ABANDONED FACTORY BUILDINGS
65 MILLION TONS DEMOLITION WASTE PER YEAR
UNEMPLOYMENT EPIDEMIC

REVITALIZE COMMUNITIES by restoring unused industrial buildings
REUSE MATERIALS whenever possible
RETURN JOB OPPORTUNITIES by creating a zoned education/work complex

FACTORY JOBS
WASTE TO WORK
JOB FACTORY

MEREDITH VLAHAKIS
MASTERS PROJECT
SPRING 2010
Among the companies settled there was the Packard car company, housed in a monolithic 35 acre complex, prominently displayed along East Grand Boulevard. Packard used the plant from 1903-1957, when the company was purchased by Studebaker. Designed by Albert Kahn, these are the first buildings in Detroit to utilize reinforced concrete and fireproof masonry.

Detroit is known for its high unemployment levels and a remarkable number of unused buildings and empty lots. Located in the northwest corner of Detroit along a strip of industrial wasteland, the poverty-stricken Kettering neighborhood once thrived around automobile manufacturing jobs.
The Packard Plant once housed a grocery store, a department store and a school, in addition to the multitude of factory buildings. Most of the buildings are reinforced concrete and fireproof masonry, and still habitable. These factors allow for a sustainable readaptation of the site, and afford the program some flexibility to accommodate local needs. Once the buildings are analyzed, materials from razed buildings will be collected, sorted and used as the primary building material for a new Job Support Center / Community Center. The rest of the site will be zoned into different areas of employment. These will be determined by what amenities are currently lacking in the community that would also benefit the greater surrounding area. Special focus will be given to Business Incubation and other start-up programs to draw in new employment opportunities.

ZONE 1
RECYCLING & SORTING
Recycling centers currently located in Kettering: Zero

ZONE 2
ALTERNATIVE TRANSPORTATION LAB
Help Detroit move from Motor City to Green City

ZONE 3
EDUCATION
Kettering residents that received an Associate's degree or higher: 7.0%

ZONE 4
LOCALLY MADE
Encourage local fledgling business support

ZONE 5
URBAN AGRICULTURE
Fight the Kettering food desert

ZONE 6
JOB SUPPORT
Provide resources and services to maximize EMPLOYMENT SUCCESS
READY TO BE REUSED
Most buildings are structurally intact. Elements such as glazing and drywall would need replacing.
READY TO BE RECYCLED

Buildings that lack a roof or have collapsed will need to be razed, and are good candidates to harvest materials for the new Job Support Center. Unusual materials for design will also be noted and collected at this time. The site has been used for years as an illegal dumping ground, resulting in an interesting collection of materials to work with - tires, garage doors, even boat hulls.
ZONE 1: RECYCLING & SORTING CENTER

This zone will focus on the recycling and sorting of goods. The initial focus will be on materials collected from the site. Eventually it will serve as a drop off point for residents and a pick up point to send the processed materials out of Kettering.

First zone to launch employment with on-site job training

Instrumental to sorting and recycling the unused material collected during site clean-up

Good condition of buildings allow for immediate conversion

Highly visible location next to freeway

Multiple vehicle access points

SQUARE FOOTAGE BREAKDOWN

<table>
<thead>
<tr>
<th>Zone</th>
<th>Size</th>
</tr>
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<tbody>
<tr>
<td>R LOT</td>
<td>47,600 SF</td>
</tr>
<tr>
<td>R1</td>
<td>93,000 SF</td>
</tr>
<tr>
<td>R2</td>
<td>114,700 SF</td>
</tr>
</tbody>
</table>

TOTAL 255,300 SF
ZONE 2: ALTERNATIVE TRANSPORTATION LAB

This zone will be dedicated to the development and promotion of alternative methods of transportation, with space allocated for brainstorming, building, testing and storage. Detroit will gain a visible twist on the Motor City image, while Kettering residents benefit from the local employment opportunities.

Physical characteristics of the AT Lot - long, narrow and highly visible - make it an excellent “playground” for both testing and promotion.

Building AT1 contains a five-story ramp exiting onto the AT Lot, sturdy enough to accommodate vehicular (or other) traffic.

AT3 and AT5 are essentially warehouse spaces - a convenient storage space during non-testing hours.

SQUARE FOOTAGE BREAKDOWN

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>SQUARE FOOTAGE</th>
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<tbody>
<tr>
<td>AT LOT</td>
<td>88,800 SF</td>
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<tr>
<td>AT1</td>
<td>206,250 SF</td>
</tr>
<tr>
<td>AT2</td>
<td>15,500 SF</td>
</tr>
<tr>
<td>AT3</td>
<td>86,250 SF</td>
</tr>
<tr>
<td>AT4</td>
<td>86,250 SF</td>
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<tr>
<td>AT5</td>
<td>15,500 SF</td>
</tr>
<tr>
<td>AT6</td>
<td>88,175 SF</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>586,725 SF</strong></td>
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</tbody>
</table>
**ZONE 3: EDUCATION**

This zone will house satellite colleges, vocational schools, and educational support programs such as a GED class and testing center. Space would also be reserved for a branch of the Detroit Public Library.

Buildings are nested in a way that seem to “hug” each other, with a central circulation path around E3. Interaction and connection among the educational programs, housed in different buildings, will be promoted through their physical relation to each other.

E3 is the tallest building on site (7 stories) - it would be the most visible and act as a “flagship,” highlighting the key principle that education and job training should be intertwined.

**SQUARE FOOTAGE BREAKDOWN**

- **E1**: 91,900 SF
- **E2**: 257,750 SF
- **E3**: 210,000 SF
- **E4**: 82,800 SF
- **E5**: 210,000 SF
- **E6**: 18,200 SF

**TOTAL**: 870,650 SF
ZONE 4: LOCALLY MADE

This zone will emphasize local commerce - housing businesses unique to Detroit, businesses producing or selling products made in the area, and businesses focused on the promotion of some particular aspect of Detroit.

The buildings here on either side of Grand Avenue, the major street that cuts through the center of the site. Their high visibility serve as a “Welcome!” to Packard, suitable as this is the zone most likely to draw people in from outside Kettering.

L2 formerly housed a department store - the building is already laid out to support retail.

SQUARE FOOTAGE BREAKDOWN

<table>
<thead>
<tr>
<th>Level</th>
<th>Square Footage</th>
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</thead>
<tbody>
<tr>
<td>L1</td>
<td>105,600 SF</td>
</tr>
<tr>
<td>L2</td>
<td>176,625 SF</td>
</tr>
<tr>
<td>L3</td>
<td>18,200 SF</td>
</tr>
<tr>
<td>L4</td>
<td>26,100 SF</td>
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</tbody>
</table>

TOTAL 326,525 SF
ZONE 5: URBAN AGRICULTURE

The focus of this zone will be the growth, processing and delivery of fresh food to Kettering residents. Empty lots can be used to grow food, house chicken coops for fresh eggs, tend to beehives and other farm activities suitable in an urban setting. Space will be allotted to process and sell food (including a farmers’ market), and hold educational classes on healthy, affordable dietary habits. Delivery programs to elderly or disabled residents, such as Meals on Wheels, are key to ensuring local residents have easy access to fresh food.

Buildings AG2-AG7, AG9 and AG15-AG19 are built mainly of steel and glass, some with clerestory windows in the roof. These features, combined with their central proximity to the AG Lots, would make them good candidates for greenhouses.

Several buildings in the AG Lot2 area are dilapidated and would need to come down. Most of the reclaimed steel on site would come from here.

AG1 used to be a grocery store - it would be ideal to reinstate this use because of the prominent location on Grand Avenue and close proximity to site locations where food would be grown.
ZONE 6: JOB SUPPORT & COMMUNITY ACCESS

This zone will contain a newly built Job Support Center, using materials collected during site clean-up, and will ultimately serve two functions: to advertise success in building with locally salvaged materials, and offer resources and services which will maximize success of employment on the site. The remaining lots and existing buildings in this zone would be outfitted for community-oriented activities, and available for use outside normal business hours. Placement of key services at this end of the site ensures there is no “back end” to the site - all three access points (North end, Grand Avenue and South end) become a major gateway.

The buildings currently on JS Lots 1 & 2 are so damaged they would have to be removed. Most of the bricks recycled from the site will come from these two locations.

Outdoor public space, such as basketball courts and picnic areas, encourage site use after normal working hours.

JS2 lacks exterior window openings and would be ideal for a movie theatre or concert venue.

SQUARE FOOTAGE BREAKDOWN

<table>
<thead>
<tr>
<th>Lot</th>
<th>Square Footage</th>
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<tbody>
<tr>
<td>JS LOT1</td>
<td>66,500 SF</td>
</tr>
<tr>
<td>JS1</td>
<td>37,975 SF</td>
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<tr>
<td>JS2</td>
<td>69,450 SF</td>
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<td>JS LOT2</td>
<td>85,475 SF</td>
</tr>
<tr>
<td>JS3</td>
<td>19,500 SF</td>
</tr>
<tr>
<td>TOTAL</td>
<td>278,900 SF</td>
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</table>
The Center will be a hybrid of reused and newly built space. The southern-most building, while in sound condition, blocks open access to the site with its long and narrow east-west orientation. The center of the building will be retained for indoor programming. The east and west ends will be hollowed out to create an outdoor walkway, visually opening the site to visitors. The walkway will also serve as a public space for events, such as outdoor markets. Materials collected from the site, primarily masonry, will be used in a “new” addition to the existing building. The process of construction will serve as an on-site job training program. The building will continue to serve as a visual training tool upon completion. As bricks are the primary building material on-site, masonry will be the main educational focus. In the flexible classroom area, a portion of the wall will be constructed of temporary masonry that can be deconstructed and rebuilt for masonry training. A study in masonry patterns will wrap around the building, serving as a future educational construction tool.
DESIGN PRECEDENTS & INSPIRATION

UNIQUE AND CREATIVE BUILDING MATERIALS

Aircraft flaps as greenhouse shades
Arkin Tilt Architects
Private residence, AZ

Signs as fences & steps
Cars as awnings & parking gate
Leger Wanaselja Architecture
Condominiums, CA

Stained glass in a barn
Sarah Hoffman
Private residence, MO

Bricks as green roof pavers
Benton Brown
Loft conversion, NY

Tires as chapel walls
Sam Mockbee / Rural Studio
Summerville, AL

Windshields as shelter
Sam Mockbee / Rural Studio
Mason’s Bend, AL

NON-TRADITIONAL APPLICATION OF STANDARD MATERIALS

Bricks as green roof pavers
Benton Brown
Loft conversion, NY

Tongxian Gatehouse
Office dA
Beijing, China

Tongxian Gatehouse
Office dA
Beijing, China

Landscape Park Duisburg Nord
Latz + Partner
Duisburg, Germany

NEW LIFE FOR OLD INDUSTRIAL SITES

http://www.officeda.com/

http://www.latzundpartner.de/projects/detail/17


INDEX

REDUX: Designs That Reuse, Recycle and Reveal
Jennifer Roberts, 2005
PROGRAMMING & DESIGN GOALS

- REMOVE VISUAL BARRIER OF EXISTING BUILDING ORIENTATION
- INCORPORATE EXISTING BUILDING INTO NEW PROGRAM
- CONSTRUCTION DOUBLES AS ON-SITE JOB TRAINING
- FLEXIBLE SPACES ACCOMODATE MULTIPLE USES
- AVAILABLE FOR PUBLIC USE OFF-HOURS
- EASE OF ACCESS TO REST OF SITE
- TRANSPARENT & WELCOMING
- SAFE & SECURE
- ECONOMIC

103,350 SF (LOT)
17,050 SF (EXISTING FOOTPRINT)

<table>
<thead>
<tr>
<th>Space Description</th>
<th>SF (LOT)</th>
<th>Units</th>
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<tbody>
<tr>
<td>Enclosed Meeting Space</td>
<td>440</td>
<td>1</td>
</tr>
<tr>
<td>Enclosed Office / Work Space</td>
<td>210</td>
<td>4</td>
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<tr>
<td>Records &amp; Storage</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Printer / Copier / Fax</td>
<td>65</td>
<td>1</td>
</tr>
<tr>
<td>Lockers / Showers</td>
<td>210</td>
<td>2</td>
</tr>
<tr>
<td>Laundry / Janitorial</td>
<td>52</td>
<td>1</td>
</tr>
<tr>
<td>Toilets</td>
<td>210</td>
<td>2</td>
</tr>
<tr>
<td>Enclosed Indoor Classroom</td>
<td>865, 440</td>
<td>2</td>
</tr>
<tr>
<td>Open Indoor Classroom Space</td>
<td>4000</td>
<td>1-6</td>
</tr>
<tr>
<td>Kitchen: Prep &amp; Cook</td>
<td>500</td>
<td>1</td>
</tr>
<tr>
<td>Kitchen: Cleaning</td>
<td>300</td>
<td>1</td>
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<tr>
<td>Kitchen: Dry Storage</td>
<td>115</td>
<td>1</td>
</tr>
<tr>
<td>Kitchen: Cold Storage</td>
<td>115</td>
<td>1</td>
</tr>
<tr>
<td>Exhibits &amp; PR</td>
<td>4000</td>
<td>1</td>
</tr>
<tr>
<td>Open Work Space</td>
<td>2500</td>
<td>1</td>
</tr>
<tr>
<td>Reception / Welcome</td>
<td>165</td>
<td>1</td>
</tr>
<tr>
<td>Resource Area</td>
<td>865</td>
<td>1</td>
</tr>
<tr>
<td>Child / After School Care</td>
<td>600</td>
<td>1</td>
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<tr>
<td>Indoor Event Space</td>
<td>4600, 1125, 4000</td>
<td>3</td>
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<tr>
<td>Indoor Eating Area</td>
<td>4600, 1125</td>
<td>1</td>
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<tr>
<td>Enclosed Outdoor Play Area</td>
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<td>1</td>
</tr>
<tr>
<td>Outdoor Storage</td>
<td>140</td>
<td>1</td>
</tr>
<tr>
<td>Kiosk</td>
<td>40</td>
<td>1</td>
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<tr>
<td>Playground</td>
<td>3200</td>
<td>1</td>
</tr>
<tr>
<td>Enclosed Outdoor Recreation Area</td>
<td>1125, 775</td>
<td>2</td>
</tr>
<tr>
<td>Outdoor Eating Area</td>
<td>4200</td>
<td>1</td>
</tr>
</tbody>
</table>

42,711 SF (PROGRAM)
25,516 SF (ACTUAL)
17,772 SF (NEW FOOTPRINT)
PROGRAMMING: INNER / OUTER SPACES

INDOOR - OPEN
INDOOR - ENCLOSED
OUTDOOR - ENCLOSED
OUTDOOR - OPEN

TOILETS
LOCKERS / SHOWERS
RECORDS & STORAGE
OFFICE / WORK SPACE
MEETING SPACE
RECEPTION / WELCOME
EXHIBITS & PR
CLASSROOM
KITCHEN
EATING AREA
CHILD / AFTER SCHOOL CARE
WORK SPACE
RESOURCE AREA
EVENT SPACE
MONITORED PLAY AREA
PLAYGROUND
EATING AREA
PUBLIC RECREATION AREA
EATING AREA
EVENT SPACE
KIOSK
RECREATION AREA
OUTDOOR STORAGE

PROGRAM DISTRIBUTION ACROSS EXISTING LOT & BUILDING

PRIVATE

PUBLIC

INDOOR

OUTDOOR

E GRAND BLVD
CONCORD ST

500 ft
The program of spaces inside the center will offer services to employees during working hours (it is assumed, because of the nature of each of the employment zones, that most jobs will have standard Monday-Friday daytime hours) and flexible space for public use “off hours.”
1. Steps and benches made from slicing old rectangular concrete columns; supported with CMUs
2. Community / class garden patches
3. Public walkway and outdoor dining area
4. Sheltered outdoor space; original building footprint size and covered with the current currently existing roof system
5. Kahn column planters; the unique 45° flared top sheared off base and hollowed out to become outdoor planters
INITIAL MATERIALITY STUDIES: CONCRETE

Unique reinforced concrete columns designed by the Kahn brothers, slab & beam systems, concrete rubble and intact CMUs all readapt to new uses.
INITIAL MATERIALITY STUDIES: STEEL

Two types of steel window frames can be reassembled into new, smaller box units with polygal in place of glass. Placed strategically on the facade, these windows allow ample light while addressing safety issues surrounding large amounts of glazing in a high crime area.
INITIAL MATERIALITY STUDIES: MASONRY

Central to the success of a sustainable design are creative yet practical reuses of materials on-site from existing building and from demolished site buildings. This involves using the Flemish bond with Dutch corner technique.
JOB SUPPORT CENTER -
BRICK AND CMU CONNECTIONS AND PATTERNS
A series of mock-ups were conducted with brick and CMU, to study the possible connections between the two materials as well as the effects of natural daylight and shadows. Intended for non-structural, non-thermal decorative "screens", these walls would be dispersed throughout the site and within the Job Support Center. They would not only celebrate the two major building materials culled from the site, but also highlight creative applications of these standard building materials.
BRICK SHADOW STUDY

OPTION 01
BRICK SHADOW STUDY

OPTION 02
Steel rods could be inserted in places where the grout holes line up for the entire height of the wall.
BRICK SHADOW STUDY

OPTION 04
BRICK & CMU CONNECTION STUDY

OPTION 05
BRICK & CMU CORNER WRAP STUDY

OPTION 05
CMU SHADOW STUDY - ENCLOSURE AROUND CHILDCARE PLAY AREA

A series of 3D model shadow studies were conducted to find the best pattern for a CMU enclosure to the outdoor childcare area. The desired pattern not only offered physical protection for the children, but did so in a transparent, graceful way.
CMU SHADOW STUDY - ENCLOSURE AROUND CHILDCARE PLAY AREA

OPTION 02
CMU SHADOW STUDY - ENCLOSURE AROUND CHILDCARE PLAY AREA

OPTION 03


