

Pontiac Central High School: Retaining Relevance Through Re-Use

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Marotta

Pontiac Central High School
Retaining Relevance Through Re-Use

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Libbey High School, Toledo, Ohio. Built 1922. Demolished 2015.
(Toledoblade.com)





The United States is losing its historic educational infrastructure, in a nation where its schools and educational institutions have been as important to their communities as their historic churches. At a broad level, through obsolescence, inadequacy, political motivations, gentrification, funding concerns, and even simple demographic shift, many of America's older school buildings face redundancy, irrelevance, abandonment, and demolition. Each of the factors that lead to the decision to close or demolish a school deserves an arm of research all to its own, as their complexity alone is enough to dedicate years of study towards. One aspect of this problem is abundantly clear: the loss of the neighborhood school is a detriment to the community, and is in many cases fatal. Especially in urban centers, neighborhoods depend on the success of their local school for civic and cultural grounding. The basic reality of the situation, however, is that population - especially the school-age demographic - develops in cycles, doesn't remain constant, and transitions over time, creating differences in local demand, and inevitably, a surplus of school buildings in some communities.

This surplus is both a burden on its community, and an opportunity. Rather than attempting to solve one of the many factors that contribute to it, this study aims to explore new uses for these vacant schools. Some buildings sit within conditions of extreme deficiency - lack of educational, economic, and family growth opportunities pervade many of the communities they formerly serviced. Adaptively re-using these schools as affordable housing, lofts, or even assisted living centers, while beneficial in their re-activation of otherwise vacant space (and among the most common new uses), does little to re-engage the local community. The reintroduction of the educational component of school buildings to an adaptive re-use plan can address many of the deficiencies facing these communities, retain the building itself for public use, and return an anchor of activity to the community.



Mackenzie High School in Detroit, Michigan, built 1927. Designed by Wirt Rowland. Demolished 2012
(Makeloveland.com)





Education and the Community Condition



BACKGROUND:

Structure | Typology | Funding

Structure and funding are integral to the establishment, form and operation of the typical school, and plays a major factor in why schools close, are abandoned, and are often demolished. To start, the physical structure of a school is a key factor in whether or not it is suitable for specific types of adaptive re-use. A smaller building with narrow floor plates and plenty of daylight exposure, for example, is suited well for housing and senior living facilities, for example. A larger school, with deeper floor plates, and often less access to natural light may be suitable for a more industrial or technical use (Pew Trusts). The era in which a building was built has a large impact on where it falls, as does the size of the school itself.

A school building as a typology has a specific and clear function in terms of programming, being essentially a collective structure where children and teens are brought to be taught basic fundamental knowledge, and later on, prepare them for higher education and professional fields. Every school has instruction spaces, common spaces, and activity spaces, but this does not mean that every single building is at all the same. In the early 19th century, many school buildings were built resembling large houses, with instruction rooms and little else. Over time, demand called for more specialized functions, and as communities grew, more - and larger - schools. By the middle of the 1800s, signs of the school formats that are common today began to emerge, but the turn of the 20th century, and the standardizing of the education system, brought about most of the formatting that remains today. In the early 1900s, for example, through the beginning of World War II, many school buildings followed a similar format - the idea of the modern “school plant”, which was essentially perceived as an assembly line learning environment - starting with the basics at early education, and ending with advanced and technical education as a young adult (Gyure). These buildings were often larger than their predecessors, and were ornamented much like classical and gothic buildings of earlier eras, signifying their importance, with many of these schools built at the center of neighborhoods, and serving as their anchors. Their layout was formal - with dedicated classrooms, and spaces specific to individual functions, rather than multi-purpose rooms and more versatile programming. These buildings were often built to last 150 years or more due to their quality of construction and integrated building systems (such as heating, plumbing, and other utilities) (Gyure). In the post-World War II era, however, a significant increase in demand for school buildings meant that districts had to expand exponentially and quickly.

School buildings retained their formal organization in the late 1940s and early 1950s, but were of much simpler design aesthetically - abandoning ornament and grandeur for lower, modern lines, and cleaner (and cheaper) finishes, with some districts even building multiple clones of each building design to save time and money. Of a much more inexpensive build, but still of relatively high quality, many of these buildings have a life expectancy of 50-70 years (Gyure). By the late 1950s through the early 1970s, however, cultural shifts and continued demand for expansion introduced a radical era of experimentation, where school buildings became much less formal, and often much smaller, but introduced varying degrees of multimodal programming, such as clusters, or pods, of classrooms that could have walls folded away to become one large space. The Education Facilities Planning Laboratory, an organization active in the United States at the time, was very instrumental in reinventing the language of the school building.

The 1980s, '90s, and early new millennium included the tail-end of the expansion era, and an era of replacing aging school buildings - many of which still had years of service life left - which became inconvenient due to maintenance cost and obsolescence. These new buildings, often prototypes chosen from a selection of pre-designed plans, are designed less to their specific site and more to ease of construction and cost, with varying degrees of quality. Many districts, much like during the 1950s and '60s, built multiple copies of each as needed. The level of diversity in schools as a building type implies that a catch-all solution to their sustainable re-use isn't applicable, and a more case-by-case approach is necessary.

As diverse as the building types themselves are, the classification of each school has an impact on its form, as well. Schools are mainly divided into three types: Elementary, Middle (or Junior High), and High (or Senior High) Schools, all of which serve different grade levels, or students grouped by age and academic progress level. A basic look at the size of each building type, coupled with basic demographic data, outlines yet another layer of diversity:



Cody High School, Detroit, Michigan. Typical of early-20th century schools.
(Makeloveland.com)



Covedale School, Hamilton County, Ohio, built 1951. Typical of 1950s-era schools, a classical organization using stark, modern lines.
(Oldohioschools.com)



Bramble Elementary School, Hamilton County, Ohio, 1962. Showcasing the experimental architecture of the 1960s. (Oldohioschools.com)



Central Middle School, Columbus, Indiana, 2013. The modern school returns to mid-century roots for many design cues, but retains simplistic, modern forms. (Perkinswill.com)

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	Typ. Grades Served	Avg. Student Count	Avg. Size (sq. ft.)
Elementary	K-5 (or 6)	446	70,174
Middle	6-8 (or 7-8)	595	109,152
High	9-12	752	125,304

Source: Architects of Achievement, National Center for Education Statistics

The “Size Matters” brief used to demonstrate the sizes of the typical school by type notes that these statistics were only collected from buildings built the year prior to the study (2002), and that these numbers were higher than the previous study (1997). In a lecture on historic preservation, Stephen Vogel, longtime architect, professor, and former Dean at the University of Detroit Mercy School of Architecture noted that the less complex a building is, the easier it is to adapt for re-use. School buildings specifically tend to be larger than the average building in their area, and middle and high schools tend to be larger still, due to the increased need for specialty and technical education spaces. Elementary schools are often very well-suited for re-use as community centers, small office buildings, and even affordable and senior housing. The size of a typical classroom module - anywhere from 400 to 700 square feet depending on the age of the building (newer buildings having larger rooms) - translates very easily into small apartments, single-occupant tenant spaces, assisted living apartments, and can even often be combined for larger condominiums or other functions. The inclusion of small gymnasiums, and the opportunity to re-use other spaces, such as libraries, makes them attractive to developers. It also is not unrealistic for a school district to keep these buildings open as supplemental spaces, as even partial occupancy is enough incentive to maintain them.

Middle and high schools, however, contain much more technically-oriented spaces, and are often much more complicated in terms of layout and configuration, as their supplemental spaces include things such as woodshops, large gymnasiums (or even entire field house complexes), and laboratories. These larger and more complicated buildings are often much harder to re-use natively by the districts themselves, and are much harder to sell, as they are very large investments for repurposing, often sit on large plots of land, and are much more attractive to investors as vacant sites, leading many school districts to demolish them (Wind). This, despite having its intrinsic additional costs, saves the district from risk, and the overhead (however light) associated with maintaining vacant buildings.

In most cases (and in this case the state of Michigan) local public schools belong to a district comprised of many neighboring schools - an authority that manages their funding, operation, staffing, and regulatory obligations, such as curriculum adherence, and academic performance. These districts are also the organizational bodies that are recognized by local municipalities and the state and federal governments for legal and jurisdictional bounds. This means that funding is often handled on a per-dis-

district basis, and is determined by millage (a percentage of every \$1,000 paid in property taxes) within the district boundary, which may or may not coincide with a specific municipality, and a per-student funding amount that is based on an attendance assessment counted each academic year (Michigan Dept. of Education). Generally speaking, the higher the millage rate, and the more students in attendance, the more funding a district receives. The inverse is also true - districts with lower millage rates and lower student counts often receive less funding. This, in principle, allows for funding to adjust according to the demand in any particular district, with areas of large population pulling in more funding than areas without, creating a much more efficient distribution of resources.

One of the more common problems, however, is that areas of historically high school-age population, such as cities, have suffered an erosion of their tax base as many medium- and high-income families have relocated out of urban centers, leaving lower-income families to carry the burden of funding large school districts, which when coupled with academic performance issues and other compounding funding barriers, can lead to catastrophic failure, the loss of support for schools, and ultimately their closure. This issue, largely seen in urban centers, specifically will be explored further in this study.

School districts can also receive considerable amounts of funding through grants and state-sponsored bond issues, which are essentially large sums of capital that are proposed by the district, with a case for their necessity, and are authorized to be used for various purposes, often for renovating or rehabilitating older facilities, purchasing equipment and supplies for new academic programs, or even building new schools. Unlike grants, however, the school district must pay back the bond issue funds, with interest, within a certain period of time, with often little option for forgiveness if circumstances make this difficult. Demographic shift over time makes these investments especially risky, as it is possible that by the time funds are invested and improvements are made, they may no longer be needed or justified.

At the core of school closures is this demographic shift, with numerous factors playing into why people, and in the case of schools, families with children (or specific subsets of that demographic) relocate over time, causing some communities to grow, and others to shrink. In the case of many cities, racial tensions and shifts in the job market are major influences, but the issue is also legislative. The No Child Left Behind Act of 2001, or NCLB, is a federal-level initiative that attempts to curb these issues in

regards to academic performance, but ultimately exacerbates the problem. The act requires that states establish assessment standards by which they can be measured to receive federal school funding. This would allow each state to build a series of requirements that schools under their control adhere to, and place clear accountability and steps for what takes place when standards are met, exceeded, or not met. These steps include improvements in teacher qualification, distribution of resources, and standardized testing, to ensure that children in schools both have the best tools and staff available to them, and equal footing for measurement in each state. While numerous studies show improvement in key areas - 9-year-old students, for example, showing stronger improvements in reading and math for the five years prior to 2005, than in 28 years prior - there are other compounding problems that result from the incentivizing of this performance (improvement reported in the U.S. Dept. of Education's report "*No Child Left Behind Is Working*"). Schools that are unable to meet new state standards annually are given a five-year period under which numerous programs are enacted each year the school fails to perform. This begins with a documented plan for improvement after two years, and ends with a complete reorganization of the school, including allowing students to transfer to other schools in-district that are performing better, if improvements do not take place within the five year limit. Couple this with numerous states adopting programs similar to Michigan's Schools of Choice program, and many students are simply afforded the opportunity to relocate out-of-district, and do, in this case (Knaus). This exodus is one part of the issue, and in the cases of Detroit and Pontiac, the two cities explored as part of the research for this study, is part of a cycle of performance and funding dependency that can ultimately send schools into an unrecoverable spiral towards insolvency, both fiscally and academically.



DOWNFALL: **Holes in the fabric**

The effects of this downfall depend largely on its scale, and the type of school involved - mainly, how severe the problem is, and to what extent the surrounding community depends on the school as an anchor, or foundation, upon which the neighborhood functions. To this end, most school buildings exist either as fixtures in a more dense urban neighborhood, or as part of a larger suburban community, and this has a significant effect on its operation and significance as a functional school, and as a vacant site.

The urban school is best described as the “central” school, a school building that exists within the more dense neighborhood fabric of a city or older community, either as a prominent building on a block, or part of a superblock (a combination of several blocks to form one larger property). These buildings are often focused more heavily on their street presence, often times using the same setbacks as neighboring houses or buildings, and will often facilitate things such as student drop-off and pick-up, as well as busing, on the street rather than having dedicated areas for these functions. Yards, playgrounds, and athletics fields are often condensed into the space around the school and are usually open for general public use. Due to their presence, often in the center of neighborhoods, they are often active during many parts of the day even beyond normal school hours. Community organizations, after-school committees, local residents and even churches often will utilize facilities in buildings such as these because of their already critical mass. Due to the proximity and integration of these buildings with their neighborhood, they often are seen as an integral piece of the neighborhood fabric, and not without reason: In the early days of these neighborhoods, these schools (or their earlier iterations) were often among the first buildings to be built, grow with the neighborhood, and are often the oldest and most significant structures in the surrounding area, save for other civic structures and traditional churches. In this way, the urban school is, indeed, an anchor that keeps the neighborhood together as a cohesive unit, and in turn, an important piece of the fabric of a healthy neighborhood.

Being an important piece of said fabric, however, has its pitfalls. As has been seen in many cases, and again as is evident in cities like Detroit and Pontiac, the relationship between the neighborhood and school are inter-dependent, and reciprocal; one cannot survive without the other, and the failure of one spells the failure of the other. The factors that lead to potential failure of the school or neighborhood are also inter-dependent, and without a significant, separate study, the situation is so complex that it may be difficult to determine whether the school, or neighborhood, began to fail first. Regardless, the

result is often the same: The neighborhood and school both break down, and often times, the school is ultimately closed.

In any example, the school system as a whole is likely to be underperforming, causing families to move their children outside of the district, which not only creates vacancies in the neighborhood, but the same in the school. In cities like Detroit and Pontiac, this problem has become so severe that both districts serve around one third of their highest recorded student body, causing many schools to close or be consolidated, leaving large vacancies throughout already struggling neighborhoods. This can also serve to lower confidence in the school system even further, as residents living near empty properties face their impact daily. Property values are also affected by these vacant buildings - the potential risks and the perception of blight makes the neighborhood seem less stable, and there is truth to the concern, as when the schools close, all of their facilities - often times including yards, playgrounds, and athletics fields - become unavailable for public use. In many cases, it is too costly to properly secure these buildings (or security measures are circumvented), and thus they are broken into and scrapped, or vandalized, even becoming targets of arson. Once this occurs, many districts resort to the most cost-effective course of action: demolition. While it is already difficult to sell a vacant school in a declining neighborhood for a reasonable return, it is much more difficult to sell an uninhabitable structure in the same area, and the empty land is much less of a perception issue.

With demolition, however, comes another problem: The loss of local history and cultural connection. Many of these schools are older buildings, and in urban centers such as Detroit and Pontiac, they can even be anywhere from 70-100 years old, meaning that many generations of families have grown up in and around them. To hearken back to the idea of the American school being comparable to the palaces and cathedrals of Europe, their loss is significant - often devastating - to their community, and impossible to replace meaningfully. Even as some neighborhoods recover, the schools rarely follow, as the new residents often lack the need for functional school buildings (the typical new resident of Detroit's recovering neighborhoods, for example, being either single, married without children, or empty-nesters, for example). These struggling districts are also unlikely to rebuild schools within timeframes that would allow replacement facilities to help stabilize neighborhoods, as well. This is in stark contrast to the suburban condition, where this situation is much less impactful, and more easily dealt with.

The suburban school is in many ways a different matter than its urban counterpart. Best described as a “functional” school, the suburban school is not often the focus of a developed community, and they rarely physically engage their community in a meaningful way, in terms of accessibility to surrounding residents, either. They often lack pedestrian linkages to neighborhoods, or walkable campuses in a sense that walking to, from, or around a suburban school would be a desirable activity due to lack of context or cohesion with the surrounding environment. While an urban school is built within (or defines) its local context, the suburban school is often an island of its own. Many of these buildings are newer than their urban counterparts, are larger, and are located on sprawling campuses that become locations in and of themselves. Even though they may still be the most significant buildings in their local area, their setting as isolated buildings, often set far back from the street (or even behind other developments) makes them much less integral to the survivability of even surrounding neighborhoods. They blend in, in this sense, with their surroundings, and are less noticeable. In the northern suburbs of Detroit, for example, many of these schools are built as parts of “educational parks”, such as those seen in the Plymouth-Canton School District, or Huron Valley Schools’ Lakeland campus, which each contain multiple schools on one sprawling campus surrounded by parking and green space. Unless a student lives directly adjacent to the property, walking to these schools is uneconomical - and even then, there are often no paths to take children or pedestrian to these buildings from any location other than the parking lots that surround them. This isolation does create a place, but it does so without the sense of local identity that arises from the more integrated urban condition. This is not to say that the suburban school is a detriment to its community, but merely not as deeply integrated into the fabric of that environment, which has its own advantages and disadvantages.

Being a functional facility, suburban schools are generally intended to be used purely as schools, and less as community centers. This makes economic sense, as the suburban communities are centered around the convenience of driving to destinations of activity, rather than living near (and having to walk to) them. Because of this, while a suburban school may be used to house clubs, community meetings, and other activities, they often do not depend solely on these facilities to survive. The best way to classify a suburban school, in this vein, is not to perceive it as a building, but rather as an institution, as the buildings themselves are replaced more often (with many suburban schools being 50

years old or newer), and are more easily reorganized due to the abundance of space.

The suburbs have generally maintained a greater stability than urban neighborhoods, and as such, already suffer less from the problems that have plagued cities. That being said, population shift and demographic changes do occur - something that is becoming more evident today, as the younger population shifts towards urban centers (United Nations). The suburbs by their very design are dependent on evolving development to maintain relevance to the community: When a particular use for a property falls out of fashion, replacing that property with one more desirable is the norm. It is not uncommon to see entire developments come and go over a 20-year period, only to be replaced by something else. This is true, as well, with the suburban school.

Suburban neighborhoods are impacted largely by aging population - and in today's case, the aging population of many suburbs is not being replaced en masse with younger families. While it has been a trend to replace aging suburban schools with new buildings, causing some schools to relocate, and leave vacant buildings behind if only for a short time, this trend has shifted to downsizing in many communities. This means that, inevitably, suburban school districts need to consolidate and outright close schools in order to maintain financial solvency and keep the performance of their schools up to continue to attract new students. In the suburbs, however, this has less of a detrimental impact on the community. A suburban school's closure may not even be about its surrounding neighborhood, as school districts tend to weigh the cost of transportation as much as they do building operating costs (California DOE). With many buildings having similar costs of operation, the cost of transporting students via buses to a remote school, for example, exceeds that of a school near the garage. Even if that remote school is in the middle of a very healthy neighborhood, it may still be closed in favor of the more economically located school, even if that school is not as well-maintained, academically or physically. In some cases, a school may be relocated across town, or into the next town over, while retaining its name, such as the case of Milford High School, which having been open since 1861, had relocated twice in the village of Milford in 1893 and 1913, and eventually into the township of Highland in 1956, retaining its name as the only connection to its heritage (Huron Valley History). History as part of a particular building, in the suburbs, is thus less impactful than the history of the institution itself, which also lends to the ease of adaptation that the suburbs have to replacing schools as situations shift.

When a suburban school closes, often times the campus is quickly secured, properties are still maintained, and school districts will quickly weigh options regarding replacing, selling, or demolishing unused properties. Crime, such as arson and vandalism, are less of a concern as crime rates are generally lower, and concerns over blight are often alleviated due to regular maintenance on vacant properties and the fact that many playgrounds and other outdoor facilities are still kept available to the public. Even in the event of demolition, the properties themselves are often returned to green space, re-designated as parks, or are quickly sold for redevelopment, such as new subdivisions or retail. Because these communities aren't dependent on a functional "center" for critical mass, and there's less historical significance, the suburbs are much more able to allow demand to dictate what happens to these properties.

To better understand the local application of this information, two schools from the northern Detroit suburbs are the focus of a timeline study involving their closure and subsequent fate, as well as the effects on their surrounding community: Highland Middle School, in the Charter Township of Highland, and Pontiac Central High School, in Pontiac, Michigan. Both of these schools share similar conditions: They are both located on M-59, the major east-west corridor through northern Oakland County, are adjacent to their respective downtown environments, and closed in 2009. Their stories, however, are quite different.



Case Studies | Precedents

3a Highland Middle School

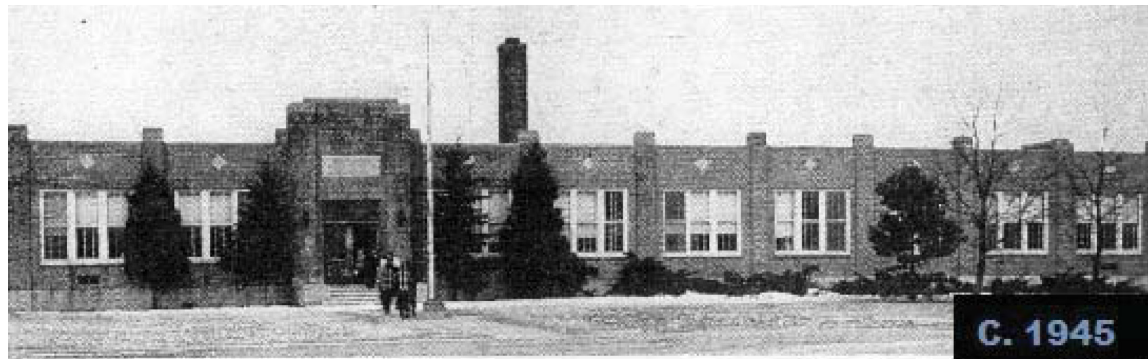
Highland Middle School, located in Highland Township, Michigan, was established in 1936 as a small schoolhouse and gifted to the school district that same year by the community, it became the first large school in the town and was the oldest in the district from 1994 until 2013, when it was demolished. A timeline of the building's life cycle is outlined on the opposite page.

(Author's note: Much of the following information was gathered during numerous township meetings, which the author of this study attended.)

Both the school district and the township expressed needs for additional programmable civic space around the time the school was closed, and between 2009 and 2012, numerous attempts were made to find new uses for the vacant, yet well-maintained school. A group of around 170 members of the community (including the author of this study) assembled in an attempt to raise attention to the numerous assets that the building contained. Inside were fully functional, newly-renovated spaces including two gymnasiums, music rooms, numerous classrooms (useful for multi-purpose spaces), an auditorium, cafeteria with full service kitchen, art rooms, science labs, computer labs, and even a functioning woodshop. With the community's arts and crafts focus coming into the spotlight in recent years, these spaces all were potentially a major asset to the citizens and a perfect anchor for the small town's brand image.

The township government, however, was uninterested in the building as an asset. Conversations were initially held with discussions of preserving the large gymnasium at the rear of the school, and potentially the historic part of the building built in 1936, but the cost of such measures prevented further discussion. Ultimately, the school district and township settled on demolition, as the building was considered to be a financial liability by the district if left vacant, and was in the way (though built to accommodate) of the township's much-desired city water connection, which would allow for fire hydrants to be installed in the historic downtown.

The 77-year-old school was demolished in the spring and early summer of 2013. Currently, the site is sitting vacant with no sound plans for redevelopment. The city water connection was never installed, and in 2015, the former Highland Station building, then a feed and seed store, which the downtown was named for, burned down as the local and neighboring fire departments were unable to extinguish it.

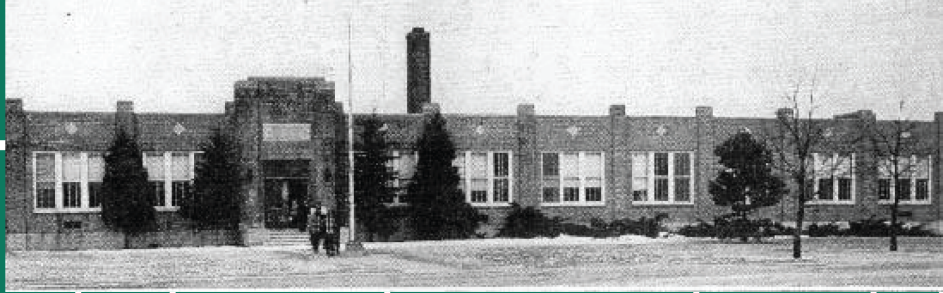


Highland Middle School, 1936. Shown from 1945 to demolition in 2013.

1900

Highland Township School

Built: **1936**
Architect: **Frederick D. Madison**
Style: **Art Deco**
Status: **Gone**



1940

Building expanded.

1945

World War II ends. "Baby Boom" begins.

1966

Building expanded due to school-age population growth.

1991

Building renovated, modernization, infrastructure, and achieves full compliance with ADA standards.

2009

Highland Middle School classes, ending enrollment.

2013

Building demolished.

1936

Highland Township School, is built at the corner of Highland Rd and John St. in Highland Township.

1942

US enters World War II

1950

Building expanded to more than double its size due to rapid school-age growth.

1971

Building expanded to add second gymnasium.

2005

Building renovated - floors, roof, ceilings, infrastructure. Intent on long-term use.

2012

Charter school support legislature reaches peak. dies in committee.

K-12 (K-8 from 1956) | 6-8 (From 1968)

2015



Pontiac Central High School

Note: This section covers specifically Central High School, originally the institution known as "Pontiac High School", which was designated in the early 1900s, well after the school's initial founding as Union School in 1849. A more detailed site/institutional timeline can be found in Section 5.

Pontiac Central High School formed at 300 West Huron Street in Pontiac, Michigan, as an evolution of Grove High School, itself founded in 1871 and re-named Pontiac High School sometime prior to 1910, likely in 1894 (based on conversations with the building's new owner and representatives of the school district). By 1911, the original school was inadequate for its population and was closed, demolished, and replaced with a new, much larger school in 1913.

This three-story building, designed in a highly ornamented style reminiscent of larger urban schools of the time, received numerous additions throughout its life span, growing with the needs of its surrounding community. As Pontiac's only high school, many notable people attended the school, including notable retail developer A. Alfred Taubman and writer Michael Mallory.

In 1956, Pontiac City Schools opened a second high school, Pontiac Northern, and the original school was renamed Pontiac Central High School shortly thereafter.

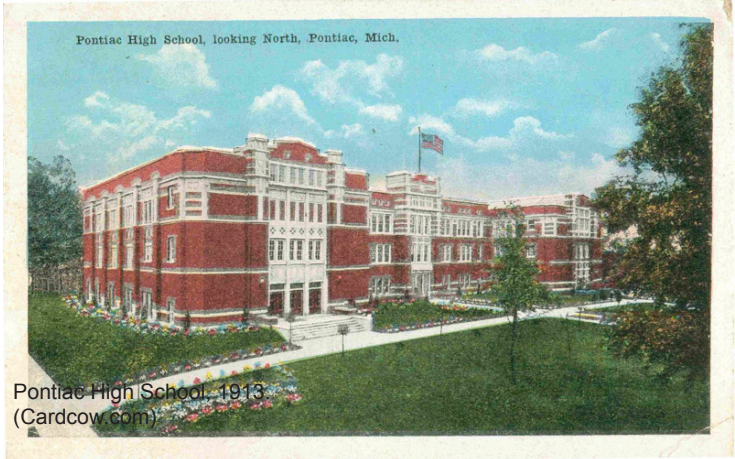
Facing still-growing demand, the school district embarked on a project to replace the aging Central High School in the late 1960s. With community involvement being a focus, the new school was designed and eventually built in 1973, opening the following year. A 478,000 square-foot building, it was one of Michigan's largest schools, costing \$18million to build, or over \$100million today (DollarTimes).

The new school was never operated at capacity, as the city's population leveled and began to fall following economic downturns and racial tensions in the 1970s. Despite Pontiac Central High School's reputation as a well-performing school, its enrollment dwindled until 2008, when the decision was made to close the school the following year. Central High School's students were merged with Northern High School, and the building was vacated.

For the next six years the school was vandalized, scrapped, and set on fire three times. Utilities were cut to the building and 18 inches of water flooded the lowest level of the school. Despite almost no community interest, the building remained standing, and was eventually sold to Lee Industrial Contracting in 2015 for \$1,050,000 (Oakland Press).



Grove High School, 1871.
(Cardcow.com)



Pontiac High School, looking North, Pontiac, Mich.
(Cardcow.com)



Pontiac Central High School, 1973. Main Student Entry.

1800

Pontiac Central High School

Built: **1973**

Architect **Odell, Hewlett & Luckenbach**

Style: **Utilitarian**

Status: **Preserved**

1849

Union School formed.

1894

Grove High School renamed Pontiac High School.

1900

1940s

Several expansions to the building are built.

1973

The 60-year-old 1913 school is replaced with the current building.

2009

Pontiac Central High School closed.

1871

Grove High School built on current site.

1913

A new Pontiac High School opens, replacing the old 1871 school, which was demolished in 1911.

1956

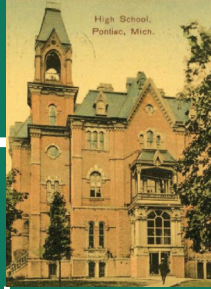
Pontiac Northern High School built, existing school renamed Pontiac Central. Last addition is completed.

1998

Minor renovations.

2015

Building sold.



3b Age Comparison

With the loss of one school despite efforts to preserve it, and the preservation of another despite efforts to have it demolished, it's worth noting that Highland Middle School was completely modernized and renovated seven years prior to being demolished, and had not been vandalized, save for one broken window, since its closure. Pontiac Central High School had been vandalized, set on fire three separate times, had nearly all of its windows broken, and was filled on its lowest level with over 18 inches of water for six years, before finally being sold and under renovation. One of the prime reasons Highland Middle School was demolished was due to a perceived obsolescence inherent in the building due to its age. This issue of age, however, is made irrelevant even by a brief survey of the other three middle schools in its own district.

If indeed age were an indicator of the viability of a school building for re-use, the vast majority of re-purposed schools would not be older buildings, and they would not be the focus of efforts in cities like Detroit for re-use (Old Schoos, New Uses, DPS). Age not generally being a factor (and based on the Highland Middle School / Pontiac Central High School study, functionality not necessarily being top concern), it is the potential that exists within each building to find new purpose through reprogramming that is the main draw for adaptive re-use. This is, at its core, simple real estate logic; money follows value, and adaptive re-use is an investment. The type of investment, like all real estate, is a question of location.

Highland

1936



Brick-and-steel construction.

Upgraded utilities and electronic control systems.

Modern computer network infrastructure.

No exposure to toxic construction materials.

Meets or exceeds ADA standards without exceptions.

Meets or exceeds state facilities standards.

More than adequate auxiliary facilities to support flexible curriculum and programming needs.

Muir

1966



Brick-and-steel construction.

Upgraded utilities and electronic control systems.

Modern computer network infrastructure.

No exposure to toxic construction materials.

Meets or exceeds ADA standards without exceptions.

Meets or exceeds state facilities standards.

More than adequate auxiliary facilities to support flexible curriculum and programming needs.

White Lake

1973



Brick-and-steel construction.

Upgraded utilities and electronic control systems.

Modern computer network infrastructure.

No exposure to toxic construction materials.

Meets or exceeds ADA standards without exceptions.

Meets or exceeds state facilities standards.

More than adequate auxiliary facilities to support flexible curriculum and programming needs.

Oak Valley

1994



Brick-and-steel construction.

Upgraded utilities and electronic control systems.

Modern computer network infrastructure.

No exposure to toxic construction materials.

Meets or exceeds ADA standards without exceptions.

Meets or exceeds state facilities standards.

More than adequate auxiliary facilities to support flexible curriculum and programming needs.

To promote the idea of preventing waste, part of the original study of Highland Middle School, and thus this study by extension, was comparing buildings of varying age with similar levels of maintenance to determine the assets that each building contained relative to the other.

Four middle schools within the same district were compared to Highland Middle School.

The results were gathered and collected in this graphic. While all of these buildings met or exceeded modern standards, this isn't always the case. However, the fact that all of these were able to do so indicates that it is possible to achieve regardless of era of construction, further strengthening the idea that age should not matter.

Images sourced from Huron Valley Schools

Disused playground at a vacant Detroit school.
(Makeloveland.com)

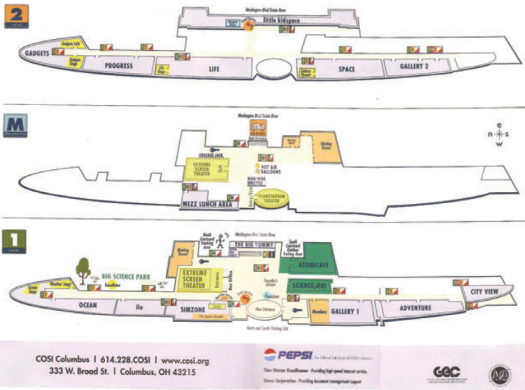


Where a school building is located determines largely what may be economically viable for its re-use. Many older schools and community schools are located in the heart of neighborhoods, away from major highways, and sometimes even as properties only accessible via side streets or dedicated driveways. These buildings are natural candidates for re-use as housing - from low-income subsidized housing to luxury condominiums, as well as assisted living facilities and light-duty medical centers. It is also not uncommon to see the land surrounding these schools converted into public parks, with the buildings themselves being used in some capacity for community functions or recreation. Some schools, however, are located in prime areas along major highways, or close to city centers, providing many more opportunities for more public uses, such as office space, civic facilities like government offices or public resource centers to house functions such as childcare facilities, libraries, or public safety, larger community centers, even retail such as antique malls or boutique shops. Studies of buildings such as the COSI Center in Columbus, Ohio, Apollo Elementary School in Highland, Michigan, and the Leland School in Detroit, Michigan highlight this quite well.

C.O.S.I. Columbus is the latest incarnation of the city's science center and museum. Architect Arata Isozaki was commissioned to design an addition and renovation to Columbus' former Central High School, built in the early 1900s, for use as the new home of C.O.S.I., which was at capacity in its former location. This site was selected due to its proximity to the city center, its prominence on the city's waterfront, and access to major traffic thoroughfares, as well as an interest by the city to preserve part of its history.

The school was renovated and the expansion completed in 1999 to create one of the United States' newest and largest science centers, at 325,000 square feet (Cosi.org).

This project is a prime example of renovating an existing unused school for educational purposes in a way that preserves the original context, returns educational components to the new program, and creates regional draw.



Images sourced from Cosi.org



Images sourced from Huron Valley Schools



3d Apollo Center Highland, MI

Apollo Center began its life as Apollo Elementary School in 1968, named in tribute to the NASA space program that landed the United States on the Moon. Designed by Kalamazoo architect Richard Prince, it is a connected network of hexagonal spaces with a gymnasium / cafeteria and library at its center.

Apollo Elementary School was only ever used at 60% capacity according to reports by Huron Valley Schools at the time of its closure in 2006. A newer school was built in 1975 less than a mile away and drew more students, ultimately being more successful.

The school had been renovated a year prior to closure, and the school district decided not to demolish the school, and instead reposition it as a community resource center. The building features offices, a special needs care facility for children, infant and early childhood care center, functional library, and an outreach center, among various other activities. The playgrounds are available for public use at all times.

It is an example of a successful, dynamic re-use that paints the building as a local anchor of activity.

3d Leland Lofts Detroit, MI

Leland School began its life as a special school for the disabled in the city of Detroit, hosting numerous programs for special needs children and adults. It sits at a prominent corner in its local neighborhood and was vacated in the early 1980s as it became redundant to operate.

Leland School was converted to residential lofts with a focus on preserving history. Many of the built-in cabinets, chalkboards, and other amenities in its classrooms were restored, as well as the building's lockers, which largely preserves the integrity of the building's original design.

Leland Lofts is an example of sound preservation, and its inclusion of historic elements of the school, such as built-in cabinets and chalkboards, does preserve the educational heritage of the site. However, the building retains relatively little in terms of public engagement, and while serving as a stable development, is no longer a cultural anchor for its neighborhood.



Street view of Leland School, Detroit, Michigan.
(Curbed.com)



Interior view of a typical loft unit featuring restored built-in cabinets, original to the school.
(Curbed.com)

Through the various studies of re-used schools, and the determination of location to be a prime factor in the choice of re-use, a specific location of study and intervention was chosen: the city of Pontiac, Michigan. Pontiac, like Detroit, suffers from poor public perception due to elevated crime rates, poor economic investment, and deteriorating neighborhoods. The majority of its school-age population has left the city or found other educational opportunities in neighboring communities, and all but seven of its schools are vacant, providing significant opportunity for adaptive re-use.

Pontiac was chosen largely because of its similarities to Detroit, but at a much smaller, more manageable scale. The amount of research conducted at the scale of Pontiac would be significantly challenging in Detroit, where the number of neighborhoods, schools, and different community conditions is exponentially greater. Additionally, the city of Pontiac receives comparatively little press and attention, and this study was seen as an opportunity to call out a nearby community that is struggling much like Detroit, has suffered many of the same calamities, and is approaching recovery as well.



Saginaw Street, Pontiac, Michigan. The core of Pontiac is relatively intact and healthy. The Phoenix Center garage, amphitheater, and Ottawa Towers stand in the background. (Oakland Press)



The Case for Pontiac | The M-59 Corridor

4a The M-59 Corridor

A 60-mile long stretch of highway that connects from the Village of Howell to Lake St. Clair, passing through various communities. It begins as a two-lane rural highway at its west end, and changes forms numerous times until terminating as an 8-lane divided highway at its east end. It is the major east-west corridor for northern Oakland County and meets in Pontiac with the Loop, where it junctions with Dixie Highway, Telegraph Rd, Woodward Ave, and I-75.

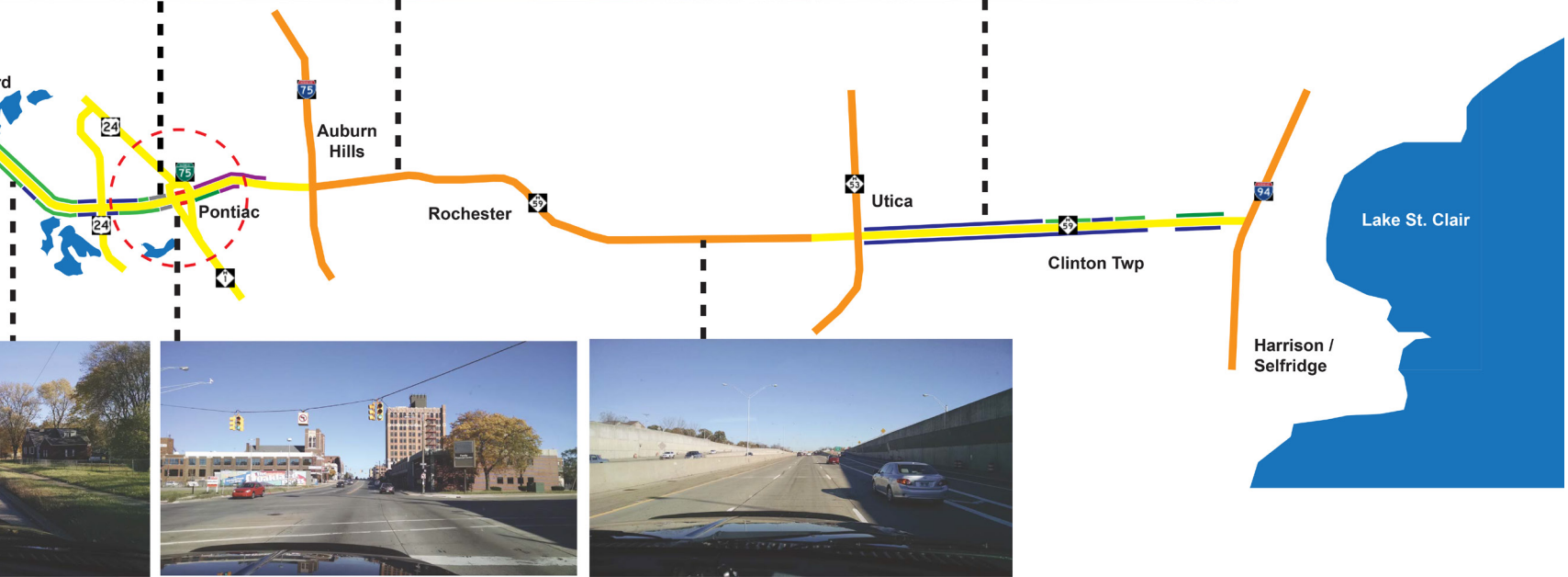
SEMCOG Data:

Daily Traffic Average:	38,000 cars
Huron St (Pontiac):	35,000 cars
Woodward Ave (Pontiac)	12,100 cars



- Roadside Conditions**
- Rural - Farming
 - Parkway - Wooded
 - Residential
 - Commercial
 - Industrial
 - Urban

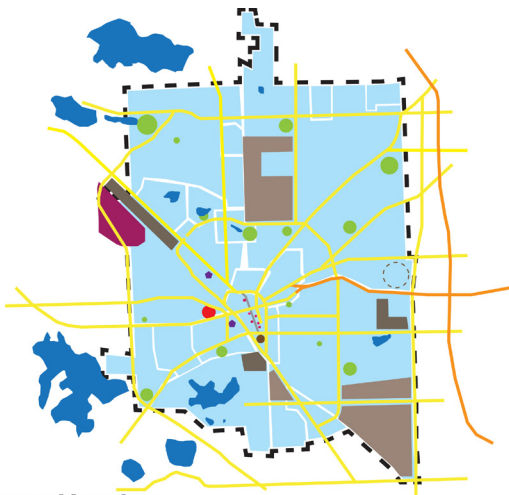




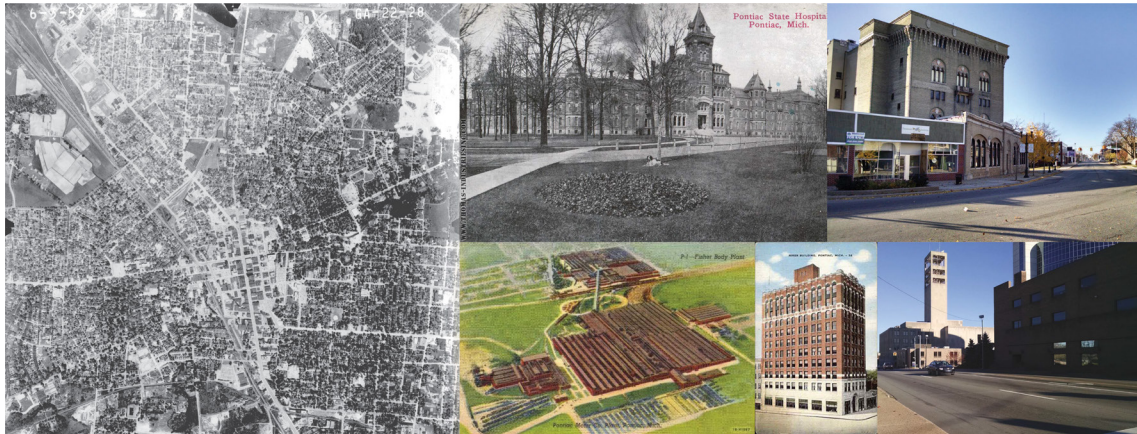
4b The City of Pontiac

1818 - First settlers arrive.
 1821 - Village established becomes first inland settlement in Michigan.
 1837 - Officially recognized as Michigan gains statehood.
 1861 - City of Pontiac chartered.
 1920s - "The Great Migration" - Many african-americans from the south come north looking for work with the auto industry, with Pontiac as a major destination in Michigan. City doubles in size.

1950s-1960s - City continues rapid growth, school district expands to meet demand.
 1970s-2000s - Steep economic decline led by industry shift causes rapid rise in crime rate, vacancy.
 2010-Present - Pontiac enters, then exits emergency management, population grows for first time in over 30 years. Small-scale investment begins downtown.



- General Inventory**
- Selected Site
 - ◆ Heritage / Museum
 - Entertainment
 - Phoenix Center
 - Silverdome
 - City Parks
 - Industrial - >50%
 - Industrial - <50%
 - Government Center



Historic aerial imagery and postcard images from USGS Aerial Image Survey and Cardcow.com

PONTIAC: History and Challenges

4e

Pontiac Central High School presents a unique opportunity due to its size and location, and as such, is the chosen site for this study. The city around it is an important component of the regional landscape.

The city of Pontiac is the seventh largest city in Oakland County, and is the only city of its size with a traditional urban center (the rest being largely suburban-oriented development). Its core sits at the intersections of Huron Street (M-59), Woodward Avenue (M-1), Interstate 75, Telegraph Road (US-24), and Dixie Highway (US-24 at the terminus of Telegraph Road), and is in this way a literal hub between Detroit, Flint, Saginaw, and communities along Lake St. Clair north of Detroit. It began as a staging ground for the Ottawa chief the city was named for, a legendary figure in history who, in a time of great turmoil during the early colonization of the Midwest, managed to unite many native tribes. With the first settlers arriving in the area in 1818, Pontiac became the first inland settlement in what would become the Michigan territory, in 1821. When the Michigan Territory was granted statehood in 1837, Pontiac was among the first villages to be recognized, and in 1861, the Charter Township of Pontiac was established, with a population just over 2,000 residents. The city's early days were guided largely by the presence of the Clinton River, which ran through the area, providing ample power to run mills along its shoreline.

The city would evolve in the late 1800s following the civil war, and the railroads would begin bringing many more people to the city. Pontiac's major industry, by this time, had shifted to the production of carriages, before the advent of the automobile (Pontiac History). This established industry lent itself well to a shift towards the production of the horseless carriage, which the automotive industry capitalized on. By the 1920s, influenced significantly by an influx of African-Americans from the southern states during the "Great Migration", where many of them moved northward to look for work after gaining their freedom, Pontiac was becoming a major industrial center of more than 30,000 people. Within a decade, the population of the city had doubled. Citing major traffic problems and a desire to unify the highway network leading into the city, the "Business Loop" was built around the city's downtown core in an effect to route large amounts of vehicle traffic around downtown, alleviating congestion. This was a double-edged sword, however, as it did have this intended effect, but took a great deal of traffic away from downtown entirely, allowing many people to 'bypass' the core, reducing the number of visitors. In the 1950s and 1960s, the city became an experimentation ground for urban planning, much like many

cities of the time. Around the late 1960s, a large portion of Pontiac's downtown core south of Huron Street was completely cleared to make way for a new planned development that would include a large shopping mall (proposed by well-known mall developer A. Alfred Taubman, who grew up in Pontiac, and which would later be built a mile west of downtown in Waterford township), several office towers and a parking garage that included a public park on its upper deck (Pontiac Press). This development would be known as the Phoenix Center, and ultimately only two of the office towers would be completed, as well as one residential tower. Development stalled as financial problems arose, and this would spell the beginning of Pontiac's decline.

The 1970s were a period of turmoil in Pontiac. Racial tensions had mounted during the height of the Civil Rights movement, but had not boiled over locally, though the city was not without its problems. The city's schools, for example, were unintentionally segregated until this point (an issue that will be detailed further). Pontiac has largely maintained a diverse population despite this. Around this time, however, many of the city's manufacturing jobs began to shift to other cities as General Motors began shifting production away from the city. This, at the time of the city's peak population of around 85,000 people, was devastating to the local economy, and the city's core began to decay. Construction of one of the largest stadiums in the United States - the Pontiac Silverdome - east of downtown did little to boost the city's economy. Pontiac, like many major cities, began losing residents and businesses - a trend that continued through the next 40 years, resulting in the city's entrance, and emergence, from near insolvency and emergency management, between 2010 and 2013 (Laitner). Through all of this, however, and through the city's decline in economic stability and population, Pontiac's neighborhoods largely survive, which gives it an advantage over similar cities that have lost proportionally larger numbers of people. With an existing relatively stable community base, recovery in Pontiac may face less obstacles to success.

Today, Pontiac is indeed beginning to stabilize. Efforts to clean up blight and curb crime are in effect as the city continues to demolish vacant homes and businesses, and signs of investment - largely spearheaded by the city's three major hospitals and several developers. While previous plans had considered demolition of the now-closed Phoenix Center's large parking garage (and thus, the removal of the city's only remaining viable performance venue - an amphitheater atop the parking deck), the city

is re-examining its options with a desire to preserve and re-open the center, and activate the amphitheater as a public venue. The demolition of the long-defunct Silverdome will open opportunities for new development, and the city is in contract to explore removing the Business Loop and re-route traffic from Woodward and Dixie Highway back through the core of the city (Laitner). A new automotive-themed development known as the M-1 Concourse is under construction at one of General Motors' former production sites, and is almost fully leased even prior to breaking ground. Numerous entrepreneurs are beginning to restore vacant buildings along its major streets and even some of its empty civic structures, such as schools, are seeing proposals for re-use. The historic Strand Theater, in the heart of the city's Saginaw Street retail corridor, is also set to reopen in 2016. The city is not without its challenges, however, as even at a glance, it has several glaring issues: Lack of a cohesive transit system, lack of green space or public space near its city core (the Phoenix Center deck is closed to the public), and lack of cultural and entertainment venues, are among them. These issues will play significantly into the city's needs. With this set of deficiencies, and its condition as the only significant urban center along the M-59 corridor, Pontiac is an ideal location for the adaptive re-use of its civic infrastructure - namely its numerous vacant schools - to help fill some of these needs.



CENTRAL SCHOOL
A.D. 1893

Central School, Pontiac, Michigan. 1893. Closed sometime in the 1980s by most estimates. Curiously named, but completely unrelated to Central High School - was built and operated as an elementary school.

PONTIAC CITY SCHOOLS:

4d

Because of Pontiac's difficulties, and also likely a contributor to them, Pontiac City Schools, or the School District of the City of Pontiac (the names are often interchanged depending on where they are referenced) has seen a significant shortfall of both funding and students that has left it a shell of what it once was. Pontiac City Schools now operates seven schools: five elementary schools, one middle school, and one high school. At its height, however, it operated around 28-37 schools (a clear number could not be established as records are scarce), was considered a top-performing school district, and even produced numerous famous alumni, such as basketball players Campy, Frank, and Walker Russel, as well as successful real estate developer A. Alfred Taubman, with a total of 41 properties throughout its 160-year history. The majority of Pontiac's schools were built in the 1920s and 1950s, during the city's two periods of significant growth. Growth in the 1950s was a source of controversy, as the segregation of schools - which had been commonplace prior to the Supreme Court's decision in *Brown V. Board of Education* - was outlawed in 1954, but the city of Pontiac was building schools primarily in younger, less-diverse neighborhoods, painting an image in the eyes of some members of the community of informal segregation by re-drawing school borders when new schools were built (*Davis V. School District*). From a logistical sense, this was only practical - the more established neighborhoods, primarily consisting of African-American families, already had established schools or were included in schools in adjacent neighborhoods. Growing neighborhoods would need their own schools, and those schools would simply serve the residents of those neighborhoods.

The perception wasn't the same, however, and a court case, "*Davis V. School Board of City of Pontiac, Inc.*", was drawn up challenging the district's practices. The school district insisted that it was not actively segregating its schools, but the decision was still made to require busing of students to diversify each building's student body (*Davis V. School Board*). This would ensure equal education by requiring each building to maintain a similar body of students, but would also put strain on the district's resources in the 1970s, when the city began its sharp decline. In 1975, there were 28 schools in the district - 22 elementary schools, four middle schools, and two high schools. Over the next two decades a small number of schools would re-organize, and several would close permanently, as the city dealt with a decline in student population. After the turn of the millennium, however, the school age population in Pontiac dropped severely - from around 12,000 students in 2000 to around 4,700 in 2015. Much of

this decrease took place during the years leading up to, and during, the 2008 recession, which saw the school district close half of its 20 remaining schools between 2009 and 2010, and several more between 2011 and 2012. The financial and academic situation in the school district had become so critical that the state recommended closure of the entire district around this time, which would have left the city without a school system, and would require students to attend schools in neighboring districts (Murray). This did not come to pass, but Pontiac City Schools continues to battle its financial and performance shortfalls.

In recent years, to cover outstanding debts, many of the district's vacant properties have been offered for sale. Eight of the vacant schools were sold in 2015 to two separate companies under one developer for a total of \$800,000 as a package, with a goal of sustainable re-use and redevelopment. One building, Pontiac Central High School - the largest of all of the available buildings - was sold to a private developer the same year, for a price of \$1,050,000. While the eight buildings sold as a package are currently still vacant, and listed for sale again, Pontiac Central High School has been under renovation and will be put to use as a light industrial facility, in an effort by its owner to re-invest in the city and create much-needed jobs. According to the Bureau of Labor Statistics, the unemployment rate in the city of Pontiac is 9.5% as of 2015, which is nearly double the national average, and as such, job opportunities are a significant need for the city. While this is indeed a viable and responsible re-use for this site, this study aims to explore re-use of this same site from a different perspective, in an effort to bridge gaps in the city's many needs in one intervention. The reason for this, however, is not solely based on its location alone, or the value that the site holds due to that location - but is based also on the long and significant history of education and public use the school's site contains.



Current conditions within Webster Elementary School, Pontiac, Michigan. Built 1921, this school has been vacant since 2006. View of the main entry. (Detroit-Ish.com)



As part of the research process, a complete listing of Pontiac's school buildings over time was compiled, including the type of building, enrollment information if available, year built, closed, and demolished if applicable, as well as general notes about each building.

With scarce records, a considerable amount of time and care has been taken to ensure the listed information is as accurate as possible, within the bounds of known data.

Data gathered from Pontiac City Schools, Michigan Department of Education.

Elementary / Early Childhood			
School Name	Address	Classification	Grade Span
Alcott School	460 W Kennett	Elementary	K-5
Baldwin Elementary School	Corner of Baldwin and Edison in 1937, E Huron St. between the highways?		
Bagley Elementary School / Early Childhood	Bagley & Wesson, then moved to Bagley & Gillespie (1900-1920s?)	Early Childhood	K-5
Bethune Elementary School	154 Lake St		
Crofoot School	300 W Huron St (Located adj. to central high school)	Elementary	K-5
Crofoot School 2	250 W Pike St	Elementary	K-5
Emerson School	859 Emerson St	Elementary	K-5
Franklin School	661 Franklin Rd	Elementary	K-5
Frost School	723 Cottage St	Elementary	K-5
Hawthorne School	1400 N. Telegraph Road	Elementary	K-5
Herrington School	541 Bay St	Elementary	K-5
Jefferson Whittier Elementary School	600 Motor St	Elementary-Middle	K-8
Lincoln Elementary School		Elementary	
Le Baron School	1033 Barkell St	Elementary	K-5
Longfellow School	31 N Astor St	Elementary	K-5
McCarroll School	191 N Glenwood Ave	Elementary	
McConnell School	Corner of Paddock and Cottage		K-6
Owen Elementary School	43 E. Columbia Avenue	Elementary	K-5
Will Rogers Elementary School	2600 Dexter Rd (Auburn Hills)	Elementary	K-6
Malkim School	Walton and Joslyn	Elementary?	
Mark Twain Elementary School	729 Linda Vista	Elementary	K-5
Meyer School / Weaver Elementary School	Carlisle and W New York Ave	Elementary	K-5
Walton Charter Academy School	744 E. Walton Blvd	Elementary	K-5
Washington Irving School	1830 Square Lake Rd?	Elementary	K-5
Webster Elementary School	640 W Huron	Elementary	K-6
Whitfield	2000 Orchard Lake	Elementary	
Whitman Elementary School	125 W Montcalm St	Elementary	K-5
Whitmer Human Resource Center	60 Parkhurst	Elementary	K-5
Willis Elementary School	North Opdyke	Elementary	K-5
Wilson School	Corner Sanford and Midway	Elementary	
Wisner School	441 Cesar E Chavez	Elementary	
Middle / Junior-High			
School Name	Address	Classification	Grade Span
Eastern Junior High School	23 S Sanford St	Middle School	
Jefferson Middle School	600 Motor St	Middle School	
Lincoln Middle School	131 Hillside Dr	Middle School	
Madison Middle School	1275 N Perry St	Middle School	
Washington Middle School	710 Menominee Rd	Middle School	
John F Kennedy Jr High School	1700 Baldwin Rd	Special Education	
High / Senior High / Alternative / Vocational			
School Name	Address	Classification	Grade Span
Pontiac Central High School	300 W Huron St	High School	
Pontiac High School	300 W Huron St	High School	
Pontiac Northern High School	1051 Arlene Ave	High School	
Other			
School Name	Address	Classification	Grade Span
Pontiac Academy for Excellence			
Central School	101 E Pike St	Historic Landmark	
Fairlawn Center		Psych Hospital	

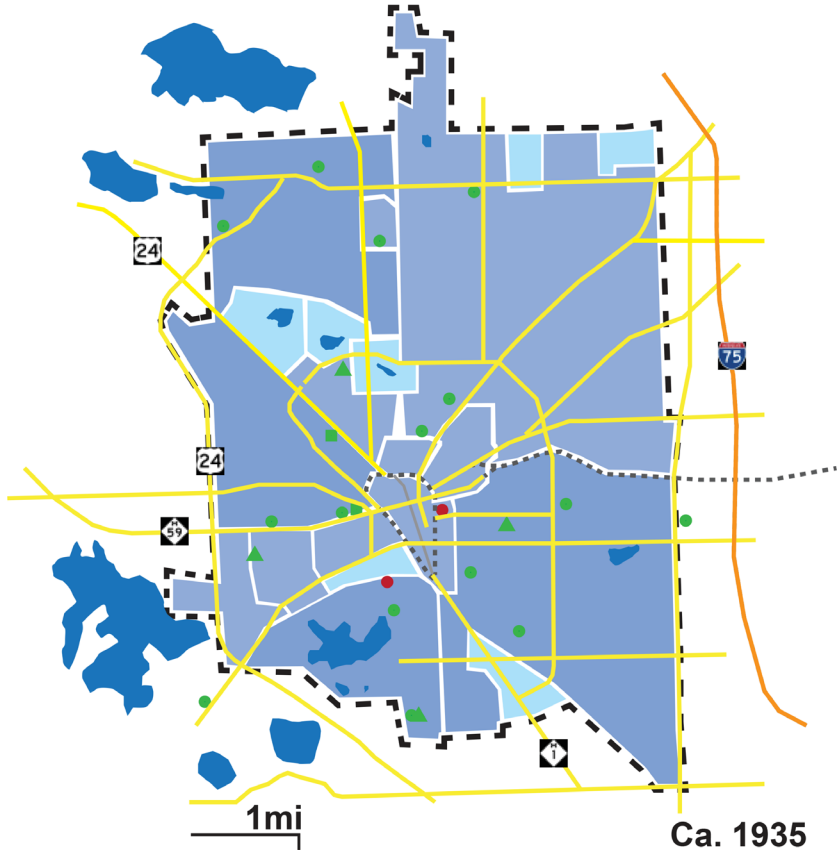
Year Built / Opened	Operational Status	Year Closed	Demolished	Notes
	1957 Open			
			YES	Early 1900s
Early 1900s			YES	Corner of Bagley & Wesson (or Gillespie)? - replaced by Bethune - was a 4-room 2-floor school house. - Still around in 1958
1968 (master plan, thought 1955)	Closed	2010		Became McCarroll Center at some point
Pre-1909	Closed - Sold	1972?	YES	Building replaced and relocated in 1973
	1973 Closed - Sold	2009		
	1947 Closed - Sold	2010		
1957-1958	Closed - Sold	2010		
1950s-1960s	Closed - Sold	Post-2012		Converted to "P.E.A.C.E. Academy" early childhood center
1900s	Closed - Sold	Post-1992	YES?	Former school next to Hawthorne park
	1957 Open			
Ca. 1955	1929 Closed	2012		Combined Elementary-Middle original date unknown, addition 1962 Lincoln Middle School maybe?
	1944 Closed - Sold	2010		
	1928 Closed - Sold	2010		
	1924 Closed	2005		
1909?	Closed - Sold	1971 YES		Around in 1916
	1927 Closed - Moved	2002		Moved to Kennedy Center
	1957 Open			
1950s-1960s	Closed		YES?	Demolished partially as of 2012 - original bldg early 1900s, same site
	1955 Closed	Ca. 2005-2009		
Post-1995	Closed - Sold	Pre-2000		DAVIS case says 1955, building is older - replaced elsewhere? - Used by church since 2000, Boiler failure 2008, fire set 2014.
	Open			Newer Public charter school
	1959 Closed - Sold	Post-1982		Unity Center Mosque?
	1921 Closed - Sold	2006		
	1926 Closed	1991 YES - 2003		
	1969 Open - Repurposed			International Technology Academy located here.
	1971 Open - Repurposed			Nown known as WHRC Elementary School
	1926 Closed	1981 YES		
Early 1900s	Closed - Sold		YES	Present 1937, demolished later, church on site.
	1911 Closed			Restored
Year Built / Opened	Operational Status	Year Closed	Demolished	Notes
	1924 Closed	1980s?		Replaced by Jefferson, became Edison/Perdue Academy
	1929 Closed	2012		Same as Jefferson/Whittier Elementary
	1929 Closed	2012		Possible new location for ITA
	1956 Open			now Pontiac Middle School
	1928 Closed	2006		
1960s	Open			Owen Elementary now located here, former middle school
Year Built / Opened	Operational Status	Year Closed	Demolished	Notes
	1973 Closed - Sold	2009		Sold to Lee Industrial Contracting. Preserved.
	1913 Closed	1973	1975	Renamed "Central High School" in 1958.
	1958 Open			Consolidated w/ Central High School, now known as Pontiac High School
Year Built / Opened	Operational Status	Year Closed	Demolished	Notes
	1893 Closed			For Sale
	1966		YES 2011	

4f The District and Neighborhoods Through Time

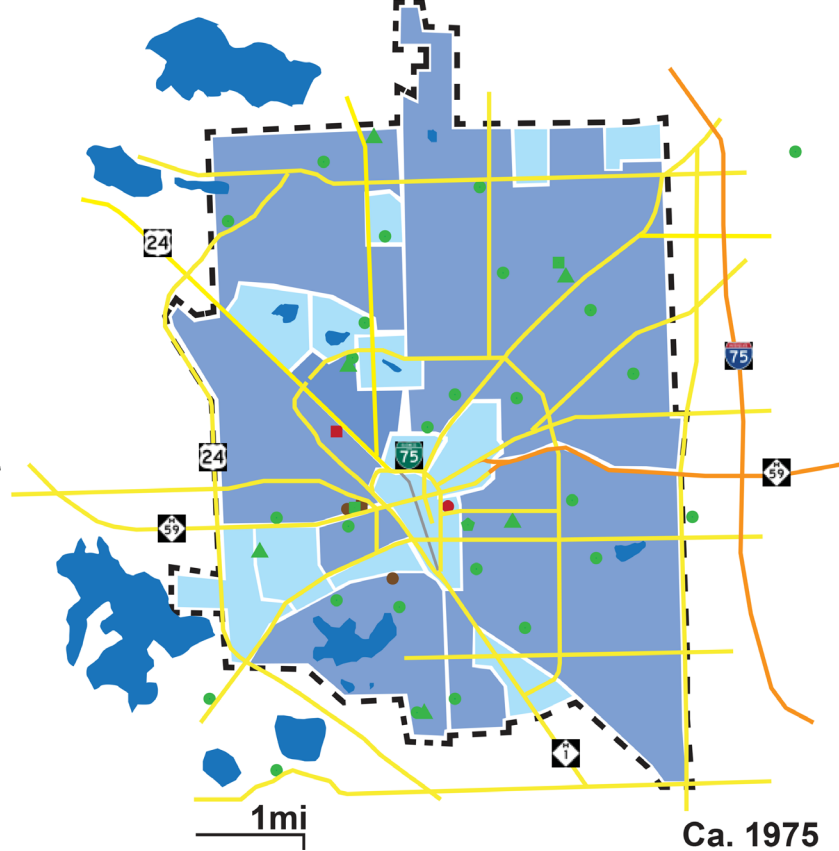
The city of Pontiac and its school district reached its peak in the early 1970s. Over time, as its neighborhoods grew, buildings were built as needed. During the city's decline, these buildings were largely retained, until the school district reached a critical point, requiring the closure of many of its schools. Despite this, however, the vast majority of the closed schools in the city of Pontiac remain, providing a significant opportunity for investment and re-use. Population data sourced from US Census.

Pop. 1930: 64,928

Pop. 1970: 85,279



Ca. 1935



Ca. 1975

Educational Inventory

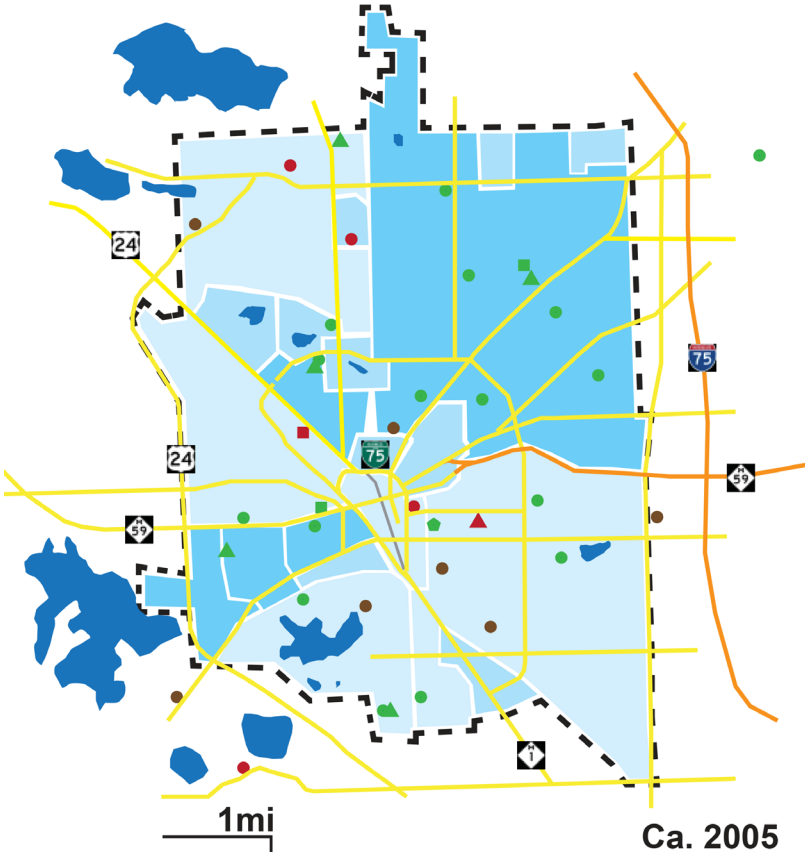
- New/Existing ● Elementary School
- Closed ●
- Demolished ●

- ▲ Middle School
- ▲
- ▲

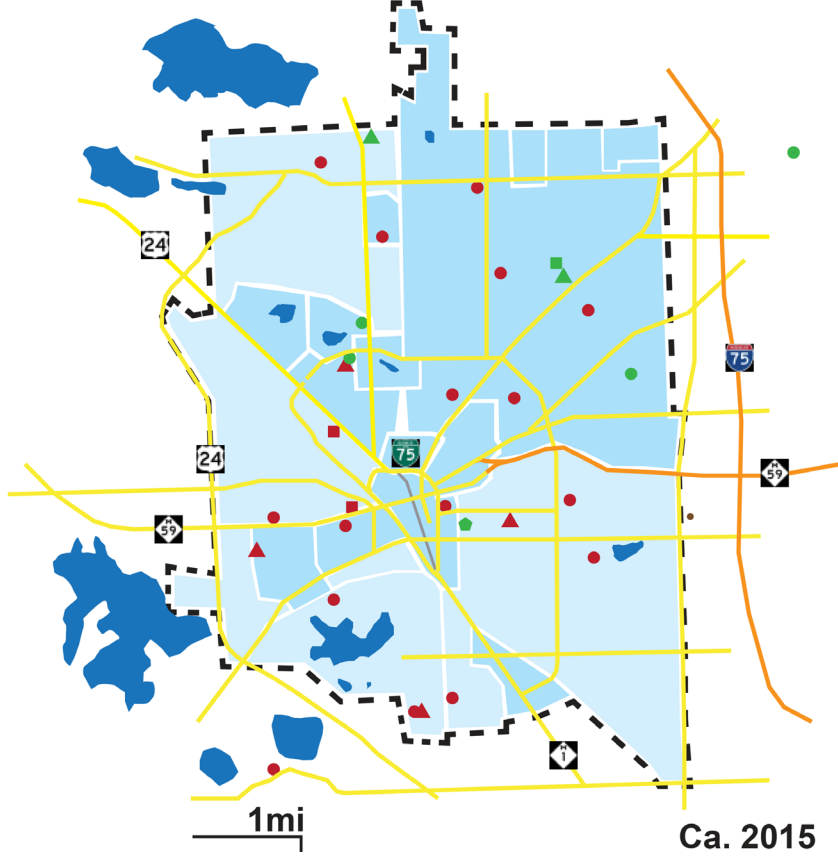
- High School
-
-

- ◆ Resource Center
- ◆
- ◆

Pop. 2000: 66,337



Pop. 2015 (est.): 59,515





Pontiac Central High School as photographed from Huron Street. Modular concrete panels skin the entirety of the building's exterior.



**Pontiac Central High
School**

Pontiac has a unique character in that it is, in essence, a small town with hints of a big city. At just over 65,000 residents, it is neither the largest city in Oakland County, nor is it the smallest. What Pontiac is, however, is a hub of sorts. The various highways and expressways converging at or near the city center place it at the intersection of various travelers heading in any given direction, and raise questions as to why the city itself has not garnered regional draw, like others have. It is also the seat of the Oakland County government, which though it is on the far northwest outskirts of town, is an active hub of civic leadership, and thus, activity. Pontiac's problems are much less logistical than they are perceptible, however. The city suffers from the same issues that plague Detroit.

Pontiac's issues are largely that of image: a history of racial tension, urban decay, and violent crime have, for a long time, pervaded the city's efforts to become a destination of any kind. Even when courting the Super Bowl in 1981, special care was given to 'stage' the city with false storefronts and temporary cleaning measures to put forward an image of a much more active urban core - something newspapers of the time, even the city's own Oakland Press, covered quite considerably. (Super Bowl 1981 Plan). Unlike Detroit, however, the city's civic services continued to operate largely unobstructed despite deficits, and the city's school district soldiered on with decent performance until the early 2000s, when Pontiac's economic situation began rapid decline following General Motors' divestment of interests in the city, and the closure of several factory sites within it. It is a city that is in need of considerable social, cultural, economic assistance and investment.

In recent years, Pontiac has been gaining ground: Much like Detroit, the city underwent emergency management, but was able to resolve its debts without bankruptcy and emerged with an operating surplus. Various areas around the city are undergoing revitalization work, from the demolition of the long-abandoned Pontiac Silverdome and the reactivation of the Phoenix Center parking garage and amphitheater, to the new M1 Concourse development, which takes 23 acres of former industrial property and is providing a test track, shops, and condominiums for automobile enthusiasts. The violent crime rate has fallen 37% since the city switched to the County Sheriff's office for police service in 2011, home values have risen 9% in one year alone, and \$754 million in new economic investment has made its way into the city (Martindale). While safety and business opportunities in the city continue to improve, a striking gap still remains in the city fabric: Its schools and family services are sorely lacking - in funds,

resources, and availability. Pontiac also, aside from a small administrative facility operated by the local community college, has no vocational training offerings for its residents. Couple this with the majority of the city's parks either being neighborhood yards and cemeteries, none of which are near the city's core, and the fact that all three of Pontiac's dedicated community centers are closed and not slated for reopening, and the family outlook in Pontiac is rather bleak. Without a generation of young people both flooding into - and being raised within - the city, Pontiac's future investment may only cater to a narrow demographic, and not one that remains in the city long, as young families often exit urban centers in search of better schools and services.

Pontiac Central High School's site and internal amenities have the potential to fill the vacuum created by the absence of these services. As a building, it already features many of the spaces needed to effectively serve a living community: Activity spaces, an auditorium, gymnasium, swimming pool, numerous other athletics facilities, music and performance rooms, art and industrial technology labs, and even an auto repair shop. With regards to the property surrounding the school, the entire super-block between State Street, Prall Street, and Huron Street is dedicated to the school, with green space, including a historic planted grove, and room for more dedicated programming. It is the largest single piece of available green space near the city core, and could serve as an analogue to the central park that many similar communities enjoy.

Through adaptive re-use, this 478,210-square-foot former high school could become a hub of activity and an opportunity for economic progress for the people of Pontiac. This is not without its challenges, however. Despite the school's ideal location on the busy Huron Street, and its proximity to downtown, it is divided from downtown and the neighborhoods east by a railroad overpass and embankment. The building itself is difficult to reprogram efficiently due to its size - four times larger than the typical high school, and considerably larger than any other typical community center.

Examination of these challenges, the site's history, and the building's construction and program reveal many of these issues in detail.

5b Site History

The site occupied by the former Pontiac Central High School is perhaps the most dynamic of all of the sites that Pontiac City Schools operated through history. On this one site, at least four separate buildings were built through time:

(Not pictured) 1849: Union School / Union High School - A relatively large (for the time) schoolhouse referenced in some publications. Considered the first "incarnation" of Central High School

1. 1871: Grove High School (Upper left image) - Noted as a Gothic Revival school building built at the southeast corner of the site to replace crowded Union High School. As early as 1910, the school had been re-named "Pontiac High School"

2. 1909 (earliest date known to exist): Crofoot School - Located west on the same site, an elementary school intended to serve the adjacent high school.

3. 1913: Pontiac High School - A large three-story school built on the site of the 1871 school. It is assumed that either a nearby school served the high school students prior to demolition during construction between 1911 and 1913, or the new school was built "Behind" the old school, which was then demolished. Became Pontiac Central High School when Pontiac Northern High School was opened in 1956

4. 1973: Pontiac Central High School - A 478,000 square foot modular concrete building consisting of four floors - two above ground, two below, and a fifth sub basement - built directly west of the old school. Crofoot School was demolished to make way for this building and relocated to a new school south of the site that same year.

Both the 1913 and 1973 schools coexisted for two years until the old school was torn down in 1975.

Today, all that remains of the original site configuration are the grove area at the southeast corner of the site, and a small diagonal run of sidewalk that originally connected between the Franklin Boulevard intersection and an exit at the back corner of the 1913 school.

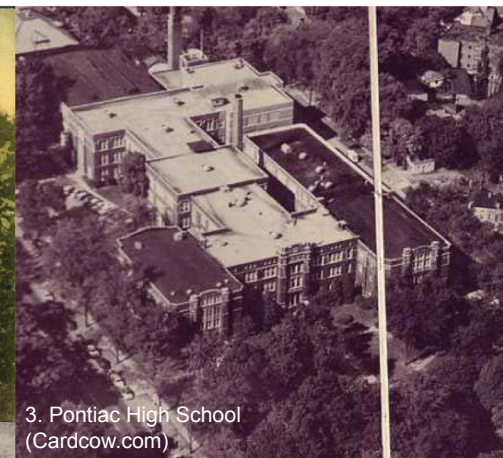
Note: the current "Pontiac High School", though sharing the name of the former school, is "Pontiac Northern High School", renamed following the closure of Central in 2009, and is, legally, a separate institution, and not a continuation of the former school.

On the opposite page is a visual timeline of the site's contents, beginning in 1949, the earliest aerial imagery date available. Various buildings were constructed and demolished on the site as the school property absorbed more of the site. The only original condition remaining on the site is the grove planted on the eastern-most corner, which dates back to at least 1860.

Images sourced from USGS Aerial Imagery Database and Google.



1. Grove High School (Cardcow.com)



3. Pontiac High School (Cardcow.com)



2. Crofoot School (Cardcow.com)



3. Pontiac High School (Detroiturbex.com)



4. Pontiac Central High School



1949



1956



1973



2014

- 1. Crofoot School - 1909
- 2. Central High School - 1913
- 3. Various Outbuildings - 1940s
- 4. CHS Addition and Crofoot Shed - 1956
- 5. Central High School - 1973
- 6. Crofoot School - 1973
- 7. Power Station - Pre-1978

Building Timeline

Existing
New Construction

5C The Connection

To better understand the site in relation with the greater context, an inventory of major land conditions, uses, and buildings was conducted. This revealed several key factors which led to further support its selection as the study site. It is one of the largest buildings in the city outside of the downtown core (minus any industrial facilities) second only to two of the city's three hospitals. As such, it is a major part of the city's built environment. While the city does have numerous parks throughout its many neighborhoods, there is no "central park" or other large green space near downtown outside of the top deck of the Phoenix Center, which is currently closed and is not configured in a way that would lend it to being a more dedicated green space. The property Pontiac Central High School block is the only large open green space within walking distance of downtown, making it a great opportunity to create interest.

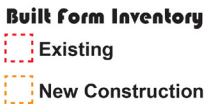
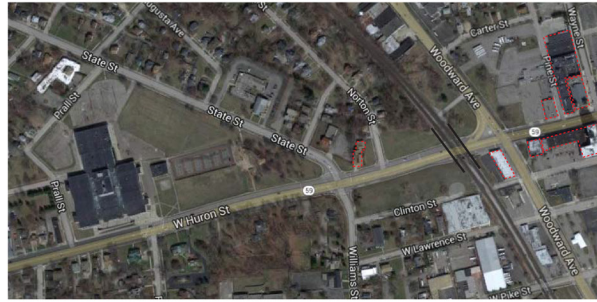
The site is approximately 900 feet from the nearest street-fronted building in downtown Pontiac, making it easily within reasonable walking distance. This connection, however, is completely vacant, with the space beyond the sidewalks occupied by embankments supporting a rail bridge. Retail presence along Huron Street is mostly vacant, with the focus primarily on Saginaw Street, where all of the city's entertainment venues are located. A similar condition exists east of Downtown beyond the Business Loop. This particular connection must be explored if the PCHS site is to feel "connected" to the rest of the city and activate the Huron Street corridor.

The connection to downtown was never strong, but has deteriorated over the last 60 years (and been impeded by infrastructure changes) to the point that it feels largely disconnected. The railway became a visual barrier.

900 feet takes the traveler from the core of the city to the suburbs.

This condition will be addressed in the final proposal, which includes a district plan of the area surrounding the school and its connection to downtown.

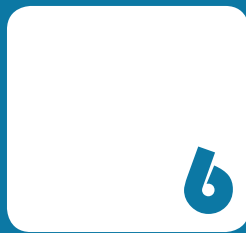
Images sourced from USGS Aerial Image Database and Google.



Understanding the site's relationship to the city provided context crucial to the overall improvement of the eventual design and its integration with the city. Pontiac Central High School's adjacency to downtown, some of the city's healthier neighborhoods, and its accessible nature, minutes from the expressways and located directly on M-59 cemented it as the chosen location. An examination of the building itself revealed more opportunities within.



Considered to be the "main" entry, view of the common area and corridor on the west side of the school from the rear of the building, near the gymnasium. The dedication plaque can be seen on the concrete wall to the left. Stairs to the building's various levels are through the archway at the center of the image. The interior of the building is covered in heavy layers of dust, dirt, and various debris.



Existing Conditions





Various photographs taken in and around the school, showing the condition of various parts of the building, and details used inside and out. While the center of the building does receive considerable natural light, it does not penetrate far into the wings of the building. Some interior photos sourced through Detroit-Ish.com, and Detroiturbex.com.



EXISTING CONDITIONS:

The Building

Designed by the firm Odell, Hewlett & Luckenbach Associates, with Carl Luckenbach as the chief designer and Barton Malow Company as the general contractor, Pontiac Central High School was completed in 1973.

Pontiac Central High School is constructed primarily from reinforced concrete and as such is a unique monoculture of materials. The exterior of the building consist of modularized concrete panel walls in 10-foot modules, and vary in height depending on level and location. The concrete itself is light, acid-washed with large exposed aggregates, typical of many Brutalist concrete structures of the 1960s-1970s. Mostly smooth, there are etched details at the top of the upper panels on most exterior walls that give the panels themselves a sense of detail. Heavy concrete beams protrude from the cantilevered upper level at the front and rear of the main part of the school.

Glazing on the exterior primarily consists of chamfered square-cut openings in the panels which are finished with square prefabricated windows (single-pane) mounted to the exterior of the panel, making them proud of the actual finish surface, and providing the sense of a clear opening from the interior (Mueller). Entries are called out using dark-colored metal curtain wall assemblies with half-lited doors and windows above waist-height. Above the main entries are two solariums that cover the end of the corridor on the second level, and at the side entries near the gymnasium and auditorium, entries are recessed underneath large concrete overhangs. The exterior is lit with halogen down-lights at overhangs and entry recesses, and new LED lamps located at utility poles around the site, illuminating the entire building at night, and keeping vandals away. The sides of the building forego the punched windows that are featured on the front and rear and feature full-width ribbon windows on stepped walls with sloped glazing at the top level. Four exit stair towers flank the main part of the building to each side and are pulled away from the structure, isolated from the main mass. The roof is flat, and mostly clear of any utilities, save for the mechanical mezzanine above the library/auditorium. Glass atriums line the central core of the building, allowing light into the otherwise largely windowless interior. At the lowest exterior level, red brick lines the walls, likely in an homage to the old school originally on the site. This same brick carries around the lower level entry wall at the main entrance on Huron St. All exterior walls are load bearing except for the uppermost floor, which is cantilevered, with the wall panels hung from the roof. There are essentially two levels above ground, and two below, with a fifth consisting of a sub-base-

ment and tunnel system reserved for utilities.

The interior of the building is essentially a parking structure with partition walls. While most of the building has quarry tile floors (typical of the era), there are large portions of the school that were carpeted or had vinyl composition tile. Columns are reinforced concrete, and those columns hold massive reinforced concrete beams that then support the concrete T-section floor system. Utilities are run in the interstitial space between the beams and T-sections. Many of the walls that reach to the roof are the same exposed concrete found on the exterior, including walls around stairwells. Security glass walls line any parts of the building that have corridors or balconies overlooking the central atriums, and there are numerous security doors in place throughout. Ceilings along the main corridors and stairwells are all exposed, with ductwork, pipes, and other utilities being painted vibrant colors. Classrooms and non-core spaces are primarily divided using modular wall panels, and the majority of these spaces utilize a 5'x5' suspended ceiling system manufactured by Armstrong that was discontinued in the early 1990s. This was undoubtedly original to the building. Core spaces such as the gymnasium, library, pool and practice facilities all have more permanent masonry or concrete walls, and the ceilings in many of these spaces are exposed. On one of the lower levels, performing arts practice spaces such as music and theater rooms have been acoustically renovated with dropped ceilings at some point in the 1990s (evidence of these ceilings being a later addition exists as the utilities such as ductwork above them is painted as it was in other rooms with exposed ceilings). At the entrances, a metal slat ceiling system is utilized to create a sense of formal presence. All interior lighting is either fluorescent or halogen.

The general layout of the building is three large clusters along two main corridors. The center portion is core spaces - auditorium, gymnasiums, pool, library, and kitchen, as well as offices. The two 'wings' feature classrooms, common areas with lockers, science labs, and other academic functions. The lower most levels are athletics facilities and industrial/performing arts spaces (Cartier).

Prior to its sale to a private owner, the building was in structurally sound condition but had been significantly compromised by vandals. Throughout the majority of the building, garbage and furniture that was left behind had been strewn about, and lack of maintenance over a 6 year period covered most of the interior in dust. Nearly all of the windows on the exterior were broken, which allowed the weather to compromise parts of the building as well. The lowest floors were flooded with almost 18" of water, and

this did some damage to utilities on the lowest level. Three separate fires damaged individual spaces within the building. Copper and wiring had been torn from the walls and ceilings and many of the building's electrical services were stolen, including breaker/fuse panels. The ceiling system, despite missing panels or having been damaged locally in places, was largely intact. Carpets and soft surfaces were ruined by exposure to the weather. Graffiti was sprayed on some interior walls, and the slat ceiling had been torn away in places to provide access to wiring above. Many windows on the interior were cracked or broken by vandals (Parent).

Currently, the building is under renovation by its new owner. All of the exterior windows have been replaced, some with double-pane glazing, and others to match original condition. Vestibules in the front of the school are being re-worked to allow for airlocks, in an attempt to improve the efficiency of the otherwise uninsulated concrete structure. While the core spaces are untouched for the time being, the classroom wings on the lowest three levels are currently being cleared out and turned into single, large spaces. As such, the majority of the modular partition walls and original ceiling system will be removed, as the building is prepared for multi-use light industrial tenant spaces.

The gymnasium is currently in use as storage and the wood floor is beyond repair, though the rest of the space is in sound condition. The telescoping bleachers were removed when the school was purchased and donated to Cody High School in Detroit, where they have been restored and reinstalled. One of the perhaps most surprising points, however, is that aside from damage (now repaired) resulting from building's broken windows and skylights, as well as water collection from one of the previous fires, the owner reports that there are no leaks in the building's roof, meaning that once the interior is prepped and systems are repaired/replaced, the building is ready for new build-outs inside.

While this new light-industrial use is conducive to the creation of jobs and activating the site for productive use, this project assumes that the school was never sold by the district and explores its alternatives based on the idea that the school district would continue to be involved. The interventions described in the Re-Use Alternatives and Final Proposal sections assume that the building is in pre-sale condition - vandalized, partially scrapped, but not stripped of its interior.

EXISTING CONDITIONS: Interior Program



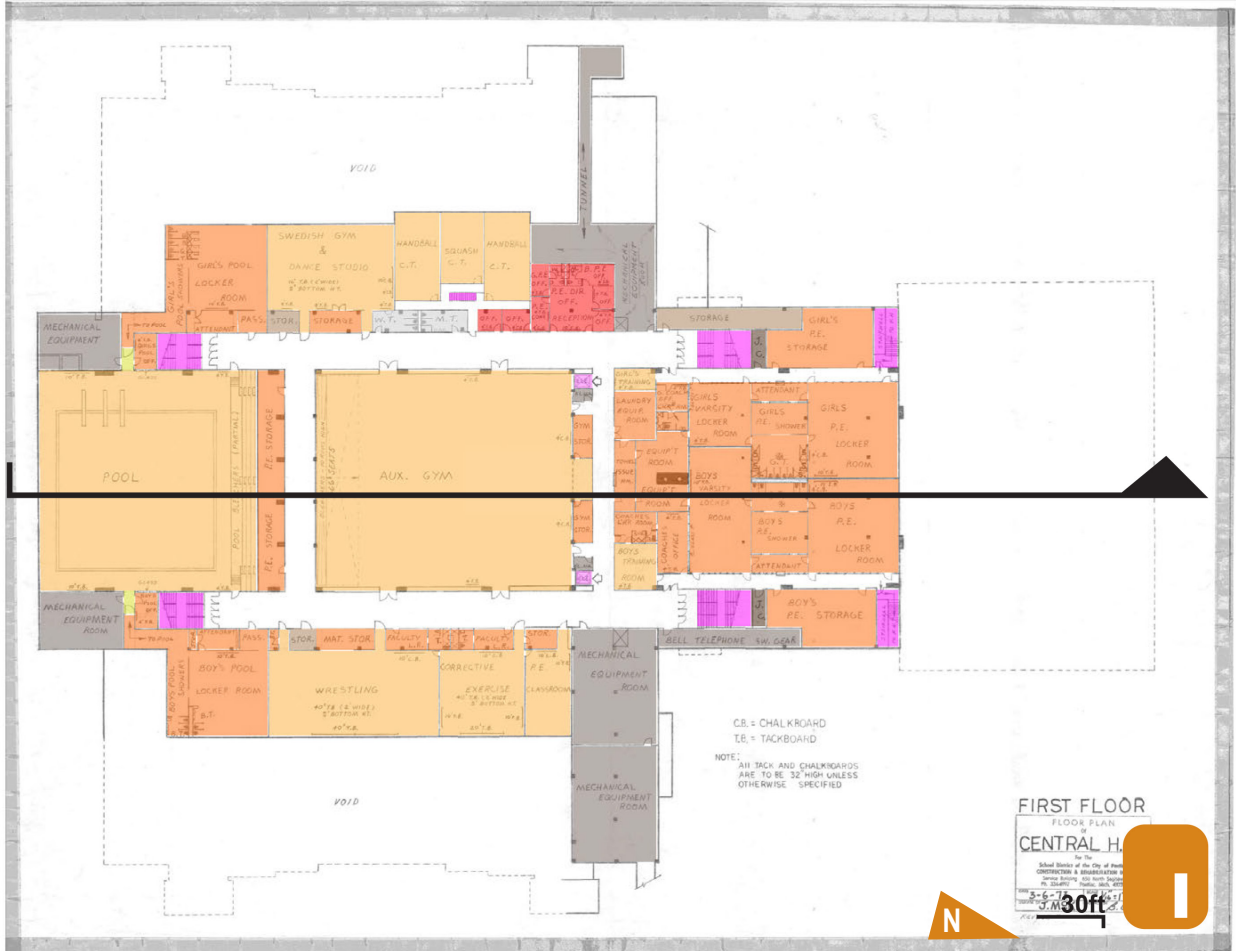
The program of the school - the composition of rooms and functions that make up its spaces - is divided both vertically and across its plan. Each floor is divided into West, Central, and East blocks, each appropriately named for its position in the school, and each floor has a specific set of functions dedicated to it. The program becomes less specialized in use from bottom to top, with dedicated athletics facilities at the lowest level, and standard classrooms at the top level.

The following section outlines the original configuration of each floor. These diagrams are based on drawings provided by the building's owner that were used in locating chalkboards and tackboards during the building's construction in 1972. The uses of the building's various spaces are called out by their original names and labels, and are color-coded for ease of understanding.

While there have been some modifications to the original plan since the building's construction, it is understood that this configuration is largely intact today.



EXISTING CONDITIONS:
Floor Plans



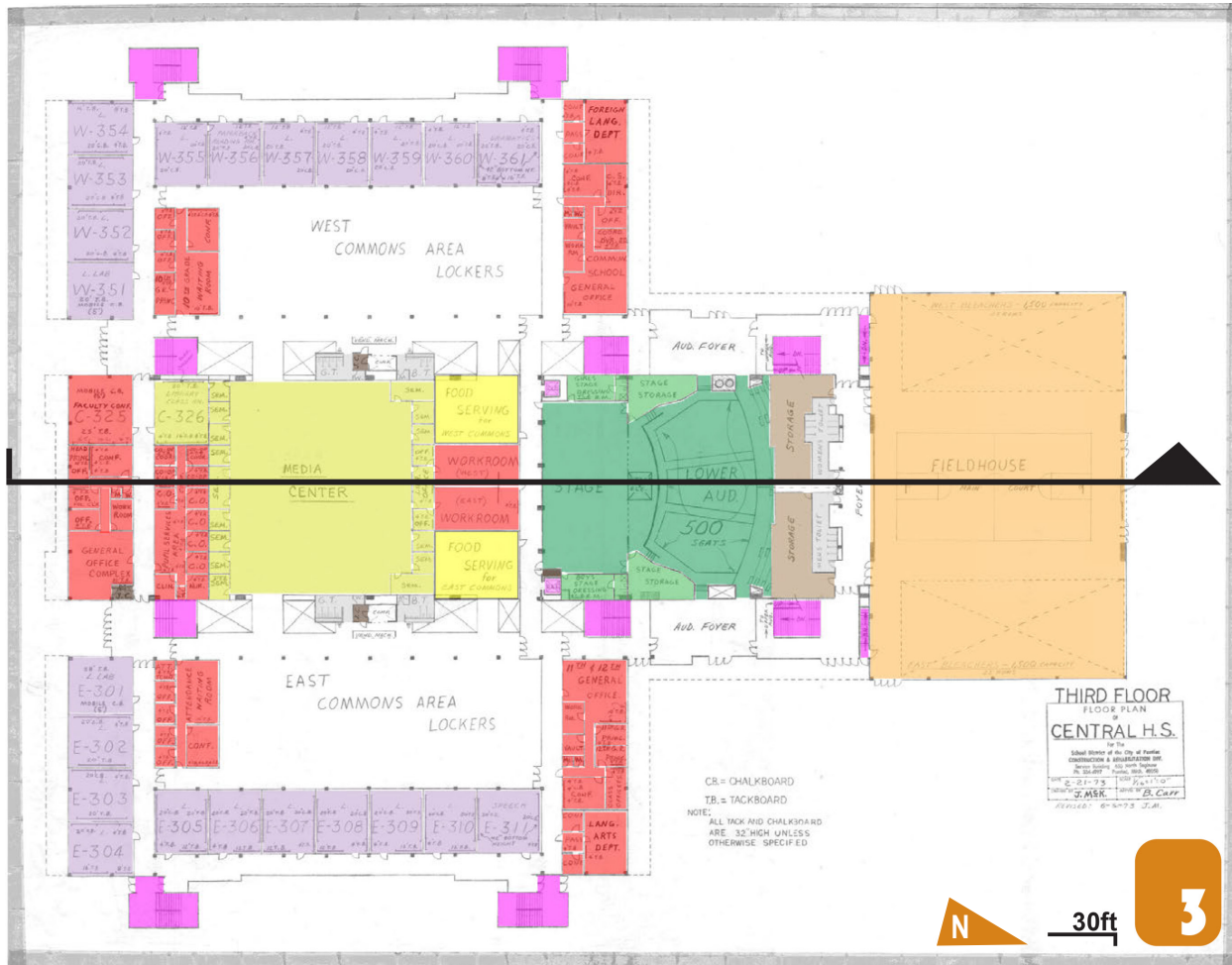
Existing Space

- Athletics
- Performing Arts
- Art / Graphics
- Computer Labs
- Media Center
- Custodial
- Restrooms
- Athletics Support
- Perf. Arts Support
- Bookstore
- Kitchen
- Science Lab
- Utility
- Office
- Industrial Arts
- Classroom
- Resource Room
- Storage
- Primary Circulation



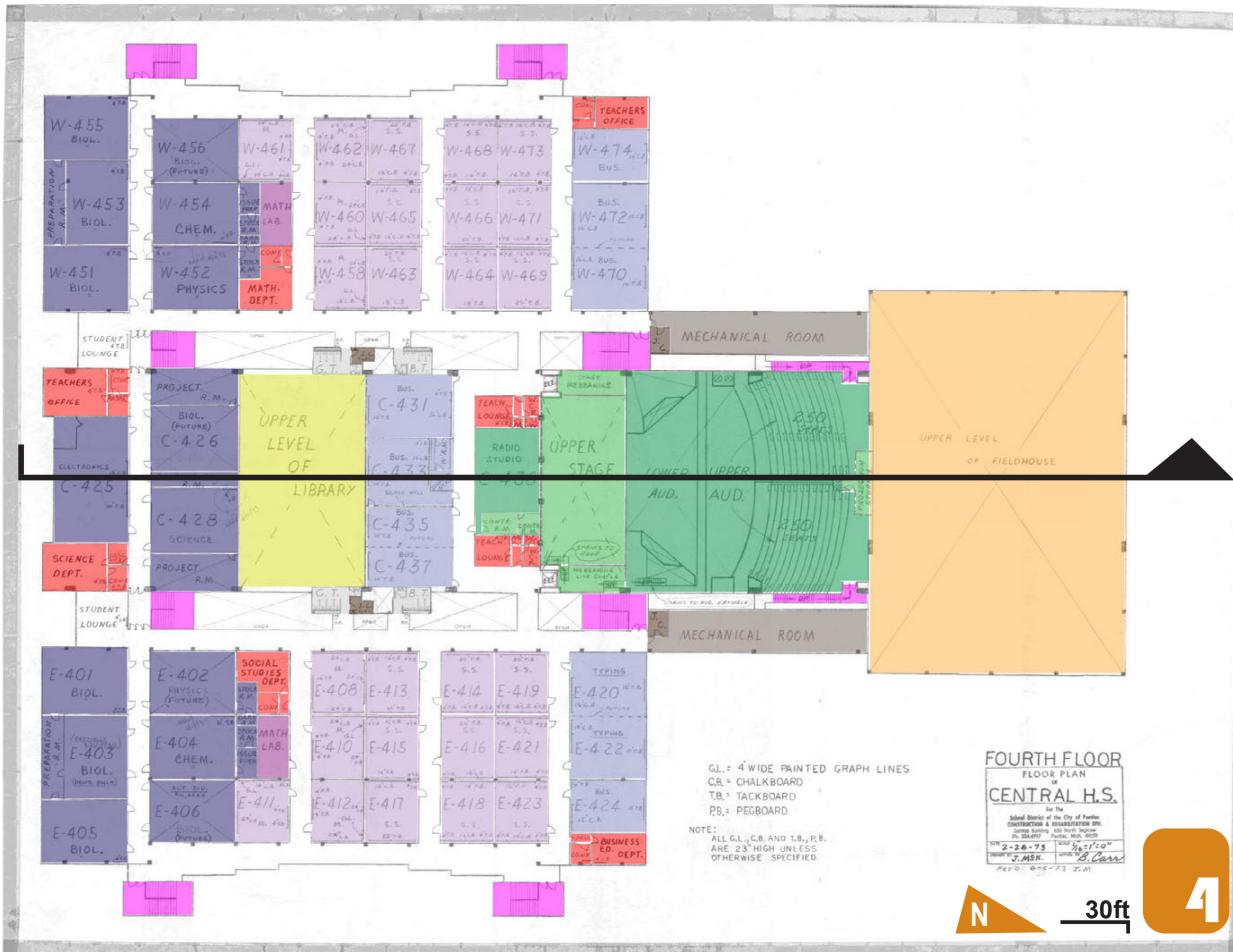
Existing Space

- Athletics
- Performing Arts
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- Restrooms
- Athletics Support
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- Bookstore
- Kitchen
- Science Lab
- Utility
- Office
- Industrial Arts
- Classroom
- Resource Room
- Storage
- Primary Circulation



Existing Space

- | | | | | | | |
|--|--|--|---|---|--|--|
| Athletics | Performing Arts | Art / Graphics | Computer Labs | Media Center | Custodial | Restrooms |
| Athletics Support | Perf. Arts Support | Bookstore | Kitchen | Science Lab | Utility | Primary Circulation |
| Office | Industrial Arts | Classroom | Resource Room | Storage | | |



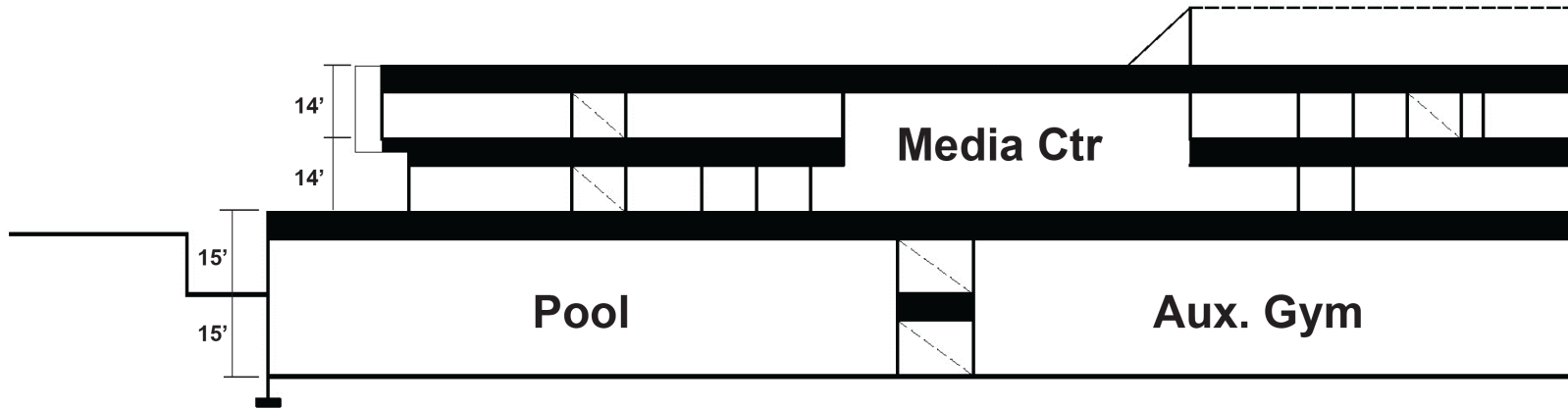
Existing Space

- Athletics
- Performing Arts
- Art / Graphics
- Computer Labs
- Media Center
- Custodial
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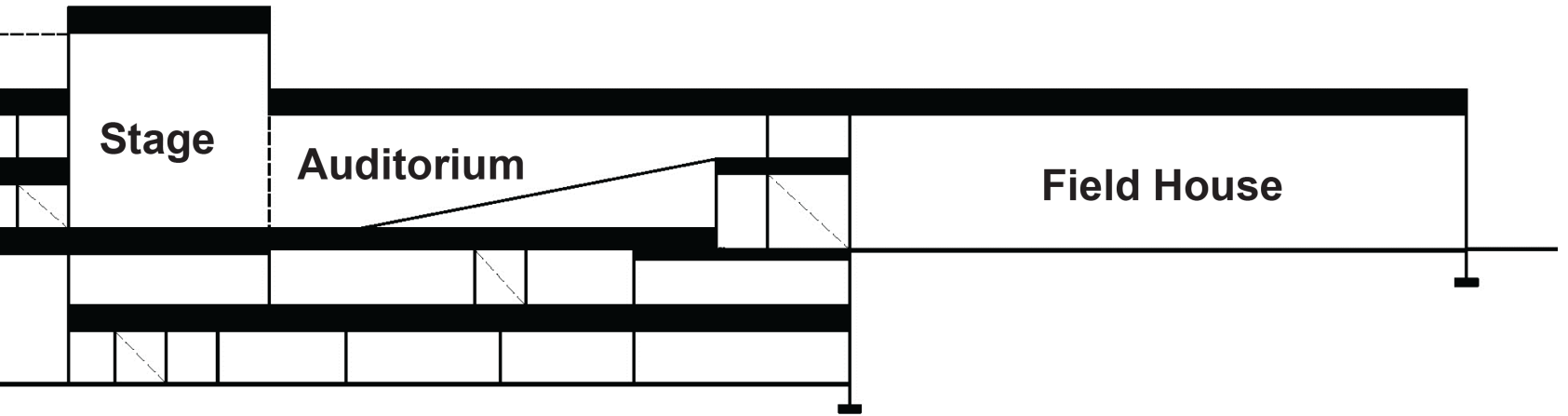


EXISTING CONDITIONS:
Section

The building's larger spaces are spread across multiple floors, with the auxiliary gymnasium and pool at the lowest floor. The media center, auditorium and field house are all located on the main level. The most significant challenge to re-use in terms of the building's spaces is the low floor-to-floor height, with the upper floors being 14 feet between them, and an average structural system thickness of 4 feet 10 inches, reducing effective ceiling heights to 11 feet or less in all single-story spaces.



Section





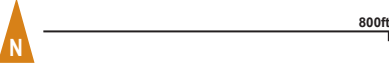
EXISTING CONDITIONS:
Site Plan



Image sourced from Bing Aerial Imagery

Opportunities

- 1. Ex. Pontiac Central High School (Closed)
- 2. Ex. surface parking.
- 3. Ex. practice field and green space
- 4. Ex. tennis courts.
- 5. Ex. grove (historically significant).
- 6. Cleared embankments.
- 7. Railway overpass dividing downtown from western neighborhoods.



EXISTING CONDITIONS: The Site



be

Pontiac Central High School sits at the southwestern corner of its 20-acre site. The site itself consists of several large parking lots, practice fields for football and soccer, six tennis courts, and the historic grove at the eastern corner of the site.

The campus power station is directly east of the school across the service drive. A sloping site, the practice fields, tennis courts, and parking areas are all elevated to a flat surface, with a berm around the perimeter adjacent to the roads and sidewalk. The elevated nature of most of the site and the prominence of the building at the southwest corner give it a sense of significance, but also divide it from the surrounding context.

Opportunities exist to re-use the building, reclaim space taken by the expansive existing parking lots (all of which are in very poor condition), and re-use the areas set aside for practice fields and tennis courts. Due to the historic significance of the grove at the edge of the site, it will be preserved in its entirety. The site is approachable from all directions, which requires attention when planning for re-use.

The overall plan for re-use was developed from the analysis of the building and site from both historic and practical perspectives. The immediate choices were to re-use the existing school and power station, eliminate surface parking, reconfigure the green spaces into an athletics field and plaza, and preserve the grove, all of which would respect the history of the site and generate new activity for downtown workers, local residents, and regional visitors.



Proposals

- 1. Adapt/Reconfigure ex. school, power station and plaza.**
- 2. Remove surface parking.**
- 3. Preserve/Renovate playing field/ green space for public use.**
- 4. Remove surplus tennis courts.**
- 5. Preserve grove.**

Re-Use Legend

- Preserve
- Clear and Renovate
- Adapt
- Remove



800ft

A simple, relatively bare site consisting largely of the building, its power station, and open space hold considerable opportunities for various uses. A central park environment often contains various different types of spaces, and collective community resource centers are equally diverse. The goal of the design proposals in Section 7 is largely to explore the diversity of the building program. An examination of community needs dictated the internal program, which then dictated the external site plan.



The existing structure is composed almost entirely of heavy-aggregate acid-washed concrete on its exterior and interior core walls. The weight and impermeability of this material creates a brutal, stark aesthetic.



Re-Use Alternatives

7a **FACTORS:**
Community Needs

The major aim of this project is to provide services to the citizens of Pontiac that are currently deficient - underserved in some way - or nonexistent. The school district, for example, lacks the funds to operate many of its specialized academic programs effectively, the city lacks the funds needed to maintain its community centers, and there are no major child or family service centers in the city. Vocational training and relationships to higher-paying, skilled jobs are also nearly nonexistent. This project aims to provide spaces to alleviate these issues.

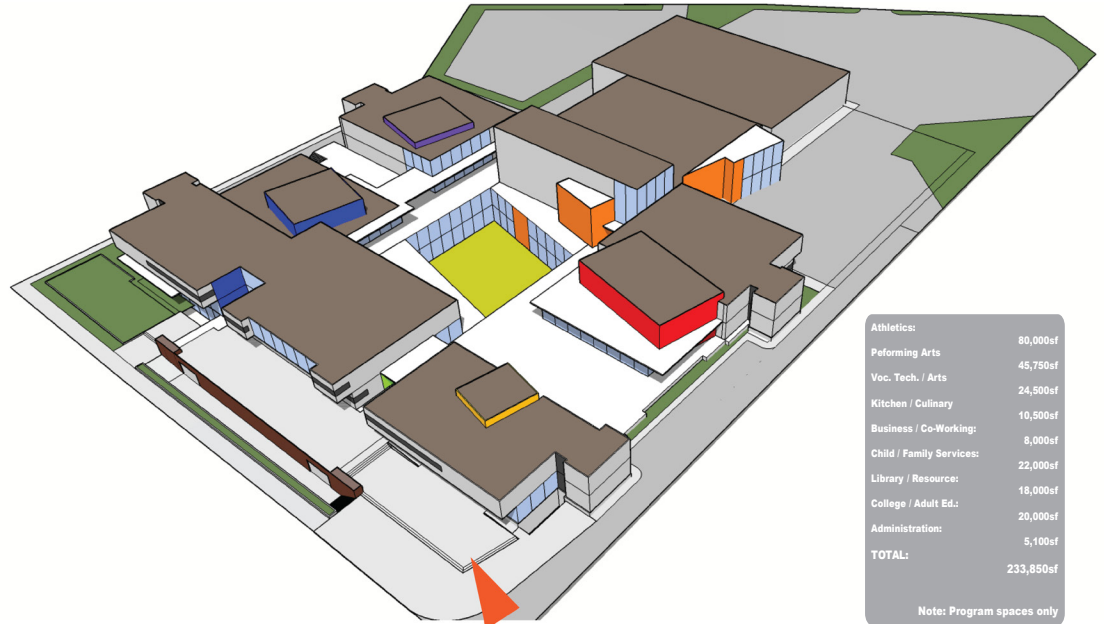
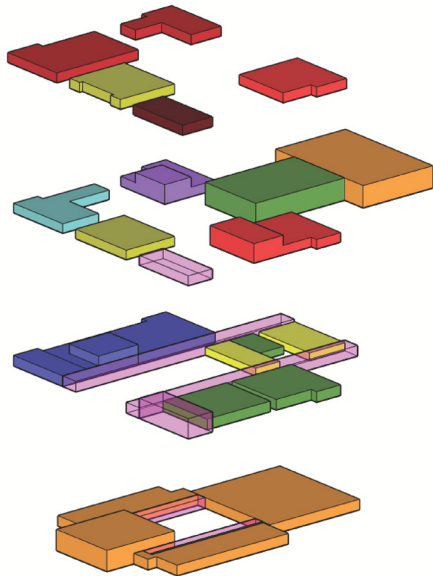
RECREATION | OUTDOOR ACTIVITIES
CHILDREN'S / FAMILY SERVICES | CULTURE
ENTERTAINMENT | VOCATIONAL TRAINING
BUSINESS INVESTMENT | EDUCATION

The exploration of program alternatives for the school began with identifying core functions:

1. A business incubator / co-working space to foster business growth.
2. A child and family services center including classrooms, activity space, and childcare facilities to co-opt with the school district and provide comprehensive, continuous learning.
3. An arts and culture center for use by the local community, including artists and professionals.
4. An early college, industrial arts and technology center complete with automotive repair shop, wood and metals shops, laboratories, and instruction spaces.
5. A performing arts center utilizing the auditorium and practice spaces to support locally-sourced and regionally-drawn performances.
6. An athletics and fitness center utilizing the field house, pool, and existing facilities to provide much-needed recreational facilities to the community.
7. Various site improvements to provide and enhance a central community park to the city.

7e PROPOSAL I:
Subtract + Add

The initial exploration of the adapted school involved demolition of large parts of the building - essentially the auxiliary gymnasium and everything above it, the media center, and half of the east and west wings - and conversion of the single building into a campus of smaller buildings connected only on the lower levels, while adding multi-purpose spaces for each sub-section of programming. This provided the most dynamic program, but disconnected many of the spaces within.



Athletics:	80,000sf
Performing Arts	45,750sf
Voc. Tech. / Arts	24,500sf
Kitchen / Culinary	10,500sf
Business / Co-Working:	8,000sf
Child / Family Services:	22,000sf
Library / Resource:	18,000sf
College / Adult Ed.:	20,000sf
Administration:	5,100sf
TOTAL:	233,850sf

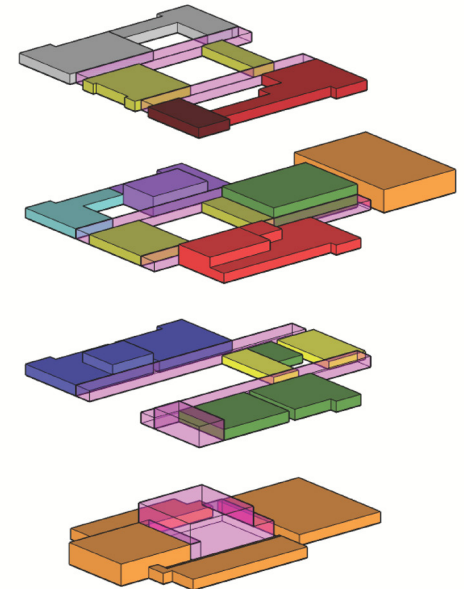
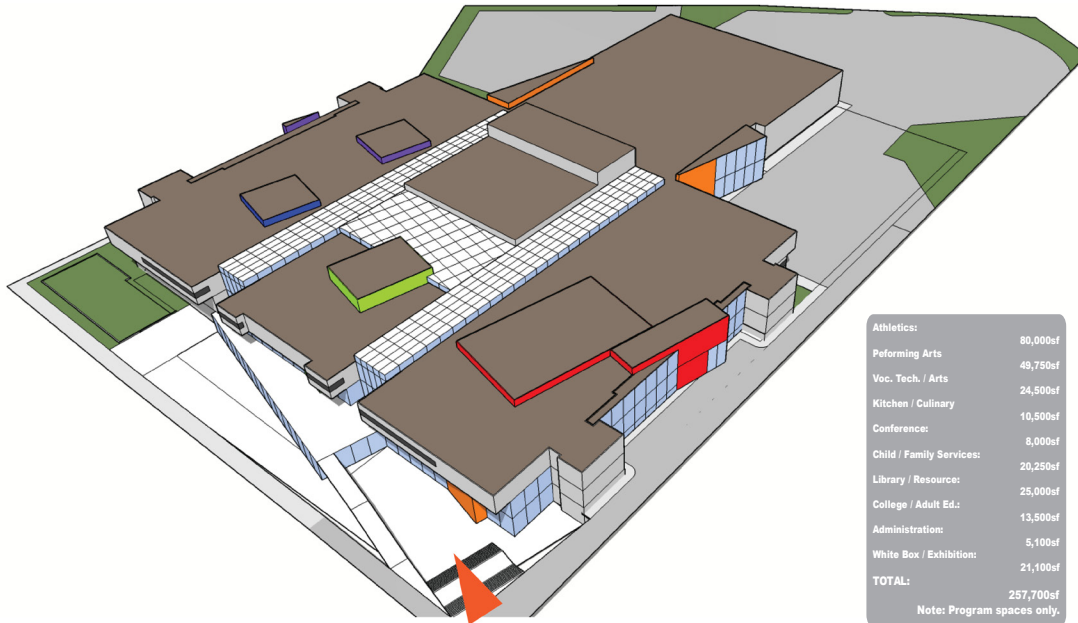
Note: Program spaces only

Program Legend

- Athletics
- Kitchen / Culinary
- Black Box
- Administration
- Retail / Cafe
- Performing Arts
- Library / Resource
- Child / Family Care
- White Box / Exhibition
- Voc / Tech / Arts
- Conference
- Early College / Ed.
- Primary Circulation

The second proposal explored a more pragmatic approach: simply filling the existing structure with the intended program, enlarging the desired spaces as needed, and modifying the central structure to bring in more natural light, as well as sinking the main entry into the second level, rather than entering at grade. This would create a formal entry plaza while leaving the maximum amount of space for expansion, but left nearly 25% of the topmost floor vacant.

PROPOSAL 2:
fill **7c**



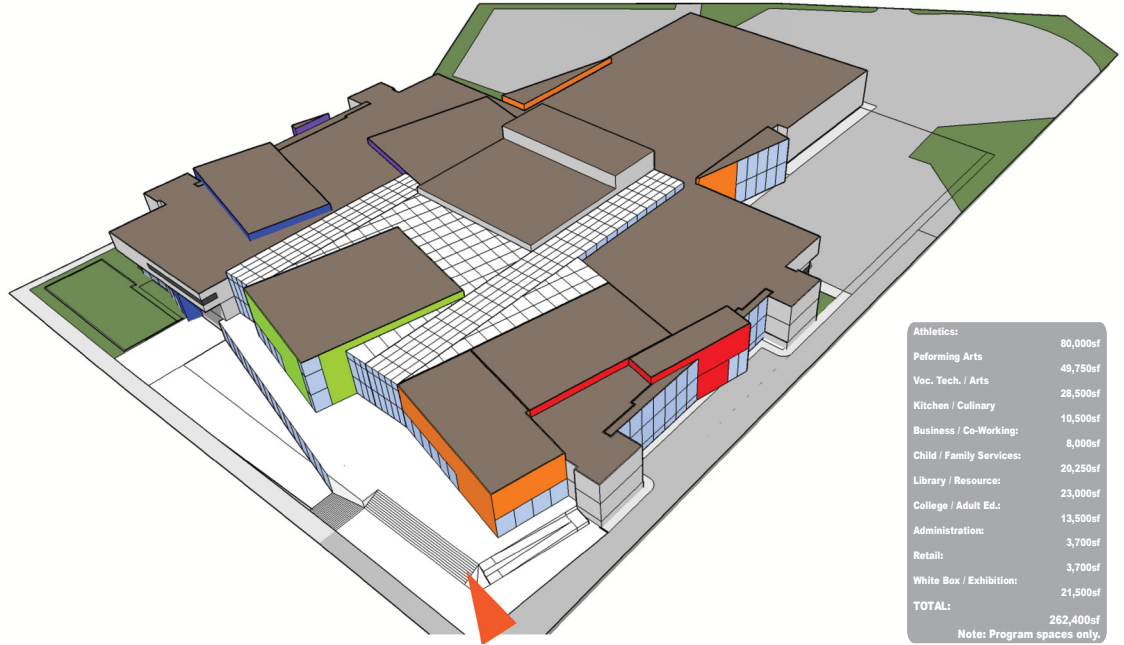
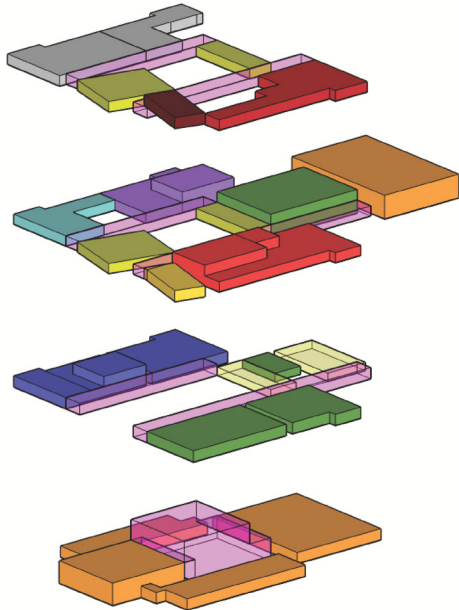
Athletics:	80,000sf
Performing Arts	49,750sf
Voc. Tech. / Arts	24,500sf
Kitchen / Culinary	10,500sf
Conference:	8,000sf
Child / Family Services:	20,250sf
Library / Resource:	25,000sf
College / Adult Ed.:	13,500sf
Administration:	5,100sf
White Box / Exhibition:	21,100sf
TOTAL:	257,700sf
Note: Program spaces only.	

Program Legend

- Athletics
- Kitchen / Culinary
- Black Box
- Administration
- Retail / Cafe
- Performing Arts
- Library / Resource
- Child / Family Care
- White Box / Exhibition
- Voc / Tech / Arts
- Conference
- Early College / Ed.
- Primary Circulation

The third proposal was explored as a mixture of the first two, involving partial demolition of the southeast corner of the school building, and replacing most of the core space with new structure under a glass atrium. This broke the symmetry and formal order of the building, created a more significant plaza along Huron Street, but yielded no other significant benefits.

7e PROPOSAL 3:
Hybrid



Athletics:	80,000sf
Performing Arts	49,750sf
Voc. Tech. / Arts	28,500sf
Kitchen / Culinary	10,500sf
Business / Co-Working:	8,000sf
Child / Family Services:	20,250sf
Library / Resource:	23,000sf
College / Adult Ed.:	13,500sf
Administration:	3,700sf
Retail:	3,700sf
White Box / Exhibition:	21,500sf
TOTAL:	262,400sf

Note: Program spaces only.

Program Legend

- Athletics
- Kitchen / Culinary
- Black Box
- Administration
- Retail / Cafe
- Performing Arts
- Library / Resource
- Child / Family Care
- White Box / Exhibition
- Voc / Tech / Arts
- Conference
- Early College / Ed.
- Primary Circulation

These three initial proposals, each with their benefits and drawbacks, began the final exploration of form and function. From this exploration came the basic arrangement of the final program, which blended these ideas with a final form that would address its integration with the site to a greater degree. Section 8 outlines the development of this proposal.



View of the Southeast Entry renovation, part of the final proposal. The cantilevered space above is a lounge with views looking out to the neighborhoods south of the school and Downtown Pontiac.



**Final Proposal:
300WEST | Pontiac Central
Park and field**

8.1 A Word on Sponsorship

One of the major factors in public re-use is the availability of funds - not just for the renovation itself, but for operational overhead as well. This proposal assumes that the building and site are both retained by the school district, and sub-leased to serve its numerous functions. The decision not to sell the building prevents it from becoming an exclusively privately-operated enterprise. Given that the school district and city both lack the funds needed to maintain a project of this scope, however, external sources of funding are necessary to ensure it would both be completed and operate successfully.

Sponsorship comes in many forms. Philanthropic gestures from wealthy individuals and organizations can contribute significant funds to a project, and with a history of investment in the school district and city by General Motors, for example, many costs can be offset by annual donations and investment. Individual organizations operating within the building, its numerous programs, and needed resources can all be provided using a combination of publicly-sourced funding, donations, and low-cost memberships.

The S.A.Y. Charities Play Center in Detroit is an example of this model, where the Lipke Recreation Center was converted and is funded by donations, grants, and support sponsorship from community members, organizations, and corporations active in the community (SayPlay).

This proposal assumes that funding for the project would be made available and that the operational funds and resources needed would be provided, as this aspect of the project is not the focus of the study.

The final proposal for the Pontiac Central High School site includes a comprehensive building program and site development. The greater site is collectively known as “Pontiac Central Park and Field”, hearkening both back to the historic Central High School that it previously housed, and the new literally central park and public-use athletics field. Throughout the site’s history, every incarnation of the city’s original high school since 1871 has shared the 300 West Huron Street address, despite the numerous changes to the name of the school itself and the buildings in which it was housed. The building itself is renamed “300WEST”, maintaining this historic address and its connection to the former school, while differentiating it from the park proper. The building and park combined are a new central community, education, and culture hub that seeks to fill the many gaps existing in Pontiac’s community landscape.

To achieve this, the site itself is divided into three sections:

1. A formal park plaza geared towards pedestrian traffic along Huron Street and visitors from downtown, with food kiosks and seating, a central pedestrian avenue connecting the street to the building, reflecting pools, and a promenade along the front facade of the building itself.
2. The athletics field, tennis courts, open yard and “artBOX”, which uses the exterior of the power station, which cannot economically be relocated, as a canvas for graffiti and local artists to paint on regular rotation.
3. An area on the northwest corner of the site, segregated from the high-activity zones by the building itself, known as “playCENTRAL”, a large playground open to the community for use by neighborhood families in a safe environment.

The building is divided more formally in a similar way. The final form and program of the building rely on a significant reduction in the square footage of the building’s upper floors. To achieve this and preserve the overall form, three subtractions were made from the original form: one each on the east

and west ends of the central area of the school, and one directly in the center, through the auxiliary gymnasium and media center. This allows for the creation of three courtyards that connect underneath bridges left by the original corridors of the school at the second level, with the lowest level being removed in the center, in place of the auxiliary gymnasium. These sunken courtyards connect the building itself to the rest of the park by providing space for a pathway that brings people from street level at the eastern edge, to ground level at the western edge. The water features that line the park's Grand Avenue travel down through the east courtyard, across a bridge over the center courtyard, and collect in reflecting pools at the western courtyard, creating a pathway through the building and establishing a connection between the east and west sides of the park that otherwise would not be possible.

The effect of this subtraction is a division of the monolithic form into distinct sections, each assigned its own program based on the desired functions within. The desire for these individual programs to operate independently of each other, while sharing resources, was a significant factor in this decision. If any one of the specific entities operating within the building ceases to operate, transitions to new function, or otherwise needs to change, it can do so without total disruption of the other functions. To facilitate these programs, nine individual 'tenants', or occupants of the building were determined based on the original program elements outlined in the re-use alternatives study:

Note: All of these programs would be both individually sponsored and co-opted with Pontiac City Schools for use by community members and district students. Criteria would be set to ensure the productive and positive use of each program, including academic performance, civic engagement, and community service.

- 1. artSPACE:** A community-sourced arts and culture program complete with studios, instruction spaces, and galleries. This would operate in tandem with the city's existing arts and culture programs.
- 2. skillSPACE:** An industrial arts, technology, culinary arts, and general education center utilizing the building's existing auto shop, kitchens and other facilities to provide useful vocational skills to the city's young adult residents.

- 3. brainSPACE:** A digital information center and public library complete with traditional book stacks, computer labs, resource and media rooms for use by the community and the building's other tenants. Operated in tandem with the city's existing library.
- 4. showSPACE:** Returning the existing 1,500-seat auditorium, its stage shop, and music rooms to public use, for both formal shows and local performances.
- 5. fitSPACE:** Utilizing the building's existing athletics facilities including the field house and pool to provide a comprehensive, fully-equipped physical education center and sporting event facility.
- 6. kidSPACE:** Providing much-needed child care facilities, before- and after-school programs, and extra-curricular learning opportunities to the families of Pontiac. Co-opted with the school district to directly integrate with the school system's curriculum and schedules.
- 7. workSPACE:** Intended to feed from the existing artSPACE and skillSPACE users, this space provides working desks and meeting spaces for young professionals, and business start-ups to establish a relationship with their community and utilize shared resources in the building.
- 8. chiefGALLERY:** Located at the southeast corner of the building, this space features the welcome center, main permanent gallery, retail space for items created by building users (as well as culturally relevant goods), and a lower-level dedicated exhibition space.
- 9. Administration:** Offices provided for management required to operate the building and premises, as well as community offices intended for local interaction.

The city and school district are unable to fund and operate similar facilities individually, and thus operating all of them within one facility, with outside funding, presents an opportunity for reduced infrastructure costs. In terms of cost and feasibility, the project development would occur in phases:

Phase 1: Partial demolition and renovation of the existing school building to facilitate needed programs.

Phase 2: Redevelopment of the Huron Street frontage, including walkways and service drive streetscape.

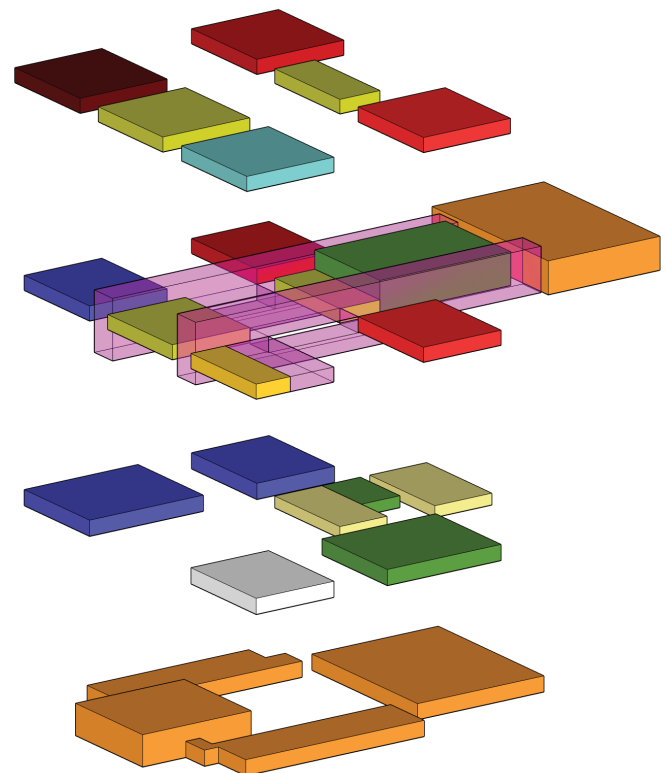
Phase 3: Construction of the below-grade parking garage, and athletics field above.

To promote sustainability, all water in site water features and a majority of water used within the building is collected from the building's green roof, stored, and recycled for use.

The early massing of the final proposal was developed from these required programmatic functions, ensuring that the final plan of the site and building followed the initial ideas put forward in the alternatives phase. One of the challenges was addressing prescriptive square footages, which did not remain consistent to the final plan. This was the result of revised requirements for each space that emerged as development of the plan continued. The final site plan and floor plans shown reflect the end-product of this process.

The division of the building created by removing the three central volumes created a more efficient, though reduced program space for each of the desired functions. While this did limit the ability of each program to directly expand, it did create a much greater need for multi-use spaces within each program. They are located for ease of access and proximity to adjacent uses, so each space, despite being attached to its own program, can be used by its neighbors.

Athletics:	80,000sf
Performing Arts	28,800sf
Voc. Tech. / Arts	28,950sf
Kitchen / Culinary	14,800sf
Business / Co-Working:	9,360sf
Child / Family Services:	15,950sf
Library / Resource:	25,000sf
College / Adult Ed.:	16,200sf
Administration:	9,360sf
White Box / Exhibition:	8,350sf
TOTAL:	~280,770sf
Note: Incl. add'l support areas.	



Program Legend

- Athletics
- Kitchen / Culinary
- Black Box
- Administration
- Retail / Cafe
- Performing Arts
- Library / Resource
- Child / Family Care
- White Box / Exhibition
- Voc / Tech / Arts
- Conference
- Early College / Ed.
- Primary Circulation

The redevelopment of the site is comprehensive: All aspects of the site aside from the historic grove have been reconfigured for public use. Along Huron Street, a more formal organization with street trees and the Grand Avenue draw pedestrians from the sidewalk through the center courts of the building and to the western side of the site. An underground, 300-space parking garage provides parking for regional travelers beneath the restored athletics field. The playCENTRAL neighborhood park is featured on the northwest corner of the site.



Points of Interest:

1. playCENTRAL neighborhood park and playground
2. Underground parking (300 spaces).
3. Central Field, Gateway, Parking Access
4. Sculpture Stage (amphitheater)
5. Preserved grove
6. Grand Avenue and reflecting pools
7. artBOX power station painted by local artists
8. Central courtyards
9. Water-harvesting green roof
10. Huron Street Promenade
11. West reflecting pools

The first floor received the least amount of reconfiguration as existing facilities, adequate for their future fitSPACE program, were all retained or reconfigured as needed. Storage spaces along the corridor are removed to provide recesses into the various public-use spaces. In place of the former auxiliary gym is a new fitness center bordering the lower courtyard, open to the sky above.

8e first floor

artSPACE:

Community-driven arts and culture program.

Studios
Galleries
Instruction / Learning Labs

skillSPACE:

Industrial tech, early college and adult education center.

Auto Shop
Metal Shop
Wood Shop
LGI / Black Box Theater
Classrooms
Kitchens / Culinary Training

brainSPACE:

Information resource center and public library.

Reading Rooms
Study Spaces
Resource Rooms
Public Computer Labs
Media Room (Theater / Gaming)

showSPACE:

Performing arts center and support spaces.

Auditorium
Stage Shop
Ensemble Room
Vocal Music Room
Practice Rooms

fitSPACE:

Physical fitness, sports, and education center.

Field House
Pool
Fitness Center
Dance / Wrestling Studios
Handball Courts
Full-Service Locker Rooms

kidSPACE:

Childcare services, after-school and early learning.

Assembly Room
Early Childhood Care Rooms
Classrooms
Activity Rooms

workSPACE:

Co-working and conference center.

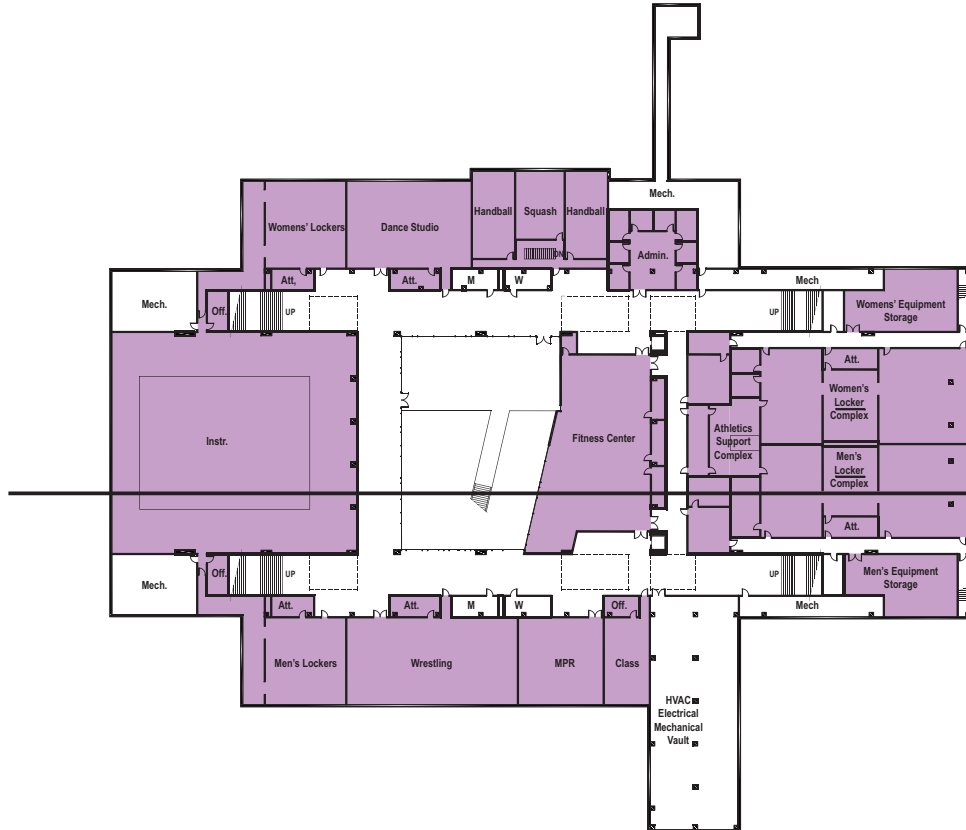
Floating and Permanent Desks
Conference Rooms

chiefGALLERY:

Main public gallery showcasing work produced locally / on-site, and retail.

Administration:

Local administrative center for on-site facilities and community interaction.



The second floor is below ground on the eastern side of the building and at grade on the western side of the building. The exhibition space and music rooms are located in the eastern section, while artSPACE and skillSPACE rooms, such as the auto shop and black box, are in the western section. The central part of the building contains the re-used service and training kitchens, stage shop, the second level of the pool area which is raked back at the entries with south-facing glazing to draw natural light, and a dining area serviced by the kitchens.

Second Floor 8e



- artSPACE:** Community-driven arts and culture program.
 - Studios
 - Galleries
 - Instruction / Learning Labs
- skillSPACE:** Industrial tech, early college and adult education center.
 - Auto Shop
 - Metal Shop
 - Wood Shop
 - LGI / Black Box Theater
 - Classrooms
 - Kitchens / Culinary Training
- brainSPACE:** Information resource center and public library.
 - Reading Rooms
 - Study Spaces
 - Resource Rooms
 - Public Computer Labs
 - Media Room (Theater / Gaming)
- showSPACE:** Performing arts center and support spaces.
 - Auditorium
 - Stage Shop
 - Ensemble Room
 - Vocal Music Room
 - Practice Rooms
- fitSPACE:** Physical fitness, sports, and education center.
 - Field House
 - Pool
 - Fitness Center
 - Dance / Wrestling Studios
 - Handball Courts
 - Full-Service Locker Rooms
- kidSPACE:** Childcare services, after-school and early learning.
 - Assembly Room
 - Early Childhood Care Rooms
 - Classrooms
 - Activity Rooms
- workSPACE:** Co-working and conference center.
 - Floating and Permanent Desks
 - Conference Rooms
- chiefGALLERY:** Main public gallery showcasing work produced locally / on-site, and retail.
- Administration:** Local administrative center for on-site facilities and community interaction.

The third floor contains most of the building's primary entries on its eastern side, with a bus entry for school students to the west near the field house. The auditorium, kidSPACE, chiefGALLERY, welcome center, and brainSPACE are all anchored on this floor, with a retail space at the most prominent southeastern corner. Resource rooms connect the kidSPACE and skillSPACE rooms and are shared between them and the general public. The Media space, which doubles as a small video theater, is also located on this floor.

8e Third floor

artSPACE:

Community-driven arts and culture program.

Studios
Galleries
Instruction / Learning Labs

skillSPACE:

Industrial tech, early college and adult education center.

Auto Shop
Metal Shop
Wood Shop
LGI / Black Box Theater
Classrooms
Kitchens / Culinary Training

brainSPACE:

Information resource center and public library.

Reading Rooms
Study Spaces
Resource Rooms
Public Computer Labs
Media Room (Theater / Gaming)

showSPACE:

Performing arts center and support spaces.

Auditorium
Stage Shop
Ensemble Room
Vocal Music Room
Practice Rooms

fitSPACE:

Physical fitness, sports, and education center.

Field House
Pool
Fitness Center
Dance / Wrestling Studios
Handball Courts
Full-Service Locker Rooms

kidSPACE:

Childcare services, after-school and early learning.

Assembly Room
Early Childhood Care Rooms
Classrooms
Activity Rooms

workSPACE:

Co-working and conference center.

Floating and Permanent Desks
Conference Rooms

chiefGALLERY:

Main public gallery showcasing work produced locally / on-site, and retail.

Administration:

Local administrative center for on-site facilities and community interaction.

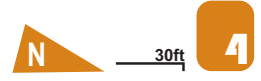


The fourth floor houses the second floor of brainSPACE, and the top floors of skillSPACE and kidSPACE, as well as additional resource rooms connecting the three programs together. The building's administrative center is in the southwestern block, while workSPACE is directly above the busy southeastern entries, with adjacent elevator and stairway access, to promote public engagement.

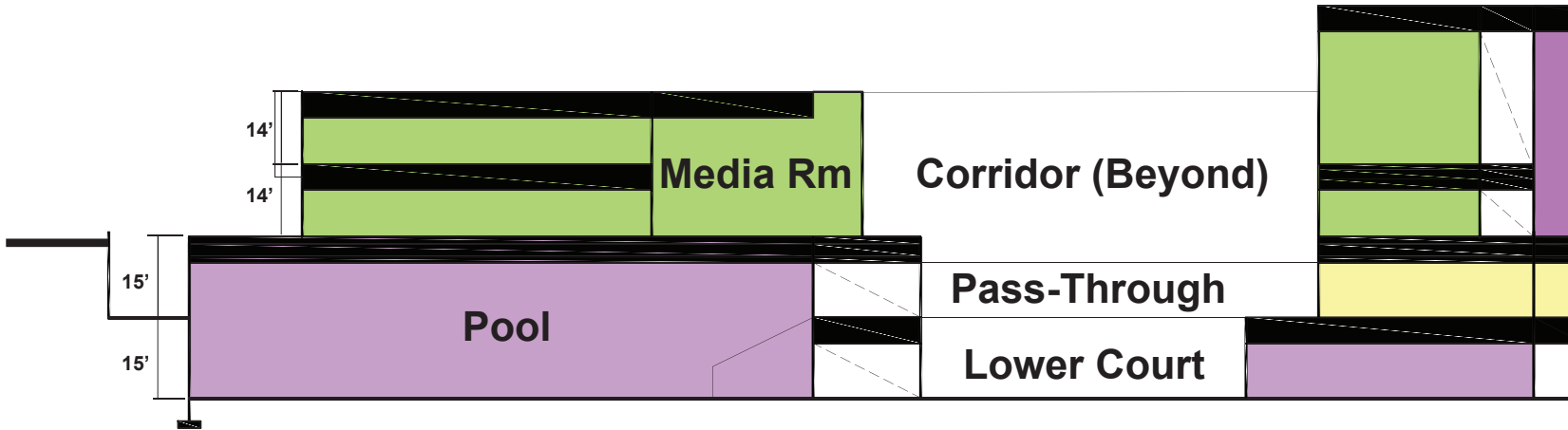
Fourth floor 8e

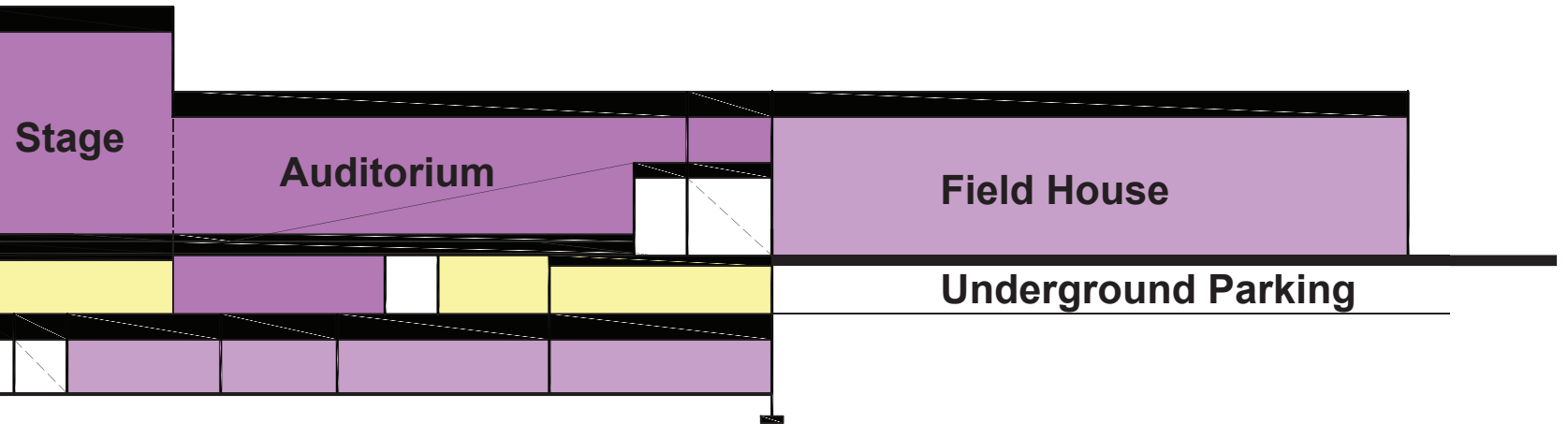


- **artSPACE:**
Community-driven arts and culture program.
Studios
Galleries
Instruction / Learning Labs
- **skillSPACE:**
Industrial tech, early college and adult education center.
Auto Shop
Metal Shop
Wood Shop
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Full-Service Locker Rooms
- **kidSPACE:**
Childcare services, after-school and early learning.
Assembly Room
Early Childhood Care Rooms
Classrooms
Activity Rooms
- **workSPACE:**
Co-working and conference center.
Floating and Permanent Desks
Conference Rooms
- **chiefGALLERY:**
Main public gallery showcasing work produced locally / on-site, and retail.
- **Administration:**
Local administrative center for on-site facilities and community interaction.



Removing the center of the building essentially creates two separate volumes despite the sizeable connection on the first, third, and fourth floors. All of the building's multi-story spaces are concentrated near the corridors or courtyards and break away the otherwise heavy, deep floor plates that the building otherwise exhibits. With the loss of the central skylights, the additional exterior walls and glazing allows natural light to continue to reach each floor, and the majority of spaces within.





Pontiac Central Park features Grand Avenue, an expansive pathway lined with reflecting pools along its axis and kiosks for refreshments, it is geared towards visitors from downtown and visitors to 300WEST as a destination for walks, lunch, and activities. The use of primary colors promotes an optimistic and energetic atmosphere, contrasting the original site's inactivity and lack of diversity. All of the horizontal planting and water features have integrated seating extending from their sides, providing plenty of opportunities for rest and interaction.

8f Grand Avenue



300WEST Pontiac Central Park and Field

The Northwest Entry to Pontiac Central Park is its connection to the northern neighborhoods, the parking deck below, and a waiting area for travelers waiting to be picked up. The northern sides of the site, due to the hard wall formed by the structure of the below-grade parking deck, are lined with tall trees forming a sound barrier from the otherwise loud activities of the athletics field above. These smaller spaces are also intended to be informal park space, such as the winding ramp wrapping around a small seating space and reflecting pool.



8f The Gateway

Accessing the underground parking deck occurs in two places: The second floor of the building, with which it has direct access across a small sunken park, and a stairway and elevator beneath the stands provided for the athletics field, which also houses the park's public restroom facilities. This connection between the stands, the artBOX (power station), and the ticketing/refreshments kiosk forms a gateway that is accentuated with a canopy, used as a gathering area during events.



The newer architectural elements protruding from the building are clad in polished, corrugated metal to reflect the industrial heritage of the city, and bright primary color accents to contrast the formal and monochromatic nature of the original building. They are aligned to the cardinal directions, and many spaces, such as the lounge over the main entry, provide direct views to downtown Pontiac, connecting the building visually with the city. Vehicle traffic lanes are at the same elevation as pedestrian paths, and are designated only by color.

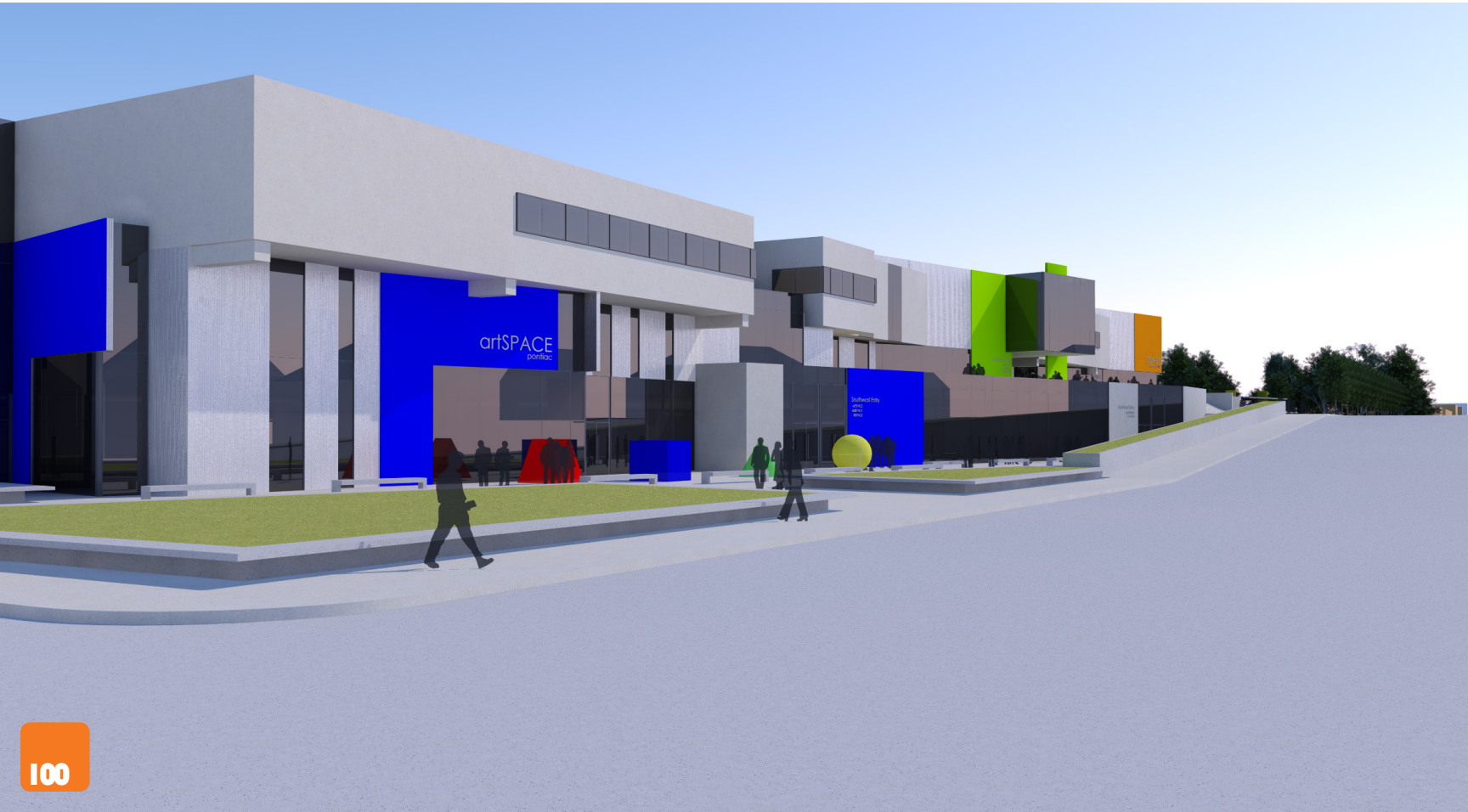
Southeast Entry | Promenade

8f



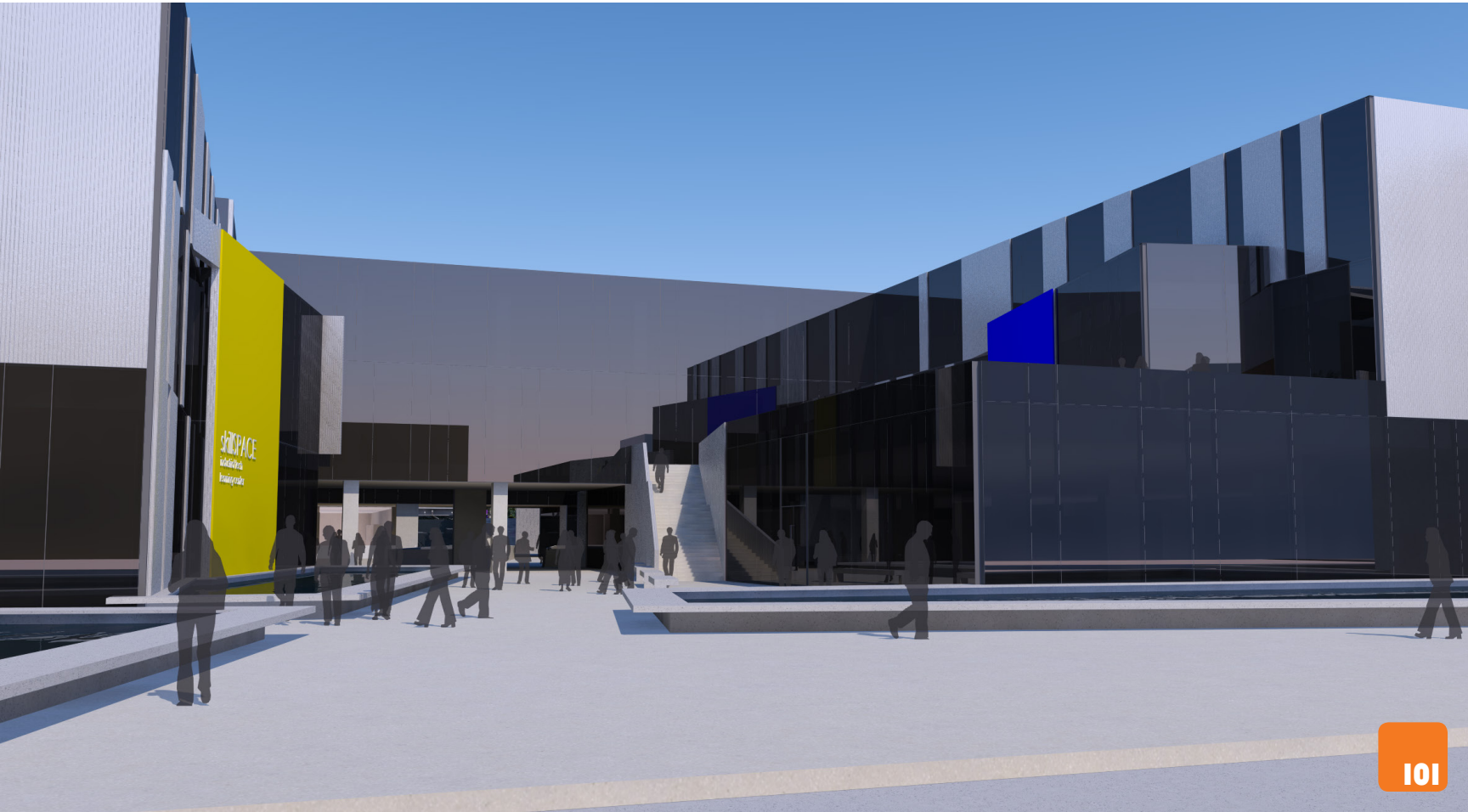
8f Huron Street Promenade

The large street plaza along Huron Street is provided as additional outdoor gallery space for sculptures and events. The pool on the first floor features new glazing allowing natural light into the space. artSPACE is featured prominently here to provide a glimpse of activity within to pedestrians and travelers along the busy Huron Street / M-59 corridor. The verticality of the new architectural treatments on the lower walls contrasts with the horizontality of the building's original ribbon windows, which are retained where possible.



The building's central courts are intended as both a pass-through for pedestrians traveling along Grand Avenue, and as an activity space for the building's users. Collaboration between uses can meet in this space and it can be transformed for a variety of uses, including street fairs. The use of zero-line glazing throughout the building reflects its monolithic form, but reduces the visual complexity, creating a cleaner look.

West Courtyard **8f**



Each of the building's major functions calls for its own multi-function space. The aim of these rooms, each one combining the equivalent of two floors into one volume, are intended to serve as the hubs of activity for their respective programs, and be a major source of natural light, each facing either the central courtyards or the promenade along Huron Street. The kidSPACE Assembly Room, in this example, doubles as a play space, gathering space, and eating space, and is intended to be easily and quickly reconfigured for each use.

8f kidSPACE Assembly Room



Each major program function has a primary color dedicated with it that is propagated throughout its design. This references the bright accent colors used in parts of the original building's interior design, and is coupled with clean, simple finishes and fixtures to present a bright, welcoming and energetic atmosphere. workSPACE is an example of this application on a smaller scale, showcasing simple form and gestures, and minimalist finishes. Ceilings are exposed as much as possible to raise the perceived height of interior spaces.

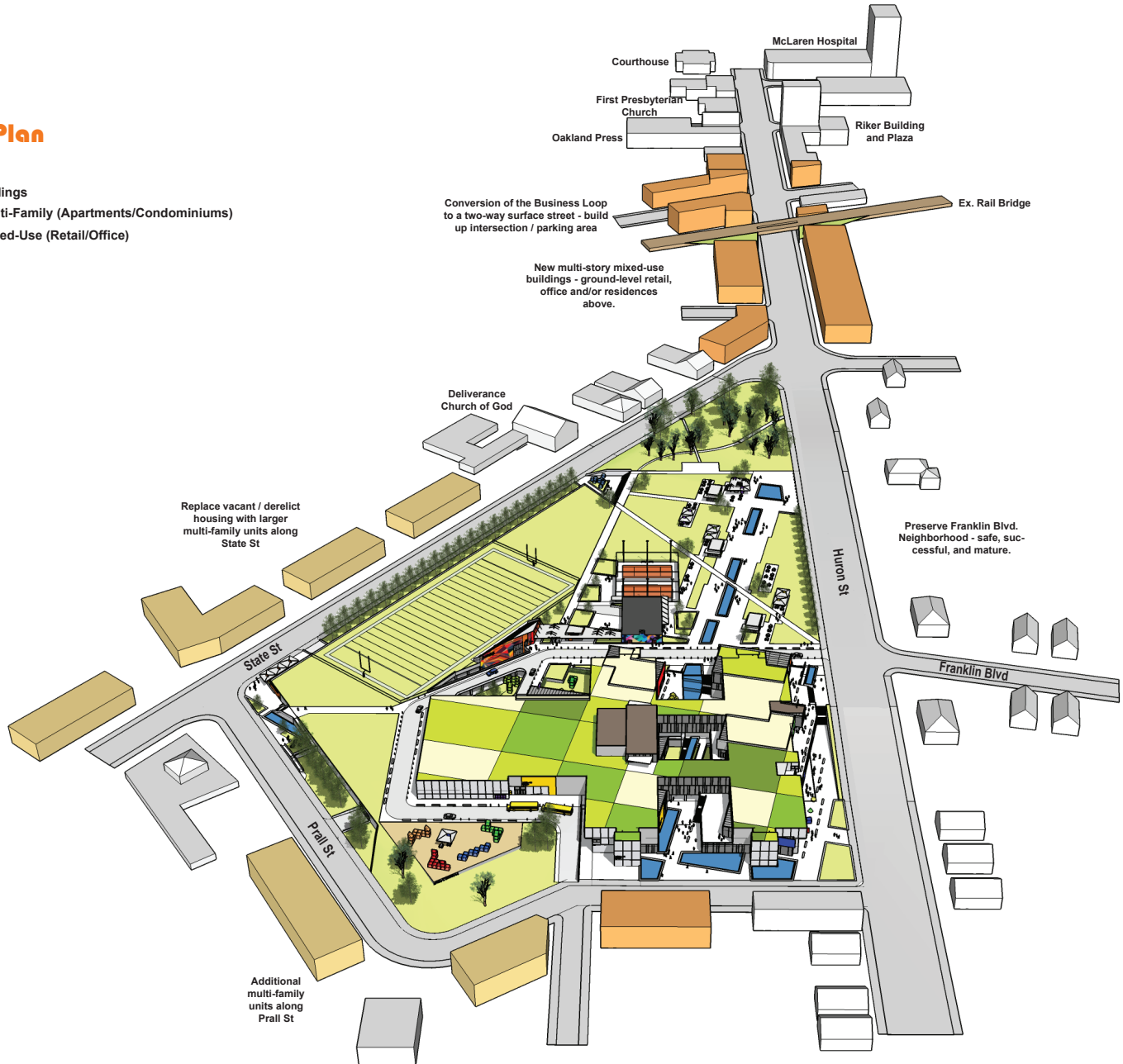


89 District Plan

N

Legend

- Existing Buildings
- Proposed Multi-Family (Apartments/Condominiums)
- Proposed Mixed-Use (Retail/Office)



The district development plan focuses exclusively on the replacement of built form around the school and between the site and downtown. The Franklin Boulevard neighborhood is largely stable, and thus, is not changed, with the larger houses along Huron Street to remain. The tree line on the site along the park serves to soften the impact of the active grounds on the residences directly across the street. On the western and northern edges of the site mixed-income residential buildings fill in gaps in the existing neighborhood fabric along State and Prall Streets, as well as replace vacant homes and those in poor condition. As one of the immediate needs of this proposal is a critical mass of people, densifying the immediate surroundings of the area provides a level of ambient activity that will sustain the neighborhood around the development even in slower times, such as poor weather.

In dealing with the connection to downtown, a very simple intervention involving consistent development of the vacant land provides the solution. The area between the Oakland Press and the rail bridge is largely vacant land, and developing that land, creating a consistent street front, using retail and office buildings in a mixed-use, traditional urban configuration minimizes the impact of the rail bridge by making it less of an object between this site and downtown. With buildings along the street on either side, the only impact the rail bridge has on the pedestrian experience is the interruption of a retaining wall on either side, which if kept consistent with the frontage of new buildings and treated as an opportunity for an art intervention, can become an interlude and destination on its own. This effort can reduce the perception of disconnection and create a link between the site and downtown that hasn't existed since the 1940s.



View of the existing upper plaza at the Huron Street entries. The pool room is directly below this area. The building's proximity to downtown is evident, with the Riker Building and former Bell Communications radio tower in the far background.



Conclusion



Conclusion

With the loss of many significant school buildings in the core of the nation's neighborhoods, the challenge of what to do with those that remain is ever-present and growing. Perhaps there is no simple, direct solution to the demographic shifts that take the critical mass of families away from them. Given this, there is also no direct, true, prescriptive model that can be applied to every adaptive re-use project, as the research behind this study demonstrates. To prevent the abandonment and demolition of these vacant schools is an exercise in understanding the needs of the immediate community, surrounding region, and finding a balance between them. Even between cities suffering from similar issues, the proper solution is unique to its immediate context. What works in Detroit, for example, may not work in Pontiac. What works in Pontiac, in turn, may not work in Flint. One aspect of any solution, however, is abundantly clear: If the location proves appropriate, a public-use facility with an educational component can become a significant hub of activity, both locally and regionally, and can maintain the integrity of a neighborhood.

The proposal to convert a 478,000 square-foot high school and its site into a community use hub turns an otherwise significant burden into an opportunity for considerable growth and investment for the city of Pontiac. While it is unlikely that every aspect of the proposal generated by this study would be implemented in any one project, aspects of it individually are also relevant to the many types of interventions that are possible with regards to surplus schools. Each individual program can stand on its own, independently, in a smaller intervention, or a mixture of programs can be selected for more complex situations. Traditionally, schools have been among the most significant places in their communities. Through incorporating educational components, and using existing assets where possible, the school building as a structure and as a place in the greater neighborhood fabric can remain relevant through re-use.



View from atop the raised platform at the gallery entry, looking north towards the artBOX, Gateway, and athletic field stands. The plaza at the east side of the building is intended to be vibrant, colorful, and active. Benches along the service drive and power station provide waiting and rest areas for visitors.



Bibliography

- “A School District in Crisis.” Loveland. N.p., 2015. Web. 10 Feb. 2016. <https://makeloveland.com/reports/schools>.
- Argon, Joe. “Size Matters.” Architects of Achievement. Architects of Achievement, 1 Apr. 2003. Web. 9 Feb. 2016. http://www.archachieve.net/smallschools/Resources/articles/size_matters.pdf.
- Brieger, Gottfried. Pontiac, Michigan: A Postcard Album. N.p.: Arcadia Publishing, 2000. Print.
- Cartier, Steve. Property Manager, Lee Contracting. Personal interview. 18 Nov. 2015.
- “City History.” City of Pontiac MI. N.p., n.d. Web. 17 Nov. 2015. http://www.pontiac.mi.us/about/history/city_history.php.
- City of Pontiac - Historic Records and Maps. N.p., n.d. Web. 3 Nov. 2015. <http://www.pontiac.mi.us/>.
- “Closing a School Best Practices Guide.” California Department of Education. N.p., n.d. Web. 25 Jan. 2016. <http://www.cde.ca.gov/ls/fa/sf/schoolclose.asp>
- “COSI’s Hisotry.” COSI: Center of Science and Industry. COSI, n.d. Web. 10 Mar. 2016. <http://cosi.org/about-cosi/history-of-cosi>.
- Davis v. School District of City of Pontiac, Inc., (E.D.Mich. 1970), United States District Court, Michigan. Web. [http://www.leagle.com/decision/19711016443F2d573_1815/DAVIS v. SCHOOL DISTRICT OF CITY OF PONTIAC, INC.](http://www.leagle.com/decision/19711016443F2d573_1815/DAVIS_v._SCHOOL_DISTRICT_OF_CITY_OF_PONTIAC,_INC)
- Detroiturbex. N.p., n.d. Web. 15 Oct. 2015. detroiturbex.com.
- Detroit-Ish Exploration Group. N.p., n.d. Web. 15 Oct. 2015. detroit-ish.com.

“Downtown Pontiac Transportation Assessment.” City of Pontiac MI. N.p., Apr. 2014. Web. 10 Apr. 2016. http://www.pontiac.mi.us/departments/community_development/docs/Downtown_Pontiac_Transportation_Plan.pdf.

“Enrollment Reports.” National Center for Education Statistics. N.p., n.d. Web. 27 Feb. 2016. <https://nces.ed.gov/>

General Information. Michigan Department of Education. N.p., n.d. Web. 27 Feb. 2016. <https://www.michigan.gov/mde>

Gyure, Dale A. *The Chicago Schoolhouse: High School Architecture and Educational Reform, 1856-2006*. Chicago: Columbia College Chicago Press, 2006. Print.

Huron Valley Schools. Huron Valley Schools. Web. 19 Jan. 2016. <http://www.hvs.org/>

“In Detroit, a Groundbreaking School Comes Back as Condos.” *Curbed Detroit*. Curbed, 18 June 2014. Web. 3 Feb. 2016. <http://www.curbed.com/2014/6/18/10086412/detroit-school-condo-conversion-leland-lofts>.

Knaus, Christopher. *Still Segregated Still Unequal: Analyzing the Impact of No Child Left Behind on African American Students*. National Urban League / University of California, Berkeley. 2007. <http://www.berkeleyrep.org/school/images/Knaus.pdf>

Laitner, Bill. “Parking deck may signal rebirth for Pontiac.” *Detroit Free Press*. N.p., 4 Oct. 2015. Web. 7 Dec. 2015. <http://www.freep.com/story/news/2015/10/04/phoenix-center-parking-may-signal-rebirth-pontiac/73272642/>.



Martindale, Mike. "After sheriff takeover, Pontiac crime drops, hope rises." The Detroit News. N.p., 6 July 2015. Web. 2 Apr. 2016. <http://www.detroitnews.com/story/news/local/oakland-county/2015/07/05/pontiac-crime-shows-decline/29750875/>.

Mirel, Jeffrey. The Rise and Fall of an Urban School System: Detroit 1907-1981. 2nd ed. Ann Arbor: University of Michigan Press, 1999. Print.

Mueller, John. Project Supervisor, O'Dell, Hewlett & Luckenbach Associates. Personal Interview. 2 Dec. 2015.

"No Child Left Behind: Elementary and Secondary Education Act." US Department of Education. N.p., n.d. Web. 2 Mar. 2016. <http://www2.ed.gov/nclb/landing.jhtml>

"No Child Left Behind is Working." US Department of Education. N.p., Dec. 2006. Web. 5 Mar. 2016. <http://www2.ed.gov/nclb/overview/importance/nclbworking.pdf>

"Old Schools, New Uses: Property Developers Conference - Reinventing Vacant School Buildings & Sites in Detroit for Innovative Redevelopment." Detroit Public Schools. Gleaners Community Food Bank, 13 Mar. 2014. Web. 16 Mar. 2016. <http://detroitk12.org/content/wp-content/uploads/2014/01/Real-Estate-Program-Book-FINAL.pdf>.

Murray, Diana. "Closing of Pontiac High School urged by Great Lakes Education Project". The Oakland Press. 22 Aug. 2013. Web. 20 Nov. 2015 <http://www.theoaklandpress.com/article/OP/20130822/NEWS/308229833>

Owosso Argus-Press (Google News Archive). N.p., 21 Nov. 1969. Web. 12 Nov. 2015. <https://news.google.com/newspapers>.

- Parent, Susan. Administrative Assistant, Pontiac City Schools. Personal Interview. 20 Nov. 2015.
- Perkins, L Bradford. Building Type Basics for Elementary and Secondary Schools. Wiley, 2001. Print.
- Pontiac Silverdome Committee. Super Bowl 1981: Pontiac Silverdome - Hub of NFL Football - 80 Million People. Pontiac: Pontiac Silverdome, 1977. Print.
- SayPlay Detroit. SAY Detroit Charities, n.d. Web. 28 Feb. 2016. <http://www.sayplay.org/>.
"Shuttered Public Schools: The Struggle to Bring Old Buildings New Life." Pew Trusts. Pew Trusts, 11 Feb. 2013. Web. 24 Mar. 2016. http://www.pewtrusts.org/~media/assets/2013/02/11/philadelphia_school_closings_report.pdf?la=en
- "Taubman Plan Virtually Dead." DonDavidson. Pontiac Press, 28 Sept. 1967. Web. 19 Nov. 2015. <http://dondavidson.blogspot.com/2013/03/taubmans-pontiac-mall-plan-1967.html>.
- "Traffic Volume." SEMCOG. Southeastern Michigan Council of Governments, n.d. Web. 27 Jan. 2016. <http://maps.semco.org/TrafficVolume/>.
- Ziegelman, Robert. Luckenbach-Ziegelman Architects. E-mail Correspondence. 2 Dec. 2015.
- "Vacant Pontiac Schools Victimized by Vandals." The Oakland Press. N.p., 7 Dec. 2011. Web. 5 Nov. 2015. <http://www.theoaklandpress.com/general-news/20111207/vacant-pontiac-schools-victimized-by-vandals-with-video>.
- Wind, Kyle. "Downtown Pontiac Transportation Assessment." Daily Freeman News. N.p., 11 Dec. 2011. Web. 10 Feb. 2016. <http://www.dailyfreeman.com/article/DF/20111211/NEWS/312119971>.
- "World's population increasingly urban with more than half living in urban areas." UN. United Nations, n.d. Web. 2 Apr. 2016. <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>.