

Maximizing Demolition Waste Diversion Using Market Based Incentives

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The Project

700 W. Beardsley Avenue
Elkhart, Indiana

- Formerly known as the Walter Piano Building
- Constructed in late 1800's
- Originally used as a carriage and harness manufacturing plant from 1892 to 1915
- Made the ELCAR automobile from 1915 to 1930's
- Used for various manufacturing and warehouse uses to about 2004



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The Project

700 W. Beardsley Avenue Elkhart, Indiana

- Multi-level structure with portions four stories including an elevator shaft extending to five stories– total sq ft was 164,238
- A portion of the building (12,760 sq ft) had been damaged by fire
- Steel columns and wood beams on first two floors
- Wood columns and wood beams on top two floors
- Wood interior construction with brick and cinderblock exterior
- Building condemned and considered a public hazard
- Local neighborhood organization active and concerned about public safety aspects of the project, evidence of gang and drug activity



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Barriers to recycling

- Asbestos material present in many parts of the building
- All brick and cinderblock contaminated with lead based paint
- Building structure compromised due to lack of maintenance of roof
- Public safety necessitated a quick demolition



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Asbestos

- Met with IDEM to discuss project and asbestos removal– denied request to flyspeck the asbestos from the demolition material– added cost
- Unsafe access prevented inspection and removal of asbestos prior to demolition
- Keller Engineering structural survey identified safe areas
- Almost all asbestos found in safe areas (luck)
- Asbestos removed at a cost of \$111,300– saving owner significant \$



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Contaminated Brick

- Interlocal agreement between Owner and Elkhart County Landfill transfers to contractor
- Elkhart County Landfill waived tipping fees for contaminated brick for reuse as onsite roadway bed
- Contractor developed a new tool (Brick Pick) to improve separation of contaminated brick from trash and increase reach to upper floors



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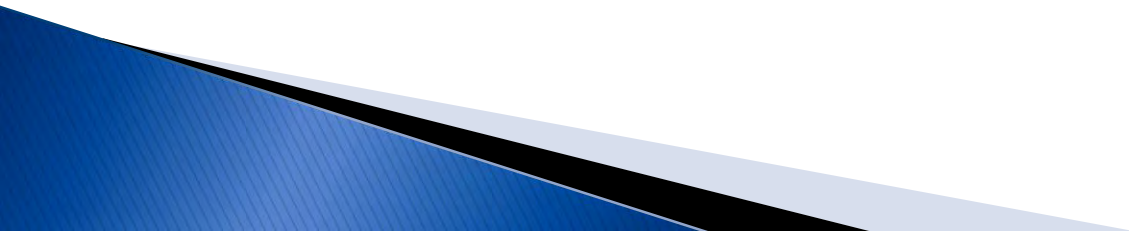
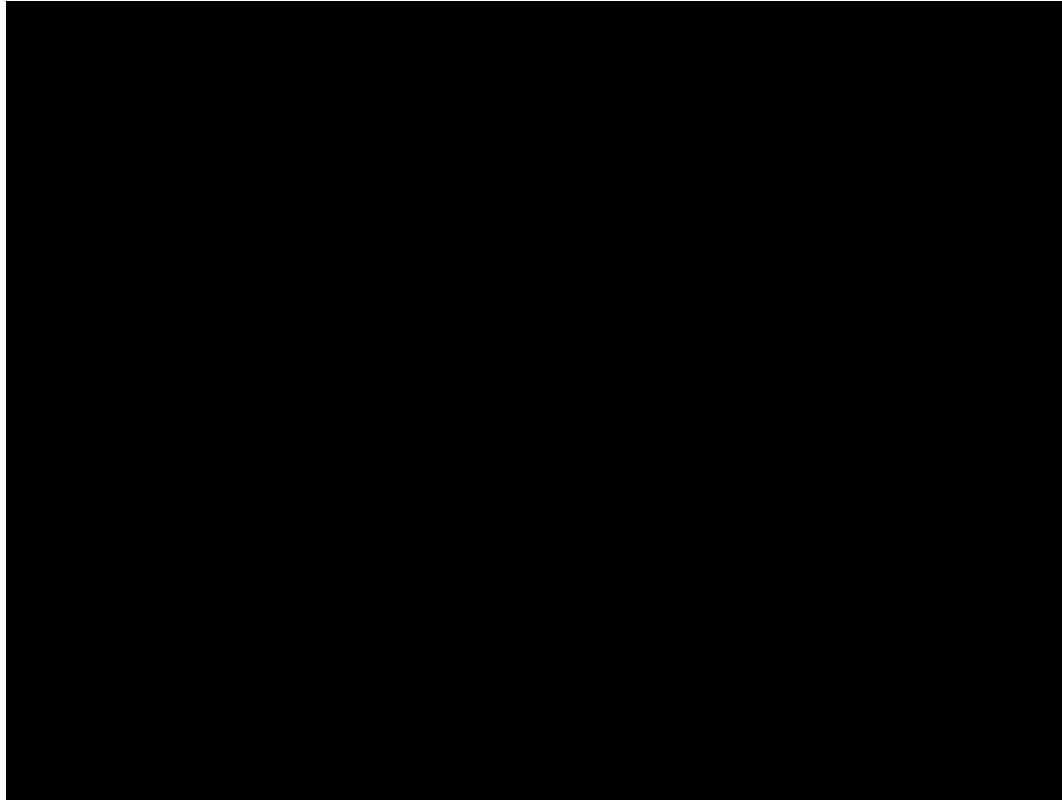
The Brick Pick

Designed and Built by Indiana Earth



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Brick Pick in Operation



Recycling of Demolition Debris

- Contractor was paid lump sum basis for demolition
- Contractors cost was reduced segregation of contaminated brick from trash
- Tracked tonnage– providing for good metrics
- Salvage of legacy items by Elkhart Upcycle also provided a pathway for reuse of items with historical value.



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Example of On Site Segregation



Public Concerns

- Met with neighborhood organization to advise of plans and receive their input
- Set up a web site to provide public with weekly blog and pictures of site
- Extensive use of water to reduce dust
- Minimized road closures to reduce impact on motoring public & nearby businesses
- Weekly aerials posted to show progress



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January 17



February 18



February 25



March 11



March 19



March 29



Results

Destination	tons recycled/reused	tons trash
Aggregate	824	0
Landfill	2442	1679
IN Earth	480	0
Metal	269	0
Totals	4014	1679

Total Debris	5693	tons
Recycled Debris	4014	tons
% recycled	70.51%	
Sq Ft of project	151,478	
Total Cost of project	\$373,860	
Cost per Sq Ft	\$2.47	

Project analysis done:



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Lessons Learned

- Plan a demolition project with debris pathways defined and arranged prior to bid for the difficult items (contaminated brick)
- Structural evaluation of older buildings to gain access to unsafe structures for remediation and inspection may be a good investment
- Keep the public involved and informed



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Bragging Rights

- No change orders to original scope
- Project completed under budget & ahead of schedule
- Architectural salvage by Elk River Upcycle
- All electronic plans & specs–saved the Owner time & paper
- Contractor and SWCD friendly Erosion Control Plan
- BCA proposed “trench exploration” discovered underground cistern filled with trash, underground piping & other debris
- Onsite storage tank & holding of cistern liquids for almost a month resulted in disposal of liquid into city sewer at significantly lower cost than using vector truck, while not delaying demolition



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