in lieu of asphalt to reduce heat islands
- Use of hands free and low flow plumbing fixtures to reduce water use
- Implementing Building System Commissioning during design and construction
- Installing a premium high efficiency heating, ventilation, air conditioning (HVAC) system, lighting controls and continuous monitoring to reduce operational energy
- Restoring and de-leading windows and making them operable
- Collection and pickup of recyclable materials

Project Effect on Neighborhood

Since the Wabash Station was already utilized as a bus station and a surface parking lot, there was no change in use. Nor did the project include any increase in auto or bus traffic, so there was no negative impact on the surrounding neighborhood.

There has been no tracking of jobs created or tax base increases as a result of this project, but anecdotally it appears to have triggered an overall redevelopment of the area. Once the city invested heavily in this property, a number of private developers made significant investments in several properties on three sides of the site.

The city believes that by requiring LEED certification, health and environmental benefits are gained by the entire community in terms of decreased toxicity of materials and natural stormwater filtration, and reduced energy use.



Historic Wabash Station entrance
(Source: 360 Architecture)

“It’s fitting that one of the oldest buildings in Columbia was the first to achieve LEED status.”

—Mayor Bob McDavid quoted July 17, 2010, in the Columbia Daily Tribune, on the centennial celebration of Wabash Station

Sources for Additional Information

For more information on this restoration project, please see the Wabash Station website: www.gocolumbiamo.com/PublicWorks/Transportation/wabash-station.php.

Project Contact

For more information on the Wabash Station restoration, please contact:

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Columbia Wabash

Yes ? No

5 **9** **Sustainable Sites** **14 Points**

Item #	Discipline	Yes	?	No	Requirement	Points
1	Civil	Y			Prereq 1 Erosion & Sedimentation Control	Required
2	Civil	1			Credit 1 Site Selection	1
3				1	Credit 2 Development Density	1
4	Civil/Arch			1	Credit 3 Brownfield Redevelopment	1
5	Arch	1			Credit 4.1 Alternative Transportation , Public Transportation Access	1
6	Civil/Arch			1	Credit 4.2 Alternative Transportation , Bicycle Storage & Changing Rooms	1
7	Arch	1			Credit 4.3 Alternative Transportation , Alternative Fuel Vehicles	1
8	Civil	1			Credit 4.4 Alternative Transportation , Parking Capacity and Carpooling	1
9				1	Credit 5.1 Reduced Site Disturbance , Protect or Restore Open Space	1
10	Civil			1	Credit 5.2 Reduced Site Disturbance , Development Footprint	1
11	Civil			1	Credit 6.1 Stormwater Management , Rate and Quantity	1
12	Civil			1	Credit 6.2 Stormwater Management , Treatment	1
13	Civil/Arch	1			Credit 7.1 Landscape & Exterior Design to Reduce Heat Islands , Non-Roof	1
14				1	Credit 7.2 Landscape & Exterior Design to Reduce Heat Islands , Roof	1
15	MEP			1	Credit 8 Light Pollution Reduction	1

Yes ? No

3 **2** **Water Efficiency** **5 Points**

Item #	Discipline	Yes	?	No	Requirement	Points
16	Landscape	1			Credit 1.1 Water Efficient Landscaping , Reduce by 50%	1
17	Landscape	1			Credit 1.2 Water Efficient Landscaping , No Potable Use or No Irrigation	1
18	MEP			1	Credit 2 Innovative Wastewater Technologies	1
19	MEP	1			Credit 3.1 Water Use Reduction , 20% Reduction	1
20	MEP			1	Credit 3.2 Water Use Reduction , 30% Reduction	1

Yes ? No

4 **1** **11** **Energy & Atmosphere** **17 Points**

Item #	Discipline	Yes	?	No	Requirement	Points
21	MEP	Y			Prereq 1 Fundamental Building Systems Commissioning	Required
22	MEP	Y			Prereq 2 Minimum Energy Performance	Required
23	MEP	Y			Prereq 3 CFC Reduction in HVAC&REquipment	Required

24	MEP	2		7	Credit 1 Optimize Energy Performance	1 to 10
25				1	Credit 2.1 Renewable Energy , 5%	1
26				1	Credit 2.2 Renewable Energy , 10%	1
27				1	Credit 2.3 Renewable Energy , 20%	1
28				1	Credit 3 Additional Commissioning	1
29	MEP	1			Credit 4 Ozone Depletion	1
30	MEP	1			Credit 5 Measurement & Verification	1
31	BUY		1		Credit 6 Green Power	1

Yes ? No

6 **7** **Materials & Resources** **13 Points**

32	Arch	Y			Prereq 1 Storage & Collection of Recyclables	Required
33	Arch			1	Credit 1.1 Building Reuse , Maintain 75% of Existing Shell	1
34	Arch			1	Credit 1.2 Building Reuse , Maintain 100% of Shell	1
35				1	Credit 1.3 Building Reuse , Maintain 100% Shell & 50% Non-Shell	1
36	Arch	1			Credit 2.1 Construction Waste Management , Divert 50%	1
37	Arch	1			Credit 2.2 Construction Waste Management , Divert 75%	1
38	Arch			1	Credit 3.1 Resource Reuse , Specify 5%	1
39				1	Credit 3.2 Resource Reuse , Specify 10%	1
40	Arch	1			Credit 4.1 Recycled Content , Specify 5% (post-consumer + ½ post-industrial)	1
41	Arch	1			Credit 4.2 Recycled Content , Specify 10% (post-consumer + ½ post-industrial)	1
42	Arch	1			Credit 5.1 Local/Regional Materials , 20% Manufactured Locally	1
43	Arch	1			Credit 5.2 Local/Regional Materials , of 20% Above, 50% Harvested Locally	1
44	Arch			1	Credit 6 Rapidly Renewable Materials	1
45	Arch			1	Credit 7 Certified Wood	1

Yes ? No

13 **2** **Indoor Environmental Quality** **15 Points**

46	MEP	Y			Prereq 1 Minimum IAQ Performance	Required
47	MEP	Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control	Required
48	MEP	1			Credit 1 Carbon Dioxide (CO₂) Monitoring	1
49				1	Credit 2 Ventilation Effectiveness	1

50	Arch	1			Credit 3.1 Construction IAQ Management Plan , During Construction	1
51	Arch	1			Credit 3.2 Construction IAQ Management Plan , Before Occupancy	1
52	Arch	1			Credit 4.1 Low-Emitting Materials , Adhesives & Sealants	1
53	Arch	1			Credit 4.2 Low-Emitting Materials , Paints	1
54	Arch	1			Credit 4.3 Low-Emitting Materials , Carpet	1
55	Arch	1			Credit 4.4 Low-Emitting Materials , Composite Wood & Agrifiber	1
56	Arch/MEP	1			Credit 5 Indoor Chemical & Pollutant Source Control	1
57	MEP	1			Credit 6.1 Controllability of Systems , Perimeter	1
58	MEP	1			Credit 6.2 Controllability of Systems , Non-Perimeter	1
59	MEP	1			Credit 7.1 Thermal Comfort , Comply with ASHRAE 55-1992	1
60				1	Credit 7.2 Thermal Comfort , Permanent Monitoring System	1
61	MEP	1			Credit 8.1 Daylight & Views , Daylight 75% of Spaces	1
62	Arch	1			Credit 8.2 Daylight & Views , Views for 90% of Spaces	1

Yes ? No

1 2 2 Innovation & Design Process 5 Points

63	HP		1		Credit 1.1 Innovation in Design:	1
64	BUY		1		Credit 1.2 Innovation in Design:	1
65				1	Credit 1.3 Innovation in Design:	1
66				1	Credit 1.4 Innovation in Design:	1
67		1			Credit 2 LEED™ Accredited Professional	1

Yes ? No

32 3 33 Project Totals (pre-certification estimates) 69 Points

Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points

- Points contingent on the contractor's participation in the process
- Points declined by the city through the design process.