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**



MICHIGAN STATE



SITE - PACKARD AUTOMOBILE PLANT

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.

PILOT LOCATION - DETROIT



JOB FACTORY BREAK DOWN

HOSPITAL COMMUNITY CENTER MAJOR GROCERY STORE RECYCLING CENTER HIGHER EDUCATION DEPARTMENT STORE POLICE STATION



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%

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 4LOCALLY MADE5Encourage 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.

























RECYCLING ALTERNATIVE TRANSPORTATION LAB **EDUCATION** ■ LOCALLYMADE URBAN AGRICULTURE ■ JOB SUPPORT



SQUARE FOOTAGE BREAKDOWN

TOTAL

255,300 SF

47,600 SF **RLOT** 93,000 SF **R1** 114,700 SF **R2**



■ RECYCLING ALTERNATIVE TRANSPORTATION LAB **EDUCATION** LOCALLYMADE URBAN AGRICULTURE JOB SUPPORT



SQUARE FOOTAGE BREAKDOWN

AT LOT	88,800 SF	AT5	15,500 SF	
AT1	206,250 SF	AT6	88,175 SF	
AT2	15,500 SF			
AT3	86,250 SF			
AT4	86,250 SF		586,7	725 SF



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











RECYCLING
ALTERNATIVE TRANSPORTATION LAB
EDUCATION
LOCALLY MADE
URBAN AGRICULTURE
JOB SUPPORT

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	ΤΟΤΑΙ
E5	210,000 SF	IUIAL
E6	18,200 SF	870,650 SF













RECYCLING
ALTERNATIVE TRANSPORTATION LAB
EDUCATION
LOCALLY MADE
URBAN AGRICULTURE
JOB SUPPORT



SQUARE FOOTAGE BREAKDOWN

L1	105,600 SF
L2	176,625 SF
L3	18,200 SF
L4	26,100 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











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.

■ RECYCLING ALTERNATIVE TRANSPORTATION LAB **EDUCATION** LOCALLYMADE URBAN AGRICULTURE JOB SUPPORT

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.



SQUARE FOOTAGE BREAKDOWN

AG LOT1	28,875 SF	AG8	25,600 SF	AG16	14,400 SF	
AG1	19,200 SF	AG9	7,250 SF	AG17	14,400 SF	
AG2	7,650 SF	AG LOT3	32,480 SF	AG18	14,400 SF	
AG3	8,100 SF	AG10	47,600 SF	AG19	12,000 SF	
AG4	6,525 SF	AG11	14,400 SF	AG20	51,300 SF	
AG5	6,525 SF	AG12	47,600 SF	AG21	12,000 SF	
AG6	6,525 SF	AG13	14,400 SF	AG22	51,300 SF	τοται
AG7	3,600 SF	AG14	47,600 SF	AG23	123,625 SF	
AG LOT2	52,200 SF	AG15	15,600 SF		6	48, 155 SF







- RECYCLING ALTERNATIVE TRANSPORTATION LAB **EDUCATION**
- LOCALLYMADE
- URBAN AGRICULTURE
- JOB SUPPORT



SQUARE FOOTAGE BREAKDOWN

TOTAL

278,900 SF

JS LOT1	66,500 SF
JS1	37,975 SF
JS2	69,450 SF
JS LOT2	85,475 SF
JS3	19,500 SF

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.









JOB SUPPORT CENTER MATERIAL INVENTORY

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 event, 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



Stained glass in a barn Sarah Hoffman Private residence, MO

CREATIVE BUILDING MATERIALS

AND

UNIQUE







Redux: Designs That Reuse, Recycle and Reveal, Jennifer Roberts, 2005

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

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



Tongxian Gatehouse Office dA Beijing, China





SITES









Landscape Park Duisburg Nord Latz + Partner Duisburg, Germany



		UNMONITORED EVENT SPACE PUBLIC SPACE ACCESSIBLE AT ALL TIMES	INCORPORATE 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
		CONTROLLED EVENT SPACE KIOSK MONITORED RECREATION DAYTIME SERVICES	103,350 SF (LOT)17,050 SF (EXISTING FOOTPRINT)ENCLOSED MEETING SPACE440 SFENCLOSED OFFICE / WORK SPACE210 SF4
		EDUCATION CONTROLLED EVENT SPACE DAYTIME SERVICES	RECORDS & STORAGE100 SF1PRINTER / COPIER / FAX65 SF1LOCKERS / SHOWERS210 SF2LAUNDRY / JANITORIAL52 SF1TOILETS210 SF2ENCLOSED INDOOR CLASSROOM865 SF, 440 SF2OPEN INDOOR CLASSROOM865 SF, 440 SF2
		SUPPORT STAFF &	KITCHEN: PREP & COOK500 SF1KITCHEN: CLEANING300 SF1KITCHEN: DRY STORAGE115 SF1KITCHEN: COLD STORAGE115 SF1KITCHEN: COLD STORAGE115 SF1EXHIBITS & PR4000 SF1OPEN WORK SPACE2500 SF1RECEPTION / WELCOME165 SE1
FOOD PREP	CHILD CARE	RESOURCES	RECEIT HOLY WELCOME100 STRESOURCE AREA865 SFCHILD / AFTER SCHOOL CARE600 SFINDOOR EVENT SPACE4600 SF, 1125 SF, 4000 SFINDOOR EATING AREA4600 SF 1125 SF
			INDOOR EATING AREA4000 SF, 1125 SF1ENCLOSED OUTDOOR PLAY AREA775 SF1OUTDOOR STORAGE140 SF1KIOSK40 SF1PLAYGROUND3200 SF1ENCLOSED OUTDOOR RECREATION AREA1125 SF, 775 SF2OUTDOOR FATING AREA4200 SF1
	FOOD PREP	FOOD PREP CHILD CARE	FOOD PREP CHILD CARE UNMONITORED EVENT SPACE PUBLIC SPACE ACCESSIBLE AT ALL TIMES CONTROLLED EVENT SPACE KIOSK MONITORED RECRETION DAYTIME SERVICES CONTROLLED EVENT SPACE KIOSK MONITORED RECRETION DAYTIME SERVICES FOOD PREP CHILD CARE SUPPORT STAFF & RESOURCES

PROGRAMMING & DESIGN GOALS

42,711 SF (PROGRAM) 25,516 SF (ACTUAL)

17,772 SF (NEW FOOTPRINT)



CENTER PROGRAM GUIDELINES

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."





JOB SUPPORT CENTER







JOB SUPPORT CENTER - ELEVATIONS AND ISOMETRIC VIEWS



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 **DEMOLISHED** SITE BUILDINGS

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.

MASONRY SHADOW STUDY





ΩΡΤΙΩΝ Λ1







Steel rods could be inserted in places where the grout holes line up for the entire height of the wall









BRICK & CMU CONNECTION STUDY





BRICK & CMU CORNER WRAP STUDY





JOB SUPPORT CENTER OUTDOOR SPACE





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.



















OUTDOOR DAYCARE PLAY AREA







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