HISTORIC FORT WAYNE MASTER PLAN

DETROIT, MICHIGAN

Prepared For:

Detroit Historical Museum

Final Master Plan
April 15, 2003

SmithGroup

EXECUTIVE SUMMARY

BACKGROUND

The history of Fort Wayne began in 1845 when it was created to repel a hostile naval attack by British-Canada. Congress denied requests for fixed artillery canons due to the changes in warfare and the Fort's strategic position. By the Civil War, Fort Wayne was notable as a marshalling point for troops and ultimately, its greatest role was as a vehicular and war material depot in Detroit's role as the Arsenal of Democracy during World War I, World War II and the Korean War. During the Vietman era, it was one of the largest military induction centers in the country. Fort Wayne continued its service to the community as a temporary haven for families left homeless as a result of the 1967 Detroit riots. Historic Fort Wayne and the surrounding industrial neighborhood of Delray fell on hard times during the past 30 years, and today nearly 70% of the formerly built community consists of vacant lots. Fort Wayne's brief history as a museum and public park ended in 1991 when the Fort was closed due to cuts in the state budget.

The present challenge of Fort Wayne is to gather initiatives from a variety of sources (neighborhood, City, County, State, adjacent land owners, regional recreation/transportation entities, and the Federal Government) into a coalition with the resources and vision to adaptively reuse the forty-four historic structures and the property for productive purposes. As a park, museums and mixed-use development, the Fort can become an anchor on Detroit's western riverfront for the renovation and renewal of the Southwest Detroit Community.

EXISTING CONDITIONS

Historic Fort Wayne comprises 83 acres on Detroit's western riverfront including the historic Star Fort and Stone Barracks building, 36 additional structures (primarily residential in their original use,) warehouses (currently housing Detroit Historical Museum's archival collections) and the open space of the Parade grounds on the Detroit riverbank. The structures and open space of the Historic Fort Wayne property are in a state of considerable deterioration requiring a phased preservation program of $56-68 million. Historic Fort Wayne lies at the foot of Livernois Avenue whose current one-way four block corridor from the I-75 expressway is both an abandoned industrial corridor as well as a nearly vacant former Delray neighborhood. The neighborhood of Southwest Detroit to the north of I-75 (including Hubbard-Richard, Mexicantown, and others) is a vital and growing community and the only sector of the City of Detroit to have gained population in the last ten years. Major assets and opportunities exist in the adjacent riverfront properties owned by the City of Detroit to the east, and Detroit Edison to the west (currently a public access boat launch and fishing pier with open space available for additional recreational development). Historic Fort Wayne is also blessed with the long term interest of several public entities outside the City of Detroit. The Wayne County Parks Department and Huron-Clinton Metropolitan Authority have engaged in dialogue for joint activities with the Detroit Historical Museums for a number of years. Private developers have also expressed interest in the site from time to time.

OPPORTUNITIES

Historic Fort Wayne can benefit from reconnecting with a variety of resources in its immediate vicinity. These resources are:

Reconnect with its Neighborhood

Historic Fort Wayne can become parkland for the southwest Detroit neighborhoods that surround it and serve as a recreation destination, historic interpretive site, business location and the icon of resurgence of this vital community.

Connect with the Detroit River

Historic Fort Wayne was constructed at this bend of the Detroit River because of its strategic vantage point in protecting the city from naval attack. Its views to the towers of Detroit's downtown, seen through the filigree of suspension cables on the Ambassador Bridge, is offset by its proximity to the stark industrial appearance of steel operations on Zug Island at the mouth of the Rouge River. The story of Detroit, its people, and its industry are told in its structures and landscapes.

Connect with Detroit's Heritage

Historic Fort Wayne has the unique position of being a vital part of the Detroit River American Heritage River designation, the Auto National Heritage Resource Area, and the Rouge Gateway Project. It is also the place where many sons and daughters of Detroit's families were inducted into prior American war efforts. Historic Fort Wayne was and is a place where over 150 years of American History and 1350 years of Native American heritage can be illustrated in a living interpretive compound. The surviving structures and environment have the potential to tell a powerful story about Fort Wayne's and Detroit's importance in America's military history, and specifically, Detroit's pivotal role as the "Arsenal of Democracy" during World War II.

Connect with Regional systems in Southeast Michigan

Historic Fort Wayne can become a vital link in the Greenway Initiative creating an urban biking and pedestrian linkage to greenways in our suburban outreaches. Historic Fort Wayne can offset the intense vehicular pressure on the neighborhood from increased bridge/tunnel car, truck and rail freight transit activity. Finally, through partnerships with the Huron-Clinton Metropolitan Authority and Wayne County Parks, Historic Fort Wayne can be linked to and marketed with significant regional resource collections of recreational and educational opportunities.

Connect with Midwestern heritage tourism destination attractions

Historic Fort Wayne in its embodiment as the "West Riverfront Park at Historic Fort Wayne" can become a regional destination for families, students, history buffs and competitive athletes who all can enjoy a wealth of activities at this new park.

THE VISION

In considering a master plan for the future of Historic Fort Wayne a broader vision is necessary that encompasses the property between the fort and I-75 to the north as well as the expanse of adjacent riverfront properties to the east and west. The concept for what Historic Fort Wayne can be to its several markets and audiences must be simply identified and powerfully communicated. Historic Fort Wayne sits on an idyllic parcel of riverfront property that can become a model for cultural and economic resource redevelopment (a desire of many stakeholders stated at workshop sessions on this plan.) Historic Fort Wayne, created as a military base, served its most intriguing mission as a passive site (no hostile fire ever emanated from here). Its major mission as the motor pool of the "Arsenal of Democracy" demonstrated more about the engineering, technology and skill, and sacrifice of its work force than it did about the ability of Detroit to wage physical warfare from this site. In fulfillment of this grand vision, we summarize the sweeping changes that should occur in this neighborhood to create the "critical mass" necessary to maximize its draw to these diverse audiences:

Livernois Corridor from I-75

Create an open and inviting streetscape on this new two-way street featuring re-use of former industrial sites for recreation facilities, new commercial enterprises, a greenway biking/pedestrian path and a park development across from the expanded entrance plaza to Historic Fort Wayne.

Jefferson Avenue Corridor

A greenbelt of canopy trees flanking both sides of this main artery will define an additional greenway biking/ pedestrian path linking to extensive urban greenways to the east and west. This renewed route will also provide the connection between the recreational areas at Historic Fort Wayne and new residential initiatives throughout the neighborhoods north of Jefferson.

West Riverfront Park at Historic Fort Wayne

West Riverfront Park at Historic Fort Wayne will create an environment which will accommodate new uses and activities on the combined site (Historic Fort Wayne plus adjacent Detroit Edison and City properties) while preserving and enhancing the overall historic character and context of the core Historic Fort Wayne property as noted below:

- The park will be centered on the restoration of the Star Fort, and its Stone Barracks with extensive interpretive programs, receptions, military re-enactments, and music festival venues there.

- Eastern barracks and recreation buildings will become regional hospitality and conference destinations. Complementary development created on the linked City site will provide an exciting entertainment tourist destination. A marine research center, possible maritime charter school, and Army Corps of Engineers Interpretive Center will anchor the heritage tourism complex within the greater parkland experience.

- Western military village will become a vibrant office and commercial village spurring related community development north of Jefferson. The NCO row on Jefferson will become duplex office and potentially residential units. Officer's Row will be market rate and non-profit offices and the Administration Building, Quartermaster's Building and Stables will house a variety of commercial enterprises.

- The western Historical Museum Collections Resource Center will find new life as the Museum of the Arsenal of Democracy with boldly displayed tanks, planes, and military vehicles of all stripes and colors.

- The Parade Grounds will serve as activity space for regional festivals, tall ship events and weekly soccer leagues. The Detroit River shoreline will be renewed as a marshland of fish and wildlife habitat reminiscent of its appearance at the fort's creation. Low impact tent camping for Scouts and other youth groups will occur on open space between the Star Fort and the river.

- The Detroit Edison property to the west offers expansion opportunities for permanent soccer fields fulfilling a regional market need. The existing boat launch slip provides the basis for an expanded transient marina operation and fishing pier. Finally, the recreation areas will be flanked to the west by a campground catering to both tent and RV campers providing the only facility of its kind in the central city for families and tourists visiting the many attractions throughout Detroit and surrounding suburbs.

PHASING & IMPLEMENTATION STRUCTURE

In order to bring substance to the vision of "West Riverfront Park at Historic Fort Wayne" it is necessary to define both a phasing strategy and organizational management model that are practical approaches to the magnitude of the task at hand.

The phasing strategy for creation of this grand vision, including the major steps necessary to establish a joint operating entity and funding mechanisms, are as follows:

Phase 1 – Bring Public Focus to the Star Fort

Implement beautification, stabilization and event support projects that result in the following:

- Clean up landscape surrounding the Star Fort and provide lighting of its significant features to make it attractive for events, festivals, receptions, and reopening of the Stone Barracks Military Museum.
- Create public restroom facilities in the Stone Barracks (in the Star Fort) and in Building 114 allowing necessary infrastructure for above-noted uses of the Star Fort and also recreational uses of the Parade Grounds.
- Remove trees and shrubs throughout the Historic Fort Wayne site that have caused deterioration of adjacent historic structures.
- Stabilize historic structures through roof restorations and prevent water/ wind entry by securing open window and wall openings.
- Create streetscape improvements on Livernois Avenue (converted to two-way traffic to I-75) including festive wayfinding program announcing this regional heritage tourism destination!
- Continue development of partnership agreements with Huron-Clinton Metropolitan Park Authority, Wayne County Parks, and City of Detroit to begin cooperative programming of West Riverfront Park at Historic Fort Wayne. Investigate structure of a new "Trust" which could secure financial commitments from the partner entities to operate the park.

Phase 2 – Prepare Facilities for Major New Uses

Preserve, restore and adaptively re-use structures for a variety of major new uses:

- Adaptively re-use former "New" Guardhouse (Bldg. 302) as new Visitor's Center with adjacent development of new entrance plaza.
- Restore Theater (Bldg. 303) to its former glory to serve as a venue for community theater and events.
- Develop conference/ reception/ recreation capability through preservation of the former Visitor's Center (Bldg. 312) on the Fort's eastern border.
- Adaptively re-use the former Enlisted Men's Barracks (Bldgs. 311 and 314 adjacent to 312) for hospitality uses (possible hotel, hostelry, dormitory) and/or educational uses (possible maritime focused charter school).
- Make needed site improvements for access and parking.
- Adaptively re-use military village structures for office (both market-rate and heritage/ environmental non-profits) use and / or residential use
- Create an "Authority" under state enabling legislation to allow combining of the various bonding capacities of partner entities to fund the major work noted above.

Phase 3 – Expand Recreational and Museum Uses

Create new museum and exhibit center uses while extending recreational uses combining former Army Corps of Engineers and Detroit Edison properties:

- Complete restoration of Star Fort and Stone Barracks building through possible partnership with federal government entity(ies) such as the National Park Service and/or the Department of Defense.
- Convert former warehouses (Bldgs. 2A, 2B & 2C) into "Arsenal of Democracy" museum experience.
- Initiate soccer complex, and RV/ tent campground with new park entrances and parking.
- Shoreline restoration at Parade grounds including conversion of a portion of Army Corps of Engineers parking area to tent campground on the riverfront.
- Convert remainder of Corps property into Exhibit Center with possible retail/ dining options at adaptively re-used dredge slip converted to a transient marina.

Phase 4 – Create Complimentary New Uses

Co-develop City Copper and Brass property to include hospitality, commercial, retail and entertainment uses to compliment the hospitality functions in Bldgs. 311-314 adjacent to the Star Fort.

Phase 5 – West Riverfront Park at Historic Fort Wayne

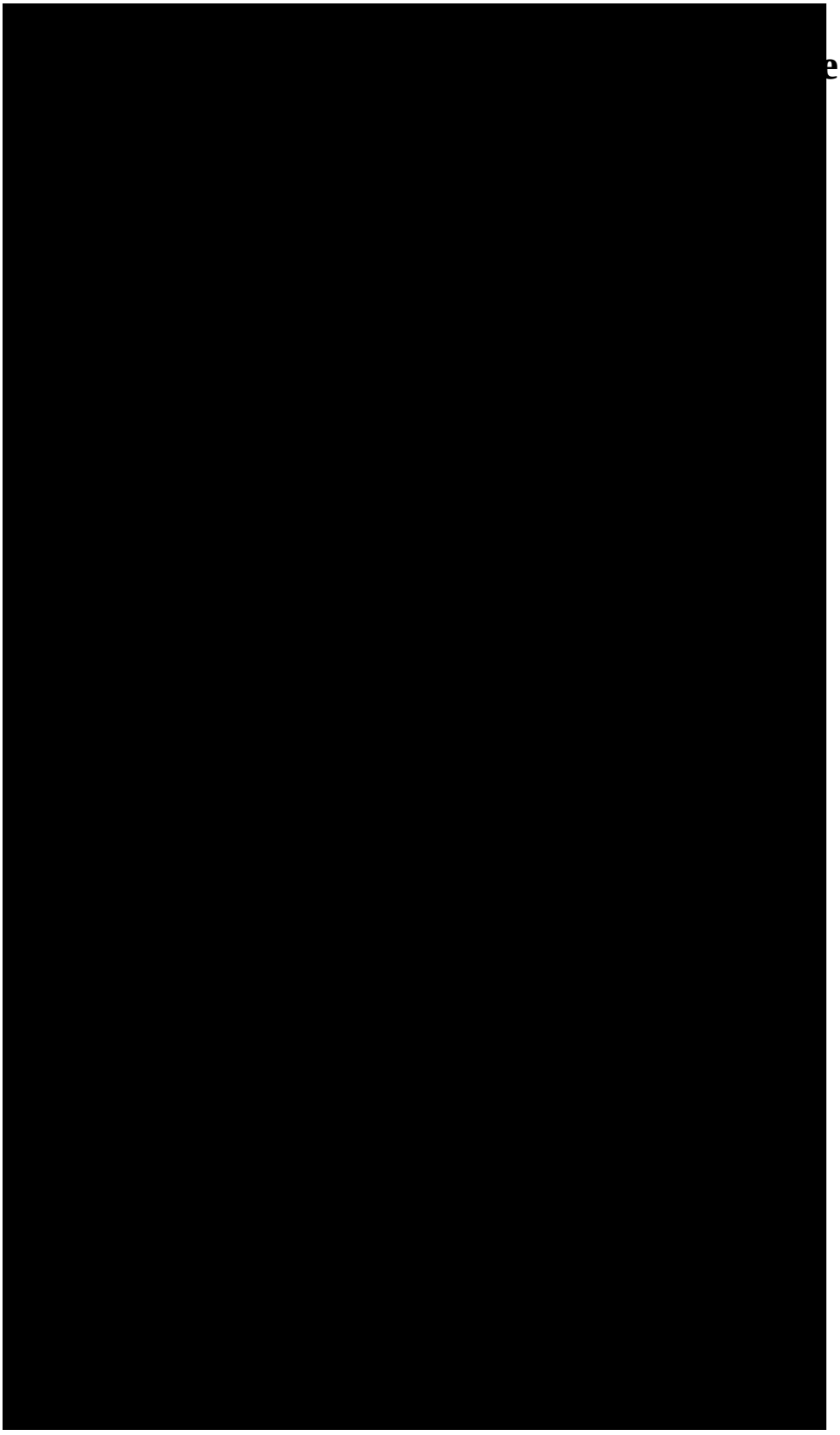
Complete all systems and amenities within the overall riverfront park experience including:

- Complete waterfront drive and parking system, complete with trails and amenities to unify all park experiences. Plan on extending drive into adjacent properties.
- Create transient marina at former Detroit Edison boat launching slip including marina service building and fishing pier.

Details of the implementation strategy shown in the phasing program above include:

- A "Trust" formed by the City of Detroit, Wayne County Parks, and Huron-Clinton Metropolitan Authority would allow the three government entities to develop joint funding programs to share in the $2.5 million annual operating costs of the park and the $8.4- 9.9 million site infrastructure development costs.
- Marketing of properties within Historic Fort Wayne for leasable office, commercial, and residential uses will result in approximately $2.4 million annual revenues.
- Lease revenues can be dedicated to the debt service of $32- 40 million in bonds required to implement the building preservation programs shown above.
- An "Authority" formed to bring in additional federal government partner entities would then allow restoration of the Star Fort ($9.8- 12.2 million to be a wholly funded project by one or more of such federal entities) and further bonding programs for creation of the Arsenal of Democracy Museum.

Existing Aerial View



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HISTORIC FORT WAYNE MASTER PLAN

April 2003

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INTRODUCTION

HISTORY

The site that is currently known as Fort Wayne, one of Detroit's most historic landmarks, is an important cultural heritage site for both United States and Native American history. Although it is most known for its U.S. military use beginning in the mid-19th century, its role in Native American history goes back over one thousand years. Native American history is closely tied to the development of Detroit, and the presense of the Indian Mound establishes the grounds of Fort Wayne as significant and even sacred to the two cultures that have defined Detroit for nearly two millennia.

The establishment of the military installation at Fort Wayne was authorized by an act of Congress on August 4, 1841, as the result of a national defense plan to insure protection for the northwest. The possibility of attack from British North America favored the strategic location at a major bend in the Detroit River. Lieutenant Montgomery C. Meigs, Union quartermaster-general during the Civil War, designed the fort. The original portion of the fort - a square, four-bastioned work with oak log revetments and a brick and limestone postern and sally port - was built between 1844 and 1847 at a cost of $150,000. The Star Fort's 1845 date stone was placed upon construction of the sallyport. Construction of the Old Barracks commenced in 1845, and was completed in 1848 - the date that its cornerstone bears. In January 1849, it was named Fort Wayne in honor of General Anthony Wayne who in 1796 established American government in Detroit. In 1863 the original oak revetments were replaced by a brick masonry scarp, incorporating the 1845 postern and sally port, thus completing the the Star Fort essentially as we see it today. The Star Fort and the Old Barracks are the oldest buildings that survive today on the site.

During the Civil War, Fort Wayne was an important troop-training center. The first soldiers to use it were the 1st Michigan Infantry Regiment in April 1861. The first federal troops to occupy the fort, a detachment of the 3rd U. S. Cavalry, arrived in December 1861.

Although designed as a defensive position, Fort Wayne's armament was never installed. Continued good relations with Canada, and development of more sophisticated offensive armament, led to the fort's obsolescense as a defensive installation by the 1880's. Additional buildings were constructed on the site over the next several decades to serve Fort wayne's evolving role as an infantry garrison, and by the 1930's buildings dating from the 19th century were being replaced or modified.

With the outbreak of World War II, Fort Wayne entered perhaps its most important military period, when it became the marshalling and distribution point for war materiel produced in the Detroit area. Mammoth structures - most of which are now demolished - were constructed on the parade grounds to warehouse parts and motor vehicles, and to serve as office space. During the course of the war, thousands of tons of vehicles, parts, tires, and supplies manufactured in southeastern Michigan were shipped out through Fort Wayne to supply American, British, and Russian war efforts in Europe and the Pacific, helping the city earn the nickname "The Arsenal of Democracy".

The original installations at the fort served through 88 years of official occupation by various commands of the U. S. Army. In 1949, a portion of Fort Wayne was transferred to the City of Detroit for use as a museum. The

city signed a twenty-year quitclaim deed granting the government the right to claim the fort in the case of an emergency. In 1955-56 the city became the sole owner of Fort Wayne. However, the federal government operated some of the buildings outside the walled portion of the fort, and the site served as one of the midwest's largest military induction centers during the Korean and Vietnam wars. Buildings in the Fort Wayne complex also served as emergency housing for the victims of Detroit's 1967 riots.

Fort Wayne's original mid-nineteenth construction and subsequent development is a site of landmark historic quality. It is of great associative and architectural historical significance and was listed on the National Register of Historic Places in 1970. The National Register is a comprehensive listing of properties significant in American history, architecture, archeology, and culture and is a comprehensive index of the significant physical evidences of our national patrimony. The Register is the nation's official statement by which agencies and individuals, both public and private, may know which properties merit historic preservation.

Retrieved from *www.savefortwayne.org*

Historic Fort Wayne

■ SITE ANALYSIS

ZONE 1 : ENTRANCE (±8.4 acre)

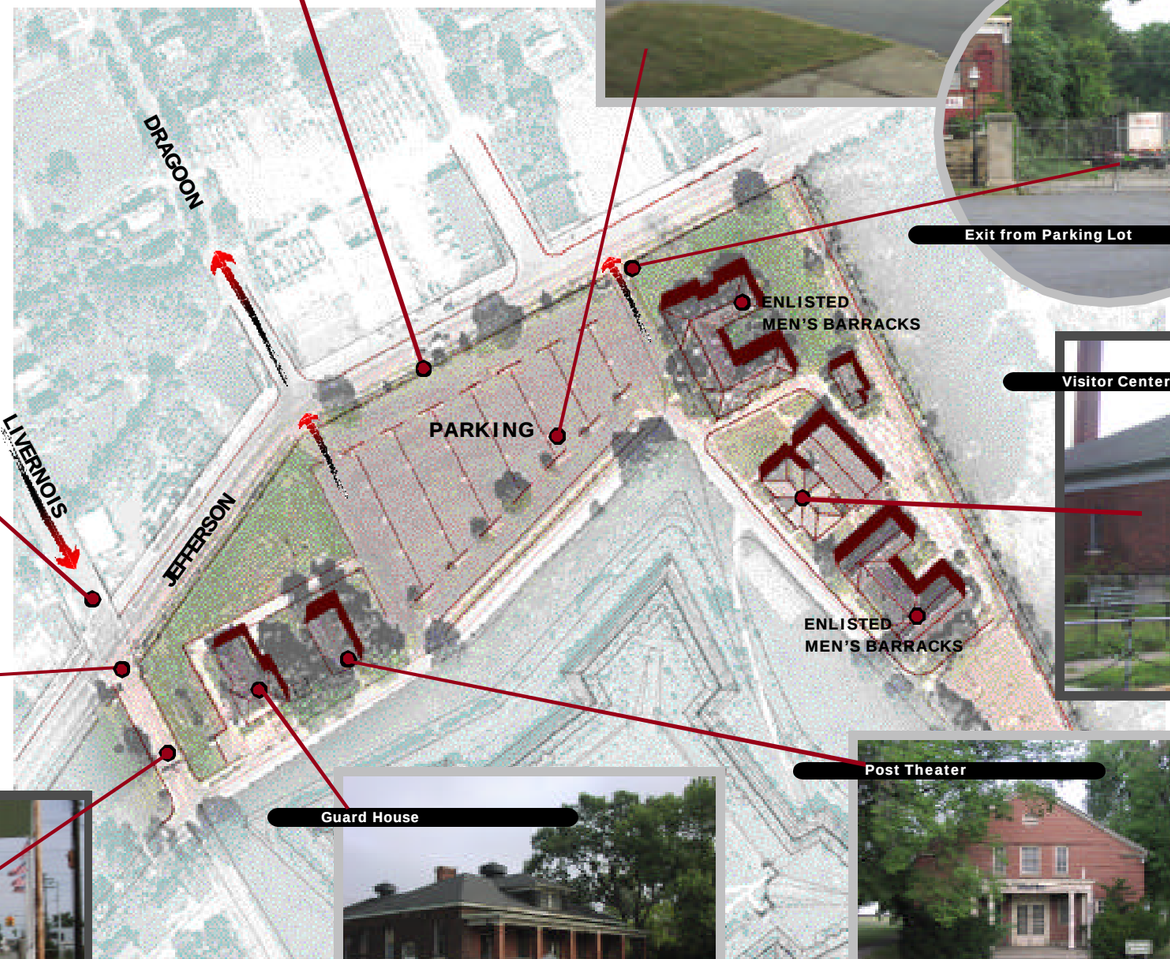
- ENTRY
- GATEHOUSE
- THEATER
- PARKING
- VISITOR CENTER
- BARRACKS

View from Jefferson Avenue

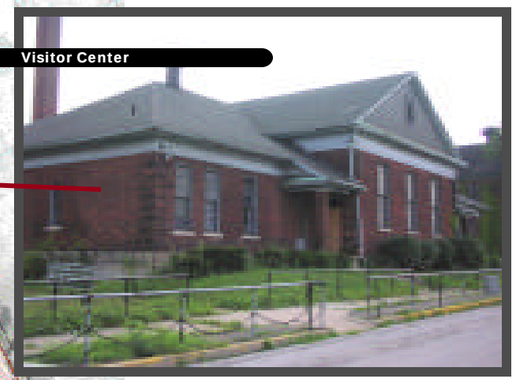
Parking Lot

Exit from Parking Lot

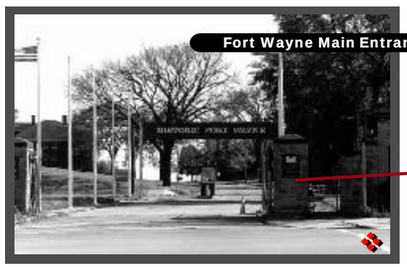
Livernois looking towards the Fort



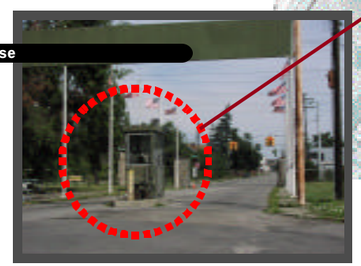
Visitor Center



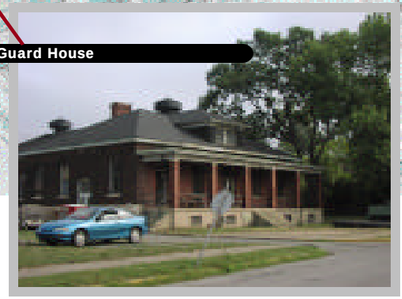
Fort Wayne Main Entrance



Gate House



Guard House



Post Theater

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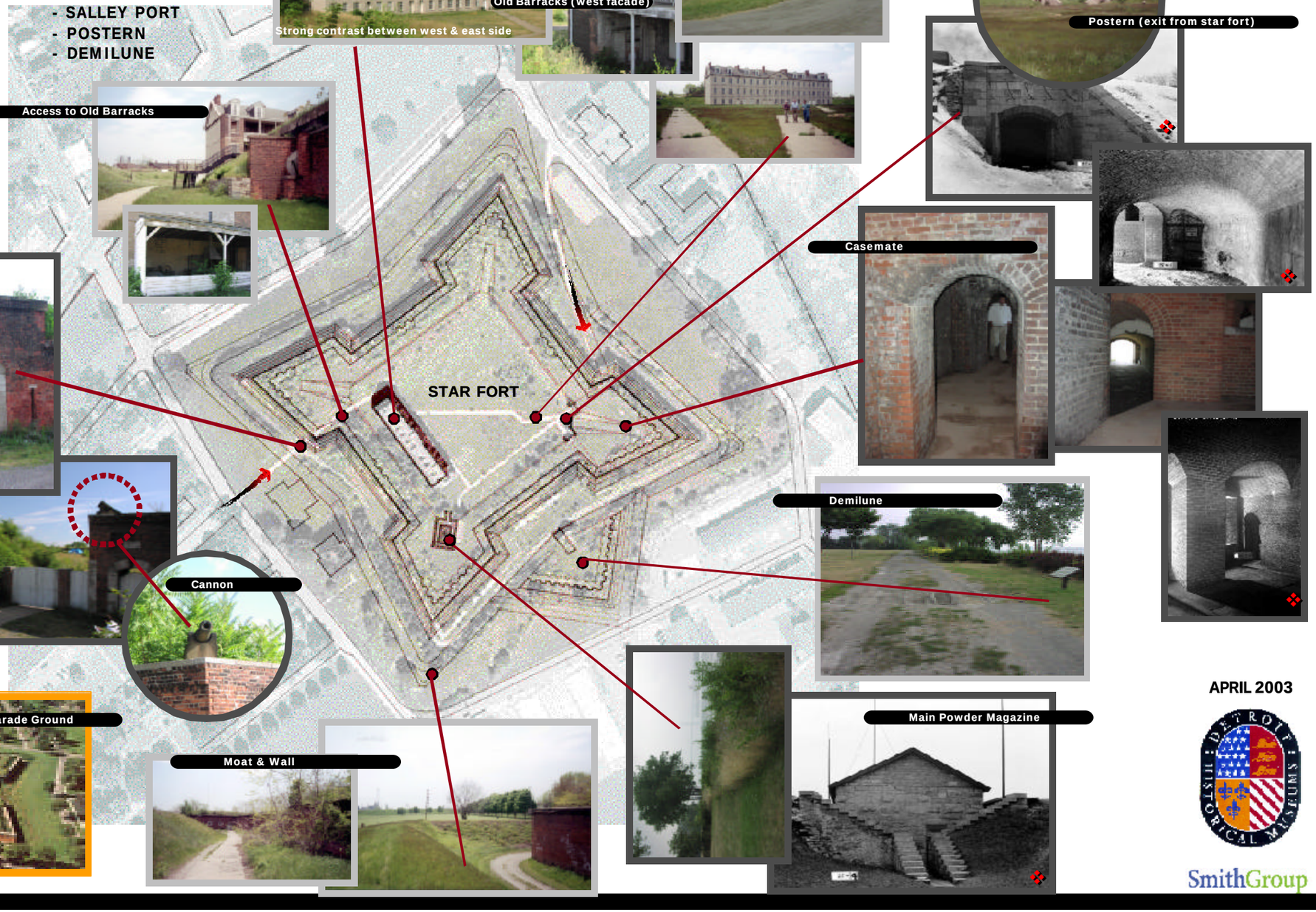
Historic Fort Wayne

■ SITE ANALYSIS

ZONE 2 : STAR FORT (+16 acre)

- BARRACKS
- POWDER MAGAZINE
- SALLEY PORT
- POSTERN
- DEMILUNE



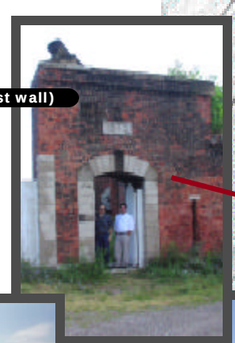
Old Barracks (east facade)

Strong contrast between west & east side

Old Barracks (west facade)

Access to Old Barracks

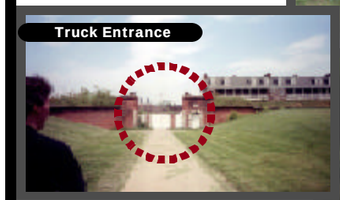
Entrance to Star Fort (west wall)

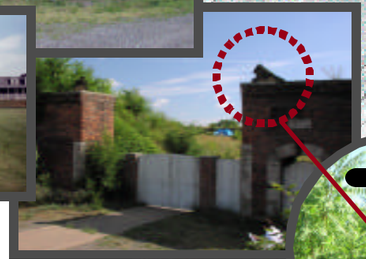


Postern (exit from star fort)

Casemate

Truck Entrance





Cannon

Demilune

Star Fort Parade Ground

Moat & Wall

Main Powder Magazine

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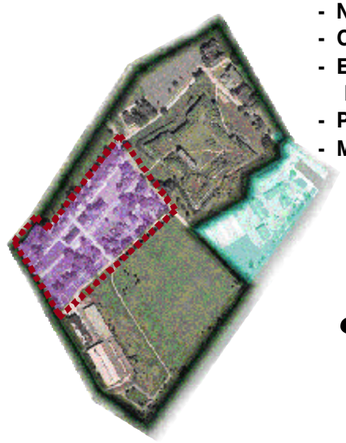
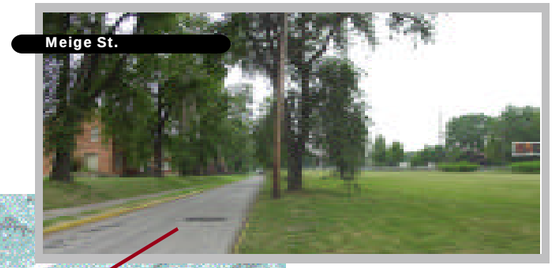
Historic Fort Wayne

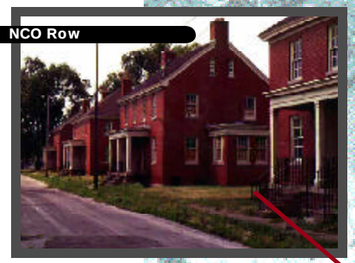
■ SITE ANALYSIS

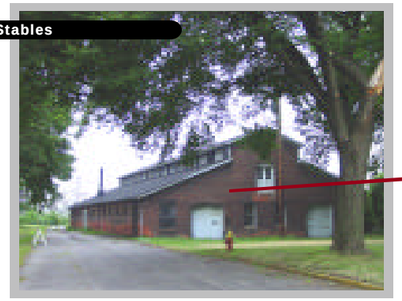
ZONE 3 : MILITARY VILLAGE (+14 acre)

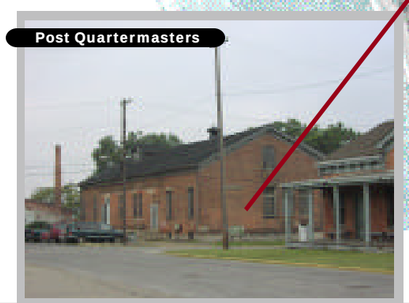
- OFFICES
- NCO ROW
- OFFICER'S ROW
- EMPTY BUILDINGS
- POST HOSPITAL
- MUSEUMS

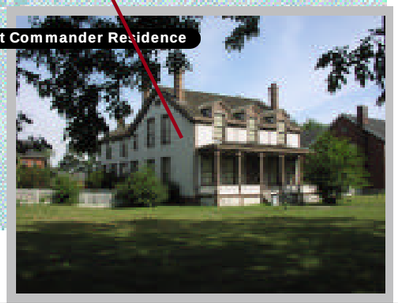












Tuskegee Airman

Indian Mound

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■ SITE ANALYSIS

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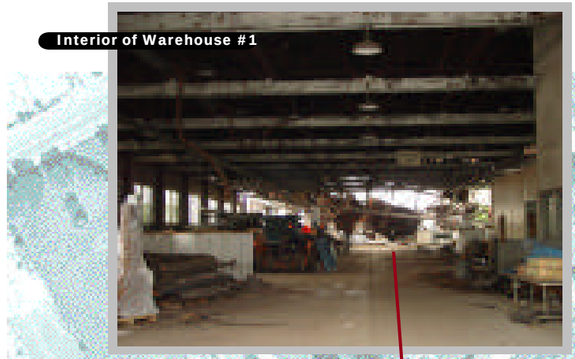
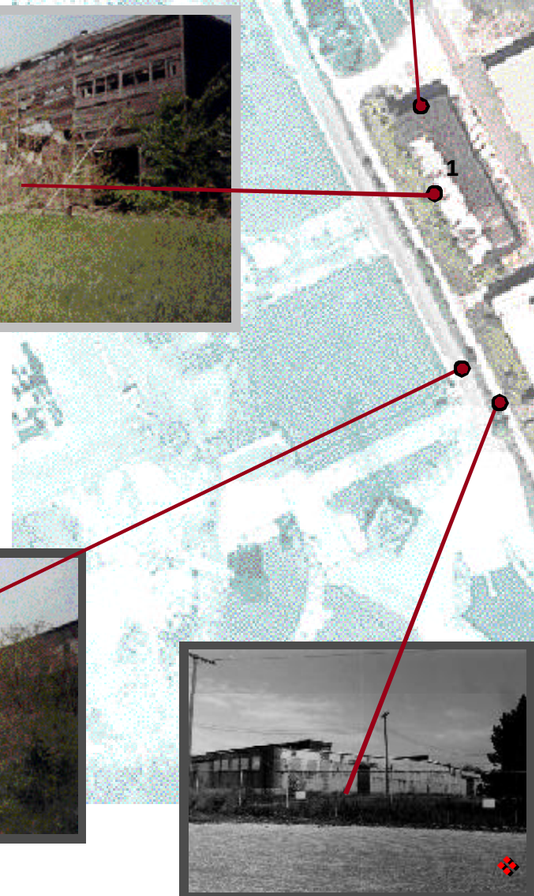
Historic Fort Wayne

ZONE 4 : WAREHOUSES(+4.3 acre)





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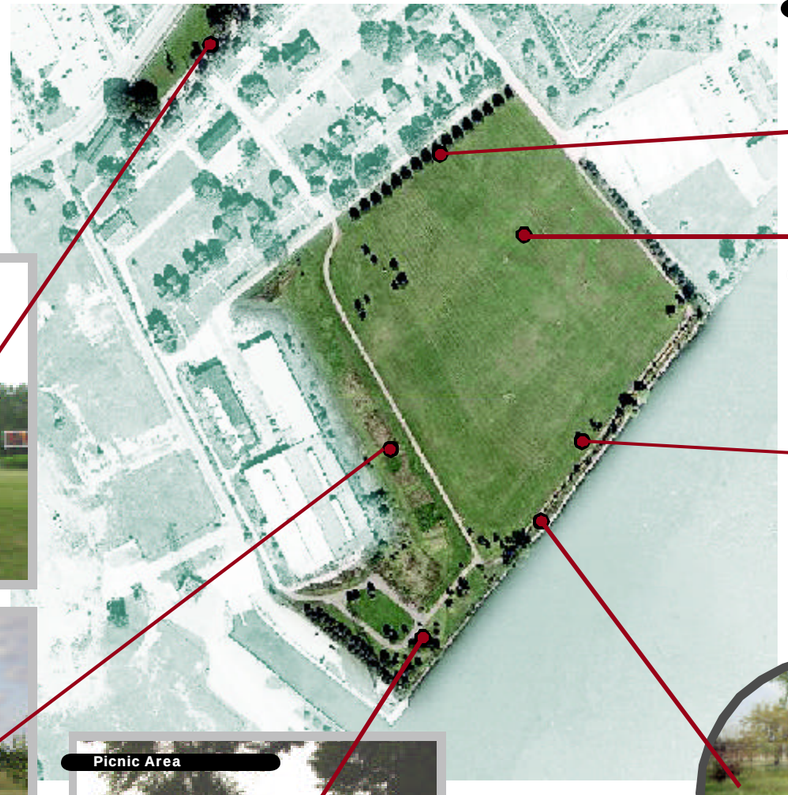
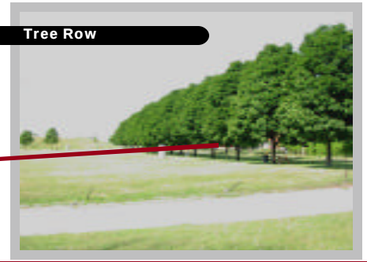
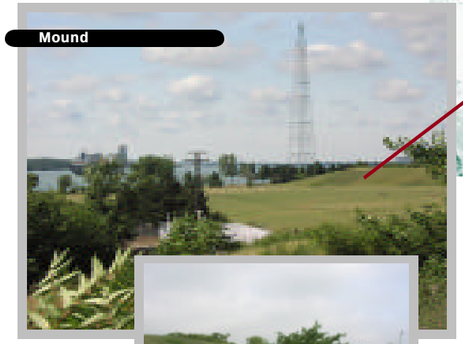
■ SITE ANALYSIS

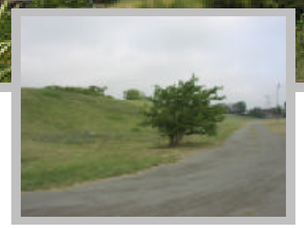
ZONE 5 : PARADE GROUND(+22 acre)

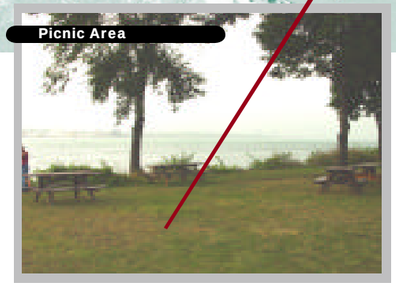
- PARADE GROUND
- SOCCER FIELD
- PICNIC TABLES
- OPEN GREEN SPACE

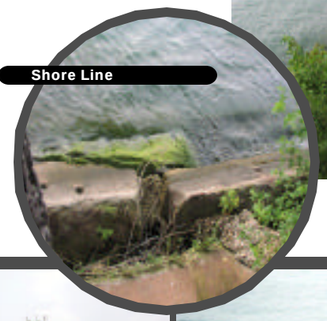


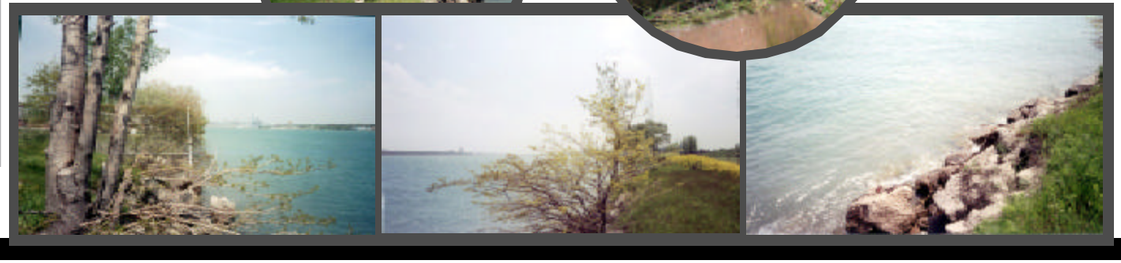












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DETROIT HISTORICAL MUSEUMS

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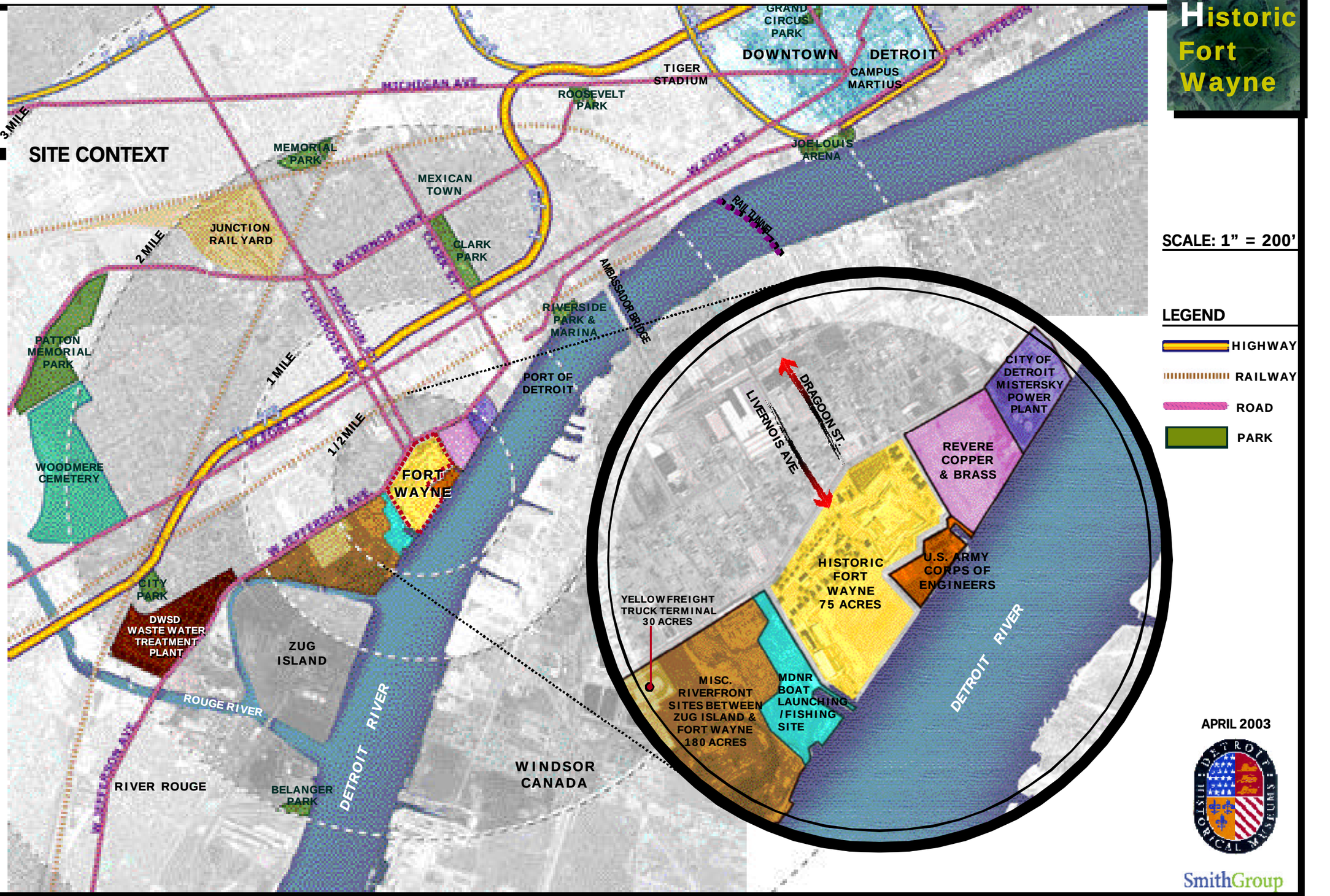
Historic Fort Wayne

SITE CONTEXT



SCALE: 1" = 200'

LEGEND

- HIGHWAY
- RAILWAY
- ROAD
- PARK

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Historic Fort Wayne

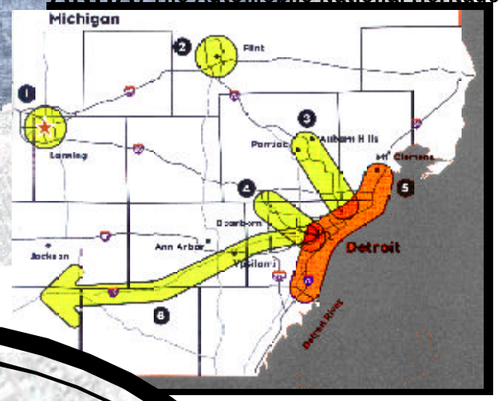
■ PROPOSED INITIATIVES

3 MILE
2 MILE
1 MILE
1/2 MILE

MICHIGAN AVE.
W. FORT ST.
W. JEFFERSON AVE.
CLARK ST.
LIVERNOIS AVE.
DRAGOON ST.
AMBASSADOR BRIDGE

MEMORIAL PARK
D.I.F.T.
(DETROIT INTERMODAL FREIGHT TERMINAL)
MEXICAN TOWN
CLARK PARK
ROOSEVELT PARK
TIGER STADIUM
GRAND CIRCUS PARK
DOWNTOWN DETROIT
CAMPUS MARTIUS
PORT AUTHORITY SITE
JOE LOUIS ARENA
TRUCK & RAIL CORRIDOR
RIVERSIDE PARK & MARINA
PATTON MEMORIAL PARK
WOODMERE CEMETERY
FORT WAYNE
POSSIBLE SITE OF RELOCATED CEMENT SILOS
CITY PARK
DWSD WASTE WATER TREATMENT PLANT
ZUG ISLAND
ROUGE RIVER
RIVER ROUGE
BELANGER PARK
DETROIT RIVER
WINDSOR CANADA

ANHA / The Automobile National Heritage Area



CITY OF DETROIT MISTERSKY POWER PLANT
REVERE COPPER & BRASS
HISTORIC FORT WAYNE 80 ACRES
U.S. ARMY CORPS OF ENGINEERS
YELLOW FREIGHT TRUCK TERMINAL 30 ACRES
MISC. RIVERFRONT SITES BETWEEN ZUG ISLAND & FORT WAYNE 180 ACRES
MDNR BOAT LAUNCHING /FISHING SITE
POSSIBLE SITE OF RELOCATED CEMENT SILOS

SCALE: 1" = 200'

LEGEND

- GCDC GREENWAY
- D.I.F.T
- ROUGE RIVER GATEWAY
- TRUCK & RAIL CORRIDOR
- POTENTIAL PROJECTS

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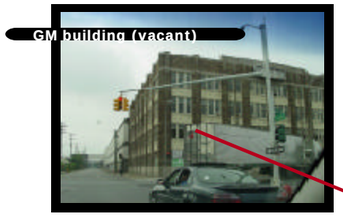
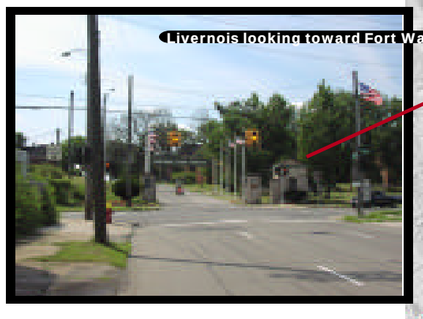
■ SITE ANALYSIS

NEIGHBORHOOD & ACCESS


GM building (vacant)


J&L Specialty Steel Inc.


Residential area


Livernois looking toward Fort Wayne


Between Zug Island & Fort Wayne


Detriot Water & Sewage

Church


Dragoon St. towards I - 75


U.S. Army Corps of Engineers


Shore line & Detroit River


Fishing boat


Boat launching site

CATEGORIZATION

ZONE	CATEGORY	EXISTING FACILITIES	
1	ENTRANCE	- ENTRY - GATEHOUSE - THEATER	- PARKING - VISITOR CENTER - BARRACKS
2	STAR FORT	- STAR FORT - BARRACKS - POWDER MAGAZINE	- SALLEY PORT - POSTERN - DEMILUNE
3	MILITARY VILLAGE	- OFFICES - EMPTY BUILDINGS - POST HOSPITAL	- NCO ROW - OFFICERS' ROW - INDIAN MUSEUM - INDIAN MOUND - STABLES - GUARD HOUSE
4	WAREHOUSE	- WAREHOUSES	
5	PARADE GROUND	- PARADE GROUND - SOCCER FIELD - PICNIC TABLES	

LEGEND

- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4
- ZONE 5
- ENTRY WAYS TO SITE
- EXIT FROM SITE

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DETROIT HISTORICAL MUSEUMS

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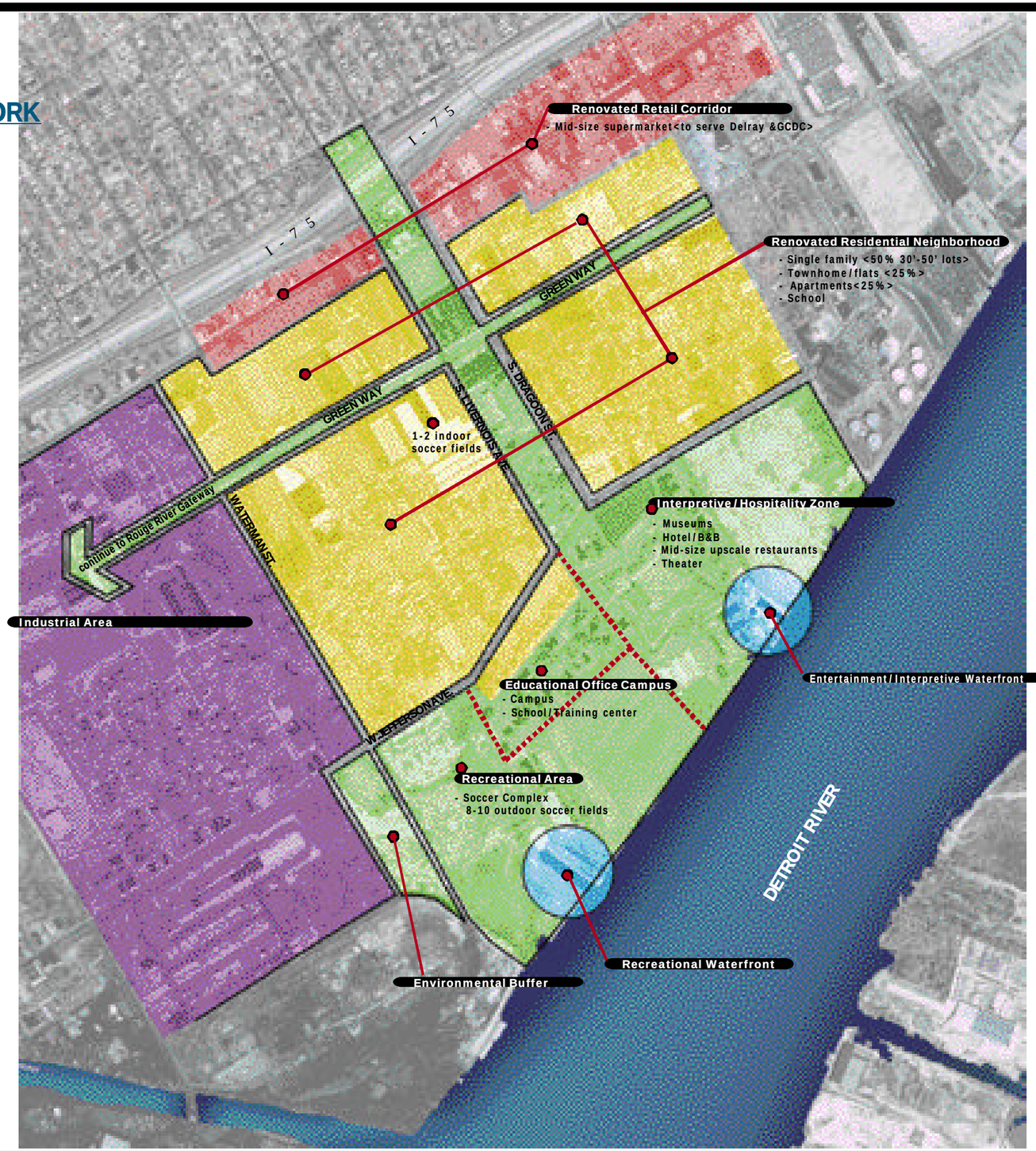
Historic Fort Wayne

■ SITE ANALYSIS

PLANNING FRAME WORK



:Re-invest in existing single family residential neighbor-hood.

:Contain and consolidate industrial and truck-related facilities.

:Reconnect SW residential neighborhoods to Detroit River.

: Continue to convert under-uti-lized riverfront land to park spaces.

LEGEND

- RESIDENTIAL
- GREEN WAY
- INDUSTRIAL
- WATER FRONT
- RETAIL

SEPTEMBER 6, 2002

DETROIT HISTORICAL MUSEUMS

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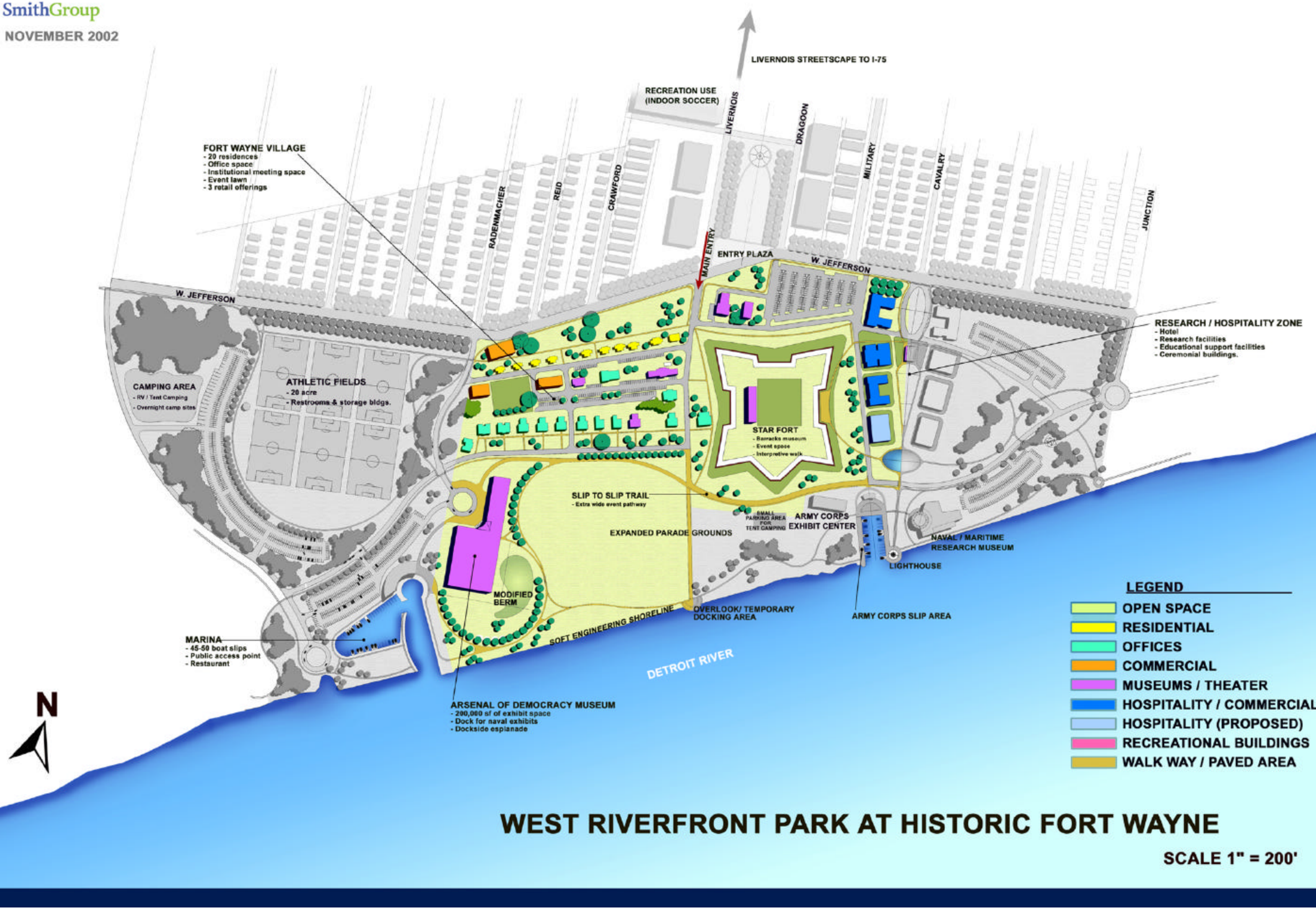

WEST RIVERFRONT PARK AT HISTORIC FORT WAYNE

SCALE 1" = 200'

WEST RIVERFRONT PARK AT HISTORIC FORT WAYNE

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SITE / PARK PLANNING PRINCIPLES

Introduction:

Historic Fort Wayne is more than just an overlooked historic site waiting to be rediscovered. It is an anchor along Detroit's west riverfront; it is a focal point in the on-going effort to restore and revitalize the Detroit River, and it is a significant historic resource in a city that desperately needs more cultural, recreational and entertainment venues. Any Master Planning effort needs to recognize all the potential that the Fort holds in helping to rebuild and promote the City of Detroit.

After meeting with more than 70 stakeholders representing numerous environmental groups, community-building coalitions, faith based organizations, City of Detroit departments, military interests, and civic leaders, a better understanding of what the Fort could become came into focus. The idea that best captures the essence of what the stakeholders were describing is that over time, the Fort and surrounding properties could become the "Belle Isle" of the west riverfront.

The goal is to create a place where numerous experiences attract visitors and establish this site as a regional destination. The core of the facilities will include the historic Star Fort, and the Military Village exhibits and adaptive reuse facilities. However, the vision does not stop there! Families will come to the riverfront to see tall ships. Boaters and fishermen will access the spectacular Detroit River waterway and fishery via the marina and launch. Soccer camps will serve children of all ages, while campers will celebrate family reunions, military reenactments, and scouting events on and around the Parade Grounds. Bicyclists will connect to the riverfront bikeway, the community and the Rouge Gateway system via greenway links. New museums dedicated to maritime activities and the special role of Detroit in the Arsenal of Democracy will tell Detroit's heroic tale of industry and Great Lakes lore. Finally, some of the underutilized structures at the Fort, plus adjacent properties, can provide much needed conference, office, exposition and cultural activity space for the Southwest Detroit community. This will make Fort Wayne a site with something for everyone.

The vision for Fort Wayne was created to be consistent with and complimentary to on-going community and planning efforts for this part of the city. Existing neighborhood plans and city documents were referenced in determining access, circulation, and land uses for the greater Fort Wayne area. It is a 25-year vision that recognizes the need for the Fort to work in concert with emerging neighborhoods and other park-like offerings to increase use and annual visitation of the site.

In generating the critical mass that will make Fort Wayne a vibrant and sustaining part of the community, it is important to make sure that an understandable identity for the project is established and promoted. Any recommendation for West Riverfront Park at Historic Fort Wayne needs to respect the Fort's historic value, unique location and special attributes. The theme of *reconnecting* was established to help guide planning decisions to ensure appropriate ideas were being examined. The following statements further defined the idea of Fort Wayne as a point of re-connection:

Fort Wayne can reconnect the City of Detroit to…

- The Detroit River – The west riverfront only has two public access points besides Fort Wayne; at Riverside Park adjacent to the Ambassador Bridge, and the DNR/DTE Energy boat launch and fishing site directly west of the Fort. As the west riverfront redevelops, the Fort can be a centerpiece of public riverfront access and activity for this 3+ mile stretch of the Detroit River.

- Our Shared Heritage – The Fort and Military Village present a stage that can tell many stories and histories. Fort Wayne means different things to different people. For some, it is a place that reminds them of the draft and their induction into the United States military. For others, it meant a job working in the factories and warehouses that came to be known as the Arsenal of Democracy. For still others, it is the site of a record catch, as it was a popular fishing spot even before the Fort was built, and remains so today.

- Our Neighborhoods – As a site that offers so many cultural and recreational offerings, neighboring communities will now have a place to hold festivals, large organization outings, family reunions and sports camps; or just somewhere to find peace and solitude. Without a place for these type of interactions, neighborhoods will not have the ability to share their common interests and points of celebration. Southwest Detroit is the City's fastest growing community and Fort Wayne serves as an important role in neighborhood development and the cultivation of civic pride.

Planning Process:

The Master Planning process for West Riverfront Park at Historic Fort Wayne began with a literature search of all relevant planning studies and documents. It is the express goal of the Master Plan to be consistent with and reinforce as many local and city-wide planning objectives as possible. While there is not a complete consensus of how riverfront land should be redeveloped and/or how transportation interests should be handled, there is a universal agreement that the Fort should be a major regional destination that must be enhanced and diversified to broaden its use and appeal.

After a thorough understanding of how the Fort could tie into existing efforts, the Master Planning team met with stakeholders from all areas of the City to listen to suggestions and concerns for the future of Fort Wayne. As a result of the stakeholders' meetings a list of ideas was generated; each of which was tested on site to determine their feasibility and to ensure the initiatives could coexist.

While financial considerations and programming exercises were being undertaken, a detailed site analysis was underway to determine how the Fort was being used today, and how it could function more effectively in the future. It was only after a preliminary program and financial framework was established and in place that the concerns of integrating land use, access and circulation, and site design were addressed.

Site Analysis:

Fort Wayne is located in Delray, a Detroit neighborhood that has not seen significant residential or commercial development in more than 30 years. Most new investment in this part of the City has either been transportation related (highway, rail, or shipping companies), or industrial (the Detroit Water and Sewerage Department Wastewater Treatment Plant is a few blocks to the southwest on Jefferson Avenue). For Delray to survive and maximize its potential as a neighborhood for residential and commercial development, Fort Wayne must be a stable anchor and attraction that serves the needs not only of the region, but of the surrounding community.

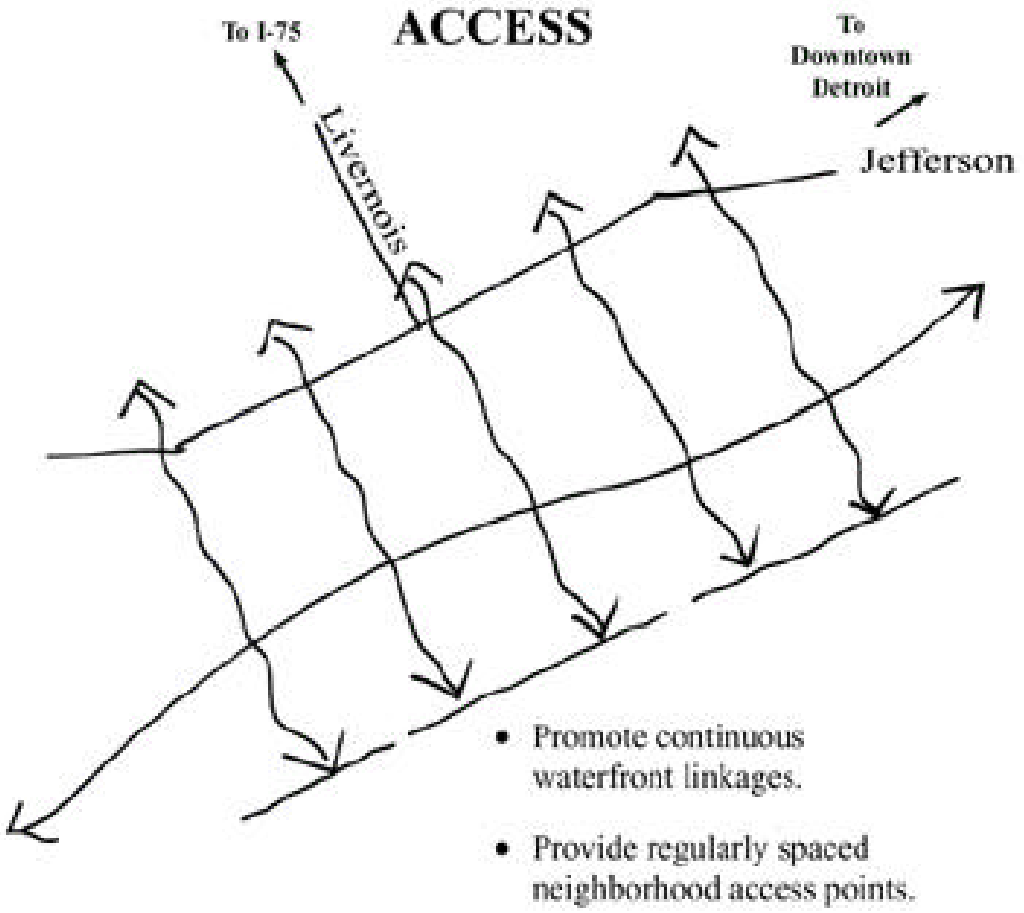
In addition to meeting with Stakeholders of the area to determine a programmatic theme, an extensive analysis of the surrounding areas was undertaken to better understand the potential of the greater Delray area. The following diagrams illustrate the site analysis, concept development, and specific zones within West Riverfront Park at Historic Fort Wayne.

Insert Graphics 1- 11 on the following pages...

Circulation and Access:

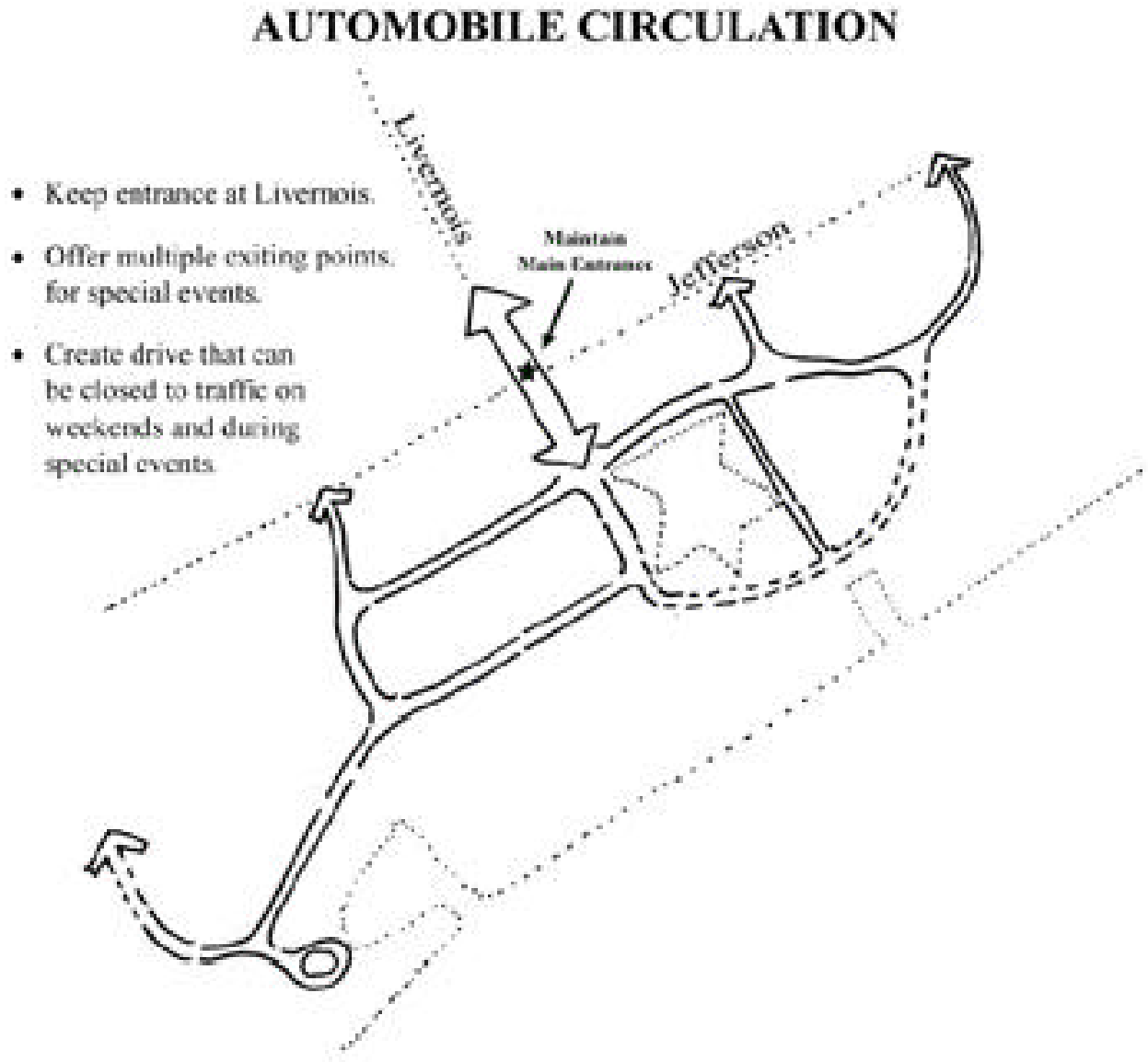
To West Riverfront Park at Historic Fort Wayne - The majority of visitors from outside the Detroit City limits will use Interstate 75 to get to the Fort Wayne neighborhood. Livernois is the most direct and easiest route to take from I-75 to West Riverfront Park at Historic Fort Wayne. Signage, lighting and streetscape improvements are needed to ensure that the connection is easier to follow and more attractive to visitors who are not familiar with Detroit.

Visitors from Detroit and neighboring communities will access the Fort either via I-75 or from Jefferson Avenue. While Jefferson does not offer direct access to downtown, it does intersect with major arteries such as Junction, Springwells and Grand Boulevard. Fort Street is the most direct connection from downtown. The intersection at Livernois and Fort needs to have signage that not only directs visitors from the freeway, but those traveling from downtown as well.



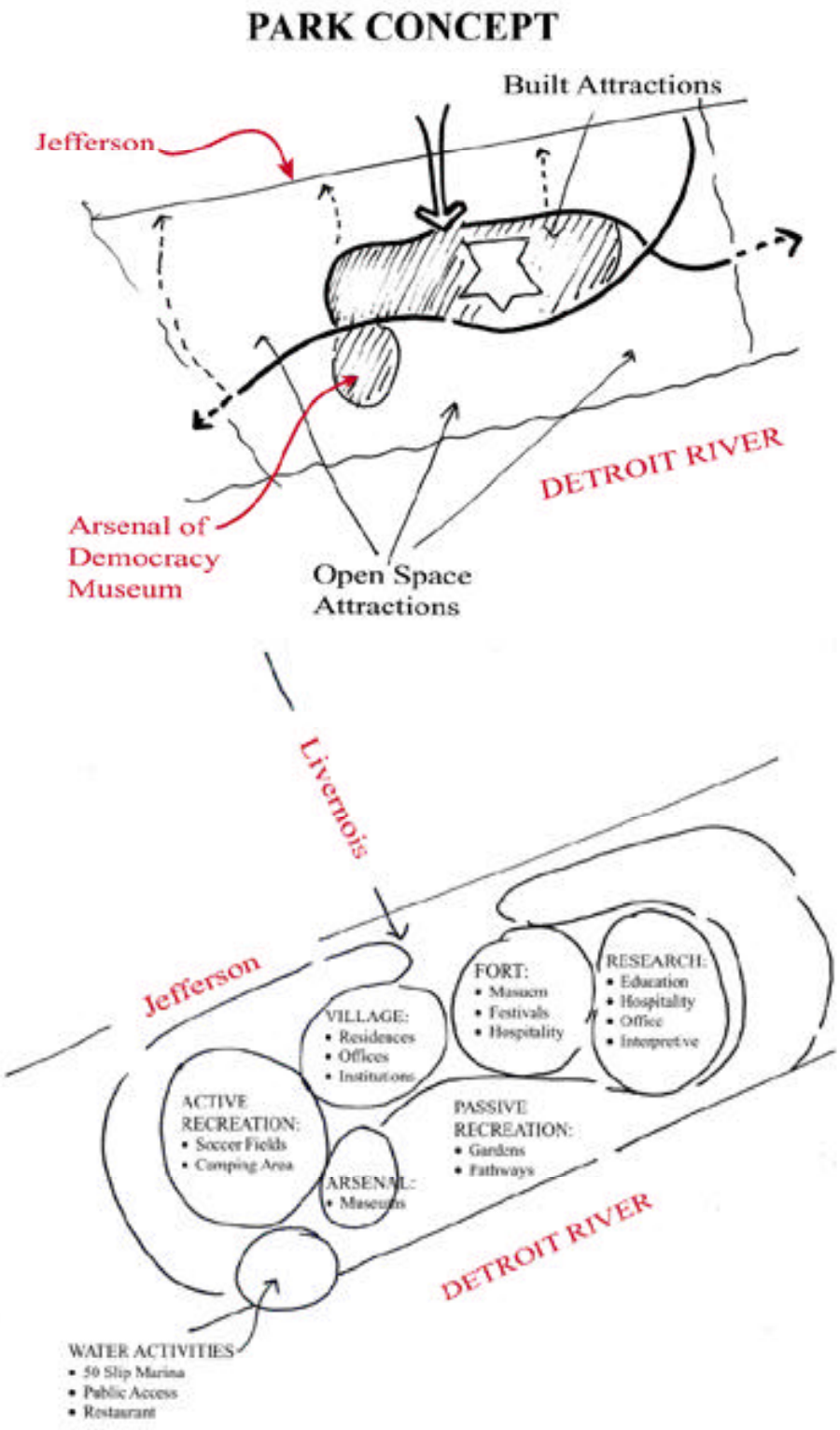
Within West Riverfront Park at Historic Fort Wayne - The main entrance to West Riverfront Park at Historic Fort Wayne needs to remain at Livernois as it is the most visible and is easily located from both I-75 and Jefferson. Additional entry/exit points need to be created to allow for special event crowd control and emergency access. The additional points should not only align with existing streets, but should also allow pedestrian access that encourages neighborhood use by the Delray community.

Once inside West Riverfront Park at Historic Fort Wayne, circulation will occur on a central east/west spine that combines Meigs and Signal Streets. In time, when adjacent parcels become available, this central spine can be extended to include additional attractions. The reconfigured Meigs/Signal street will effectively serve most all existing and future attractions. An auxiliary east/west road is planned to help disperse traffic and to serve as a back-up for crowd control and emergency access purposes.



Land Use:

The following land use zones have been created to guide future redevelopment and infill opportunities:



Site Design - The overriding concern for any site design effort was to showcase and enhance the existing historic structures. While there are many recommendations for Fort Wayne, there are three major changes that will significantly improve the Fort's setting. These include:

1. Removal of contemporary Army Corps of Engineering buildings and surface area. The Fort needs to be reconnected to the river. Currently, surplus storage buildings and parking lots are directly between the Fort and the Detroit River. The Master Plan recommends moving all but two buildings closest to the slip and parking for less than 20 cars. The recovered land will become part of an extended Parade Grounds. There are ample buildings on the Fort site to accommodate all the needs of the Army Corps of Engineering.

2. Restoration of the gardens between Jefferson Avenue and Meigs Road, and creation of a streetscape along Jefferson that is complementary to the historic structures. The entrance to the Fort needs to actively invite the public inside the gates. All chain link fencing should be removed and replaced with brick pillars and wrought iron fencing. A double row of trees should be planted along Jefferson and coordinated with the Livernois Streetscape design vocabulary.

3. Restoring/rebuilding the shoreline to be habitat friendly and allow for scenic overlooks. Soft engineering solutions, along with the potential to re-create the historic character of the Detroit River edge, can provide public access and wildlife/fishery habitat at the river's edge. The riverfront is one of the most sought after natural resources in the City and needs to respond to wildlife and human demands. The new overlook plazas created at foot of main entry road and at Corps slip will also allow cruise ships/ dinner boats and shuttle docking piers.

4. The Indian Mound is an item of great historical and cultural significance, and represents an era in the site's history that predates the establishment of Fort Wayne. Just as the buildings on the site, which date from many eras, help depict the Fort as a military installation that has evolved over 150 years, the presence of the Indian Mound speaks to an even broader historic evolution for the site that extends back thousands of years. As such, it provides opportunities to expand the story of the Fort Wayne site to include its significance in Native American activities in the area. As a solemn symbol for Native Americans, it merits improved presentation and interpretation. The current fencing and neglected state of maintenance are inappropriate for this site feature. It is recommended that existing fencing and volunteer shrubs and trees be removed, and the area be manicured with a simple grass cover. A viewing location should be provided at a respectful distance from the Mound, permitting visitors to see the Mound in the context of the overall site's evolution, and to learn of the significance of the Mound through interpretative information. The viewing location could be contemplative in design, and may include benches and provide a setting for meditation, befitting the sacred nature of this site element. The desire to protect the Mound must be balanced with the need to preserve its dignity. Simple wood picket fencing or a split-rail type fence would discourage visitors from climbing on the Mound, while still being compatible in character with the Mound site.

Additional site recommendations include the following:

Detroit River Overlooks: Two places along the river will offer scenic views to downtown, the Fort, the Ambassador Bridge and Aug Island.

Docking Points: In addition to creation of a marina at the Detroit Edison slip, and offering dockage points at the Army Corps slip, the two river overlooks will offer temporary docking points for cruises/dinner boats and special events, such as tall ships or large scale reenactments.

Slip to Slip Trail: An extra-wide paved event trail can lead visitors to the two marinas and offer a main pedestrian spine with West Riverfront Park at Historic Fort Wayne. Trails connecting to the Slip to Slip trail will connect all events and locations offered within West Riverfront Park at Historic Fort Wayne, and will also connect to planned and existing greenway links.

Recreation Complex: The creation of a 20-acre sports field will enable soccer camps and special athletic events to take place at West Riverfront Park at Historic Fort Wayne. The field space will be flexible enough to allow a variety of events and will be set back from Jefferson Avenue to establish a light and activity buffer.

Special Event Lawn: Within the Village, the Master Plan calls for the creation of a one acre lawn that can serve the needs for smaller conventions, weddings, office functions and family reunions.

Picnic Structures: Throughout West Riverfront Park at Historic Fort Wayne, the Master Plan recommends the creation of modern picnic structures on Detroit Edison and Port Authority properties; a variation on the classic offerings found on Belle Isle, but with a more modern approach to design and construction.

Shoreline Stabilization:

Historic Fort Wayne is located at the terminus of Livernois Avenue near I-75, within the City of Detroit. The project area contains 1,327 feet of frontage along the Detroit River. The property is bounded by the U.S. Army Corps of Engineers (USACE) boat yard on the north end and the City boat yard on the south end. The existing bank material is comprised of construction debris, which is mostly broken concrete, as seen in the picture below followed downstream by limestone slabs. The proposed project has undergone four alternatives for shoreline stabilization, which range from a no build scenario, to limestone steps, a coastal wetland with a beach and soft landing and finally the chosen combination of soft engineering with traditional hard armor alternative.

South view of the Detroit River at Historic Fort Wayne.

No Build:

This alternative involves retaining the shoreline as it is and do nothing. The site contains approximately 1,327 linear feet of shoreline. The entire length of the riverbank is heavily armored with concrete slabs (some with rebar), construction debris and some limestone. The concrete extends downstream for approximately 854 feet where it transitions to limestone slabs for an additional 470 feet. In general, the concrete rubble is in various states of disrepair along the bank including slumping, sinkholes and toe failure. The rubble pile starts three to four feet under water and continues 10 to 12 feet up-slope. Rubble was observed in several sinkholes five to six feet in depth into the side of the bank. The limestone slabs are generally in good condition with the exception of some minor grading and surface drainage issues. It should be noted that no outfalls or ground water seeps were observed at the time of the site visit. Existing vegetation along the shoreline ranges in height from six inches to more than 12 feet in certain locations.

The concrete rubble does provide some aquatic habitat and traps floating vegetation. However, the stability of the bank and toe is in question and is not seen as a feasible alternative.

Limestone Steps :

This alternative involves the excavation of the construction debris and grading the bank to a stable slope, extending 50 to 60 feet back into the Parade Grounds. This action could result in the loss of existing recreational land and open space, as identified in the Master Plan. Conversely, maintaining the existing top of bank by extending the structure into the river could lead to regulatory agency concerns and hinder the navigational channel. Additionally, this alternative does not provide fish and wildlife habitat enhancement opportunities. This alternative would be too costly to construct due to building materials, the installation of cofferdams and freight charges. Limestone steps provide opportunities for access to the river; however, this could also be seen as a liability. Because of the cost, lack of habitat and liability issues, this option is not seen as a feasible alternative.

Parade Ground Wetland with Beach and Soft Landing:

This alternative involves the reshaping of the shoreline and cutting a channel into the parade grounds to create a wetland, beach and a soft landing for watercraft. This would cause the loss of valuable recreational space and potentially create a conflict with the State Historic Preservation Office by impacting the parade grounds. Additional conflicts with this alternative include the following: 1) the wetland could eventually be taken over by Cat-tails *(typha sp.)* and Giant reed *(Phragmites sp.)*, which can grow up to 15 feet in length and block the view of shoreline becoming a maintenance issue; 2) the existing shoreline is approximately ten feet high and will not support a beach unless major excavation occurs and swimming should not be encouraged given the rate of flow of the river and lack of lifeguards at this location; and 3) detailed geotechnical surveys of the parade grounds must be conducted to determine the extent of the debris. Because the site is located within the narrowest portion of the river, the associated high flows and volumes, and potential agency concerns/conflicts, this alternative was not seen as feasible.

Soft Engineering/Traditional Hard Armor:

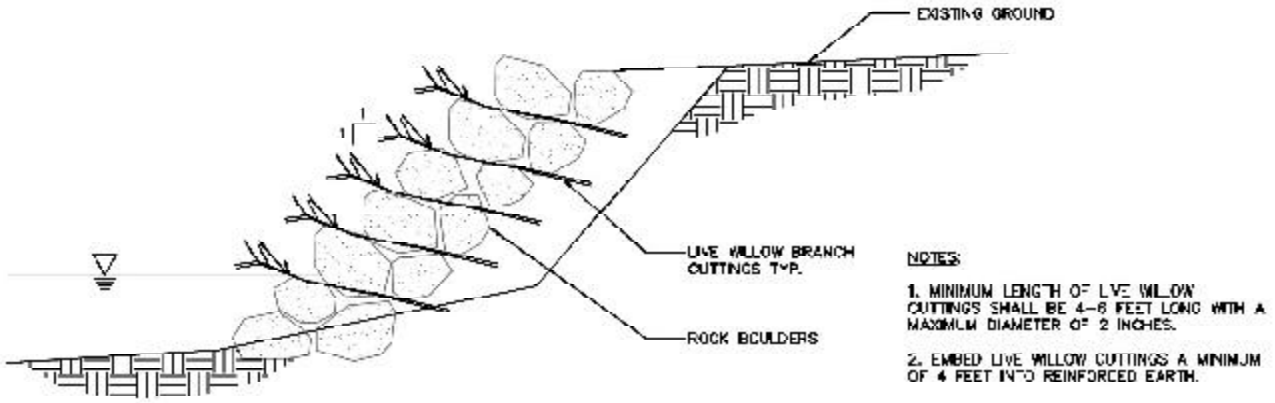
Due to the existing condition of the concrete rubble along the river, and based on historical vegetative land cover maps and aerial photographs of the project area, the site is a good candidate for soft engineering shoreline stabilization, also known as soil bioengineering, along portions of the river. Soil bioengineering is a process that utilizes plant materials to stabilize shorelines. It should be noted that bioengineering is not necessarily less expensive than traditional methods; however, in the long term, bioengineering can be more cost effective, provide wildlife habitat and be more attractive. Historical records from the Michigan Resource Inventory System (MIRIS) indicate portions of the river system were comprised of scrub-shrub wetlands along the banks of the river. The plant material used for this project will be similar to what would have been found along the river in the 1800's, including *Salix sp*. In order for soft engineering to be utilized, major excavation and/or removal of concrete rubble must occur to construct this type of bank stabilization.

Soft engineering not only stabilizes shorelines, it also provides habitat for fish and wildlife that make use of the Detroit River for breeding, migrating and resting purposes. It has been estimated that one quarter of the North American population of Canvasback ducks utilize the river as a wintering and migratory flyway. The planting of vegetation will create overhanging branches, which catch floating *Vallisneria sp.*, (a favorite food of many waterfowl species), and will create feeding opportunities for resident and migratory waterfowl. The riprap also creates small nooks for young fish to hide from predators. The combination of riprap and woody vegetation also provides habitat for aquatic macro invertebrates. The plant material chosen for the

combination project area can range in height from six to twelve feet in height. Plant materials chosen for this area will be located in areas that will not obstruct the historic view shed. In areas where the view must be maintained, prairie species native to Wayne County and low growing shrubs will be planted. See technical specifications for the plant list.

Additional areas of concern within the project area deal with the large limestone slabs, which extend for approximately 470 feet. The slabs appear to be in good condition with the exception of some minor grading and site drainage issues. This will be addressed by minor grading activities followed by some chinking in the larger gaps within the slabs.

The chosen method of shoreline stabilization is a combination of traditional hard armor with integral plantings, as seen below in the typical detail in the construction drawings.



2 / C-109 ROCK BOULDERS WITH INTEGRAL PLANTINGS
NOT TO SCALE

This particular shoreline treatment was chosen for this site based on the following criteria:

- The project location has the highest velocity based on the Detroit River Model, 1987 calibration.
- The project site is located on the narrowest portion of the river.
- Riprap has long been used on the river system.
- Riprap can withstand flow ice and provide habitat for fish and wildlife.
- Integrates the use of native vegetation to provide additional shoreline stabilization and provides habitat for fish and wildlife.
- The method is consistent with similar projects occurring along the riverfront.

The proposed project is broken into three phases: 1) Survey and Hydrological Data Collection, 2) Soft Engineering, and 3) Construction Documents.

Phase 1 Survey and Hydrological Data Collection

- Obtain survey information from ABE Associates, Inc.
- Verify river velocity and flow volumes based on existing data and compare it to U.S. Army Corps of Engineers (ACOE) gauging station.
- Determine annual average high and low water elevations based on existing information for the project site.
- Verify 100-year flood elevation for the project area.

Phase 2 Soft Engineering

- Determine/estimate depth of debris within riverbank.
- Establish grading limits based on the extent of debris removal (estimate).
- Determine type and size of toe protection material and establish takeoff elevation based on Phase 1 above.
- Design typical cross sections for soft engineering structures and select appropriate plant materials based on Phase 1 above.

Phase 3 Construction Documents

- Prepare construction drawings, including Existing Conditions Plan and Cross Sections, Site Preparation Plan, Layout and Materials Plan and Typical Cross Sections.
- Compile Technical Specifications for shoreline construction.

INTRODUCTION

This section sets forth the preservation philosophy developed and followed in the determination of recommendations for specific treatments for all structures on the Fort Wayne site. These treatments include repairs, upgrades, and modifications necessary to make the buildings suitable for new uses described in previous sections of this Master Plan, and to maintain or restore their fundamental historic character. A review of the national historic preservation standards, used as a basis for the preservation philosophy and subsequent recommendations included in this report, is also included.

HISTORIC FORT WAYNE BUILDINGS PRESERVATION PHILOSOPHY

The treatments recommended in this section, as part of the overall master plan, recognize that Historic Fort Wayne's structures and overall site environment have historic significance, as well as symbolic, aesthetic and functional value. The site represents an untapped resource for the community, offering recreational, educational and entertainment opportunities. The many and varied structures within the site can also offer space for residences, offices, and public activities. In addition, Fort Wayne can play a role in bringing people from outside the Detroit area to the city by providing an attractive destination for visitors, and by linking to broader regional planning initiatives.

However, recommendations for buildings are also guided by fundamental practical and historic preservation concerns, the most important of which is to stop the current significant progressive deterioration of almost all of the structures on the site. Some buildings of significant historic value have already been lost, and many that survive are in such a state of disrepair that they are approaching a condition where major collapse can occur in a relatively short period of time.

In order to balance the many physical requirements that the variety of uses and roles will impose on the buildings, recommendations for treatment contained in this section have been developed with the following considerations in mind:

- Fort Wayne is first and foremost a historic site, listed in the National Register of Historic Places, containing highly unique structures, and having played important roles in five major wars. Structures and site features that played important roles in the fort's function over more than 160 years of history still survive. They provide a historic context and continuity to the site, which assist in telling the story of the fort and its important role in Detroit's and America's history.
- The current severe state of progressive deterioration must be halted. Decisive action must be taken to prevent further loss of historic fabric and useful structures at Fort Wayne.
- Preservation of Fort Wayne's historic character is crucial. It's status as a historic site must be maintained, and continued preservation of the fort and interpretation of its history reflect the core of the Detroit Historical Museum's mission.
- The Fort Wayne site must move toward economic self-sufficiency. It cannot survive as a passive destination or museum site. The City of Detroit's support must be supplemented with an income stream, and the buildings must accommodate the uses needed to generate income, in a manner compatible with the historic character of the site.
- The site needs daily activity and functional uses, as it has had throughout its history as an active military installation. Uses and activities must respond to the needs of the community and region. The buildings must accommodate expanded activities in a manner compatible with the historic character of the site.

To this end, the recommended treatments found in this section are intended to accomplish the following:

- Arrest deterioration of structures and generally repair and stabilize structures and features.
- Preserve the character-defining features of the buildings' exteriors and interiors, in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Recognize that the Star Fort and Old Barracks are the most architecturally unique structures on the site.
- Upgrade building and life safety code compliance.
- Provide access to buildings by individuals with disabilities.
- Provide modern mechanical and electrical systems to accommodate a variety of contemporary uses, including office, institutional, recreational, and residential uses.
- Provide a contemporary level of comfort for occupants.
- Upgrade structural systems to accommodate new uses.
- Accommodate functional requirements of new uses.

In general, the approach embodied in this master plan, and the recommendations in this section are intended to preserve and enhance the overall exterior historic character of the site, while accommodating new uses inside most buildings.

The exteriors of all buildings outside the Star Fort are intended to be restored to their post World War II appearance – much as they are configured today – thus maintaining the major WPA renovations to Officers' Row buildings during the 1930's (including the masonry re-cladding of 19th century wood-framed houses). Work would include repairing deteriorated features, making buildings water tight, restoration or reconstruction of missing features based on historic documentation, and cleaning. Exterior changes or additions are to be minimized, and would generally be limited to provision of access ramps or lifts for disabled individuals. Excepted from the post-war period restoration would be the Commanding Officer's House, which has already been carefully restored to its original 19th century appearance.

Interior work would consist of rehabilitation to accommodate new uses. Alterations would be permitted that do not diminish the overall character of the interior spaces and features. Such alterations may include new openings in walls, limited removal of partitions, addition of new complimentary partitions, installation of modern lighting, electrical and mechanical systems. The overall character of interior spaces is intended to be maintained, and removal of character-defining features such as moldings, bases, and balustrades is not recommended. Changing openings to the exterior (i.e. creating new openings or blocking up existing openings) is not recommended. Continued use of current bathroom spaces is encouraged. All new work should compliment, and not overpower the fundamental character of the building.

Much of the work required on the interior can be done inconspicuously. It is intended that new mechanical and electrical systems will be concealed and incorporated in a manner that will not detract from the character of the building. Structural reinforcements can be accomplished by removing ceilings and replacing them to match the original after work is complete.

Owing to it's unique architectural and historic character, the Star Fort is recommended to receive a less intrusive and more historically authentic preservation approach at the exterior and interior, focused on maintaining the existing character, features, spaces and fabric of that unique structure. The period of interpretation of the Star Fort should reflect the mid 1860's, which is the period when the Star Fort's current masonry scarp replaced

the original log revetments, thus establishing it's current character. Upgrades in electrical systems and lighting needed to accommodate contemporary activities such as festivals, receptions, and other outdoor gatherings are to be concealed or inconspicuous.

The Old Barracks is also recommended to receive a preservation treatment, with the exception of some interior spaces which are to be rehabilitated to receive first floor toilet rooms and third floor/ attic hospitality use, along with an elevator to accommodate such a use.

Warehouses 2A, 2B, and 2C present an interesting challenge. They are World War II-era utility structures, with very little architectural interest when compared to other buildings on the site. However they have associative historical significance in that they are the only surviving structures from what may be the most important episode in the Fort Wayne's history – the World War II Arsenal of Democracy era, when Fort Wayne served as a major marshalling and distribution point for the tremendous amount of war materiel manufactured in Detroit. These buildings therefore have artifact value, and are recommended to be rehabilitated for use as the Museum of the Arsenal of Democracy. Because of their lack of architectural character, they may become a backdrop for other new construction that may provide a sense of arrival and outdoor display in the museum area.

It is felt that the building treatment approach outlined above, and detailed in the remainder of this section will result in buildings that reflect their heritage, while providing viable modern environments for activities, businesses, homes and recreation, and preserving and enhancing the overall historic character of the Fort Wayne site.

HISTORIC PRESERVATION STANDARDS

The United States Secretary of the Interior is responsible for establishing professional standards on the preservation and protection of all cultural resources listed on or eligible for the National Register of Historic Places. To guide this process The Secretary of the Interior's Standards for the Treatment of Historic Properties has been prepared to be applied to a wide variety of resource types including buildings, sites, structures, objects, and districts. These standards must be used as a guide for planning work on historic properties. If they are ignored or not closely followed, a property's listing on the National Register may be jeopardized.

The Standards define four distinct but interrelated approaches for the treatment of historic buildings: Preservation, Restoration, Rehabilitation, and Reconstruction. Preservation focuses on the maintenance and repair of existing historic materials and retention of a building's form as it has evolved over time. Restoration is undertaken to depict a building at a particular period of time in its history, while removing evidence of other periods. Rehabilitation acknowledges the need to alter or add to a historic building to meet continuing or changing uses that retains it's historical character. Reconstruction re-creates vanished or non-surviving portions of a building. Even though Fort Wayne has received minimal attention in recent years, appropriate preservation action can bring it back to active life. Considering the treatments discussed above, it is clear that all four will be involved in this current effort.

Preservation

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

According to the Standards, preservation is the most appropriate treatment…..

> ….When the property's distinctive materials, features, and spaces are essentially intact and thus convey the historic significance without extensive repair or replacement;……. And when a continuing or new use does not require additions or extensive alterations.

The Standards for preservation are:

1. A property shall be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property shall be protected and, if necessary stabilized until additional work may be undertaken.

2. The historic character of the property shall be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. The existing condition of historic features shall be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material shall match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, should be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

8. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.

Restoration

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

According to the Standards, restoration is the most appropriate treatment…..

> …..When the property's design, architectural, or historical significance during a particular period of time outweighs the potential loss of extant materials, features, spaces, and finishes that characterize other historical periods; when there is substantial physical and documentary evidence for the work; and when contemporary alterations and additions are not planned…..

The Standards for restoration are:

> l. A property shall be used as it was historically, or be given a new use which reflects the property's restoration period.
>
> 2. Materials and features from the restoration period shall be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period shall not be undertaken.
>
> 3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve historic materials and features from the restoration period shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
>
> 4. Materials, features, spaces, and finishes that characterize other historical periods shall be documented prior to their alteration or removal.
>
> 5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period shall be preserved.
>
> 6. Deteriorated features from the restoration period shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, and texture, and, where possible, materials.
>
> 7. Replacement of missing features from the restoration period shall be substantiated by documentary and physical evidence. A false sense of history shall not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
>
> 8. Chemical or physical treatments, if appropriate, should be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

9. Archeological resources affected by a project shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.

10. Designs that were never executed historically shall not be constructed.

Rehabilitation

Rehabilitation is defined as the act or process of making possible a compatible (new or continuing) use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values.

According to the Standards, rehabilitation is the most appropriate treatment…..

….when repair and replacement of deteriorated features are necessary; when alteration or additions to the property are planned for a new or continuing use; and when its depiction at a particular period of time is not appropriate, rehabilitation may be considered as a treatment.

The Standards for rehabilitation are:

1. A property shall be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property shall be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, shall not be undertaken.

4. Changes to a property that have acquired significance in their own right shall be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. When the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and where possible, materials. Replacement of missing features shall be substantiated by documentary and physical evidence.

7. Chemical or physical treatment, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

8. Archeological resources shall be protected and preserved in place. If such resources must be dis-

turbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic material, features, and spatial relationships that characterize the property. The new work shall be different from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed, the essential form and integrity of the historic property and its environment would be unimpaired.

Reconstruction

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features ,and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

According to the Standards, reconstruction is an appropriate treatment……

….when contemporary treatment is required to understand and interpret a property's historic value(including the re-creation of missing components in a historic district or site); when no other property with the same associative value has survived; and when sufficient historical documentation exists to assure an accurate reproduction.

The Standards for reconstruction are:

1. Reconstruction shall be use to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.

2. Reconstruction of a landscape, building, structure, or object in its historic location shall be preceded by a thorough archaeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures shall be undertaken.

3. Reconstruction shall include measures to preserve any remaining historic materials, features and spatial relationships.

4. Reconstruction shall be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjecture designs or the availability of different features from other historic properties. A reconstructed property shall re-create the appearance of the non-surviving historic property in materials, design, color, and texture.

5. A reconstruction shall be clearly identified as a contemporary recreation.

6. Designs that were never executed historically shall not be constructed.

New Additions

An attached exterior addition to a historic building expands its "outer limits" to create a new profile. Because such expansion has the capability to radically change the historic appearance, an exterior addition should be considered only after it has been determined that the new use cannot be successfully met by altering non-character-defining interior spaces. If the new use cannot be met in this way, then an attached exterior addition is an acceptable alternative. New additions should be constructed so that there is the least possible loss of historic materials and so that character-defining features are not obscured, damaged, or destroyed. They should be located at the rear or on an inconspicuous side of the historic building and its size and scale limited in relationship to the historic building. The new addition should be designed in a manner that makes clear what is historic and what is new. Design for the new work may be contemporary or may reference design motifs from the historic building. In either case it should always be clearly differentiated from the historic building but be compatible in terms of mass, materials, color, and relationships of solids and voids.

CONCLUSION

The recommendations presented in the building inventory have all been developed in accordance with the Secretary of the Interior's (SOI) Standards. The following building spatial and material treatment recommendations have also used the Standards in their development. The value of historic Fort Wayne is such that this approach must be taken.

November 13, 2002

Mr. Paul Fontaine
The Smith Group
110 Miller Avenue
Ann Arbor, Michigan 48104

Re: Draft Phase I Environmental Site Assessment (ESA) Peer Review
Historic Fort Wayne Property
West Jefferson Avenue at Livernois
Detroit, Michigan

Dear Mr. Fontaine:

Pursuant to your request, The Traverse Group is pleased to provide you with a peer review of an environmental document and our site inspection relating to the above referenced property (subject property). The subject property contains approximately 82 acres and is improved with historic buildings.

SCOPE OF WORK

The Traverse Group reviewed the following report regarding the above-referenced subject property:

- *Phase I Environmental Site Assessment*, dated November 12, 2001 and prepared by STS Consultants, LTD (STS).

The STS Phase I Environmental Site Assessment (ESA) report was prepared for the City of Detroit Historical Museums. The Traverse Group reviewed the report with respect to their compliance with the American Society of Testing and Materials (ASTM) Standard E1527-00 for conduction Phase I ESAs. The objective of conducting this peer review is to identify any reporting deficiencies and potential physical environmental issues associated with the subject property.

Mr. Eric Kemmer, Project Technical Leader with The Traverse Group, conducted a brief inspection of the property on October 21 and October 24, 2002. The purpose of the inspection was to confirm the observations made during the previous ESA and to identify any obvious areas of non-compliance or inconsistencies from that which was previously reported. Access to the subject property was provided by Mr. Bode Morin, The Project Manager of Historic Fort Wayne.

EVALUATION OF PHASE I ESA REPORT

Phase I Issues

Reliance Language

The Traverse Group identified reliance language in the ESA report that specified "no responsibility for application or interpretation of the results by anyone other than the Client". In order for The Traverse Group to rely on this document, a reliance letter from STS would be required. However, based on the date of the document (November 12, 2001), the Phase I ESA would need to be updated or a new ESA completed to comply with the ASTM Standard.

Limitations and Exceptions of Assessment
The Limitations and Exceptions are described in Section 1.4 of the report. This section states that STS was "unable to observe the interiors of most buildings, including the fort, due to either a lack of access (buildings were locked) or structural conditions (e.g., the hospital). Section 8.2 of the ASTM Standard specifies that the "Professional shall visually and physically observe the property and any structures located on the property to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles." The report does not specify whether attempts were made to gain access to the buildings in advance of the site visit or after locked buildings were discovered, or if extenuating circumstances existed that precluded entry to the buildings (lost keys, etc.). The ASTM Standard specifies (Section 7.1.8) that "Supporting documentation shall be included in the report or adequately referenced to facilitate reconstruction of the assessment by an environmental professional other than the environmental professional who conducted it." Regardless, all building interiors should be inspected to fully evaluate the subject property for the presence of recognized environmental conditions.

Standard Environmental Record Sources
Section 4.1 of the ESA discusses Federal and State database listings for sites in proximity to the subject property. With the exception of Leaking Underground Storage Tanks (LUSTs), discussion of the topographic gradient in the area, and a statement regarding liability for contamination from off-site sources, the report does not present conclusions regarding potential environmental impact from sites listed in the database search. Section 7.1.9 of the ASTM Standard specifies that if a standard environmental record source identifies the property or another site within the approxiamte search distance, the report shall include the environmental professional's judgment about the significance of the listing to the analysis of recognized environmental conditions (RECs). The report indicates that the subject property is listed as an RCRA hazardous waste generator though discussion of the significance of the listing or other detailed information is not presented. In addition, the report does not include the Revere Copper and Brass (Revere) site as an REC. Based on the proximity of the Revere site to the subject property (adjoining to the east) and the listing of the site as a State Superfund site and a CERCLIS site, The Traverse Group would consider the Revere site as an REC.

Heating/Cooling
Section 8.4.3.1 of the ASTM Standard specifies that the means of heating and cooling the buildings on the property, including fuel source, shall be identified. The STS report does not identify heating/cooling information. This information should have been included and could help to identify underground storage tanks (USTs) and/or other potential RECs. Of particular concern is the "Central Heating Plant" identified on the southwest side of the subject property. Very little information regarding the heating plant is presented, other than the fact that it used coal (based on a 1946 map) and the location. Based on the lack of information, it is not known if the heating plant could have been converted to other fuels, or how waste ash/cinder from coal burning was disposed of.

Adjacent Properties Review
The limited review of adjacent properties is contained mainly within Sections 4.4 and 4.5 of the STS report. The description of past and present uses of adjacent properties does not discuss specific uses other than a general description (electrical power plant) and the name of a company (Revere Copper and Brass Co.). STS did review Sanborn Fire Insurance Maps, but the only discussion indicated that there was no information on the map regarding the Fort. The Traverse Group also reviewed Sanborn Maps at the City of Detrooit Public Library. The map review verified that although coverage of the subject property exist, the maps include no detail for the subject property. The Sanborn Maps do included coverage of adjoining properties, but adjoining properties were not mentioned in the STS report. In addition, address directories were not referenced and apparently not reviewed. Information from Sanborn Maps/address directories could potentially identify RECs that could impact the subject property and the sources should be referenced.

Public Records Review
Section 4.2 of the STS report includes discussion of information from the Wayne County Register of Deeds, though the discussion does not clearly state what information was obtained from the county. The discussion mentions a copy of a Bill of Sale obtained from Detroit Historical Museums and adds that Quit Claim Deeds are presented in an appendix. The source of the deeds is not clear.

Interviews
Section 6.1 of the STS report references interviews with Mr. Bode Morin (Historic Fort Wayne Project Manager) and Mr. James Conway (a fort historian at the City of Detroit Historical Museums) and indicates that information provided by Mr. Morin is documented throughout the report. Much of the report lists facts without references to the source of the information and it is not clear if the information was obtained from the interviews or from other sources. In addition, the report does not document what questions were asked during the interviews. Therefore, it is not known if the gentlemen that were interviewed may have additional information regarding former operations, chemical use or waste disposal practices, or if they may know other individuals that may have such information. Other than the location of structures/uses gleaned from various historic maps, the STS report contains very little detailed information regarding operations, disposal, spills, leaks or releases.

Waste Management and Chemicals Handling
The STS report includes little discussion of waste management and chemical handling. In accordance with the referenced guidelines, this information should be researched and referenced in the report.

ESA Figures
It is typically customary to include a figure within a Phase I ESA that clearly depicts the location of identified RECs, though the STS report does not include such a figure. The report does include three separate figures (Figures 2, 3 and 4) that show some of the REC locations, but many of the locations are not depicted. Based on our review of the text and figures and our cursory reconnaissance, the location of the following RECs could not be determined.

- "The former coal yard area east of living quarter buildings (103 and 104)"
- "Former 3,000-gallon oil tank on the east end of Building 201 shown on a map of Fort Wayne dated 1907"
- "Former gasoline station at the east end of the loading dock near the Detroit River (southeast of Warehouse 94D) shown on a 1946 map, near the south toe of the current berm"

In addition, the text of the STS report references 1907 and 1946 maps but it is not clear if these maps are included as attached figures (Figures 2, 3 and 4) or if additional maps exist. Attempts were made to clarify the location of the above referenced RECs by leaving two telephone messages for Ms. Connie Boris, the STS Project Manager; however, as of the time of this writing Ms. Boris has not returned the calls.

The Traverse Group's Cursory Exterior Grounds Inspection
A cursory inspection of the exterior grounds of the subject property was completed by Mr. Eric S. Kemmer, Project Technical Leader with the Traverse Group, on October 21, 2002. The purpose of the inspection was to further evaluate RECs identified by STS, and to identify any other obvious RECs or potential concerns that may exist. The following is a summary of the significant findings of The Traverse Group's inspection.

- An approximate 10 foot by 10 foot by one foot high soil pile was observed on the north side of Building 202 (as depicted on Figure 4 of the STS report) some apparent cinder was present within the soil pile and the origin of the soil was not obvious based on visual observation. Based on the presence of cinder, the soil could contain elevated concentrations of metals and depending on the origin of the soil, it could potentially contain other contaminants.
- Cinder roads were observed around the south, east and west perimeter of the Parade Grounds, to the south of Warehouse 94 (as the building is numbered on Figure 2 of the STS report), and around the perimeter of the Fort. In addition, varying amounts of cinder and coal were observed in various other locations on the subject property including but not limited to the large berm (east side of Warehouse 94), the berm surrounding the Fort, and multiple lawn locations. Based on the presence of cinder and coal, the soil could contain elevated concentrations of metals.
- The east side of the large berm is covered with mowed grass and west side is covered with un-maintained natural grasses and shrubs. The inspection of the west side of the berm identified significant quantities of brick, cut stone bricks, concrete, asphalt, railroad tie, and cinder on the surface and partially buried within the berm. Based on the presence of these materials, the berm could contain elevated concentrations of metals and depending on the origin/nature of the materials, it could potentially contain other contaminants.
- Three plastic five-gallon buckets (two liquid filled and covered), an empty gasoline can, and two automotive batteries were observed near the southwest corner of Warehouse 94 next to a telephone pole. Depending on the contents of these containers and if any portion of the contents had leaked or spilled, surrounding soil could be impacted.
- The areas of stressed and missing vegetation identified in the STS report near the Medicine Bear Indian Academy and in the former coal yard east of Buildings 103 and 104 were inspected. Though the conditions noted by STS were not observed, some cinder and coal was visible.

The Traverse Group's Building Interior Inspection

A preliminary inspection of building interiors was completed by Mr. Eric S. Kemmer, Project Technical Leader with the Traverse Group, on October 24, 2002. The purpose of the inspection was to identify potential asbestos containing materials (ACMs), lead based paint, mold, to further evaluate RECs identified by STS, and to identify any other obvious RECs or potential concerns that may exist. The following is a summary of the significant findings of The Traverse Group's inspection.

Twenty-eight of the forty-three subject buildings were inspected. Access to the buildings was provided by Historic Fort Wayne Maintenance Department personnel and Mr. Kemmer was escorted by a City of Detroit Historical Museums security official. The following is a list of buildings inspected.

- Bakery, Barracks, southern Powder Magazine, western Powder Magazine.
- 1, 2A, 2B, 2C.
- 102, 109, 110, 112, 114, 117.
- 201, 202, 205, 207, 211, 212, 219, 222, 229.
- 302, 303, 311, 312, 314.

The following is a list of buildings that were not inspected.

- 103, 104, 105, 106, 107, 108, 111, 209, 210, 213, 214, 215, 216, 217, 218.

Of the fifteen buildings that were not inspected, fourteen of the buildings are reportedly identical to at least one building that was inspected and it is assumed that the condition of the non-inspected buildings is similar to that of the inspected buildings. The fifteenth building (209) is structurally unsound and access was not allowed.

Nearly all of the buildings contained plaster walls (potential ACM) and varying amounts crumbling plaster was observed in many buildings. In addition, peeling paint (potential lead content) was also noted within many buildings.

Nearly all of the buildings had natural gas fired boilers, some of which (older units) had insulation (potential ACM) covering them and apparent fire/heat resistant panels (potential ACM) affixed to the ceiling above the boilers. Some unused oil fired boilers were observed and two apparent heating oil tanks (unused) were observed in the basement of Building 117. Most of the buildings contained varying amounts of steam pipe insulation, and some of the insulation was damaged/exposed or had fallen off to the floor below. Three apparent hot water tanks (approximately 4-foot diameter by 6 feet long) with an insulation coating (potential ACM) were observed in Buildings 311 (two tanks) and 312.

Obvious mold growth was observed in two buildings (212 and 303) and the mold was apparently caused by damaged roofs.

The Traverse Group has prepared a work plan to address the RECs identified during the peer review process, included on the following pages of Part 6.

We appreciate the opportunity to provide continued service to The Smith Group. Please contact our office at (734) 747-9301 if you have any questions or comments.

Sincerely,
The Traverse Group, Inc.

Eric S. Kemmer
Project Technical Leader

Allan Longyear, PG
Director

ECONOMIC AND IMPLEMENTATION RECOMMENDATIONS

In urban areas the reuse of underutilized historic buildings and facilities presents a unique opportunity to offer cultural attractions that will draw customers and visitors to the central cities to enjoy residential, educational and entertainment experiences that typically are not available in newly developed suburban communities. The redevelopment of these facilities transitions otherwise surplus facilities into activity generating assets that can produce jobs and enhance the quality of life within the community and achieve operating self-sufficiency by leveraging market forces.

A significant challenge associated with these major public historic restoration and preservation projects is securing funding sufficient to meet the capital budget requirements and creating a predictable revenue stream sufficient to cover the debt load and sustain a high-level of maintenance and programming. In light of other pressing social and economic development demands it is unrealistic to assume that dedicated public revenues can solely support these important initiatives.

Detroit's Historic Fort Wayne is an excellent example of an underutilized landmark facility that has suffered from a long period of disinvestments, and that has the potential of achieving a regional draw and becoming one of Detroit's hallmark redevelopment projects. It is estimated that the capital costs required to rebuild the infrastructure and restore the buildings to standards established by Department of the Interior will range from $56 to $68 million. In addition, the costs associated with the annual operating and maintaining of the campus-elements of the Fort is estimated at $2.5 million. Currently the City of Detroit spends over $300,000 annually for security and minimum exterior maintenance without the benefit of receiving any revenue from programmed activities.

With other pressing budget needs it is unrealistic to expect the City of Detroit to absorb these capital and operating expenses. Therefore, it is critical to identify alternative capital sources and private revenue generators that are driven by market forces through a broad user base and the interests of a regional audience. In order to attract alternative capital funding and achieve revenue enhancements it will be essential to create meaningful partnerships with an ownership and operating structure that responds to the needs of the multiple operating entities, maximizes operating efficiencies and possesses an agile decision-making governance structure.

Detroit is not unique relative to the challenges associated with Fort Wayne. It is estimated that there are approximately 40 historic fort facilities across the U.S. that have been preserved and are being operated as historical venues. In many cases the ownership of these facilities represented only a portion of the property that was transferred from the U.S. government with larger holding being redeveloped for other purposes. Michigan's best know example is Fort Mackinac on Mackinac Island. It was originally built by the British in 1780 to protect the Great Lakes fur trade and the ownership was transferred to Michigan by the U.S. Government in 1895 and became Michigan' first state park. Perhaps one of the best and more recent examples of a fort's transition is "The Presidio" in San Francisco California that totals 1,480 acres with a small portion ("The Main Post"and "Crissy Field") serving as historical interpretative centers.

I. REVENUE ENHANCEMENT OPPORTUNITIES

A comprehensive redevelopment of the fort's campus will result in the restoration of over 30 structures that could be leased to developers, organizations and operators that would provide functions and services that would compliment the visitor's experience at the Fort and produce revenue that would off-set the debt service with the operating and maintenance costs covered by the public sector stakeholders through fees and department budgets. In addition to the direct revenue associated with these rental opportunities these organizations through their membership and activities will attract visitors to the Fort and add to the critical mass of visitors that will be essential to achieve self-sufficiency.

For purposes of this analysis we are assuming that the buildings will be restored by the ownership/operating entity and the tenants will be responsible for their own tenant improvements as well as for interior maintenance and utility costs. When considering the demand side of the regional market, we recognized that the strongest market sectors are residential and entertainment and the weakest are the office and hospitality sectors. Offering private sector developers and operators a long-term leasehold interest in the property with the ability to sub-lease to tenants will enable the developers to qualify for historic investment tax credit treatment achieve a greater equity infusion and substantially enhances the developers' stream of benefits. This opportunity is of particular interest to the residential developers interviewed and offsets the fact that the residential rental opportunity is limited to 20 rental units.

The following matrix reflects the buildings that are not yet programmed for use and that will be available for lease. A proposed tenant mix and the corresponding lease estimates are listed, along with the estimated gross annual revenue that could be achieved with such a mix. The likely tenant types and/or specific users were identified through discussions with developers, operators and supportive organizations such as the Detroit Convention and Visitors Bureau, Preservation Wayne, Detroit Cultural Affairs Department, the National Trust for Historic Preservation and researching successful user groups at other fort facilities in order to distinguish those tenants that would create a compatible mix and would be strategic candidates to target in the leasing of the available space.

In light of the public ownership and education, cultural and recreational nature of this redevelopment effort, a reasonable source of providing funding would be through the issuance and sale of tax-exempt bonds, with the revenue from operations totaling an estimated $2.4 million dedicated to serving the bond debt. Assuming terms at a rate of 5% for a 30-year bond, the revenue would support a $32 to $40 million capital improvement program.

II. ORGANIZATION AND OPERATING STRUCTURE

Past efforts to revitalize the Fort and sustain its operations as a cultural and historic resource has been thwarted by limited financial resources and competing City and Department needs. Based on our preliminary costs estimates, it appears that a $56 to $68 million investment will be required to bring the facility up to an acceptable standard and therefore it will be necessary to leverage other sources of public as well as private financial support. When considering creative ownership and operating models it is important to establish "Guiding Principles" in this decision-making process.

Key objectives in these efforts should include the following:

- Leverage alternative capital sources
- Maximize operating efficiencies
- Produce a responsive governance structure
- Expedite decision-making
- Achieve sustainable economics

Historic Fort Wayne is unique but not alone as to the challenge associated with financing and sustaining its potential reuse. Other 19th century forts across the U.S. have experienced similar cycles of disinvestments during their control and ownership by the federal government, and while under local public control. In many cases the forts have been restored to fulfill public-private roles, and in other cases the facilities have been determined to be surplus property, and have been sold to the private sector or to other government entities with a greater capacity to fulfill a reuse strategy.

Examples of alternative ownership and operating models include the following options:

1. Master Lease and/or ground and building leases

Under this scenario, the local or state government retains ownership and land parcels and buildings would be leased long term to the residents and business operators. Typical rental rates for land leases are nominal, and use of them diminishes the potential revenue stream, thereby limiting the ability to raise funds to meet capital requirements. Mackinac Island State Park (MISP) is an excellent example of this scenario. The centerpiece of the island is Fort Mackinac, which was built by the British in 1780 to protect the commercial interests of the Great Lakes fur trade. Mackinac Island State Park was established in 1875 and was America's second national park, with the first being Yellowstone. It became Michigan's first state park in 1895 when Mackinac National Park was transferred from the U.S. Government to the State of Michigan. The MISP operates the fort and the vast majority of the residential homes, hotels and retail and commercial establishments are land leased from the state park.

2. Property sale in whole or part

This strategy would be used as a result of a decision that limited local resources would be more productively directed to more pressing local issues and activities. It assumes that there is a likely entity that would acquire the facility and redevelop the site in a manner that is satisfactory to the city. The city would no longer exercise any control over the reuse and management, but would benefit from the activities and spin off economic impacts. The City of New Rochelle, New York has attempted for the past 16 years to redevelop its fort facility on David's Island. The largest of New Rochelle's offshore islands, this 78 acre former Army base was previously know as Fort Slocum and in 1878 was made part of the New York City harbor defense system. It was decommissioned and sold to New Rochelle in 1968 and leased to Con Edison until 1976. Their efforts to redevelop the island as a mix of public and private uses were unsuccessful in spite of the fact that they entered into two 2-

year developer agreements, including one with the Trump Organization in 1995. After extensive negotiations, the City entered into an agreement in 2002 with Westchester County to redevelop the island for public recreational purposes that will include the restoration of many of the historic elements of the fort facilities.

3. Creation of an "Authority"

The State of Michigan has enabling legislation that allows local governments to establish an authority. Act 31 of the Public Acts of Michigan allows the local government to create a public corporation with the capacity to sell single purpose bonds backed by the full force and credit of the municipality, and to create a governance structure with representatives from each entity. The governing body of the corporation is constituted as a board or commission, with the ability to establish policies and procedures designed to fulfill the corporation's mandate and the established public purpose. Detroit and Wayne County has examples of developments completed and managed under joint government authorities. For instance, the Detroit-Wayne Joint Building Authority financed, built and manages the Coleman A. Young Municipal Center, and the Detroit Wayne County Stadium Authority has created Comerica Park and Ford Field. A similar concept could be utilized for the redevelopment of Historic Fort Wayne and bond financing could be secured leveraging the credit capacity of both the City of Detroit and County of Wayne.

4. National Park Service Partnership

The vast majority of the historic forts in the U.S. are operated by the National Park Services, typically in concert with state and local government. This presents an opportunity to leverage the vast resources of the federal government while giving us some local control over the programming of the facility. An example of this type of partnership is Fort Necessity National Battlefield. In 1994 the National Park Service and the Pennsylvania State Heritage Parks program joined in a federal, state and private sector partnership to advance the complementary missions of the Fort Necessity National Battlefield and the National Road. The fort and battlefield commemorate the first battle of the French and Indian War and George Washington's first battle. The National Road State Heritage Park was established in 1994 by the Commonwealth of Pennsylvania to preserve, interpret and promote the first road in the United States that was planned, built and maintained by the federal government. The objective is to develop a state of the art, shared Interpretive and Educational Center.

5. The creation of a managing "Trust"

A "Trust" typically is in the form of a not-for-profit corporation that would establish strict controls of the types of uses allowed within the park, as well as precise design and environmental controls. With not-for-profit status, this structure can also enable donors to achieve a taxable deduction for the funds contributed to capital improvements and operations. "The Presidio" of San Francisco, California is a 1,480acre park and part of the Golden Gate Recreational Area and the national park system. It boasts structures from every major military construction period since 1848. The Presidio Trust was created by Congress and secured an initial appropriation to preserve the interior 1,168 acres. Congress gave the Trust the authority to lease property (residential and commercial, often to tenants who performed the required rehabilitation) and generate revenues, and requires the Presidio to be financially self-sufficient by 2013. Once the appropriation ceases, the Trust must use the park's building assets to fund rehabilitation and to pay for on-going operations. The Trust's mission is to preserve the Presido in perpetuity for the public benefit.

Each of the above options presents opportunities and challenges. In considering the most appropriate alternative, or mix of options, consideration should be given to the benefits associated with each. For comparison purposes, we have considered the key objectives in relation to each of the proposed ownership and operating models. The following matrix is applied as a methodological tool used to convert qualitative ratings into quantitative ones that can be weighted and easily compared.

It is clear that there are benefits associated with each organizational structure option. The "Authority" concept ranks the highest and the National Park Service Partnership and "Trust" score comparably. One of the most critical elements is the ability to secure the capital necessary to complete the restoration at the most favorable interest rate and term. The Authority concept appears to provide the opportunity to leverage capital sources, and in particular, tax exempt bond financing. However, the "Trust," or not-for-profit structure, could provide the most representative governance and agile management vehicle. While a partnership with the National Park Service could leverage the considerable resources required to redevelop the Star Fort, that are estimated to be $10 to $12.5 million.

In light of the considerable effort that has been put forth by the Detroit Historical Department, Wayne County Parks and the Huron Clinton Metropolitan Authority towards the creation of a joint venture, we are recommending that the preferred alternative decision-making process should explore the potential of a mix of these alternatives based on a phased redevelopment strategy. The first phase in organizing this initiative under an alternative ownership /operating model could be through a not-for-profit corporate structure that involves the participation of the City of Detroit, County of Wayne and Huron Clinton Metropolitan Authority. There is general agreement between these parties to enter into a Memorandum of Understanding to create a corporate not-for-profit board that would subsequently determine their respective roles in the funding, programming and operating of Fort Wayne. This first phase joint venture could also include a possible partnering with the National Park Service. This body can also more thoroughly explore the possible creation of an "Authority" structure that would, in all likelihood, be comprised of all three entities or the City of Detroit and County of Wayne.

IMPLEMENTATION RECOMMENDATIONS

Based on our assessment of the revenue capture potential and the benefits associated with alternative ownership and management structures, the next steps for project implementation should include the governance decisions that will establish the initial stakeholder group. This group will then analyze and assess the form of ownership and operational structure that would be most appropriate. After achieving consensus regarding the preferred alternative, this stakeholder group could then secure the necessary and appropriate governmental approvals so that development efforts can be initiated. After reviewing the stakeholder efforts and commitments to date, and looking at the successful projects in the U.S. that have been developed with alternative ownership and operating structures we are recommending a three-phased strategy for implementation.

PHASE 1: Not-for-profit corporate "Trust" – A Memorandum of Understanding has been discussed by the Detroit Historical Department, the Wayne County Parks and Recreation Department and the Huron-Clinton Metropolitan Authority as a first step in creating this entity. The next step is securing the appropriate governance approvals, incorporating the "Trust" and establishing the governing body. Once this is accomplished, the Trust should secure commitments from the three entities to share the site infrastructure costs (estimated at $9.7 to $12.2 million) and the Parks annual operating and maintenance budget (estimated to be $2.5 million). These costs can be off-set by revenues from the entrance fees, parking charges, special events fees and naming and pouring rights, leaving the rental revenue to service the debt associated with building out the leased buildings.

PHASE 2: The "Authority" - The Trust could then create an authority under the Building Authority Public Act 31, of 1948 that requires the participation of two or more counties, cities, townships, or villages to incorporate one or more Joint Building Authorities (JBA). This JBA would, in all likelihood, involve the City of Detroit and Wayne County, and would therefore leverage the bonding capacity of these two units of government. Articles of incorporation would be established, along with a governance commission, with three members, who will subsequently adopt by-laws and rules of procedure. The Authority would most likely need to receive title to the real estate to be improved, and could then issue negotiable bonds in anticipation of contractual obligations for these capital improvements. In this event, the Trust could remain in place and continue to act as the managing entity for the Park under a contract with the Authority.

PHASE 3: National Park Service (NPS) / Detroit Historical Department (DHD) Partnership - The NPS could become a "partner-tenant," responsible for the restoration, maintenance and programming of the Star Fort component with the Detroit Historical Department fulfilling a similar role for the warehouse facilities that will become the "Arsenal of Democracy" component. Under this scenario, the NPS would fund the $9.7 to $12.2 million necessary for the Star Fort improvements, with the DHD making a similar commitment for the $4.7 to $5.9 million required for the "Arsenal of Democracy" interactive museum in the existing warehouse buildings and zone. The Huron Clinton Metropolitan Authority and Wayne County Parks and Recreation Department would share the responsibilities for recreation and sports activities associated with the parade grounds. Additionally, there may be an opportunity to collaborate with the Riverfront Conservancy that is being created to expedite the development efforts associated with the East Riverfront Development Taskforce. This strategy should be pursued when a governance body for the conservancy is established.

CONCLUSIONS

The successful implementation of this redevelopment initiative is capital intensive and will require the participation of a diverse array of public and private sector stakeholders. A collaborative management structure needs to be put in place that welcomes participation and responds to financial prerequisites.

<u>The costs and financing assumptions suggested assume the following:</u>

The three government entities (City, County, HCMA) will share the Parks operating expenses (approximately $2.5 million).

Site infrastructure costs ($8.4 to $9.9 million) will be shared by the three government entities.

Major museum components (Arsenal of Democracy and the Star Fort) will be improved and operated by the public sector partners.

The remaining capital costs (after dedicating the site costs and major museum components) will be $32 to $40 million and will be financed through lease revenues.

Revenues associated with the leased buildings (approximately $2.4 million) will be dedicated to service debt ($32 to $40 million).

COST ESTIMATE COMMENTARY

This conceptual cost estimate includes all stabilization, rehabilitation, and preservation recommendations related to the proposed use of each building. It includes implementation of interior and exterior treatment recommendations; recommendations regarding previous interior changes to buildings; upgrading structural mechanical, electrical and plumbing systems, and modifications necessary for accessibility, building and life safety code compliance.

It is recognized that this cost estimate range might vary depending on how the work is implemented. Economies of scale can have an impact if a large number of buildings are rehabilitated as part of one construction bid package. However, Fort Wayne may also elect to execute portions of the work using in-house labor, or carry out work as a number of projects on an "as-funds-are-available" basis. It is acknowledged that pulling out some individual work items may be necessary because of funding circumstances, and may be dictated to permit immediate correction of severe water penetration problems that threaten the basic historic fabric of buildings. However, it should be noted that implementation of work in this manner will result in costs that will be higher then if the same work were to be done as part of a large, multi-building package.

Increased costs due to carrying out many individual work items include, but are not limited to: certain architectural/engineering fees, bidding, contractor mobilization and demobilization, certain subcontractor fixed costs, and certain contractor general conditions will be incurred repeatedly for many-phased projects. In addition, the possible need to engage certain building trades in more than one phase will result in increased costs for bringing those trades to the site multiple times. Finally, there are costs associated with phasing that can sometimes result in work that has been completed in one phase being affected and partially re-done in later phases. (The conceptual cost estimate included herein is based on 2002 dollars and does not include any escalation for phasing.)

When work is to be implemented in many phases, it is recommended that phasing be implemented carefully to ensure that work proceeds in a logical fashion, to minimize cost increases related to redundant and throw-away work. Factors that should be considered are:

1. Minimization of repeated use of individual trades on multiple phases: Multiple use of trades such as carpentry is difficult to avoid, however efforts should be made to concentrate trades including electrical, plumbing, and masonry into a limited number of packages.

2. Logical allocation of work in phases: An analysis of the interrelationship of work items to be executed in the various packages should be made to minimize disturbance of already-completed work in later phases.

3. Minimization of the number of phases: Attempts should be made to carry out work in a small number of phases. Projects with many small phases are costly, present difficult coordination problems, and raise the probablility that newly completed work will be disturbed by later phases. Furthermore, many small phases can result in an endless cycle of constant work on buildings which can be disruptive to building occupants.

4. Completion of infrastructure work in early phases: Site work such as electric, water, drainage, and gas utility work should be carried out in early phases. These types of work are the most disruptive to the site and are most likely to cause continued disruption in multiple phases.

OPTIONS

Recommendations sometimes carry more than one option for addressing certain issues. Options have varying cost implications, and not all are equal in cost. Consequently, final costs may be affected depending on which option is selected. However costs are presented in a range that is intended to take into account varying options for carrying out the recommendations.

Use of In-House Fort Wayne Staff or Volunteers

Although this approach is endorsed as a potential means of reducing restoration costs, caution should be exercised when using in-house staff to carry out portions of the work. Use of in-house staff, will incur internal Fort Wayne costs, and therefore cannot necessarily be considered "free" work. Furthermore, such work may draw staff away from other ongoing Fort Wayne or City of Detroit facilities needs. Because costs contained in this estimate are based on prevailing wages, with contractor costs included, and Fort Wayne in-house costs are dependent on other wage and expense structures not considered in this report, it is difficult to accurately evaluate the dollar impact of use of in-house resources.

WEST RIVERFRONT PARK AT HISTORIC FORT WAYNE
PHASING STRATEGY

Phase 1:

1. Ensure that West Riverfront Park at Historic Fort Wayne is enjoyable, safe and easy to find!
   a. Initiate streetscape improvements to Livernois and Dragoon.
   b. Provide entryway treatment to include a formal square at Jefferson, to improve wayfinding and visibility.
   c. Add brick and wrought iron fence along Military Village and Fort Parking sections, along Jefferson Boulevard.

2. Improve the landscape.
   a. Remove all invasive plant species in and around the Fort; purchase and train employees to properly maintain Fort landscape.
   b. Remove any tree within 4 feet of the Fort or any historic structure that either compromises the view or the structural integrity.
   c. Repave entryway and parking lot, and add appropriate lighting for signage and safe night-time operations.
   d. Add specialty lighting to highlight the Fort from the Detroit River, Livernois Avenue and Jefferson Boulevard.
   e. Begin shoreline stabilization program and habitat improvements along Detroit River.

3. Embark on a strategic partnership to create West Riverfront Park at Historic Fort Wayne.
   a. Secure City Council approval for the Fort Wayne Master Plan; make it an official planning document.
   b. Involve HCMA and Wayne County Parks in future planning sessions.
   c. Secure real estate assistance in acquiring adjacent properties.

4. Undertake stabilization and event support projects.
   a. Create public restroom facilities in the Stone Barracks (in the Star Fort) and Building 114 allowing necessary infrastructure for above-noted uses of the Star Fort and also recreational uses of the Parade Grounds.
   b. Stabilize historic structures through roof restorations and prevent water / wind entry through securing window and wall openings.

Phase 2:

1. Continue landscape improvements.
   a. Restore historic gardens along Jefferson Boulevard.
   b. Create festival lawn space at the end of Harrison and Wayne streets for Village functions.
   c. Restore formal walkways along Gibbs and Meigs streets.

2. Clarify circulation.
   a. Make Harrison and Wayne a one-way interior loop road that also serves as a parking area.
   b. Close Meigs to traffic west of Livernois and make it one-way, east of Livernois Avenue. Identify the existing gate at the Military Village as the short-term exit from West Riverfront Park at Historic Fort Wayne, to limit traffic conflicts at the entryway.

3. Preserve, restore and adaptively re-use structures for a variety of major new uses:
    a. Adaptively re-use former "New" Guardhouse (Bldg 302) as new Visitor's Center with adjacent development of new entrance plaza.
    b. Restore Theater (Bldg 303) to its former glory to serve as a venue for community theater and events.
    c. Develop conference / reception / recreation capability through preservation of the former Visitor's Center (Bldg 312) on the Fort's eastern border.
    d. Adaptively re-use the former Enlisted Men's Barracks (Bldgs 311 and 314, adjacent to 312) for hospitality uses (possible hotel, hostelry, dormitory) and/or educational uses (possible maritime-focused charter school).
    e. Adaptively re-use military village structures for residential and office use (both market-rate and heritage/environmental non-profits).

4. Create management structure to oversee all leases, improvements and operations within the Military Village.

Phase 3:

1. Add additional attractions to West Riverfront Park at Historic Fort Wayne.
    a. Redesign Edison Road to serve as an entryway and new parking area for Arsenal of Democracy Museum.
    b. Begin first phase of soccer complex on Edison Site.
    c. Create conference faculties on eastern Edge of Fort property by creating new parking areas around Revere Road.
    d. Create camping zone within West Riverfront Park at Historic Fort Wayne.
    e. Complete restoration of Star Fort and Stone Barracks building through possible partnership with federal government entity(ies) such as the National Park Service and/or Department of Defense.
    f. Convert former warehouses (Buildings 2A, 2B, and 2C) into "Arsenal of Democracy" museum experience.

2. Begin phase out of Army Corps of Engineers.
    a. Close Cram Road.
    b. Remove all non-historic buildings along Black Street.
    c. Remove barbed wire perimeter fencing.
    d. Remove Brady Road past Black Street.
    e. Convert remainder of Corps property into Exhibit Center with possible retail / dining options at adaptively re-used dredge slip converted to a transient marina.

Phase 4:

1. Continue to develop new attractions.
   a. Start final phase of soccer complex with new entrance along eastern edge of Edison property, to connect to the established boat ramp area.
   b. Finish Arsenal of Democracy Museum and provide new marina experience with retail and interpretative areas (remove portions of berm along the Parade Grounds to allow better viewing of new museum).
   c. Develop eastern portion of a riverfront drive to connect soccer complex to Military village along Gibbs Street, and further north to Black Street.
   d. Create vegetative buffer along eastern entrance to shield West Riverfront Park at Historic Fort Wayne from industrial surroundings.
   e. Co-develop Port Authority property to include Maritime Research Center, hospitality, commercial, retail and entertainment uses to compliment the hospitality functions in Buildings 311-314 adjacent to the Star Fort.
   f. Start the development of the Revere site to offer additional attractions to compliment conferencing facilities.

2. Integrate West Riverfront Park at Historic Fort Wayne into the surrounding community.
   a. Create pathway connections to neighboring areas.
   b. Develop parkway between Livernois and Dragoon Avenues to allow pedestrian access into planned neighborhood system.
   c. Improve Jefferson Boulevard with formal streetscape improvements.

Phase 5:

1. Create a continuous riverfront pathway along the Detroit River.
   a. Extend reconfigured Black Street north through Revere site to connect to adjacent properties.
   b. Create marina at the former Detroit Edison site.
   c. Offer skating and sledding sites.

CONCLUSION & NEXT STEPS

The revitalization of Fort Wayne resulting in the creation of the West Riverfront Park at Historic Fort Wayne will involve a major collaboration of a number of governmental and private entities. Momentum has been gained in 2002 with the reopening of Historic Fort Wayne for Sunday public visitation. This program is to be expanded in 2003, and with it consideration of a number of the Phase I programs for funding. The goal of these preliminary projects is to implement beautification, stabilization and event support projects which can greatly increase public attendance on this site. Some of the projects included are as follows:

PHASE I IMPROVEMENTS

A. Make Historic Fort Wayne easy, safe and enjoyable to find!

- Create streetscape improvements on Livernois Avenue (converted to two-way traffic to I-75) including festive wayfinding program announcing this regional heritage tourism destination!
- Implement entryway treatment to include formal square at Jefferson to improve wayfinding and visibility.
- Adaptively re-use "New" Guardhouse as the new Visitor's Center for the park.
- Add brick and wrought iron fence along Military Village and Fort Parking sections along Jefferson to establish "new face" to the public.

B. Improve Historic Fort Wayne's Appearance and Function

- Clean up landscape surrounding the Star Fort and provide lighting of its significant features thus allowing its use for events, festivals, receptions, and reopening of the Stone Barracks Military Museum.
- Create public restroom facilities in the Stone Barracks (in the Star Fort) and Building 114 allowing necessary infrastructure for above-noted uses of the Star Fort and also recreational uses of the Parade Grounds.

C. Stabilize Historic Fort Wayne assets

- Remove trees and shrubs throughout the Historic Fort Wayne site that have caused deterioration of adjacent historic structures.
- Stabilize historic structures through roof restorations and prevent water/ wind entry through securing open window and wall openings.
- Initiate shoreline stabilization program and habitat improvements at Parade Grounds along the Detroit River.

D. Initiate Historic Fort Wayne Future Organizational Model

- Present Historic Fort Wayne Master Plan to the Detroit City Council and request it's approval as an official planning document.
- Continue development of partnership agreements with Huron-Clinton Metropolitan Authority, Wayne County Parks, and City of Detroit to begin cooperative programming of West Riverfront Park at Historic Fort Wayne.
- Investigate structure of a new "Trust" which could secure financial commitments from the partner entities to operate the park.

INTRODUCTION

Appendix One and Two of this report set forth recommendations for specific treatments for all structures on the Fort Wayne site. These treatments address repairs, upgrades, and modifications necessary to make the buildings suitable for new uses described in previous sections of this Master Plan, and to maintain or restore their fundamental historic character. These Appendices include:

- Treatment Recommendations addressing typical exterior and interior materials, assemblies, and systems. This section is intended to provide background and guidelines for carrying out work that is recommended in the Individual Building Analyses and Recommendations.
- Recommendations for addressing building code and accessibility issues.
- Review of general cost issues.
- Prioritized urgent recommendations.

This Appendix - Appendix One, describes the kinds of exterior and interior materials and systems common throughout the Fort Wayne site, along with they types of deterioration observed, and guidelines for treating such conditions. Photographs are included to illustrate the types of deterioration observed. Also, as part of the treatment section, are included detailed discussions of buildings with unique character, or special restoration needs. The treatment section concludes with recommendations for urgent work needed to preserve the building resources at Fort Wayne.

Appendix Two– Building Analysis and Recommendations – consists of building-by-building assessments and recommendations for work at each building, including cost ranges for the proposed recommendations. Please note that while all buildngs were observed, only representative buildings were surveyed in detail. Based on the detailed surveys of representative buildings, recommendations and conceptual cost ranges were then extrapolated for additional buildings of the same type.

It is intended that the user will use the individual building assessments in Appendix Two to find what specifically needs to be done at each building, and then refer back to the treatments recommendations in Appendix One for guidelines on how to do the work. These two Appendices combined will give the architect or contractor who will implement these recommendations guidelines as to the scope of work required at each structure and how it is to be executed to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, thus ensuring that the sites historic character will be maintained.

EXTERIOR

The exteriors of the buildings at Fort Wayne have been inventoried and photographed, and conditions of exterior systems have been evaluated. Significant exterior changes have been noted and compliance with accessibility requirements has been evaluated.

The Secretary of the Interior's guidelines recommends

> *…identifying, retaining, and preserving features that are important in defining the overall historic character of the building such as walls brackets railings, cornices, window architraves, door pediments, roofs, stairways, steps and columns; and details and spatial relationships…*

Although built over a long period of time, all of the buildings covered by this master plan are of masonry construction, and of those only connected buildings 2A/2B/2C (concrete masonry units) and the powder magazines and barracks (limestone) at the Star Fort are of materials other than brick masonry. Overall character-defining features on most buildings survive. Only the hospital (building 209) has lost significant character defining features.

General Exterior Treatment Remarks

A building's exterior envelope can be considered the most important component of a building and the portion which should be given the highest priority for preservation, and repair. Almost all exterior elements visible on a building play some role in protecting the building. The building's exterior is the barrier between important, and often precious historic fabric, and the natural forces that will easily destroy it. An unsound exterior envelope will admit moisture and temperature extremes into a building's interior, as well as wildlife and vandals, all of which are detrimental to building fabric. Once the exterior is breached, both interior and exterior materials will deteriorate rapidly, and at a constantly increasing rate. Many buildings at Fort Wayne have already suffered from exterior envelope failure. At the most basic level of preservation of historic buildings, if no other action is taken to preserve and restore a structure, the exterior envelope should be made sound, to protect the resource until such time as the funding is available to fully restore the structure.

The scope of this Master Plan permitted only visual observation of building conditions, supplemented by binocular viewing. Ladders or lifts were not available to permit close up inspection of conditions. No test holes or other destructive or invasive techniques were utilized to investigate concealed conditions. Recommendations were based on these observations. Conditions were observed that may be the result of other concealed conditions or processes. At such time when buildings are to be rehabilitated, more detailed investigations are recommended prior to developing rehabilitation plans. Such investigations should be aimed at determining concealed conditions and causes of deterioration, and further developing treatments recommended in this report.

Foundations

Foundations which are exposed above grade are addressed as exterior elements in this Master Plan. They fall into three categories with the following treatment recommendations:

Buildings built prior to the 1930's have rough regular coursed ashlar limestone foundations, with limestone lintels over basement openings. They are generally in good condition. Some lintels are cracked, and there is occasional foundation cracking. Further investigation should be conducted at these locations to determine if there is any progressive movement that must be corrected prior to repairing the cracks. Immediate installation and monitoring of crack gauges is recommended to assess whether cracks are active. If cracks appear stable, cracked lintels should be epoxy injected, then repointed with mortar compatible in composition, compressive strength and porosity to the existing mortar and stone (see Mortar section below). Tool joints to match existing. Stable foundation cracks should be filled and pointed with mortar.

As part of the pointing operation, inappropriate existing mortar (such as high strength mortars, and visually mismatched or poorly executed previous repairs) should be removed and repointed using appropriate materials (see Mortar section below). In addition, miscellaneous shifted stones should be removed and reset at this time.

Buildings from the 1930's have exposed concrete foundations. These generally have an exposed limestone aggregate appearance. Lintels over basement windows were poured monolithically with the rest of the concrete walls. They are generally in good condition. Some lintels are cracked, and some steel reinforcing has rusted, caused concrete to spall, and become exposed, however such occurrences are limited. There is occasional foundation cracking. Further investigation should be conducted at these locations to determine if there is any progressive movement that must be corrected prior to repairing the cracks. Immediate installation and monitoring of crack gauges is recommended to asses whether cracks are active. If cracks appear stable, cracked lintels should be epoxy injected, then repointed with mortar compatible in composition, compressive strength and porosity to the existing mortar and stone (see Mortar section below). Tool joints to match existing. Stable foundation cracks should be filled and pointed with mortar.

Masonry

The SOI's guidelines for masonry exteriors states....

> *...Masonry features (such as brick cornices and door pediments, stone window architraves, terra cotta brackets and railings) as well as masonry surfaces (modeling, tooling, bonding patterns, joint size, and color) may be important in defining the historic character of the building. It should be noted that while masonry is among the most durable of historic building materials, it is also the most susceptible to damage by improper maintenance or repair techniques and by harsh or abrasive cleaning methods. Preservation guidance on masonry thus focuses on such concerns as cleaning and the process of repointing.....*

Brick Masonry:
With the exception the Old Barracks and Powder Magazines at the Star Fort, and buildings 2A,2B, and 2C, brick masonry is the universal exterior wall material at Fort Wayne. It is present as brick bearing walls in buildings constructed through the 1930's, and as a veneer on buildings reclad in the '30's. Brick masonry throughout the site is generally in fair to good condition, with exception of deterioration related to steel lintels found at many buildings and additions built or reclad in the 1930's.

Mortar: Mortar is a key part of all brick and stone masonry assemblies. In historic buildings, improper formulation and use of mortar can be detrimental to the brick or stone used, causing spalling, cracking, and generally progressive and accelerated deterioration of the masonry envelope.

Mortar in historic buildings must have a compressive strength less than or equal to the compressive strength of the brick or stone that it surrounds. This is particularly a concern with nineteenth century buildings which are built of brick that was frequently not as hard-fired as modern bricks. Typical mortar consisted of only lime and sand prior to the development and widespread use of portland cement in the late 19th century. The soft lime mortar was compressible, had a low compressive strength, was breathable, and, to some extent was self healing for small cracks. It had the capacity to deform to absorb the thermal- and moisture-driven expansion and contraction that occurs in all masonry walls, so in effect, every mortar joint acted as an expansion joint. Since it was softer than the brick, any cracking that occurred was in the mortar, and the brick was protected. The mortar was to some extent sacrificial – easily repaired by repointing – compared to the more difficult replacement of brick. Furthermore, its breathability permitted moisture vapor to escape from the walls through mortar, rather than concentrating it in the brick where it can accelerate deterioration.

With the appearance of portland cement-lime based mortars, hard, higher compressive strength mortars were possible through the addition of increased amounts of portland cement. However the compressibility of straight lime mortars was lost. As a result, the necessity of providing expansion joints evolved to relieve expansion and contraction forces that once were absorbed by every mortar joint with straight lime mortar. In general, the increased use of portland cement-based mortars was accompanied by the increasing availability of hard-fired, high compressive strength bricks made in more modern, high temperature kilns. The combination of hard, high strength mortars and hard-fired bricks was acceptable, as long as expansion joints were provided, and is the basis of modern brick masonry bearing wall and veneer construction.

However, portland cement-based mortars are not compatible with soft brick because it is not compressible. Without expansion joints, the rigid portland cement mortars concentrate expansion forces in the adjacent brick, causing the softer brick to crush and spall, while the mortar remains relatively intact. Such deterioration can occur even when portland cement mortars are used for relatively thin repointing applications. Once the spalling occurs, exposing the soft interior of the brick to the weather, the process accelerates, and the deterioration cycle continues. Examples of the results of improper mortar use are most prominently found on the Star Fort west-facing exterior walls.
Mortar and brick should be tested to determine the compressive strength of original materials, and the composition of the original mortar. Results of such testing should be used to determine the repointing mortar mix proportions. In mortars where only sand and lime was originally used, it is acceptable to use a small amount of portland cement to increase weatherability, as long as the compressive strength does not exceed that of the surrounding brick or stone.

At Fort Wayne, masonry buildings built in the nineteenth and early twentieth century likely have soft, straight lime mortar, and relatively soft bricks, so repointing should be executed accordingly, with the requisite testing. Buildings built or reclad in the 1930's likely have masonry using portland cement mortar and hard-fired bricks. Although testing is recommended here also, the implications of high strength mortars is of lesser concern than on the earlier buildings. Repointing should consist of not only repair of deteriorated joints, but should also include removal of previous hard-mortar repointing, even if it is apparently sound, to prevent future deterioration.

In addition, in order to preserve and enhance the character and visual quality of the site, older mismatched color mortars and poorly executed work should be removed as part of the repointing operations. Replacement mortars may utilize white portland cement, and be tinted to match historic colors.

Repointing: All buildings require some repointing. Issues of proper mortar mix have been discussed above. Approaches to repointing should be building-specific, since a variety of mortar compositions, colors, joint widths, and sand blends are found throughout the site. Use of power tools for mortar removal is discouraged, unless great care is taken. Small holes in bricks can be patched with mortar tinted to match bricks. Although sealants and caulks can be used to seal gaps between masonry and other adjacent dissimilar materials, sealants or caulks should not be used in place of pointing mortar. Sealants in mortar joints will trap moisture in the joint,

thus hastening deterioration of the surrounding brick or mortar.

Rebuilding: Some masonry is badly deteriorated and must be rebuilt. Preference should be given to reusing sound salved bricks from the same building. Where new bricks are required, careful research may be required to achieve a good match to the historic bricks. There are often size differences between old and modern bricks, so care must be exercised in mixing them, so as to maintain proper coursing and joint sizes. It may be desirable to use new bricks in concealed or less-prominent locations, while saving old bricks for more visible areas. Rebuilding should include removing all loose or deteriorated brick, and rebuilding the area as deeply as necessary to achieve a solid repair.

Chimneys: Almost all chimneys are deteriorated and require repointing. Many require partial reconstruction. When chimney masonry work is carried out, flashings must be repaired at the same time. Because of the interrelationship between flashings and roofing, and the vulnerability of these systems to leakage, it is desirable to carry out both operations simultaneously, or with roofing immediately following masonry work. It is preferred not to carry out masonry work after roofing to avoid the risk of damaging new roofing materials. Chimneys are very vulnerable to weathering, and special attention should be paid to detailing of caps and washes.

Porch Masonry: Masonry at many porches is deteriorated due to water penetration and subsequent freeze/thaw damage. Water penetration at porches comes from two sources: leakage through cracks in porch slabs, and rising damp (water wicking up from the soil into brickwork). When porch masonry is rebuilt or repaired, attention should be paid to proper detailing, such as drips on edges of slabs and thorough crack repair. Where possible, flashing should be provided to interrupt the flow of rising damp from the soil. Dampproofing of foundations can further reduce the occurrence of rising damp.

Rusted Lintels: The most widespread and severe masonry problem on the Fort Wayne site is rusted lintels over masonry openings at several residences. Lintels have rusted so severely that pack rust has formed at the areas where the lintel ends bear on masonry, and has jacked up the masonry that it supports. The jacking has raised the brick above the lintel from between 1/8" to 1." In some cases the resulting cracking of masonry extends many feet out from the source and goes around corners. In some cases it has resulted in brick surfaces shifting outward from the plane of the wall. Many of the lintels are also deflected, further suggesting that concealed corrosion is advanced.

This problem is surprisingly consistent and uniform on new residences constructed in the WPA era: the 1939 construction campaign (buildings 216-219), vestibule additions constructed in the 1930's (front vestibules and sunroom additions at buildings 212-214, rear vestibules at buildings 105-108, and 111-112) , and buildings clad with brick veneer in between 1937 and 1939 (buildings 105-109, and 111-112). All of these share the same brick color, mortar and construction detailing, except that additions at buildings 212-214 have a different color brick to match the existing buildings. At the veneered buildings, nearly every lintel suffers from this deterioration and damage. This suggests that some construction detail that was common to the work in that era is

resulting in this universal deterioration.

Although it is clear that water penetration has caused the rusting of lintels, the exact cause and source of the leakage is not known, nor is the extent of concealed deterioration. Observations suggest that some areas of brick may have pulled away from the backup wood framing. Neither the condition nor presence of masonry ties to the substrate is known. The source of the water must be identified and corrected, and the lintels replaced. There are several ways to approach this work:

Repoint cracks as they stand; repaint, but do not replace lintel. Although inexpensive, this approach is not recommend. It does not address the source of water penetration, and leaves an unsound lintel in place. Pack rust formation jacking will continue, and repointed cracks will continue to grow. Complete lintel failure is probable.

1. Replace lintel with new steel galvanized lintel; provide flashing at lintel. Rebuild brick veneer only as required to install the lintel. Re-anchor brick to wood backup wall with retrofit anchors installed in mortar joints. Leave brick in shifted position and repoint remaining cracks. This option is the minimum recommended option. It corrects the structural problem, and should address the source of water penetration. It stabilizes the shifted brick in place. After the pack-rusted lintel is removed, it is possible that the jacked brick may partially settle back in place. To facilitate this, excess mortar and debris should be removed prior to removing the old lintel, and do not repoint until the settlement is complete. It is possible that wide mortar joints will remain since settlement may not return the wall to its original position. Settlement should be observed carefully for evidence of secondary cracking resulting from the repair.

2. Replace lintel with new steel galvanized lintel; provide flashing at lintel. Disassemble all shifted brick veneer above lintels and rebuild with new wall ties. Selectively reanchor remainder of wall with retrofit anchors. This is a relatively thorough repair, but will be expensive due to the extensive reconstruction of brick veneers. It would also provide the best visual appearance by eliminating any wide joints that could result from option 2 above.

3. Totally dismantle brick veneer from top of foundation to eaves; rebuild with new wall ties, flashings and lintels. This is the most thorough option and the most expensive. It may not be supported by existing conditions, and should only be undertaken if investigation shows sever concealed deterioration that cannot otherwise be corrected or stabilized.

Any of the above options should be accompanied by further investigation is necessary before executing the work. At least one representative location should be carefully disassembled prior to designing the repair. Condition of the lintel should be determined, and evidence of any flashing should be noted. Concealed conditions should be inspected for evidence of the source and route of water movement within the wall. Disassembly should go far enough to permit examination of wall ties. Observations can be supplemented with borescope inspection at other locations to further evaluate the condition and extent of wall ties, and condition of the cavity behind the brick. Attempts should be made to determine how much, if any, of the veneer has pulled away from the backup framing, and if veneers are tilted. Crack monitors may be installed to monitor the progress and rate of separation. Once the inspection is complete, and a repair has been designed, it may be advisable to perform a test installation of the new repair.

Masonry Vaults: Posterns, passageways, and casemates beneath the Star Fort embankments have ceilings formed of load bearing brick vaults. These vaults are in very good condition, and appear to have never been repointed since the Star Fort's original construction. They still carry what is believed to be the original mortar tooling pattern that may have been used throughout the Star Fort. These vaults create highly unique and dramatic spaces which are potentially an important interpretative aspect of the structure. Because they carry the original construction details of the fort, high priority should be given to the preservation of these vaults, and the most careful and historically accurate treatments should be used. Mortar mix and color for repointing should be based on testing of existing mortar. Joints should be custom tooled to match the existing ornamental configuration.

The only threat to these spaces and materials is penetration of moisture from the soil above the vaults. No direct observation of the concealed tops of the vaults was available for this report. It is assumed that no changes have been made to the vaults since their original construction, and that any waterproofing provided in the original construction was rudimentary, given the technology of the times. It is unlikely that such a treatment would still provide any protection today. There is no evidence of liquid water flowing into the spaces, however there is visible evidence of moisture in the brick vaulting. Fine particles of brick are found on the floor of some of the vaulted areas, suggesting that moisture has penetrated and cause some deterioration of the brick. Although it has not resulted in severe deterioration, it is of some concern. The source of the moisture is likely a reversal of rising damp, whereby in this case, moisture in the soil above wicks downward into and throughout the brick mass and makes it damp. Possible solutions follow.

1. Excavate all soil over the vaults, and provide modern waterproofing membrane over the brick, along with a drainage system to move water away from the membrane. This is the most ideal solution, but would be an expensive approach.

2. Excavate to a certain depth and install a drainage field over the area. The goal here would be to intercept as much water as possible, but not all water. This would alleviate moisture penetration due to torrential downpours, and may alleviate, but probably not fully eliminate ongoing soil dampness seeping into the brick vaulting.

Cleaning: All brick masonry buildings on the site have heavily soiled brickwork and require cleaning. Cleaning operations should be undertaken before any masonry repointing or repair to avoid dislodging new mortar. An exception may be at areas where partial reconstruction is required. Such work should be completed first to avoid introducing moisture deeply into walls and permitting water into the building.

The Secretary of the Interior's Guidelines recommend using cleaning techniques that are the gentlest possible to remove dirt. Old, soft fired bricks, and lime mortar that which is found on many Fort Wayne buildings, can be damaged by some commonly used cleaning methods. It is recommended that cleaning methods be tested, starting with the gentlest, and progressing to more aggressive approaches until dirt is adequately removed,

without damaging the underlying material. Do not employ methods that utilize abrasives, either in dry or wet applications. Under no circumstances should the use of high pressure ore even medium pressure water be permitted. Water pressures should be less than 250 psi for application and rinsing, and even lower for soft stones such a sandstone on the hospital, and soft brick such as that on the Star Fort and and the older residential buildings. Cleaning nozzles should not be held close to surfaces or in one location for prolonged periods. Some stains such as rust and algae can penetrate into brick or stone, and require chemicals specifically formulated for such applications. Some of these types of chemicals must dwell on the surface for prolonged periods to penetrate into the materials, and may require poultice application.

Under no circumstances should sealers be applied to brick masonry construction. Such sealers do not breathe, and will trap moisture in bricks, thus accelerating their deterioration through freeze/thaw damage and spalling. Some breathable treatments are available, however they should not be used unless there is a specific problem that cannot be otherwise corrected.

Parging/Stucco: Parging or stucco is a cementitious coating found on the masonry of several porches on residences along Officers' Row. It has deteriorated severely in many cases as a result of water penetration due to rising damp (see Porch Masonry above). New parging or stucco should be detailed to not be in contact with soil, and should utilize galvanized terminations and lath. Prior to installation, consult historic photographs to determine if parging/stucco is the historically appropriate treatment for these elements.

Stone Masonry:
The Old Barracks, powder magazines, and miscellaneous elements in the Star Fort area are constructed almost completely of limestone masonry. Limestone that is used in foundations is addressed separately under the heading Limestone above. Limestone masonry is in generally good condition, with mortar deterioration being the major problem. Mortar and repointing issues in limestone masonry are the same as those discussed above in the Brick Masonry section, under the headings Mortar and Repointing.

Concerns about the use of high strength modern mortars with soft masonry units are similar, however limestone may have higher compressive strength, and may tolerate somewhat harder mortar than soft bricks. However there is a large variation in types, qualities, and compressive strengths in limestone, and stone quarried in the 19th century, prior to adoption of testing standards for stone, cannot be depended upon to have predictable compressive strengths. In many cases local stone was used for construction simply because it was available, with no knowledge or concern for its compressive strength. It is advisable to test stone for compressive strength to determine if a soft mortar should be utilized. As noted previously, analysis of the original mortar used in the stone masonry should also be tested.

Small, well-defined holes in limestone can be patched with mortar tinted to match the color of the limestone. Large areas requiring patching should be repaired with proprietary patching mortars, specially formulated to maintain the breathability of the stone. Cementitious patches should not be used because they are less permeable than the stone, and will trap moisture within the stone behind the patch and cause further deterioration within the sound stone behind the patch.
Concerns previously discussed in the Brick Masonry section discouraging the use of sealants and caulks for repointing, and use of masonry sealers also apply to stone masonry.

Stone Lintels: Cracked stone lintels should be inspected to determine the extend to the crack, and whether there is an underlying reason for the crack. Cracks can be repaired by injecting with epoxy, and then be cracks can be pointed with mortar or patching mortar to match the stone color, or can be supplemented with steel lintels installed under the stone.

Stone Cleaning: Refer to previous discussions and cautions regarding cleaning brick masonry. Any chemicals used for cleaning limestone surfaces should be approved for use on limestone. Do not use acidic cleaners on limestone.
Parging and Other Coatings on Stone: it was not unusual for 19th century stone structures to have been coated with a lime wash, whitewash, parging or other coating material. At the Old Barracks, there is evidence of several layers of coatings at the west elevation exterior stone. It is recommended that these coatings be analyzed to determine their age, and whether they provide evidence of whether the building was originally coated.

Concrete Unit Masonry: Buildings 2A, 2B, and 2C are constructed of concrete masonry units. These buildings are in fair condition. General problems include need for repointing, and detailing of copings. Concrete masonry units have a reasonably high compressive strength, and therefore are not as sensitive to mortar hardness as soft bricks or stone.

Wood Trim/Cornices

The SOI's guidelines for windows recommend...

> *.... Identifying, retaining, and preserving windows - and their functional and decorative features - that are important in defining the overall historic character of the building. Such features can include frames, sash, muntins, glazing, sills, heads, hood molds, paneled or decorated jambs and moldings, and interior and exterior shutters and blinds....*

All buildings within the Fort Wayne complex except the Star Fort and Old Barracks have wood trim. Wood trim consists of flat boards and molded trim such as crown moldings found on most all fascia. Some trim includes wood dentils, and smaller ornamental moldings. Wood trim is in generally fair condition, suffering universally from neglect and lack of paint. At locations where roof leaks at soffits are

present or joints have opened in trim, significant, but localized rot has set in. At some locations, nails at trim boards have come loose or rusted, and trim has become detached or completely fallen away. In some areas where molded components have been lost, they have been replaced with flat boards.

Decorative cornices are present on some buildings, consisting of ornamented bands applied to surfaces, and also include dentil bands and multi-course moldings. Cornices suffer from the same types of deterioration as general wood trim.

Loose, sound boards should be reattached using corrosion resistant nails. Open joints should be repaired by removing and reassembling the trim to tighten joints. Caulk any remaining open joints with a paintable caulk. If adjustment of boards does not adequately close up open joints, replacement of boards may be required.

Replacement of boards and moldings should be made with materials matching the thickness and profile of the original component. Modern "1 x" boards, which are actually ¾" thick, may not match the thickness of older "1 x" boards, which may have been thicker. Use of "5/4" stock or custom milled stock may be necessary to provide smooth, gap-free transitions between old and new boards. Similarly, although molding profiles are frequently standardized, it may be necessary to custom mill moldings to match the existing profiles. Use of rot resistant wood such as cedar or redwood is recommended, however pressure treated lumber should not be used because it is of an inferior grade and visual quality, is subject to significant warp and shrinkage, and does not readily accept paint. Care should be taken to match existing materials at soffits and porch ceilings, where beaded panels were almost always used. Replacement with plywood or flat boards is discouraged, unless original use of such materials is documented by research. If existing boards at such locations are plywood or flat panels, it is likely that it is not original. Where moldings are missing at eaves, and have been replaced with flat boards, they should be replaced, based on historic documentation.

In areas where deterioration is highly localized, replacement of only part of the board ("Dutchman" repair) is recommended.

Refer to the "Paint" section below for additional information related to finishing wood trim.

Gutters and Leaders

The SOI's guidelines for architectural metal states.....

Architectural metal features - such as cast iron facades, porches and steps; sheet metal cornices, siding, roofs, roof cresting, gutters, leaders, and storefronts; and cast or rolled metal doors, window sash, entablatures and hardware - are often highly decorative and may be important in defining the overall character of historic American buildings

There is little ornamental sheet metal on buildings at Fort Wayne, the gutters and downspouts do contribute to the sense of time for each building, and their replacement or repair should be undertaken in consideration of the historic character of each building.

Gutters and leaders are generally in fair to poor condition and are at least partially missing from many Fort Wayne buildings. Those that survive are neither original, nor copies or originals. The current gutters are "k" type (with crown molding profiles) that are off-the-shelf, and almost universally used today. Leaders are

typically rectangular - again a contemporary standard. However, the age of even the newest structures surveyed places them in a period when half-round gutters and round corrugated leaders were commonly used. Half-round gutter brackets that were found around the site reinforce this assumption.

Where total gutter replacement is required, replacements should be half round, with round corrugated leaders. Further research of historic photographs should be conducted to determine if original components were galvanized steel or copper. Buildings should be examined for evidence (holes, silhouettes of brackets) of original leader locations. When roof and gutter replacement is recommended, both should be undertaken at the same time.

Roofs
The SOI's guidelines for roofs states.....

> *....the roof - with its shape; features such as dormers and chimneys; and the size, color, and patterning of the roofing material - can be extremely important in defining the building's overall historic character. In addition to the design role it plays, a weather tight roof is essential to the preservation of the entire structure; thus, protecting and repairing the roof as a "cover" is critical.....*

The predominant roofing material on Fort Wayne buildings is asphalt shingles. Some low slope roofs on porches and sunrooms have flat seamed metal roofing, and flat roofs have either built-up or membrane roofs. The scope of this master plan did not permit research into original roofing materials for all buildings, however it is unlikely that asphalt shingles were the original roofs on the 19th and early 20th century buildings, and it is possible that it was not original on any of the structures. Duplex NCO building 215, built in 1931, has a slate roof that survives today, suggesting that slate may have been used on other buildings from that era. The time period of the buildings leaves many candidates for original sloped roofing materials, including wood shingles, slate, clay tile, and asbestos-cement.

This report recommends asphalt shingles as replacement roofing on sloped roofs. Although not original, it is considered to be compatible with the character of the buildings, does not detract from the overall character of the buildings, and is consistent with the Secretary of the Interior's Standards for Rehabilitation. It may be considered to be a long-term goal to provide historically authentic roofing on the Old Barracks, which is intended to receive more historically faithful treatment than other buildings. It is possible, but not certain that the original roof on the Old Barracks was wood shingles, however this should be verified by research into photo-

graphic archives. "Textured" or "rustic" layered asphalt shingles are not recommended.

Flat roofs that are not visible to the eye may be replaced with membrane roofing. One-story porch and sunroom roofs that are visible should receive soldered metal roofs. Surviving flat seamed roofs appear to be galvanized steel, however copper or lead-coated copper is recommended for durability and ease of maintenance, since galvanized steel should be painted to maximize it's lifespan.

When roofs are replaced, the concealed substrate should be inspected and replaced if deteriorated. In areas of severe roof deterioration, the underlying framing should also be inspected, and replaced if deteriorated. Consideration should be given to providing attic ventilation at the time of roof replacement. Such ventilation should be added inconspicuously at eaves and preferably at ridges.

Doors

Doors and hardware are important historic character-defining features that convey a building's era and style, so original doors should be maintained where possible, and be replaced in kind where repair is not practical. Exterior doors at Fort Wayne are predominantly wood rail-and-stile type - some with glazing, and some with multiple opaque panels. Some buildings - notably Buildings 311, 312, and 314 have modern metal and glass replacement doors that are not original. The gymnasium addition to building 312 likely originally had metal doors.

The Star Fort has highly unique massive doors with wrought iron hardware at the sally ports. These should be treated with the utmost care to maintain their historic fabric and character. Any hardware should be custom wrought, and any added locks should be carefully selected to be compatible with the character of the door.

Exterior wood door deterioration generally falls into four categories:

- Deterioration of doors due to lack of paint protection and weathering. This includes deterioration or rotting at the bottom of the door, as well as delamination of veneers that may be found on some doors.
- Failure of hardware, hardware anchorage, or architecturally incompatible hardware replacement.
- Deterioration of frames, particularly at the lower ends of frames where the bottom ends of wood components can set in pooled moisture, snow, or splashed rain, and wick into the wood. Lack of paint protection is a contributing factor to this type of deterioration.
- Architecturally inappropriate replacement doors.

Metal doors fail in the following ways:

- Rust due to water exposure and lack of paint maintenance.
- Bending of doors or springing of hinges.
- Failure of hardware.

Where door replacement is required the following are recommended:

- Unrepairable deteriorated wood doors should be replaced with matching new wood doors. Where doors will receive heavy use, thicker doors, and heavy duty hardware may be considered.
- Non-original metal doors should be replaced with wood doors to maintain their historic character.
- Metal doors compatible in character with wood doors may be considered for buildings which may get heavy public use such as buildings 311, 312, and 314. Designs should be considered carefully to be compatible with the character of the building.

Where repair of existing wood doors is required, the work may include some or all of the following:

- Clamping and re-gluing of rail-and-stile components to tighten open joints.
- Epoxy consolidation of bottom edges if deterioration is present.
- Epoxy repair of splits.
- Reglazing loose panes of glass; replacement of broken panes
- Addition of weatherstripping and sweeps.
- Rehabilitation of hinges, including tightening of screws, and installation of longer screws, where required.
- Rehabilitation of latchsets, including disassembling, lubricating, and restoring to full operation where possible.
- Replacement of knobs with levers.
- Where latchsets cannot be rehabilitated, or levers cannot be retrofit, replacement with new hardware of historically compatible design.
- Replace hinge jamb where hinges screws can no longer anchor to deteriorated wood.
- Epoxy consolidate bottom portion of frames at jambs where wood is deteriorated, but fundamentally sound.
- Dutchman repair at bottom portion of frames at jambs where wood too deteriorated to consolidate.
- Replacement of missing or damaged strikes, or installation of new, where required.
- Dutchman repair of jamb areas around strikes where deterioration, or modifications have rendered the area incapable of soundly anchoring a strike.
- Installation of a deadbolt.
- Preparing door surfaces for painting.
- Epoxy consolidation of superficially rotted thresholds, or dutchman repairs where deterioration is too extensive to repair.

Refer to the "Paint" section below for additional information related to finishing doors.

Windows

The SOI's guidelines for windows recommend...

> *.... Identifying, retaining, and preserving windows - and their functional and decorative features - that are important in defining the overall historic character of the building. Such features can include frames, sash, muntins, glazing, sills, heads, hood molds, paneled or decorated jambs and moldings, and interior and exterior shutters and blinds....*

Like doors, windows and their muntin patterns are another important historic character-defining feature that conveys a building's era and style. Existing windows should be maintained where possible, and be replaced in kind where repair is not practical.

The predominant window style at Fort Wayne is wood double-hung. Muntin patterns vary. Windows vary in age, and there has been an extensive replacement campaign that involved most windows on the Officers' and NCO residences. These all appear to be of a similar vintage, and include aluminum friction-type jamb liners, suggesting that they date from the 1950's or later. Some buildings still have their original windows.

Preference should be given to repairing windows rather than replacing them. Window conditions frequently appear to be much worse than they really are. Peeling paint, broken sash cords, and broken panes of glass convey an appearance of deterioration that is misleading. These items can be repaired easily by a knowledgeable tradesperson, and with the addition of weatherstripping can become fully functional and efficient. Reglazing windows to receive double pane glass is possible, but highly labor intensive, and therefore costly, and is not recommended here. Thermal performance and infiltration can be improved nearly to the level of modern replacement windows by adding weatherstripping, and installing interior storm windows.

It should be noted that while windows play a role in a building's comfort and thermal performance, their replacement with modern insulating glass windows seldom returns energy savings that will pay back the cost of replacement in a reasonable number of years. Measures such as addition of insulation in attics, and upgrading of inefficient mechanical equipment offer far greater energy cost savings than window replacement. Weatherstrip and storm window installation are more cost effective energy saving treatments for windows.

A typical repair package for an original double-hung window with sash weights would include some or all of the following:

- Installation of new sash cords.
- Stripping of paint at painted-shut conditions.

- Reglazing loose panes of glass, and replacement of broken panes.
- Adjustment, or re attachment of sash locks.
- Epoxy consolidation of bottoms of bottom rails where there is superficial rot over sound substrate.
- Re-gluing of loose sash joints.
- Replacement of deteriorated parting stops.
- Installation of perimeter weatherstripping.
- Installation of an interior storm window.

More detailed repairs such as dutchman muntin replacement are possible, and require the services of an experienced skilled finish carpenter. If extensive muntin replacement is required, consideration may be given to sash replacement.

The presence of deteriorated sash does not necessarily require total window replacement. If jambs are sound, individual sash can be replaced, and attached to the existing sash weight system. It should be noted that modern mass produced wood replacement windows and sash replacement kits generally have plastic jamb liners and spring balances in lieu of sash weights. These liners are visible from both sides of the windows, and detract from the historic character of the building.

If modern mass-market replacement windows are used, consider only those manufacturers who produce windows that offer sash rail dimensions that match those of the historic windows, and that have glazing and muntins that set the glass back from the surface of the sash to maintain historic shadow lines and relief. Many Modern replacement windows have sash dimensions that are much more delicate than those found on traditional windows, and some have insulating glass that is nearly flush with the outside of surface of the sash, thus eliminating the traditional shadow line that provides and appearance of depth on the window. Snap-in muntin and grille systems are not recommended.

A typical repair package for an existing 1950's era replacement found in many of the residential buildings would be similar to that described above, except that installation of new sash cords in not necessary, and stripping of paint is likely not required.

Porches

The Secretary of the Interior's guidelines for the rehabilitation of entrances and porches states:

> *Entrances and porches are quite often the focus of historic buildings, particularly when they occur on primary elevations. Together with their functional and decorative features such as steps, balustrades, pilasters, main entrance doors, and entablatures, they can be extremely important in defining the overall historic character of a building. Their retention, protection, and repair should always be carefully considered when planning rehabilitation work."*

There are several types of porches found on Fort Wayne buildings.

- NCO residence duplexes (210-219) have enclosed brick vestibules on the front, with concrete steps and a stoop, and large concrete or brick and concrete porches combined with basement access at the rear. All rear porches originally had wood columns and roofs, and a few survive.
- Officers' Row buildings (105-112) have front porches with stuccoed brick and concrete bases, with wood columns and roofs; concrete steps lead to vestibules at the rear.
- The large officers' residences (102-104) have brick masonry and concrete front porches, with no rear porch.
- The Old Guardhouse building (205) has a wood porch.

Since most porches are constructed of brick masonry and wood, treatment recommendations found elsewhere in this section address those materials. Other materials not found there are addressed here.

Concrete Decks and Steps: Many porches have concrete decks and steps. It is suspected that many or most of these are not original, although many are quite old, and have gained historic significance in themselves, as part of the evolution of the structure. The original porches are likely to have been wood, or brick bases with wood columns and roofs. The most common cause of deterioration his spalling and cracking of the concrete. In several cases it appears that the concrete slabs and stairs have already received an added concrete topping a as part of a previous concrete repair, and many of these are failed too.

Where concrete has crumbled, each element should

be further evaluated to determine the depth of deterioration, to determine if enough concrete substrate survives to provide a sound base for repairs. If so, loose concrete should be removed and a new topping can be applied. Stairs and risers can be built up by forming new concrete over the old. Thin coats of concrete should be avoided, as should feather-edging repairs in existing work. Such feather-edges will fail in a short time, permitting water into the remainder of the patch, and thus restarting the deterioration cycle. Where complete new topping is installed, with stone aggregate, it should be a minimum of 1 ½" thick. Smaller patches can be carried out with fine aggregate patching materials, and can be thinner, but ½" is generally the minimum recommended. Where slabs or steps have deep deterioration and little sound substrate remains, completely new slabs or steps should be poured.

Brick Masonry: General brick masonry treatments are found elsewhere in this section. However some additional issues specific to porches are found here.

Some face brick on porch bases has separated from brick or concrete substrates, due to water intrusion behind the bricks. Typical sources are rising damp and cracked slabs above the masonry kneewalls. Sources of such water should be investigated and corrected. Any loose substrate under the brick should be removed back to sound material, and built back to the original depth. Consideration should be given to installing flashing at tops of walls, as well as at the bottom to reduce issues of rising damp.

Porches on buildings 105 through 112 have stuccoed brick porch bases. The brick substrate on many of those is badly deteriorated. Substrates should be repaired or rebuilt using materials matching the original. New stucco should be applied using galvanized metal lath, and should be held away from the ground to prevent contact with moist soil.

Star Fort Treatments

Although the Star Fort's materials are almost solely masonry, the uniqueness and significance of the structure, and the challenging causes of deterioration that it is experiencing warrant additional discussion and background beyond that provided in the Masonry Treatment section above. The detailed background is intended to help the reader understand the processes that have and will continue to effect the fort structure and the issues that restoration of these elements will encounter.

From a building technology standpoint, at its simplest level, the star fort is a massive retaining wall holding back a large earth berm along its interior face. Specific conditions are indicated elsewhere in this report, however in general, the walls exhibit widespread deterioration associated with moisture penetration and deterioration mechanisms associated with long term moisture saturation. Although investigative excavations were beyond the scope of this report, because of the age of the structure, it is almost certain that the fort walls were

constructed without any waterproofing system on surfaces that are in contact with the retained earth berms. Although there is a drainage system associated with the trenches (scuppers are located at various points along their length), it is not known if these are still functional. It is not known if there is any drainage system to carry water away from the center of the fort.

All rainfall that falls within the fort and on the berms soaks into the earth. Water falling on the berms soaks into them, and moves downward by gravity and evaporates outward toward the retaining walls or the berm surface exposed to the inside of the fort (moisture always moves from areas of high concentration to areas of low concentration). Moisture that evaporates to the inside facing berm surfaces is not problematic, but that which evaporates toward the retaining walls is. Since the walls are not waterproofed, moisture moves from the earth into the absorbent brick and mortar of the walls. Because the major mass of walls is always cool, the moisture is below the dew point, and therefore exists in the walls as liquid water, and not as the less harmful water vapor. Once moisture is in the masonry, deterioration is inevitable. Deterioration takes three forms:

1 Break-down of binding materials in clay brick and mortar. Moisture dissolves the lime from the lime mortar, leaving little or no lime to hold the sand in the mortar together, and eliminating the bond between bricks and mortar. To a lesser extent, moisture also breaks down the structure of the soft-fired bricks. The general effect is to weaken the wall.

2 Desolving and recrystallization of salts in brick. Salts naturally present in bricks and mortar are dissolved and carried toward the surface with moisture. As moisture evaporates near the surface, salts are left behind and recrystallize. Salts expand upon recrystallization, and even small crystals create expansive forces strong enough to break down the structure of fired brick at a microscopic level. With thousands of small crystals being formed and reformed in this way, over many decades, bricks eventually weaken, become soft and spall - especially near their outer surfaces where evaporation takes place and salts are deposited. Once spalling starts, the soft interior of the brick is exposed, and deterioration accelerates.

3 Freeze thaw deterioration. In cold weather, even the outer surface of the brick does not get warm enough for moisture within the wall to evaporate, so moisture within the brick freezes. As with salt crystals, ice crystals expand upon formation and break down the structure of the brick, resulting in spalling of surfaces of brick and mortar, and exposure of the soft core of bricks. This action also opens

up gaps, cracks, and porous areas through which wind-driven rain, and water entering from other sources can collect. As this freezes in larger quantities in joints, cavities, and cracks, it expands and forces bricks apart, and over time can move bricks out of position. This action creates a vicious cycle of deterioration by creating more openings where water and debris can collect, and freeze again, thus further opening gaps, and the cycle of deterioration starts again.

All of these deterioration mechanisms have been observed at the star fort in varying degrees, and is severe in many locations.

An un-waterproofed retaining wall would be expected to see such deterioration to at least some extent, since it would always be in contact with moist soil. However the star fort has two other characteristics that appear to further contribute to observed conditions.

1 Trenches. The most severe deterioration corresponds with location of the trenches behind the walls. It is likely that the drainage scuppers serving these trenches are blocked, and that drainage tiles (if they even exist) are damaged, clogged or inadequate. It is clear that this condition has collected water and concentrated it along walls for decades.

2 Wall Caps. The concrete wall caps on top of the massive brick masonry walls are severely cracked in many places. They appear to have been built with no expansion joints, and no through-wall flashing. This condition provides many openings for moisture to enter directly into the wall. In addition, the edge details of the caps lack drips, and are very deteriorated and porous. This condition provides an entry point for moisture at a point where there is very vulnerable brick corbelling immediately below.

In addition to moisture-related deterioration, there is evidence of previous brick repairs and repointing that has been detrimental to the condition of the wall surface. It is likely that the wall surfaces have been repointed many times over the star fort's life. Samples of mortar from the inner wythes of the wall are exposed in some areas of deterioration, and it is believed that this may be the original mortar. Although the mortar has not been tested, it has the appearance of a traditional sand/lime mortar - without portland cement. The age of the fort reinforces this theory (portland cement was not manufactured in the United States until 1872, and not in common use until the turn of the century). Lime mortars are very soft and compressible, characteristics which permit expansion and contraction of walls, and to some extent mitigate the effects of spalling. Each lime mortar joint acts like a small expansion joint, absorbing the expan-

sion and contraction of the adjacent bricks. Replacement of soft mortars with modern portland cement mortars is detrimental to the wall structure. Such mortars are extremely hard and do not expand and contract, and thus any expansion due to temperature, moisture saturation, salt or water crystallization is concentrated in the soft bricks themselves, causing accelerated and severe spalling of bricks. Examples of such conditions were found to varying degrees on all exterior walls of the fort, but were most pronounced on the east wall of the fort, where bricks are deeply spalled, yet mortar is intact, protruding up to an inch beyond the spalled-away brick surface.

These are conditions which have gone very far, and are progressive, and will lead to the eventual loss of the fort, or at least cause it to be come a hazard to public safety. These conditions are not fully correctable without rebuilding the fort with modern systems and materials - an approach that is neither historically or economically defensible. Rather, the goal should be to improve the situation as much as possible while maintaining the integrity and fabric of the historic resource. It must be recognized that it is unreasonable to expect this structure to perform as if it were a new building.

Recommendations and Additional Investigation:

Because of the Star Fort is the most unique architectural artifact on the site, its preservation must be given a high priority. Although past repairs to the fort have been well-intentioned, They have not been comprehensive or coordinated, and in some cases have been detrimental to the historic fabric of the fort. Preservation of the fort requires a systematic approach which addresses the whole fort, and considers how natural processes act on it as a system, rather than addressing specific isolated areas of deterioration. Furthermore, preservation activities should be comprehensive, long-range in vision and impact, and should address long-standing problems for decades to come.

Recommendations made on the individual building Analysis and Recommendation sheets later in this section provide very preliminary work descriptions based on observations that are limited by the scope of this Master Plan. The scope did not permit the detailed physical investigations required before preservation actions can be undertaken. It is recommended that none of the masonry described in the recommendations be implemented until further investigations of the fort walls and materials is carried out to identify all aspects of deterioration, specifically:

1 Extent of masonry deterioration: it is clear that the outer wythes of brick are pulling away from the backup wall in many locations, however the extent is not known, nor is it known how deeply into the backup wall the deterioration extends. Test holes should be made in various locations around the fort to verify these conditions.

2 Mortar and brick analyses: many mortar repair campaigns have been undertaken around the fort, using hard mortar that has caused further deterioration. Careful investigation and analysis should be carried out to identify original mortar composition and compressive strength, as well as that of the original brick used in the fort. This information will permit the proper specification of restoration materials.

3 Drainage investigation: Investigations should be conducted to determine the extent, condition, and effectiveness of the drainage system that is assumed to exist at under the trenches along the fort's walls, as well as their relationship to the scuppers observed on the exterior.

4 More detailed physical assessment: Vegetation currently prevents close examination of the tops of the forts walls. Vegetation must be removed to permit detailed assessment. Such an assessment would

include test holes previously noted, as well as detailed physical examination to determine the extent of deterioration, and to identify other concealed causes of deterioration.

5 Review of archival material: Reconstruction of elements such as the structures over the tops of the casements, and restoration of the original landscaping and site character immediately around the fort should be preceded by review of historic photographs and drawings, to ensure that historical accuracy is achieved.

6 Archaeological investigations: Consideration should be given to conducting archaeological investigations to ensure that restoration work does not destroy artifacts related to the fort's history.

Accommodation of Activities Within the Star Fort

Because the Star Fort, and its associated structures and grounds are unique and have great value as architectural artifacts, preservation of its character and fabric should be given the highest priority. It has perhaps the strongest attraction as historical exhibit of any structure on the site, and offers strong interpretative opportunities. In addition to the exterior spaces and structures in the fort, concealed spaces such as the two posterns and their adjacent casemates are dramatic and unique, and provide opportunities for telling the story of the fort and the how it was intended to function as a defensive position.

However, in order to enhance the viability of the Fort Wayne site, the Star Fort must offer more than an interesting historic tourism destination. Fortunately, the Star Fort can accommodate other uses which will help make it a useful community resource, while imposing minimal physical impact on the historic fabric, thus preserving its artifact value. Temporary activities such as historical re-enactments, festivals, concerts, and outdoor receptions are most compatible with the Star Fort. The embankments and parade grounds within the fort create a natural amphitheater suitable for watching performances, and the niches at the center of the outer scarps provide opportunities for performance venues for multi-stage music and performance festivals.

In order to accommodate such functions, a combination of permanent and temporary facilities can be utilized. The addition of ground floor toilet rooms in the Old Barracks (Building 507) is discussed with the recommendations for that building. However, no other permanent structures are recommended in the area of the Star Fort, in order to preserve its historic integrity and character. These permanent facilities would serve all activities in the Star Fort, but could be supplemented with portable toilets for large events. In addition, provisions for other temporary facilities should be made. It is anticipated that portable stages, cooking equipment, bars and refreshment equipment would be needed to support activities in the fort. Lighting for evening events would also be required. All of these items would require electrical service. General site lighting should be portable, perhaps supplemented with inconspicuous permanent lighting on tops of structures, and concealed in the landscape. Use of "period' pole-mounted light fixtures is not recommended so as not to create a false sense of historic character.

Hospital Treatments (Building 209)

Because of its state of partial collapse, and due to safety concerns, detailed assessment of the Hospital as it stands today was impossible. The existing conditions and recommendations contained in the individual assessment and recommendations sheets later in this appendix are therefore necessarily general in nature. Any future use scenario other than complete demolition will require additional detailed investigation by preservation architects and engineers.

Future investigations would include the following steps:

- Retain a team including an architect, structural engineer, and contractor (all experienced in working with historic buildings and severely deteriorated structures) to collaborate and plan a safe and historically sensitive stabilization program.
- Clear away unsalvageable materials and identify collapsed salvageable materials of historic or architectural significance.
- Stabilize and protect the remaining structure to permit inspection by the project team.
- Analyze the stability and condition of remaining building elements.
- If results support any form of preservation, whether as a ruin, or any type of partially or fully restored structure, further develop restoration scenarios, based on the broad scenarios described below.

The basic philosophy behind The Secretary of the Interior's Standards is to identify, retain and preserve historic resources and features. To support that philosophy, a hierarchy for treatments is recommended starting with the preferred least invasive actions and progressing toward more invasive actions, which result in the loss of increasingly more historic material. The treatment categories are (starting with the most preferred actions):

- Protect and Maintain: Take ongoing actions that care for features and resources that exist in a manner that will ensure their survival and continued function
- Repair: Take remedial actions that retains deteriorated historic features and resources and repairs them in a manner that will permit them to continue to survive and function without requiring replacement.
- Replace: Where features or resources are deteriorated beyond repair, replace them with new components that match the original.

Applying this philosophy to an overall building, demolition would be considered an extreme treatment that is more detrimental than the three treatment categories noted above, and is therefore discouraged. When a structure is severely deteriorated the Standards first recommend pursuing all measures possible to preserve the structure.

Although the hospital is severely deteriorated, and partially collapsed, demolition should not be considered a foregone conclusion. The investigative process recommended above should be undertaken with the thought that restoration or rehabilitation is also a possible option. The investigation should objectively consider retaining the hospital on an equal footing with other options. The implications of retaining the building should be evaluated from historic, economic, and technical perspectives.

The Hospital was a significant building on the site, both in function and presence, and was character defining for the site. With its veranda, red sandstone and decorative brickwork, it was an attractive building, architecturally differentiated from others on the site. However today it is severely deteriorated, and interior conditions are unknown. A further detailed evaluation of this building is required to determine the condition of the interior, and to assess the feasibility of restoration. It is the opinion of this report that it is restorable, but complete restoration would require major reconstruction, and carries a high cost. Lacking a detailed assessment of the building, for the purposes of this report, the following treatment options are proposed, accompanied by their pros and cons.

Option	Pros	Cons
1: Total Demolition	Eliminates a hazard, inexpensive	Not reversible, destroys historic fabric.
2: Preservation as a ruin; stabilize	Stabilizes a hazard; preserves historic fabric; saves structure for possible future restoration when funds are available.	Requires investment yet results in non usable structure. Minimal preservation as ruin requires some stabilization, including removal of collapsed material, stabilization of remaining structure. Ongoing costs of preserving as a ruin are uncertain, since deterioration, although slowed down, will continue. If preservation -as-ruin is intended to permit future reuse and habitation, repair and reconstruction of roofs and provision of wall closure will be required to keep out weather.
3: Demolition of both wings and north tower; restoration of center core's exterior. Interior adaptive reuse. No verandas.	Eliminates unsound portions; preserves some historic fabric; provides usable structure; Presents original hospital configuration (without wings).	Eliminates part of building's evolutionary history.
4: Demolition of east wing restoration of center, west wing and north tower. No Veranda.	Eliminates most unsound portion preserves parts of all eras of building's evolution. Provides usable structure.	Presents building configuration that never existed. Condition of west wing is uncertain
5: Restoration/reconstruction of entire building (except verandas); adaptive reuse of interior.	Preserves the building as it has evolved to the present day (but corrects results of neglect). Provides maximum usable floor area	Lacks impact without veranda. Added floor area creates additional burden for leasing space.
6: Restoration/reconstruction of entire building (including verandas); adaptive reuse of interior.	Presents relatively authentic historic restoration/reconstruction of important building. Provides maximum usable floor area	Added floor area creates additional burden for leasing space.

Decisions regarding which of options presented above should be implemented must strike a balance between history, cost, and utility. History may be best served by restoring/reconstructing the building and adapting the interior to a new use. This approach, however, would also be the most costly. In addition, it would add floor area to the site that would have to be maintained and leased.

Conversely, the most economical approach of demolishing the entire structure would irreversibly remove important nineteenth century historic fabric from the site, and eliminate structures that could be restored. Yet this would ease the burden of finding tenants for space in the fort. It may be that the best option is different now than it will be ten years in the future.

For the purposes of this Master Plan, a conservative approach of preserving and stabilizing the building now, is recommended, so as not to rule out other future options that would serve both history and practical considerations, when funding and market circumstances may be different than they are today. In the context of the long term plan for Fort Wayne, the Detroit Historical Museum will need to carefully weigh these conflicting philosophical and practical considerations to determine the long term treatment for the Hospital.

Structural

The SOI's guidelines cover structural engineering as follows:

> *If features of the structural system are exposed such as load-bearing brick walls, cast-iron columns, roof trusses, post and beams, or stone foundation walls, they may be important in defining the building's overall historic character. Unexposed structural features that are not character-defining or an entire structural system may nonetheless be significant in the history of building technology; therefore, the structural system should always be examined and evaluated early in the project planning stage to determine both its physical condition and its importance to the building's historic character or historical significance*

All structural observations contained in this Master Plan are based on visual observations only. No test holes, destructive investigations, observation of concealed conditions, or instrumentation was possible. Where structural deficiencies were found, it was not possible to fully ascertain the exact cause of such deterioration. Where causes are presented, they are hypotheses, based on best-available information, correlated with the project team's past experience with similar conditions. Where structural problems are indicated, the design professional who prepares rehabilitation plans for that building should conduct further investigations into the causes, and correct them as part of the rehabilitation program.

The most predominant structural issues discovered are:

Inadequate Floor Load Capacities: The residential buildings proposed to be converted to office use have wood-framed floors. Their original design accommodated residential live floor loads, which are lower than the code-required loading for business occupancies, and will require reinforcement. Based on type of construction of these building, and the desire to use standard construction methods, there are two recommended approaches to increasing floor load capacity: reduction of the span of framing, or supplementing existing joists.

In unoccupied spaces such as basements, the most economical solution is to reduce the span of joist. This can be accomplished by introducing a beam or beams perpendicular to the joists to provide additional support at one or more points along their span. Depending on the conditions present, such a beam may be supported at its ends on an existing wall (reinforcement under the bearing point of the beam may be required), and may require

an intermediate column or columns with footings somewhere along its length. This approach is relatively easy to install and generally only requires limited ceiling finish removal in the immediate area where the beam will be located. It can be installed as a retrofit, because since it is below the framing, it does not affect existing routing of wiring and ductwork. Its negatives are that it reduces headroom at the beam location, and may introduce columns, thus affecting the usability of the space and impacting architectural character. In some cases it may be possible to introduce columns within existing non-bearing walls to reduce visual impact. It is also possible to recess beams up into framing ("flush framing") to reduce visual impact, however this is more costly because it requires shoring, cutting of every joist, installation of joist hangers, and could disrupt electrical and ductwork routing.

In occupied areas such as above grade floors, where introduction of beams and columns is architecturally and functionally undesirable, existing wood framing can be augmented by adding and additional joist along side of each existing joist, bearing on supporting end walls. This approach requires removal of ceiling finishes over the entire area being reinforced, however it is invisible after finishes are restored. It requires careful maneuvering, rotating, and tilting of joists into place in tight locations. This approach is best installed as part of a thorough rehabilitation, since it is nearly impossible to install after any electrical distribution running perpendicular to joists has been installed, unless conduit and wiring are first removed., and then reinstalled after reinforcing is complete.

It should be noted that structural analysis of wood floor load capacities is based on visual observations of joist sizes and spacing where possible. In many cases, joists were not readily observable and size and spacing could not be measured. In those cases, sizes and spacing have been estimated based on floor thickness, and assumed spacing.

Structural capacity of wood floors is affected by many other factors that could not be assessed within the scope of this Master Plan. Such factors include end bearing conditions, header attachment and configuration at floor openings, extent of notching and drilling of joists for plumbing and electrical wiring, and concealed modifications of framing resulting form creating new floor openings an infilling old ones. It is not unusual in buildings of this age, which were built prior to code current codes, to have inadequate end condition shear connections that may need reinforcing by the addition of joist hangers. Assessment of such conditions requires observation holes to permit viewing of these conditions in each building at several locations. Such an investigation is not possible within the scope of this master plan. Further investigation will be required as plans for the rehabilitation of each building are developed.

Cracking and Settling: Significant cracking was noted at only a few locations. At the Visitors' Center (building 312) there is a major crack in the northwest corner extending from grade to the eave, and at NCO Residence 212, where there is a major crack at the northeast front entry vestibule. It is not possible to know the exact causes of both, however it is speculated that both are due to settlement of the foundation. At the Visitors' Center, it is speculated that excavation for the installation of a relatively new concrete ramp may have disrupted

or undermined the building foundation. At building 212, it is obvious that the vestibule foundation has settled and tilted, causing the vestibule to pull away from the main part of the house, however there is no readily apparent explanation for this. Further investigation is required.

Further investigations may include examination of any interior conditions in the area, setting of crack monitors to determine if the crack is active, and soil borings to determine if there are any soil deficiencies. Attempts should be made to see if there are any water lines nearby that may have leaked underground and undermined foundations. Corrections required cannot be identified at this time, but could range from doing nothing (if cracks are not active), to underpinning of footings, to total reconstruction down to footings in the affected area.

Other cracking noted around the site is relatively minor. And can be corrected by pointing with mortar, or injecting with grout or epoxy.

Mechanical and Electrical Systems

The SOI's guidelines review mechanical and electrical engineering as follows:

> *The visible features of historic heating, lighting, air conditioning and plumbing systems may sometimes help define the overall historic character of the building and should thus be retained and repaired, whenever possible. The systems themselves (the compressors, boilers, generators and their ductwork, wiring and pipes) will generally either need to upgraded, augmented, or entirely replaced in order to accommodate the new use and to meet code requirements. Less frequently, individual portions of a system or an entire system are significant in the history of building technology; therefore, the identification of character-defining features or historically significant systems should take place together with an evaluation of their physical condition early in project planning.*

Mechanical Systems

Considering the age of these buildings, service duration of the mechanical systems and present conditions, it is advised that entire mechanical systems serving these buildings be demolished and removed from the site.

Piping should be cut and capped except in the case of interferences, where removal will be appropriate. It is proposed that new forced air systems be provided for all buildings presently served by hydronic systems in order to provide the required ventilation not presently available in all but a few buildings. In some cases where ductwork is not practical or too expensive, the recommended system should be window type Ventilator Unit System w/either hot water/electric heating and DX cooling coil.

A comprehensive study of each building will be necessary to determine which type of the above system will be appropriate for that particular building. However, estimates contained in this master plan assume a ducted forced air system for all buildings.

All plumbing equipment, fixtures and piping should be replaced, except as noted above.

Electrical Systems

The existing electrical systems in Fort Wayne buildings are outdated and are in need of an upgrade to meet the

current codes and standards of the city. Existing electrical systems should be demolished and removed from all buildings on the site. New electrical systems should be provided for all buildings, consisting of electrical equipment, lighting fixtures, wiring, switches, panel boards and appurtenances that will bring the electrical system in line with current city codes.

A comprehensive study of each building will be necessary to determine specifics regarding the electrical system for that particular building.

In addition, the replacement of the existing overhead electrical distribution with new underground and a new substation may also be required.

Lighting for the site and building exteriors should be compatible with the overall character of individual buildings and the site in general. Exterior site lighting should be inconspicuous, although it is acknowledged that for operational and security reasons, exterior site lighting is necessary. It is noted elsewhere in this section that site lighting in the Star Fort area should be concealed, and pole-mounted "period" fixtures are discouraged due to the pre-electrification, mid-nineteenth century character of that area. However, within the Military Village area, the character reflects more of a continuum of time, with building dates ranging from the 1890's to the 1930's. Historic photographs should be consulted to determine if any site lighting was extant during that time period, and attempts should be made to duplicate the fixtures. Period pole-mounted fixtures of the type used through the 1930's may be found to be compatible with the character of the area. Alternatively, if there is no historic precedent for fixtures, compatible contemporary pole-mounted fixtures may be used. It is recommended that such fixtures be small in scale. Fixtures in the ten-foot size range should be considered, and should not be utilitarian in design. Extremely tall modern parking-lot style fixtures that light large areas from one pole are discouraged, or should be limited in number and kept in perimeter locations only.

Some focal buildings such as the Star Fort may receive architectural lighting to accent the building's surface. Such lighting should be ground mounted, inconspicuous, and concealed with shrubs or other compatible features.

Fixtures mounted on buildings should be limited to fixtures at doors, porches, etc., and should reflect the character of the building's exterior. Replacement fixtures should be from the time period of the building. If new fixtures must be added, they should be compatible with the character of the building. Installation of fixtures on building surfaces for the purpose of lighting the site, such as multiple head aimable fixtures or high intensity industrial fixtures is not recommended.

Building Code

The Secretary of the Interior's guidelines for health, safety and code requirements are as follows:

> *It is often necessary to make modifications to a historic building so that it can comply with current health, safety and code requirements. Such work needs to be carefully planned and undertaken so that it does not result in a loss of character-defining spaces, features, and finishes.*

The 2000 edition of the Michigan Building Code (MBC), incorporating the 2000 Edition of the International Building Code, has been consulted to relate building code requirements to existing circumstances in Fort Wayne.

This has been designated as the state building code by 1999 Amendments to the Michigan Construction Code Act of 1972. Also Consulted has been the Life Safety Code issued by the National Fire Protection Association (NFPA).

Buildings on this site belong to the City of Detroit. The city's Department of Buildings and Safety Engineering is responsible for enforcing public safety with respect to these buildings. It is the responsibility of design professional who designs the improvements to the buildings on the site to meet the requirements of the codes. The Department of Buildings and Safety Engineering should be satisfied that as much as possible is being done to assure that this City property is as up to code as would be required for any private property.

A totally comprehensive code search for all buildings on the Fort Wayne site could result in a detailed report as extensive as this regarding the building's preservation. Furthermore, it would depend on many individual design details that cannot be known at the Master Plan phase. Ultimately, the design professional that designs the rehabilitations and restorations described within this report must evaluate each building individually with respect to the details of that building's design, to determine compliance with the applicable codes. Therefore, only a review of code requirements that could have a major impact is presented in this Master Plan.

Scope - The provisions of the code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Existing Structures - Chapter 34 - Existing Buildings of MBC governs work on existing buildings undergoing a change in occupancy or additions, alterations, or repairs. Generally, MBC requires that an existing building converted from one use to another be brought into compliance with current code requirements for new buildings. Furthermore, any additions, alterations, or repairs to existing buildings must comply with the requirements for new buildings. Portions of existing buildings that are not experiencing a change in occupancy and not being altered are not required to comply with requirements for new buildings.

MBC recognizes it is difficult and sometimes impossible to bring very old buildings into full compliance with code requirements for new buildings, and therefore it has provide Section 3409 - Compliance Alternatives, which provides a means of evaluating existing buildings and changes being made to them based on a numerical scoring system involving a various safety issues and the degree of compliance achieved for each issue. MBC further recognizes that historic buildings are especially difficult to bring into compliance with current code requirements without irreparably damaging their essential historic character and features. Therefore the code provides further latitude in code interpretation for historic buildings in Section 3406 - Historic Buildings, which gives the code official broad latitude to interpret the applicability of the code and provide relief, with the fundamental criterion being that the building must not, in the judgment of the code enforcement official "…constitute a distinct life safety hazard."

In the case, of Fort Wayne, the salient facts defining code compliance are:

- Many of the buildings will undergo a change of use, most notably several residential structures are proposed to be converted to office use, and therefore must conform to current code requirements.
- Many buildings will undergo alterations and repairs to their interior spaces, and such areas must comply with current codes.
- However, many buildings are of such an age that they will qualify for the Compliance Alternatives set

forth in Section 3409 - Compliance Alternatives, that may offer relief from some code requirements, and…

- As a site listed in the National Register of Historic Places, all Fort Wayne buildings meet the code definition of historic buildings, and therefore qualify for further broad code official treatment in determining code compliance set forth in Section 3406 - Historic Buildings.

Therefore it is recommended that the design professional developing plans for the restoration and rehabilitation work described in this Master Plan, approach the projects based on the fact that all buildings qualify as historic, and therefore are eligible for the code official's interpretation of the applicability of the code set forth in Section 3406 - Historic Buildings, and should plan to work with the code official early in the design process to negotiate code compliance. Furthermore, in developing plans and code compliance approaches, the design professional should utilize the numerical scoring approach Set forth in Section 3409 to evaluate their level of compliance, for all Fort Wayne buildings, and use those evaluations to assist in negotiations with the building official.
Review and Approval - Prior to commencing construction, all work proposed in the Fort Wayne must be reviewed and approved by the staff of the Detroit Department of Buildings and Safety Engineering.

Modifications - Typically, wherever there are practical difficulties involved in carrying out the provisions of this code, the building official has the authority to grant modifications for individual cases through a formal variance process. The building official must first find that special reasons makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that the modification proposed does not lessen health, accessibility, life and fire safety, or structural requirements. However in the case of Fort Wayne, since the it is recommended that code compliance be determined through the Section 3409 scoring process, and since Section 3406 grants the building official the latitude to determine compliance, a formal variance procedure may not be required. It is recommended that this be confirmed with the building official at the beginning of the design process.

Code Deficiencies: A full code survey and analysis for each individual building is beyond the scope of this Master Plan. However the buildings have been evaluated to identify major code issues, and issues that are common throughout the site.

Existing residential structures generally are compliant with current code requirements, with the following exceptions:

- Electrical and mechanical systems are non-compliant.
- Stair tread and riser relationships are not compliant.
- Smoke detection systems are not provided.
- Tenant separation wall fire ratings are unknown, and may require upgrading.

Non-residential structures have more notable deficiencies. The most common are:

- Lack of enclosed and fire-rated exit stairways and corridors.
- Travel distance to exits in large buildings is too long.
- Lack of fire alarm and detection systems.
- HVAC systems are inadequate.
- Electrical Systems are inadequate.
- Emergency lighting is inadequate.
- Exit lights are not provided.
- Sprinkler systems are not provided.

Additional issues that cannot be determined at the Master Plan phase related to tenant separations are dependent upon the final design of improvements for specific occupants, and how buildings are divided to accommodate multiple tenants. In such cases separations between tenants may require upgrading, and access to exits will have to be evaluated by the design professional that prepares final plans for rehabilitations.
Buildings being converted from residential to office use present special challenges with respect to means of egress. Office use buildings greater than one story require two fully enclosed exits. Although the large residential units such as Buildings 102, 103, 104, 114 and 117 have two interior stairways, they are not enclosed, do not meet the current rise and run relationships, and typically at least one does not provide direct access to the exterior, and cannot be easily adapted to do so. Furthermore, one of the two stairs in these buildings was typically an open stair with architectural and historic character that would be lost if they were to be enclosed and/or modified to meet modern tread and riser code requirements. For these buildings, the numerical scoring system in MBC Section 3409 - Compliance Alternatives may provide relief. The scoring system permits some deficiencies to remain if other items are upgraded, and if the building meets the required score for that building type. This requires trial and error testing of the level of compliance and possible improvements related to the various safety parameters evaluated in the section, based on the specific plans for rehabilitation of that building. It is possible that scoring credits yielded by other readily achievable improvements may offset the inadequate stairs and exits. Final solutions will require review by the Department of Buildings and Safety Engineering.

Fire Protection System Under code requirements for new buildings, sprinkler systems are required for Assembly occupancies (buildings 117 partial, 302, 303, 305, 312, and 314); and Education (building 311). Mercantile occupancies (building 222) require sprinklers only if the fire area exceeds 12,000 square feet; building 222 does not exceed this area, so sprinklers are not required. Sprinklers are not required in duplex residential units MBC also does not require sprinklers in business offices. However the addition of sprinklers to existing buildings is considered a major life safety benefit, and as such yield significant scoring credits under Section 3409 - Compliance Alternatives. Although the impact of sprinklers on the overall score must be evaluated on a building-by- building basis considering the details of the final rehabilitation plans, it is recommended that sprinkler systems be considered in business office buildings as a means of offsetting other deficiencies such as inadequate stairs and exits. Installation of sprinkler systems also have the additional benefit of protecting the valuable historical building fabric and reducing insurance

Accessibility
The Secretary of the Interior's guidelines for Accessibility states:

Identify the historic building's character-defining spaces, features, and finishes so that accessibility code-required work would not result in their damage or loss. Comply with barrier-free access requirements, in such a manner that character defining spaces, features, and finishes are preserved. Work with local disability groups, access specialists, and historic preservation specialists to determine the most appropriate solution to access problems. Provide barrier-free access that promotes independence for the disabled person to the highest degree practicable, while preserving significant historic features. Design new or additional means of access that are compatible with the historic building and its setting.

At the time that the Fort Wayne buildings were constructed, buildings were not designed to be readily accessible for people with disabilities. As awareness of the needs of disabled individuals has increased, codes have been adopted, and have evolved from primarily addressing the needs of wheelchair-bound persons, to making provisions for a broader range of disabilities. Current regulations address mobility impairments (e.g. leg braces), severe strength limitations, limited use of hands, various degrees of vision and hearing impairment, paralysis,

and loss of sense of touch. In recent years, there has been increased emphasis placed on preserving historically significant properties, and on making these properties - and the activities within them - more accessible to people with disabilities.

There are three sets of regulations that define accessibility to the buildings at Fort Wayne:

- Americans with Disabilities Act (ADA) Title I (1990)
- ADA Title III, and its Accessibility Guidelines (ADAAG) (1990)
- Michigan Building Code (MBC), and supporting technical documents (2000).

ADA Title I prohibits discrimination in employment practices against individuals with disabilities. Unlike Title III (below), there are no comprehensive architectural guidelines defining specific design parameters that must be followed to meet the requirements of this Title. However, the U.S. Department of Justice and U.S. Equal Employment Opportunity Commission have published handbooks with general guidelines applying to Title I. Since Compliance with Title I involves owner employment policy and practices, as well as physical aspects of the building environments. ADA Title I is civil rights legislation, which prohibits employment discrimination against individuals with disabilities, it is enforced only by lawsuit.

ADA Title III prohibits discrimination against individuals with disabilities using public accommodations, as opposed to those employed in facilities, as in Title I. Unlike Title I, Title III is supported by the Americans with Disabilities Act Design Guidelines (ADAAG) which are published by the U. S. Government and which set comprehensive detailed technical requirements for accessibility to places of public accommodation and commercial facilities. These guidelines are to be applied during the design, construction, and alteration of buildings. Like Title I, it prohibits discrimination against individuals with disabilities, and is enforced only by lawsuit. The guidelines must be followed by all designers, owners, and building operators.

Although it reads very much like a "code," unlike other building codes, there is no enforcement official or body to review plans, and determine whether projects are in compliance with ADAAG. Furthermore, there is no means to appeal the provisions of ADAAG. ADAAG contains certain provisions for existing buildings, and further relief for historic buildings, however in order to qualify for those provisions, certain rulings from the Michigan State Historic Preservation Officer may be required.

MBC, by contrast, is a code, which contains detailed requirements for accessibility to buildings in Michigan. MBC applies throughout the State to all new or altered buildings. It largely, but not completely, parallels requirements contained in ADAAG. MBC contains some special provisions for historic buildings. Unlike ADA, the building official having jurisdiction over the building in question enforces MBC. In the case of the Fort Wayne, enforcement is by the City of Detroit Department of Buildings and Safety Engineering. The building official reviews plans as part of the building permit application process, and determines if they are in compliance with MBC. Projects not in compliance must be redesigned, or can be appealed to the State of Michigan Barrier Free Design Board (there is no local-level appeal for relief from barrier-free ode requirements). MBC includes special provisions for historic buildings.

The analysis is presented in this report combines deficiencies from all applicable accessibility regulations. A totally accessibility for all buildings on the Fort Wayne site is beyond the scope of this Master Plan. Furthermore, it would depend on many individual design details that cannot be known at the Master Plan phase. Ultimately, the design professional that designs the rehabilitations and restorations described within this report

must evaluate each building individually with respect to the details of that building's design, to determine accessibility requirements. However it is possible to identify common deficiencies that are found in most buildings, and those that could have a major impact on design.

Accessibility Deficiencies

Based on a strict reading of the applicable codes and guidelines, the most common and significant architectural deficiencies are summarized below:

- There is no accessible route to many buildings.
- Most buildings lack accessible entrances. The first floor of the many buildings are over 36" above exterior grade. Only two have ramp access. All others are accessible only by stairs.
- Interior door and openings widths lack required 32" clear width.
- Doors lack lever operated door latches.
- Doors lack required latch side floor clearances and clear approach space.
- Doors swing into circulation paths.
- Stairways are steeper than that permitted by regulations.
- Stairs have non-compliant nosing configurations.
- There is no accessible route through many buildings.
- There is no accessible route to the upper floors in any of the buildings.
- Handrail shapes and heights are not compliant.
- Building signage is not compliant.
- Toilet room sizes and arrangements are inadequate

Recommendations:

There are two primary considerations related to accessibility in the preservation of the Fort Wayne. The first is to provide facilities to serve the uses proposed for the rehabilitated buildings. The second is to protect the City of Detroit from actions relating to noncompliance with the requirements of ADA. Although there are some differences between the requirements of the ADA Act and the accessibility requirements of MBC, when considered together the following general concepts cover requirements of both. While it is not possible to anticipate accessibility issues that may arise in designing each individual tenant space at Fort Wayne, the following recommendations can be made to address common and major issues:

Access to Building Entrances: Regardless of what work is done to the interiors of the buildings, the most obvious accessibility deficiency at Fort Wayne is the lack of access to building entrances, which are not at grade at most buildings. Access can be gained by installing mechanical lifts, or ramps. Each has its drawbacks: Lifts are expensive mechanical devices subject to the effects of weather. The City of Detroit Elevator Code governs lift installation, and requires that lifts be enclosed to protect them from weather, thus making an unsympathetic impact on the historic architectural character of buildings. Ramps take up considerable amounts of space, and can also be visually obtrusive. However, due to the expense, maintenance issues and appearance of lifts, it is recommended that ramps be utilized to provide first floor access to Fort Wayne buildings.

Access to Upper Floors of Multi Floor Buildings: On the surface, it would appear that lack of access to the upper floors of all Fort Wayne buildings is serious deficiency at Fort Wayne, and could result in widespread installation of elevators throughout the project. However this is not the case. Accessibility regulations only require access to upper floors if the area of the that individual floor is greater than 3000 square feet. The only

buildings on the site with individual upper level floor areas that exceed 3000 square feet are the Hospital (209), Enlisted Mens' Barracks (311 and 314), and Old Barracks (507). Since at this time the Hospital will be preserved as a ruin, elevators will be required only at buildings 311, 314, and 507. It should be noted that individual tenant needs may require accessibility to upper floors, however that cannot be anticipated here. It should also be noted that the provision of accessibility to upper levels can enhance leasability of buildings, and so it may be desirable to add such access for some smaller buildings. This is a decision that an be made at the time of implementing rehabilitation for specific buildings. It should be noted that full elevators may not be required, and instead, limited use lifting units may be permissible, at considerably lower cost.

It appears at this time that elevators can be installed in the buildings where they are required without compromising the historic character of the buildings, although special care must be taken in locating an elevator in the Old Barracks (507) due to the unique historic character of that building.

Other Accessibility Issues: As defined by the applicable regulations, rehabilitation work at Fort Wayne involves alterations to the existing building, and changes of occupancy.
Consequently, as with building code requirements, any altered or newly constructed elements must comply with accessibility regulations for new buildings. In such case the following anticipated or altered elements would need to be made accessible:

- Any new doors and openings, including those reconstructed to match those originally present in the building.
- Altered routes through buildings
- New toilet rooms

Also as with building code requirements, changes in occupancy would necessitate compliance with new building accessibility requirements. As such, the Accessibility Deficiencies noted previously would have to be corrected. However it should be noted that such changes to existing buildings are required unless they are technically infeasible. Many changes, such as changing existing stair slopes and providing adequate latch side door clearances are technically infeasible, because they could not be achieved without major changes to the building's structure. It will be the responsibility of the design professional to determine on an individual basis to what extent specific required upgrades are technically infeasible.

In addition, both ADA and MBC include provisions for historic buildings that state that if full compliance with accessibility requirements threatens or destroys the historic significance of the building, as determined by the Michigan State Historic Preservation Office (SHPO), alternative minimum requirements for historic buildings may be applied. These requirements are as follows:

- Minimum of one accessible route from a site arrival point to an accessible entrance.
- 1:6 slope ramps are permissible for runs of 24" or less at exterior routes.
- If toilets are provided, at least one should be accessible
- Minimum of one main entrance should be made accessible, or if it is not possible to make a main entrance accessible, secondary entrance, which is unlocked during occupancy, can be made accessible.
- An accessible route from an accessible entrance to all publicly used spaces on at least the level of accessible entry. Access to other level need be provided only "where practical."
- 1:8 slope ramps are permissible for runs of 24" or less at interior routes.
- Displays, written exhibits must be located in accordance with ADA requirements.

For residential occupancies, MBC generally requires two types of accessible residential units: Type A dwelling units (fully wheelchair accessible) and Type B dwelling units (partially accessible, but not wheelchair accessible). At Fort Wayne, units to be occupied as residential occupancies, the requirements for R-3 (2 family units) occupancy without elevator service state that all units must be at least Type B. Because this site will not have more than twenty residential units (eighteen will be provided per this Master Plan), no Type A units need to be provided. Type B units require that:

- Entrances must be accessible.
- One accessible route must connect all spaces.
- Reinforcement must be provided to accommodate future grab bar installation.
- Toilet rooms must have adequate maneuvering space in front of water closets and lavatories.
- Kitchens must have adequate maneuvering space.

As with other code requirements the need to comply with these requirements is necessitated by either a change of occupancy or alteration to spaces. At Fort Wayne, the residential units are not undergoing a change of occupancy, so that criterion does not apply. However, the buildings may be considered as being altered, and therefore these requirements would apply. The requirements above can be met in the residential buildings at Fort Wayne, although some wall relocation will be required to provide adequate bathroom sizes. It should again be noted that there are technical infeasibility provisions in the code that recognize that certain changes my not be achievable in some existing buildings. Negotiation with building officials is recommended to evaluate such limitations on a case-by-case basis.

Although most of the features of the Star Fort are at grade, it has some accessibility deficiencies. Many of the features, such as the powder magazines, tops of embankments, and Sally Ports are partially accessible. These features may be able to be approached by a disabled individual, however approach may be difficult because elements such as clear space or ramp slope may not meet the exact requirements of the code. Modifications to some of these elements cannot be made without compromising the historic character of the fort (SHPO ruling required), and in some cases are technically infeasible. ADAAG and MBC permit such non-compliant elements to remain unmodified in such cases. If such elements are left as non-compliant as permitted by of the exceptions stated above, the following specific issues would remain:

- Approach to the Star Fort Powder Magazine is restricted due to the width of the narrow approach between two stone walls. However it appears that a disabled individual may still be able to negotiate the passageway with difficulty or with assistance.
- Wheelchair access to the six casemates entered from the top of the embankments is not possible, due to presence and length of stairs. However two postern casemates provide an equivalent and more accessible experience for the disabled visitor.
- Wheelchair access to the two casemates entered from the posterns is not possible, due to presence of stairs. However, a wheelchair -bound visitor could approach the stairs and look in. It is possible to build a wood ramp to provide access to one of those spaces.
- Access to the tops of the embankments and the cannon emplacements is restricted due to the steepness of the existing ramps. However a disabled individual may be able to reach those locations with difficulty or assistance. The addition of a handrail may partially mitigate this deficiency. Lengthening the ramp is not feasible because it would have to be over 240 feet in length, thus extending far into the parade ground.

- Sally Port and Postern doors are not accessible due to the force required to operate them. However it is unlikely that the Sally Port doors would have to be operated by a visitor in the course of a tour, and it is expected that they would in fact remain locked, unless operated by a docent. Postern doors should be left open at all times when visitor access to that space is permitted.

Obviously, full accessibility at a historical building is the best protection against legal action, however at this time it appears that full compliance with the letter of accessibility regulations for new buildings can be achieved at Fort Wayne. Although it does not appear to be necessary at this time, it may be possible that at a later date the development of details for rehabilitation of the buildings may encounter situations where complete accessibility to all areas of some of the buildings required by regulations to be accessible may not be possible. If that situation exists, three steps should be taken. First, it must be demonstrated how providing physical accessibility would negatively affect the historical significance of the building. Second, any detrimental impact should be discussed with the State Historic Preservation Officer (SHPO). When the SHPO agrees that complete accessibility would have a detrimental impact, it may be permissible to use minimum standards described above. Third, an exception from the Michigan Barrier Free Design Board may be required.

Note that accessibility requirements covered in this the Building Treatments section pertain only to the Fort Wayne buildings themselves. Recommendations for accessible parking are included elsewhere in the report.

INTERIOR

The interiors of the buildings at Fort Wayne have been the subject of an inventory, and have been photographed. Room arrangement, materials, architectural features and finishes have been recorded at buildings representative of each building type (one building for each building type was investigated). This includes present conditions, as well as the replacement of/or changes to original construction. Recommendations have also been developed.

The concerns regarding the interior of a historic building are the integrity of existing spaces, features, and finishes with respect to original conditions. The Secretary of the Interior discusses historic interiors as follows…

> *…an interior floor plan, the arrangement of spaces, built-in features, and applied finishes may be individually or collectively important in defining the historic character of the building. Thus, their identification, retention, protection, and repair should be given prime consideration in every historic preservation project and caution exercised in pursuing any plan that would radically change character-defining spaces or obscure, damage or destroy interior features or finishes…*

Interior Spaces

The Secretary of the Interior's guidelines for interior spaces recommends…

> *…identifying, retaining, and preserving a floor plan or interior spaces that are important in defining the overall historic character of the building. This includes the size, configuration, proportion, and relationship of rooms and corridors; the relationship of features to spaces; and the spaces themselves such as entrance halls, double parlors....*

Fort Wayne is composed of 38 historic structures plus the star fort. The distribution of these is as follows:

Building Category	Quantity
Warehouses	
General	2
Archives/Artifacts	1
Total	**3**
Residential	
Single Family	1
Duplex	19
Triplex	1
Barracks	2
Total	**23**
Maintenance/Storage	
Maintenance Headquarters	1
Maintenance Storage	1
Miscellaneous Storage	1
Total	**3**

Building Category	Quantity
Museums (active or intact)	
Old Guard House	1
Stone Barracks	1
CO House (not in inventory)	
Total	**2**
Miscellaneous	
New Guard House	1
Theater	1
Visitor's Center	1
Total	**3**
Collapse	1
Not Inventoried	
CO House	1
Post Headquarters	1
Tuskegee Airmen's Museum	1
Total	**3**
Grand Total	**38**

Integrity of Existing Spaces

The original interiors are essentially intact in 32 of these buildings. The 6 that have been changed and the degree of alteration is as follows:

2C Warehouse – Original warehouse space has been improved to house archives and artifacts. These changes were not accomplished in accordance with the SOI's Standards.

109 Single Family – Original spaces have been altered in a minor way and an addition constructed to serve the fort as an Officer's Club. These changes can be considered to have gained their own significance and restoration of the original is not necessary.

114 Triplex – Original spaces have been altered to expand residential capacity. These changes were not accomplished in accordance with the SOI's Standards. However, original spaces are easily restorable.

117 Duplex – Original spaces have been altered to convert the building to a museum. Display cases are intact but interpretation has been removed. These changes were not accomplished in accordance with the SOI's Standards. However, original spaces are easily restorable.

209 Hospital – Collapsed. The alternatives of reconstruction, stabilization as a ruin, or total re-

moval must be considered. According to the SOI's Standards, reconstruction would be an approved treatment for the hospital.

314 Enlisted Men's Barracks – Original spaces in the south half of the building have been altered. These changes were not accomplished in accordance with the SOI's Standards. However, changes are minor and original spaces are restorable.

Proposed Adaptive Uses

Of the new adaptive uses proposed, only a few would require major changes to interior spaces that define the original overall character of the buildings. In these cases the interior changes will offer a new activity for the building that returns it to active and productive use and therefore assure its preservation. However, in this process the exteriors can be authentically restored to enhance their visual role as part of Fort Wayne's overall character.

Proposed Use	**Quantity**	**Extent of Change**
Office (102-109, 111,112, 114)	11	Original room arrangement can serve for office use with onlyminor changes. Bathroom changes are either unnecessary or minor.
Exhibit Center/Office (209)	1	This building had been previously remodeled as a museum, and those changes can remain and accommodate an exhibit center use, or as a one or two tenant office.
Residential - two units each (210-219)	10	Original room arrangement can serve for office use with onlyminor changes. Bathroom changes are either unnecessary or minor. If used for residential use, since these buildings were historically used as residences, reuse as such is consistent with the SOI's Standards preference that historic buildings continue their historic use. The buildings can be easily adapted to modern residential needs. *(Note: Building 210 was not inventoried as part of this report).*
Interactive Museums (2A, 2B, 2C)	3	These buildings are either completely or for the most part open. This new use can easily be integrated into these buildings without adversely impacting original spatial qualities.
Site Maintenance (201)	1	Only the upgrading of original spaces will be necessary to retain this continuing use.

Office/Studio/Training Facility (202, 207)	1	Little of building 202's interior historic material remains. It can easily accommodate conversion to a new use without compromising its historic exterior. Building 207 has already been upgraded for educational use, and little work is required to accommodate the proposed use. *(Note: Building 207 was not inventoried as part of this report).*
Museum (109, 205)	2	Because these buildings have already been authentically restored, and already function as a historical exhibits, they can continue as such. No changes to interior spaces should be made. Secondary spaces can accommodate support functions such as toilet rooms and mechanical equipment. *(note: Building 109 was not inventoried as part of this report).*
Museum Storage (209)	1	Major reconstruction is required for this building to accommodate any use, however it is architecturally and historically significant, so its retention is encouraged. Existing interior historic fabric is largely collapsed, so modern interior storage space could be created within the existing shell. Alternatively, the building could be used as office space, however such use would involve more costly construction.
Antique Emporium (222)	1	This space can accommodate the intended use without adversely impacting the historic character of the interior space. Some secondary spaces will require modification to accommodate support functions such as toilet rooms and mechanical equipment.
Visitor's Center (302)	1	This building could easily be adapted for this use without changing interior spatial arrangement.
Performance Theater (303)	1	Return to original use.
Charter School (311)	1	This building consists of large interior spaces that can be adapted to the intended use without compromising the character defining features of the interior. Entry stairways should be preserved.
Meeting/Conference/Dining (312)	1	This building consists of large interior spaces that can be adapted to the intended use without compromising the character defining features of the interior. It already contains spaces of the size and function required for the intended use.

Hostelry/Dormitory/Hospitality (314)	1	These uses would require the most change to original spatial arrangements. However, major portions of these buildings are spaces where changes could be made that could be removed at a later date without jeopardizing original spatial qualities.
Museum/Hospitality/Toilets (507)	1	Museum use would not require major spatial change. Sensitive museum interpretive design can be integrated with original spaces to create a very successful museum. Hospitality would be provided in the third floor and attic. Extensive rehabilitation would be required, however can be achieved while still preserving the historic character of the space. A toilet facility to serve public events within and outside the building can be accommodated within the first floor of the building.
Demolition (Warehouse 1)	1	Collapsed. *(Note: Warehouse 1 was not inventoried as part of this report).*

Interior Materials and Features

The concern regarding interior features is covered by the Secretary of the Interior by stipulating the importance of…

> *…identifying, retaining, and preserving interior features that are important in defining the overall historic character of the building, including columns, cornices, baseboards, plaster, fireplaces and mantels, paneling, light fixtures, hardware, and flooring…*

The Secretary of the Interior's guidelines provide direction on actions that must take place in most historic buildings to achieve appropriate quality interior historic preservation. In one way or another, most of these pertain to Fort Wayne.

- Repairing interior features and finishes by reinforcing the historic materials. Repair will also generally include the limited replacement in kind - or with compatible substitute material - of those extensively deteriorated or missing parts of repeated features when there are surviving prototypes such as stairs, balustrades, wood paneling, columns, decorative wall coverings, or ornamental tin or plaster ceilings.

- Removing damaged or deteriorated paints and finishes to the next sound layer using the gentlest method possible, then repainting or refinishing using compatible paint or other coating systems. Repainting with colors that are appropriate to the historic building.

- Replacing in kind an entire interior feature or finish that is too deteriorated to repair - if the overall form and detailing are still evident - using the physical evidence to guide the new work. Examples could include wainscoting, a tin ceiling, or interior stairs. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

- Designing and installing a new interior feature or finish if the historic feature or finish is completely missing. This could include missing partitions, stairs, elevators, lighting fixtures, and wall coverings; or even entire rooms if all historic spaces, features, and finishes are missing or have been destroyed by inappropriate "renovations". The design may be a restoration based on historical, pictorial, or physical documentation; or be a new design that is compatible with the historic character of the building.

- Accommodating service functions such as bathrooms, mechanical equipment, and office machines required by the building's new use in secondary spaces such as first floor service areas or on upper floors.

- Reusing decorative material or features that have had to be removed during the rehabilitation work including wall and baseboard trim, door moldings, paneled doors, and simple wainscoting; and relocating such material or features in areas appropriate to their historic placement.

- Placing new code-required stairways or elevators in secondary and service areas of the historic building.

Plaster

Plaster was used to finish interior walls and ceilings in all buildings inventoried at Fort Wayne. A versatile material, plaster could be applied over a variety of bases and provide a durable surface that was easy to cover with a variety of finish materials. At Fort Wayne it was almost always painted in a flat non-decorative fashion.

Plaster in Good Condition

All plastering was undertaken with either two or three coat work. The two-coat application was used for basement ceilings and other similar locations. This consisted of a rough and finished coat of cement plaster, the rough coat contained hair to secure a bond to the surface to which it was applied. The finished coat was troweled to a smooth sand finish. The three-coat process was used for all other plaster surfaces. This had a base coat composed of pure lime, clean sharp sand, and animal hair. This mortar was usually stacked three days before using and then thoroughly scratched over all surfaces. The other two coats were a brown coat floated to an even surface and finally a white coat composed of lime putty and calcined plaster or marble dust trowelled to a "gloss" surface.

In general the plaster in all of the fort buildings has held up exceptionally well. In some cases where a lack of maintenance has allowed the intrusion of moisture, plaster has still maintained its integrity. In other cases where weather has accelerated deterioration, plaster has lost its bond with the substrate which was either wood lath for the mid 19th century Stone Officer's Barracks, or expanded metal lath in the later 19th century buildings.

Deteriorated Plaster on Wood Lath

Peeling Paint

Metal lath did not start to be used extensively in the United States until toward the end of the 19th century. Therefore, since most of the other 19th century buildings were built in the century's last decade, the use of wood lath was expected. It has been reported that almost all of the fort buildings were stripped of original plaster and replastered by the WPA in the 1930's. This would explain the existence of the metal lath that was exposed in every building in areas of extensive plaster damage.

Plaster damage should be treated in the following manners:

Peeling Paint – The major visual damage that can be seen in almost every building is extensive peeling paint. This is the result of the buildings not being maintained or heated during the winter season for many years. This usually looks worse than it is. In most cases the plaster is completely sound underneath. It must be scraped, cleaned, sanded and feathered. In some cases spackling and sanding will be required.

Filling cracks – Hairline cracks are not a cause for serious concern as long as the underlying plaster is in good condition. They may be easily filled with a good patching material. For larger cracks, a sharp pointed tool should be used to widen the crack before filling the crack. For more persistent cracks, a fiberglass tape should be pressed into the patching material while it is still wet. After it dries a second coat should be applied over the tape feathering it at the edges. A light sanding and cleaning with a damp sponge follows this.

Small Holes (less than 4' in diameter) – First a layer of base coat should be troweled in place and scraped back

below the level of the adjacent sound plaster. When this has set, but not dried, finish plaster should be applied to achieve a smooth level surface.

Extensive Plaster Deterioration and Collapse – Clean out the loose plaster and re-nail the lath. Then plaster should be applied in three coats lapping each layer of new plaster over the existing so that the old and the new are evenly joined.

Extensive Deterioration and Collapse

Woodwork

Wood features in the Fort Wayne buildings include door and window casings, base, picture rail, stairs, stair railings, wainscots and wainscot caps, fireplace mantels, and some cabinet work.

All wood features were probably clear white or yellow pine, seasoned, and smoothly dressed. All were secured with finishing nails and all nails set. All finished material placed against outside walls probably received a coat of backpainting before being placed in position.

Fireplace Mantel

Dining Room Cabinets

Entire Railing Missing

Balusters Missing

Stairs were also pine or hardwood with treads and risers 7/8" thick and tread nosings molded. The railings consisted of a newel, handrail, and balusters, rails secured to the balusters. The basic stairways are all in place, but some railings are either missing some balusters or the entire railing is missing.

It appears that in all of the 19th century buildings, all of the original woodwork was removed and replaced with a very simple detail at the same time the plaster was replaced by the WPA in the 1930's. Research during the recent restoration of the Commanding Officer's Residence (110) provided information about the original woodwork details, which were much more true to typical 19th century detail.

1930's Remodeled Door Casing

The condition and quality of the woodwork in all of the buildings that have been unoccupied and unheated for many years varies considerably. In areas that have been protected from the exterior elements most of the deterio-

ration is simple paint delamination. However, in areas that have been exposed, considerable deterioration is present. Treatment should involve those noted on the following page.

Sound Condition – Woodwork on which the finish is sound and only minor abrasions are evident should be cleaned and all fastening checked and re-secured if necessary. Abrasions should be repaired with filler and sanded smooth. Such woodwork should then be prepared for a completely new finish.

Poor Condition – Woodwork on which the finish is peeling and there are major abrasions should be removed from its location and repaired in a woodworking mill. This way firm control can be applied to the quality of the work and where completely new material is required, such can be milled to precisely match original detail. Paint should also be removed in such a controlled situation and base coats applied before reinstallation.

Total Deterioration – Woodwork that is rotting or completely unsound because of exposure to weather must be totally replaced. Replacement material must be milled in a woodworking mill and match the existing detail exactly.

1930's Base

Wood Finishes

In all of the buildings in Fort Wayne, all plaster and wood surfaces were painted except for front stairway railings.

Damaged paints and finishes should be removed to the next sound layer using the gentlest means possible, then repainted and refinished using compatible paint or other coating system based on historical documentation. Repaint with colors that are appropriate to the historic buildings.

All other painted surfaces should be cleaned and repainted with two coats. Surfaces on which existing surfaces are not damaged do not need to have existing paint removed. On surfaces that have extensive peeling paint or the paint surface is friable, existing finish material must be totally removed. Note: This may contain lead and a specialty, hazardous materials abatement contractor may need to be retained to undertake removal.


Damaged Paint Finish

Front hall stair railings were the only wood surfaces that were stained on the 1930's replacement woodwork. Existing stained surfaces will probably not have lead involved in the finish so a specialty contractor may not be necessary. Stained surfaces to be refinished should be cleaned, varnish or shellac finish removed, and tinted stains applied to achieve a color as close to the original finish as possible. This finish should be sanded lightly with fine sandpaper between finish coats.

Stained Front Stair Railing

Doors

Many doors are in their original locations, but some have been relocated, and some are completely missing. All existing doors should be marked as to their location and removed completely. They should be taken to a wood working mill and repaired to assure that all joints are solid and surfaces are smooth with nicks, gouges, and splits filled. Some stiles have been virtually destroyed by vandalism in the forcible removal of hardware. In most cases these stiles must be removed and replaced with a new member milled to match the detail of the destroyed piece. The same is the situation with missing panels.

Damaged Five Panel Door (panels missing)

Intact Five Paneled Door (hardware missing)

Intact 15 Lite Glazed Doors

Damaged 15 Lite Glazed Door

All original doors that are missing must be replaced with a new mill made door replicated to match similar original doors. Where swings have been changed, such should remain as they exist now. However, all cuts and mortises for hardware in a former location, both in doors and frames, should be filled, sanded and finished to blend with adjacent surfaces. The swing of all in-swinging exterior doors must be reversed so they swing out as required by code for exit doors. This work must be accomplished in such a manner that there is no evidence of the change.

Original hardware that still exists and is functional should be removed, marked as to location, cleaned, made operational and stored for reinstallation. Inappropriate non-original hardware should be removed and replaced with new that matches original as closely as possible. Provide similar new hardware for replicated doors. Furnish appropriate lever handle doorknobs for all entrance door and other doors requiring access for the handicapped.

Floors

Floor material in the 38 buildings at Fort Wayne varies widely. Basements are generally concrete and upper floors are wood. Different types of wood were used depending on the use of the building and the time in which it was built. For instance, the primary floors in residential structures are hardwood while softer species was used in service buildings.

Wood Floor Needs Refinishing

All basements have cement concrete floors. The body of this is 3 ½" to 4" thick composed of cement and gravel. This was dressed with portland cement and clean sharp sand. Most floor areas are relatively small and as a result expansion and contraction joints were not installed. All floors are still in place and in average condition. With some minor patching they should serve well for storage purposes.

Wood

Most finished flooring is wood strip, approximately 2" wide in random lengths, applied over subfloor on structural framing. Wood flooring appears to be oak in some areas and maple in others. Wood floors are worn but generally serviceable, and in fair to good condition. However, in areas where floors have been exposed to the weather from roof leakage the flooring is buckled and rotted and will require replacement. Some flooring is very worn and requires replacement, however such deterioration is not extensive.

Wood Floor Adjacent to Asphalt Tile

Much wood flooring is exposed but there are extensive areas of non-original carpet, linoleum, and asphalt or vinyl asbestos tile covering. The linoleum in residential kitchens and pantries appears to be the oldest of these coverings and probably was installed during the 1930's remodeling. Although this can be considered to be a change that has gained significance on its own, it is in very poor condition.

All wood floors require extensive restorative treatment, no matter what type of building they are in. All floor covering including carpeting and linoleum should be removed exposing original material. Buckled, split and deteriorated flooring

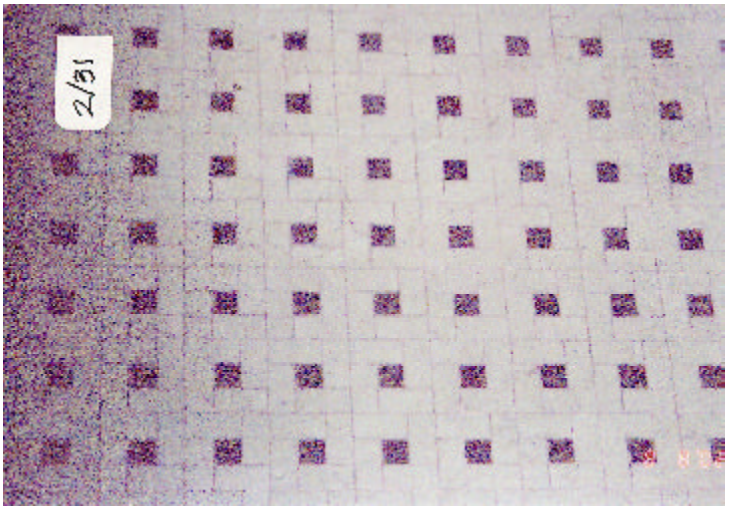
must be totally removed, including subfloor unless such has not suffered the deterioration of the finish floor. New material matching adjacent wood flooring as closely as possible must be installed. Then all wood flooring should be sanded and refinished. It is recommended that kitchen and pantries be re-floored with linoleum replicated to match original as closely as possible. Depending on the adaptive use proposed, area carpets or wall to wall carpeting can be installed. These floor coverings are completely reversible and can be removed exposing original finished floor at any time in the future.

1930's Linoleum

Bathrooms and rest rooms throughout the fort appear to have been remodeled in the 1930's or later. Most floor are ceramic

tile of that vintage. Most of this along with ceramic tile wainscots are in excellent condition, with the exception of ceramic accessories in some cases. Restorative treatment should include replacing the accessories and thoroughly cleaning the tile. Any joints that evidence a loss of grout should be regrouted. This material is of such good quality that this simple process should suffice to achieve a completely restored condition.

Main entrance vestibules in most residential buildings were also altered in the WPA 1930's remodeling period. In some lavatories were added and in almost all, original floors were replaced with quarry tile. Also a ceramic rile wainscot was installed. Almost all of these are in excellent condition. Restoration treatment should be the same as for bathrooms described above.



Bathroom Ceramic Tile Floor

Bathroom Ceramic Tile Wainscot

1930's Vestibule Quarry Tile Floor and Ceramic Tile Wainscot

Interior Lighting

Some interior lighting fixtures remain, however it is believed that many are not functional or do not meet current safety standards. Since the recommended approach for most building interiors is *rehabilitation,* it is acknowledged that compatible and sensitive changes must be made to accommodate new uses. Continued use of existing lighting fixtures, or merely replacing existing fixtures in kind may be adequate, and is recommended for buildings with residential uses, but may not provide adequate lighting levels in buildings to be converted to office use. Where higher lighting levels are required, consideration should be given to provision of new compatibly design fixtures with higher wattage bulbs, or high intensity bulbs types. In addition, or alternatively, lighting levels can be supplemented with task lights at work stations, and floor-mounted up-lights to increase ambient lighting levels. In general, use of large installations of suspended ceilings and lay-in 2' x 4' fluorescent fixtures is not recommended. However, the final approach to lighting in large non-residential buildings is dependent upon the extent of remaining interior historic character in the buildings, and the degree of interior spatial changes required. For example, in buildings such as 311 and 314, historical lighting may be utilized in public spaces such as entries and stairways, while other spaces new spaces created within the building may receive a more contemporary lighting treatment.

HAZARDOUS MATERIALS

Asbestos Background

Asbestos mineral fibers were used in many building materials beginning in the late 1800s. The fine, strong, fire-and chemical-proof fibers were used in the building industry to strengthen materials, provide fire resistance, provide insulation, (especially in high temperature environments,) and to provide long life to building materials and products. By the late 1970s it had been determined that when inhaled, airborne asbestos fibers penetrate body tissue in the lungs, remained in the body and increased the risk of contracting several serious lung diseases. Illnesses cause by asbestos my not be observed for twenty years or more after exposure to the material. As a result, today asbestos is no longer used as a constituent in building products and materials, and has been classified as a human carcinogen by state, federal, and international agencies. All types of asbestos are considered to be hazardous when in a "friable" state (crumbly, powdery and subject to inhalation.)

Building materials that may contain asbestos include, but are not limited to:

- Pipe insulation
- Heat-resistant insulators
- Mechanical equipment insulation
- Plaster
- Wallboard patching compounds
- Fire separation assemblies
- Floor tiles
- Adhesives
- Roofing felts and flashing
- Roofing Shingles
- Siding
- Cement products
- Electrical wiring insulation and isolation
- Duct coverings

Lead Paint Background

Prior to the late 1970s, lead pigment was a major component in oil-based paint materials because it contributed to superior hiding power, weathering, resistance to wear, and decreased drying times. Lead was rarely used as a component in Latex paints. Many buildings built before 1978, when lead-based paints were banned, contain lead paint. Buildings built before 1960 may contain paint with high concentrations of lead. Prior to the 1950s, nearly all paint was lead-based.

Lead poisoning is a disease caused by eating, drinking or inhaling lead. Although young children are primarily at risk, ingestion of lead by persons of any age can cause brain damage, mental retardation, behavior problems, anemia, liver and kidney damage, hearing loss, hyperactivity, developmental delays, other physical and mental problems, and in extreme cases, death. In children, even low levels can cause learning and behavioral problems. Lead paint is also a problem during building renovation operations, when paint is being scraped, stripped, or sawn, thereby putting lead-containing materials into the air, or into other forms where they could be ingested by workers.

Mold

Mold is evolving as a hazardous material, and there is considerable and growing evidence that it has impact on the health of individuals who occupy buildings where mold is present. Mold is associated with allergies, as well as other illnesses. Lawsuits against building owners have been instigated by individuals who believe that their health has been affected by mold in their homes or workplaces. Mold is the result of many factors, howeveer the key elements arethe presense of moisture in inadequately ventilated spaces or materials. Moisture can come from leakage, as well as condensation of moist air on cold surfaces. When it collects on or is absorbed into materials that cannot dry out adequately, conditions are created which are conducive to mold growth.

As part of this Master Plan, The Traverse Group conducted a peer review of a Phase I Environmental Site Assessment previously prepared by STS Consultants, dated November 11, 2001. The Traverse Group also conducted a breif inspection of the Fort Wayne site to confirm observation made in the earlier Phase I report, and to identify any other areas of environmental concern. The Traverse Group report is found in Section Six of the Master Plan. Within that report, are general observations regarding hazardous materials based on observations of representative buildings throughout the site. Although their breif inspection did not include any analysis of materials, The Traverse Group identified building elements that have the potential to contain hazardous materials and, as well as noted obvious visual indications of mold. Based on their observations, almost all buildings at Fort Wayne contain materials that may contain asbestos or lead, and specific occurances of mold. Refer to Section Six for additional information.

Conceptual cost estimates contained in this Master Plan assumed costs for abatement of hazardous materials. It should be noted that without a full assessment of hazardous materials in each buildng, such estimates are necessarily arbitrary, and assume an “average” amount of hazardous material abatement. In some cases, hazardous materials may be encapsulated rather than removed, thus impacting costs. Furthermore, there are many factors affecting the necessity of total removal of lead paint, including, but not limited to, location of material, condition, type of occupancy, type of wear anticipated on led paint surfaces, age of occupants. As rehabilitation work is implemented, complete testing of materials should be carried out, and a hazardous material plan should be developed.

RESTORATION PRIORITIES

Ideally, the most economical approach to the restoration of Fort Wayne would be to treat the entire complex as a single construction project. Clearly, however this approach is unlikely due to the magnitude of funding required to implement the needed restoration work. Since the capital costs of restoring the buildings on the site will come from lease revenues, and since such revenues will become available only as the buildings are leased, it is necessary to take a pragmatic approach to maintaining historic buildings at Fort Wayne.

Some of the fort's historic fabric has been lost for years and cannot be recovered. Other buildings such as Warehouse 1 (now collapsed) have been lost more recently because maintenance did not keep up with deterioration. Some others survive, but only barely: The Post Hospital (Building 209) is in a state of partial collapse that is progressing, but may be arrested if immediate action is taken. NCO residences 213 and 214 have experienced major roof failure, and are entering a condition where roof and masonry failure will begin to accelerate rapidly without further action. Other buildings with roof leaks and masonry problems may be only a few years away from starting major decline. Well intentioned temporary repairs have been undertaken at many locations, however such measures cannot keep up with the magnitude of deterioration that is occurring. So it is imperative that regardless of the rate at which leases are let, there are urgent restoration items that must be undertaken throughout the Fort Wayne complex.

It is the historic value and economic potential of the buildings at Fort Wayne that is the basis of the redevelopment set forth in this master plan. Consequently, emphasis should be given to taking immediate actions that will preserve the buildings that remain at Fort Wayne, not only because of their historical value, but also because of their potential value as viable useable and leasable buildings.

Top repair priorities should be as follows:

- Stop entry of water. The major threat to all buildings on the site is water penetration, which rots wood structure, causes masonry deterioration, destroys interior finishes, and promotes growth of mold. Actions required: Inventory and replace roofs, based on recommendations for individual buildings in this report. Replacement roofs should be considered long-term improvements, and not treated as stop-gap repairs. High quality materials should be used. Roof repair scope should include replacement of flashing, and permanent replacement of decking and roof structure where required.

- Stabilize threatened structures. In addition to replacing roofs, threatened structures should be stabilized to protect the public, as well as protect the historic resources. Major stabilization is required for the Post Hospital (Building 209), if there is any hope of reusing it in the future. Even if it is to be preserved as a ruin, some stabilization is required to make it safe and to reduce the rate of deterioration. NCO residences 213 and 214 need immediate attention where roof structure and masonry have failed. Dormers at Officers' Residences 102-104 also require repair and stabilization.

- Repair windows. Windows are another source of water penetration, and a comprehensive survey should be undertaken to determine which windows require restoration to protect the buildings. Window restoration should include thorough painting of exterior surfaces to arrest ongoing deterioration of wood sash, sills and frames.

- Assess and repair brick veneers. The rusting of lintels at Officers' residences 105-108 and 110-112 has displaced brick veneers extensively, causing cracks and shifting. This condition is alarming, and the deterioration is progressive. Continued existence of these conditions will allow more moisture into walls and exacerbate the deterioration, perhaps threatening the underlying wood frame structures. There is the potential for threats to public safety if shifted veneers begin to detach for the buildings. Priority should be given to detailed assessment of these conditions and execution of permanent repairs.

- Analyze Star Fort brick deterioration. As indicated on the Star Fort assessment pages further analysis is necessary to definitively determine causes and solutions for brick deterioration at the Star Fort, and address any drainage issues that may be related. The Star Fort is the centerpiece of the historic resources of Fort Wayne, and emphasis should be given to establishing a long-term preservation plan for it.

By implementing a program of comprehensively addressing urgent items with long-term solutions throughout the fort site, the current pattern of slow but inevitable deterioration can be halted and attention can then be turned to restoration and rehabilitation of buildings to provide viable setting for homes, offices and public activities.

Appendix Two contains individual building assessments and recommendations for work at each building, including cost ranges for the proposed recommendations. Please note that while all buildngs were observed, only representative buildings were surveyed in detail. Based on the detailed surveys of representative buildings, recommendations and conceptual cost ranges were then extrapolated for additional buildings of the same type.

It is intended that the user will use the individual building assessments in this Appendix to find what specifically needs to be done at each building, and then refer back to the treatments recommendations in Appendix One for guidelines on how to do the work. These two Appendices combined will give the architect or contractor who will implement these recommendations guidelines as to the scope of work required at each structure and how it is to be executed to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, thus ensuring that the sites historic character will be maintained.

RESIDENTIAL BUILDING TYPES

Surviving one- and two-family Officers' and Non-Commissioned Officers' (NCO) residential buildings at Fort Wayne date from a variety of periods between 1897 and 1939. The buildings were constructed in discrete campaigns where several buildings of the same design were built over a period of a few years. Because of similarities between buildings within each campaign, it is useful to consider buildings as part of a group, in addition to looking at them individuality. Therefore, one- and two-family residential buildings have been classified in this report as one of six "types."

Because of similarities in age, construction, design and materials within each type, existing conditions and recommendations are often similar or nearly identical. Understanding of these similarities helps inform the rehabilitation process, because these buildings may be rehabilitated in groups which will receive nearly identical treatments, thus yielding potential economies of scale due to the repetitive nature of work. Costs estimates contained within this report have been based on the fact that buildings within a type a require a nearly identical base level of rehabilitation work.

Building types are as follows:

Type 1 (Buildings 212, 213, 214), built 1897 - 1905

These duplex NCO residential units were built over a 9 year period, and are the oldest duplex units on NCO Row. They are two story units with a basement and storage attic. They are identical in plan, and nearly identical in exterior appearance, with the only differences being use of jack-arch masonry openings for windows on some. They are similar in overall size and number of rooms to the Type 1 and Type 3 units, but have slightly different interior arrangements. Type 1 buildings all have non-original enclosed entry vestibules, sunrooms and rear porches. Otherwise, they are generally unmodified from their original configurations.

Type 2 (Buildings 210, 211, 215), built 1931

These three duplex NCO residential units were built in the same year. They are two story units with a basement and habitable attic. They are identical in plan, and nearly identical in exterior appearance, with the only differences being the use of two types of detailing of the door casings and transoms at the entry vestibules. They are similar in overall size and number of rooms to the Type 1 and Type 3 units, but have slightly different interior arrangements. They are generally unmodified from their original configurations, except that sun porches have been removed from buildings 211 and 215.

Type 3 (Buildings 216, 217, 218, 219), built 1939
These four duplex NCO residential units were built in the same year, and were the last NCO duplexes built at Fort Wayne. They are two story units with a basement and storage attic. They are identical in plan, and nearly identical in exterior appearance, with the only differences being the use of two types of detailing of the door casings and transoms at the entry vestibules, and alternating use of hipped and gabled roofs. They are similar in overall size and number of rooms to the Type 1 and 2 units, but have slightly different interior arrangements. They are generally unmodified from their original configurations.

Type 4 (Buildings 102, 103, 104), built 1898
These three Commissioned Officers' duplex units were all built in the same year. They are large stately three-story units, with basements. They all have identical interiors and exteriors, except for minor modifications. They are generally unmodified from their original configurations.

Type 5 (Buildings 105, 106, 107, 108, 111, 112), built 1890, modified 1930's
These six Commissioned Officers' duplex residential buildings were built in the same year. They were originally Victorian style wood frame buildings. They are two-story units with storage attics. They were extensively modified inside and out as part of the Depression-Era WPA program in the 1930's, including recladding of the exterior with brick masonry. They are currently identical in exterior and interior configuration and details.

Type 6 (Building 109), built 1890, modified 1930's
This Officers' Club was originally Victorian style 2-story wood frame single-family house, possibly with a habitable attic. It was extensively modified inside and out as part of the Depression-Era WPA program in the 1930's, including recladding of the exterior with brick masonry. Today it is a two-story unit with a storage attic. It was converted to an Officer's Club – presumably in the 1930's, when an addition was made to the rear. Building 109 was originally identical to building 110, which has been restored to its original appearance.

Type 6 Restored (Building 110), built 1890, modified 1930's, restored 1970's
The Commanding Officer's House was originally Victorian style 2-story wood frame single-family house, possibly with a habitable attic. It was extensively modified inside and out as part of the Depression-Era WPA program in the 1930's, including recladding of the exterior with brick masonry. The masonry cladding was removed and building was faithfully restored to its original appearance in the 1970's.

Where applicable, these building types are indicated in the following individual building descriptions.

BUILDING ANALYSIS AND RECOMMENDATIONS SHEETS

BUILDING 102 A / B

OFFICER'S QUARTERS

Constructed:	1898
Building Type:	4
Proposed Use:	Office
Area:	7,624 SF (+ 2,548 SF Basement)
Conceptual Cost Estimate:	$1,260,000 - $1,580,000

BUILDING TYPE 4

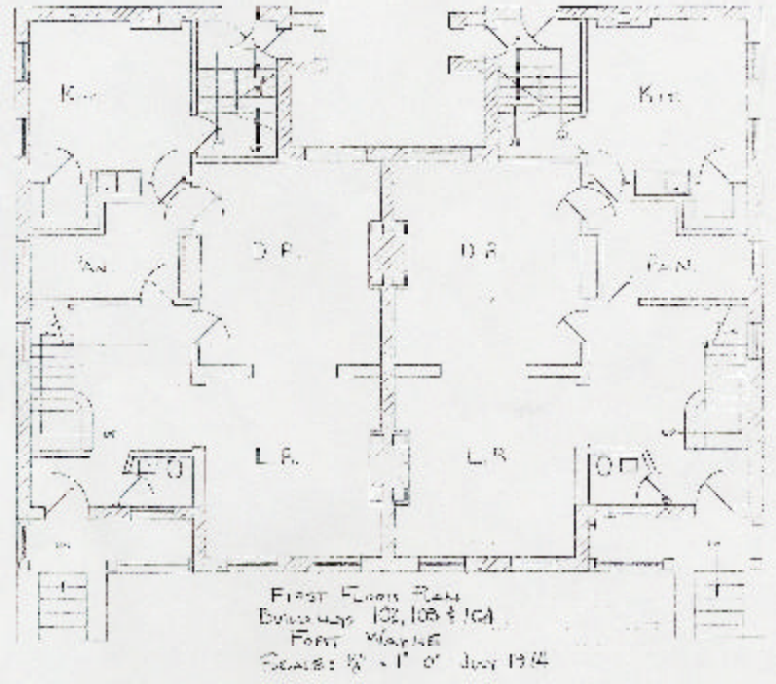
The Type 4 Officers' residences are large duplex units built at the same time in 1898. The Type 4 Officers' residences are among the oldest brick masonry structures remaining on the site. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR DESCRIPTION

This large duplex residence is a brick masonry bearing wall building, on a coursed ashlar base. Its exterior reflects simplified Queen Anne stylistic influences. It has symmetrical massing, and features a prominent front center gable, with a subordinate cross gable. At the rear are two rear-gabled wings, forming a "U"-shaped footprint. There are two wood framed dormers at the front, and one at the rear. The exterior appearance is generally unchanged from its original construction, except for the addition of brick masonry trash enclosures at the rear. Window openings are mostly arched with jack arches, with roman arches at the front and side gables. Dormers have rectangular window openings. Windows are wood double-hung, with several different muntin configurations. Openings have been blocked up and modified at west elevation, and windows are steel at those locations. The building has a single brick masonry chimney near the center, shared by both units. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim, and wood cornices define the lower side of the front and side gables. There are two hip-roofed front porches at the front corners of the building with concrete porches on brick masonry bases.

INTERIOR DESCRIPTION

This duplex Officer's housing structure is two-and-one-half stories with full basement. Each unit's first floor consists of an entrance vestibule, lavatory, front hall, living room, dining room, pantry, kitchen, and rear stairway and entrance. The front stair to the second floor is open to the front hall. The second floor contains a stair hall with extension, four bedrooms, closets, a two piece lavatory, and a full three-piece bathroom. The rear stair leads from the second floor to an attic that is separated into several finished rooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with asphalt tile. The entrance vestibule has a quarry tile and ceramic tile wainscot(circa 1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The attic is finished plastered with wood floors. The basement is subdivided into five rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.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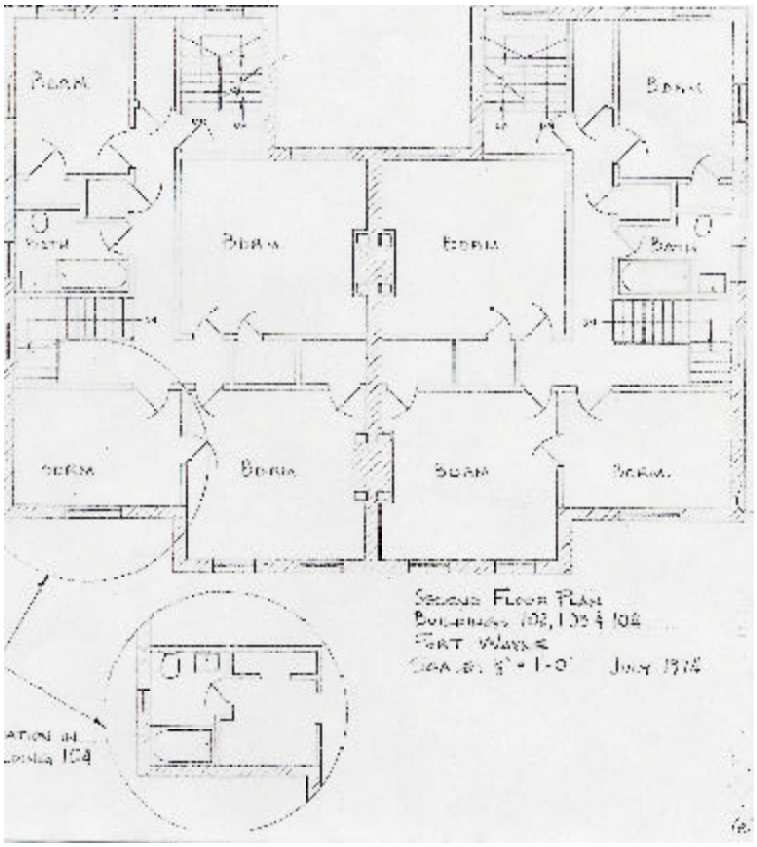
First Floor Plan
Buildings 102, 103 & 104
Fort Wayne
Scale: ¼" = 1' 0" July 1974


PLAN
BEDRM
BEDRM
BATH
BEDRM
BEDRM
BEDRM
Second Floor Plan
Buildings 102, 103 & 104
Fort Wayne
Scale: ¼" = 1-0" July 1974

Exterior Conditions	**Exterior Recommendations**
Foundations: Good Condition	Investigate further, monitor crack progress.
Masonry: Generally poor condition	
Soiled surfaces	Clean all exterior masonry
Weathered, deteriorated mortar	Repoint 30% of existing masonry
Deteriorated brick masonry	Reset 5% of brick surface area; rebuild 2% of area
One deteriorated chimney	Repoint one chimney.
Deteriorated porch cheekwall	Rebuild one porch cheekwall
Major settlement crack at north east porch	Rebuild porch masonry 120 sf of 8" brick masonry wall
Wood Trim: Fair condition	Miscellaneous repairs to 10% of wood trim. See also Cornice below.
Cornice: Fair to poor condition	Rebuild 50% of cornice.
Gutters and Leaders: Fair condition	Replace 70% with half-round gutters and round leaders.
Paint: Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim; fill checked sills.
Roofs:	
Main roof - Poor condition –deteriorated asphalt shingles and flashing; some deteriorated structure	Provide new asphalt shingles and flashing for entire main roof; replace 10% of roof structure
Dormers in very poor condition	Rebuild dormer roofs
Front porch roofs: poor condition	Rebuild 10% of roofing, structure; install new asphalt shingles and flashing
Doors	
Front doors - fair condtion	Repair two rail and stile doors;
Rear Doors - poor condition	Replace two rear doors.
	Replace hardware on all doors.
Windows	
Dormer windows – very poor condition	Replace 4 dormer windows
Basement windows – Poor condition	Replace 12 basement windows
Other windows	Replace 20%, repair 80%
	Reattach sash weights; weatherstrip, reglaze (typical for all windows)
Front Porches: Fair condition	Miscellaneous repair.
Miscellaneous	
Anachronistic trash enclosures at rear doors – very poor condition	Remove two masonry trash enclosures
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
Plaster walls and ceiling (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Bathroom and Lavatory fixtures and ceramic (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
First Floor	
Vestibule – Lavatory added	Leave in place as significant change; see Interior Recommendations for treatment
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change; see Interior Recommendations for treatment
Door enclosure at rear stair	Installed when Unit A was separated into two living units; remove.

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish	40% peeling paint; scrape and feather
Walls	Patch cracks and deteriorated plaster 5%
Ceilings	Patch cracks and deteriorated plaster 20%
Attic – walls and ceilings - fair	Patch cracks and deteriorated plaster 40%
Basement ceilings – fair	Patch cracks and deteriorated plaster 20%
Woodwork	
Casings – good	Patch abrasions 5%; prepare for new finish 100%
Base – good	Patch abrasions 5%; prepare for new finish 100%
Stair handrail – good	Stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – fair	Restore 15%; prepare for new painted finish 100%
Fireplace mantle - burned	Repair or replace; prepare for new painted finish 100%
Doors	
38 five panel – 50% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
Hardware - poor	Provide 70% new hardware; repair existing
Floors	
Wood - poor	Sand and refinish 100%
Asphalt tile on wood – poor	Remove all asphalt tile; sand and refinish 100%
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Lavatory	
Wainscot – metal tile – poor	Remove; repair plaster walls
Floor – wood – poor	Sand and refinish 100%
Plumbing fixtures – poor	Replace all plumbing
Kitchen Cabinets – poor	Need not restore function for office adaptation of units
Bathrooms and Second Floor Lavatory	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – poor	Replace all plumbing fixtures
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair front stair handrail 100%

Interior Conditions con't

Basement

Exterior walls – poor
Interior masonry walls – good
Concrete floor – good
Ceilings – good

Structural Conditions

Floor loading

Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

Tuckpoint 100%; paint
Paint 100%
Clean 100%
Paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 103 A / B

OFFICER'S QUARTERS

Constructed:	1898
Building Type:	4
Proposed Use:	Office
Area:	7,624 SF (+ 2,548 SF Basement)
Conceptual Cost Estimate:	$1,260,000 - $1,580,000

BUILDING TYPE 4

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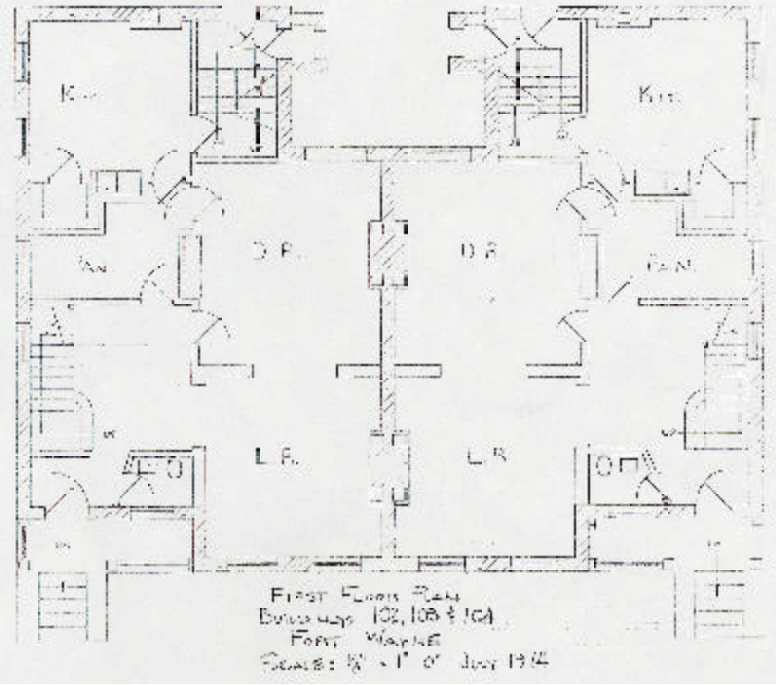
K.
Kit.
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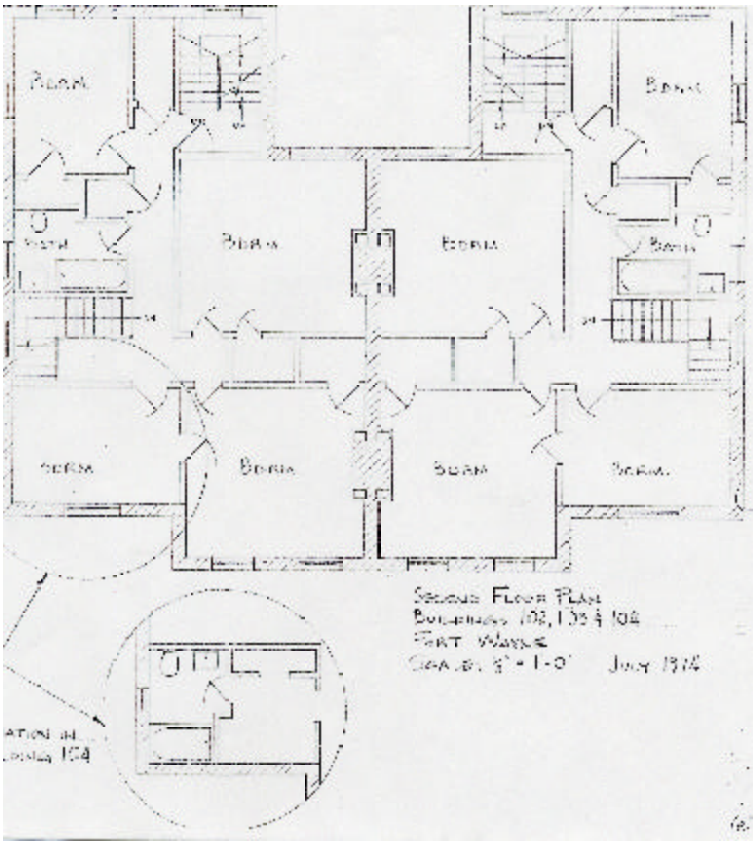
First Floor Plan
Buildings 102, 103 & 104
Fort Wayne
Scale: ¼" = 1' 0" July 1914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Second Floor Plan
Fort Wayne
July 1914

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	no work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Mortar in poor condition, weathered, many open joints; deteriorated bricks,	Selectively repoint 30% of surface; replace deteriorated brick (5%); rebuild deteriorated brick (2%)
Deteriorated chimney mortar	Repoint chimney above roof; provide new flashing
Front porch masonry deteriorated	Rebuild 50% of front porch masonry
Trash enclosures not original, deteriorated	Remove masonry trash enclosures; repair adjacent brick.
Wood Trim and Cornices: Poor condition.	Entire sections of cornice missing; Reconstruct 50% of cor nices; Repair and Reattach trim boards (20%)
Gutters and Leaders: Deteriorated	Replace 70%
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Poor condition;some deteriorated structure	Install new asphalt shingle roof. Replace deteriorated roof structure (10%)
Dormers in very poor condition	Replace dormer sidewall shingles; repair Sheathing.
Front porch roof: Asphalt - poor condition	Install new asphalt shingle roof and flashings.
Some deteriorated structure	Replace 10% of porch roof structure.
Doors: Fair to poor condtion	Repair 2 front doors; replace 2 rear doors Repair hardware at all doors.
Windows	
Several muntin configurations suggest many changes have been made to windows	Conduct research to determine original muntin patterns
Dormer windows – Poor condition	Replace 4 double hung windows
General windows – Poor condition; Non-original	Replace 20%; restore 80% of Double hung
Steel windows at west elevation.	Replace with wood double hung windows
Basement windows: Poor condition.	Remove plywood panels from 2 basement openings; Replace all basement windows with new wood windows .
Front Porches: Fair condition. One missing column.	Replace 1 missing wood column, Replace 25 lf railings of missing railings. Repair concrete steps.
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift.

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PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
Plaster walls and ceiling (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Bathroom and Lavatory fixtures and ceramic (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
First Floor	
Vestibule – Lavatory added	Leave in place as significant change; see Interior Recommendations for treatment
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change; see Interior Recommendations for treatment
Door enclosure at rear stair: Installed when Unit A was separated into two living units	Remove

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - poor	80% peeling paint; scrape and feather
Walls - poor	30% replacement; additional 50% major repair
Ceilings - poor	50% replacement; additional 30% major repair
Attic – walls and ceilings - poor	40% replacement; additional 30% major repair
Woodwork	
Casings – good	Patch abrasions 10%; prepare for new finish 100%
Base – fair	Patch abrasions 30%; prepare for new finish 100%
Stair handrail – poor	Replace 15 missing balusters; stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch 20%; prepare for new finish 100%
Pantry cabinets – fair	Restore 40%; prepare for new painted finish 100%
Fireplace mantle - burned	Patch abrasions; prepare for new painted finish 100%
Doors	
38 five panel – 50% missing	Replicate missing doors and panels; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
Hardware - poor	Provide 80% new hardware; repair existing
Floors	
Wood - poor	Replace 50% buckled floors; sand and refinish 100%
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Lavatory	
Wainscot – metal tile – poor	Remove; repair plaster walls
Floor – wood – poor	Sand and refinish 100%
Plumbing fixtures – poor	Replace all plumbing
Kitchen	
Cabinets – poor	Need not restore function for office adaptation of units
Bathrooms and Second Floor Lavatory	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – poor	Replace all plumbing fixtures
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stain front stair handrail 100%

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Interior Conditions con't

Basement
Exterior walls – poor
Interior masonry walls – fair
Concrete floor – fair
Ceilings – poor

Structural Conditions

Floor loading
Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

Tuckpoint 100%; paint
Paint 100%
Clean 100%
20% replacement; add'l 30% major repair; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 104 A / B

OFFICER'S QUARTERS

Constructed:	1898
Building Type:	4
Proposed Use:	Office
Area:	7,624 SF (+ 2,548 SF Basement)
Conceptual Cost Estimate:	$1,260,000 - $1,580,000

BUILDING TYPE 4

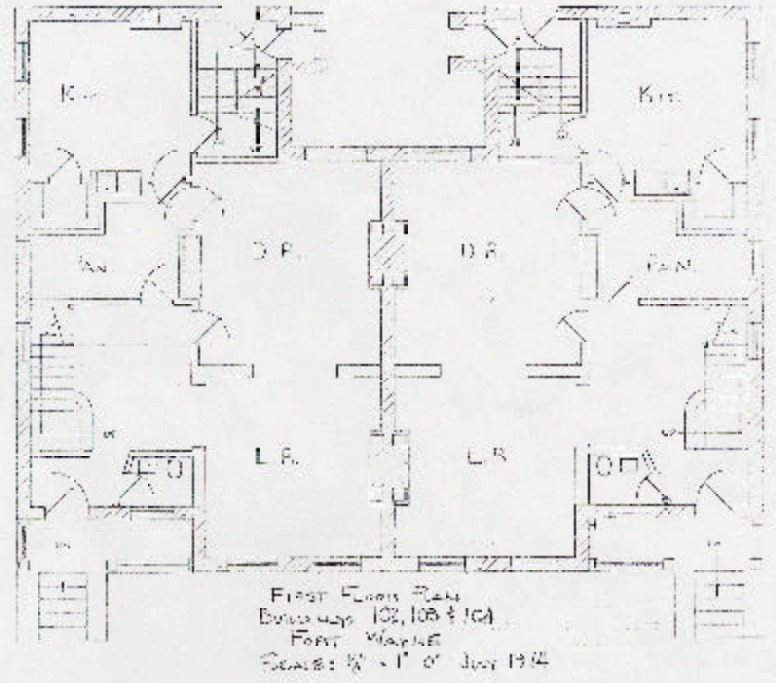
The Type 4 Officers' residences are large duplex units built at the same time in 1898. The Type 4 Officers' residences are among the oldest brick masonry structures remaining on the site. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This large duplex residence is a brick masonry bearing wall building, on a coursed ashlar base. Its exterior reflects simplified Queen Anne stylistic influences. It has symmetrical massing, and features a prominent front center gable, with a subordinate cross gable. At the rear are two rear-gabled wings, forming a "U"-shaped footprint. There are two wood framed dormers at the front, and one at the rear. The exterior appearance is generally unchanged from its original construction, except for the addition of brick masonry trash enclosures at the rear. Window openings are mostly arched with jack arches, with roman arches at the front and side gables. Dormers have rectangular window openings. Windows are wood double-hung, with several different muntin configurations. The building has a single brick masonry chimney near the center, shared by both units. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim, and wood cornices define the lower side of the front and side gables. There are two hip-roofed front porches at the front corners of the building with concrete porches on brick masonry bases.

INTERIOR

This duplex Officer's housing structure is two-and-one-half stories with full basement. Each unit's first floor consists of an entrance vestibule, lavatory, front hall, living room, dining room, pantry, kitchen, and rear stairway and entrance. The front stair to the second floor is open to the front hall. The second floor contains a stair hall with extension, four bedrooms, closets, a two piece lavatory, and a full three-piece bathroom. The rear stair leads from the second floor to an attic that is separated into several finished rooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with asphalt tile. The entrance vestibule has a quarry tile and ceramic tile wainscot. The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The attic is finished plastered with wood floors. The basement is subdivided into five rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.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K.
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PAN
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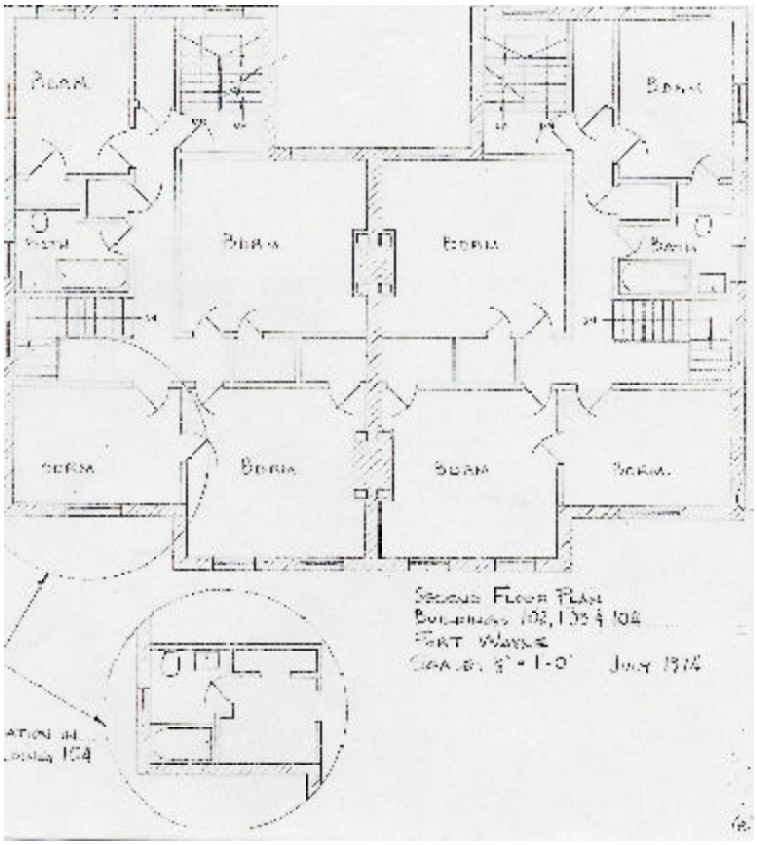
FIRST FLOOR PLAN
BUILDINGS 102, 103 & 104
FORT WAYNE
SCALE: 1/4" = 1'-0" JULY 1974


FLOOR
BEDRM
BEDRM
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SECOND FLOOR PLAN
BUILDINGS 102, 103 & 104
FORT WAYNE
SCALE: 1/4" = 1'-0" JULY 1974

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Mortar in poor condition, weathered, many open joints, deteriorated bricks	Selectively repoint 30% of surface; replace deteriorated brick (5%); rebuild deteriorated brick (2%)
Deteriorated chimney mortar	Repoint chimney above roof; provide new flashing
Front porch masonry deteriorated	Rebuild 50% of front porch masonry
Trash enclosures not original, deteriorated	Remove masonry trash enclosures; repair adjacent brick.
Wood Trim and Cornices: Poor condition.	
Entire sections of cornice missing (20%)	Reconstruct 50% of cornices; Repair and Reattach trim boards
Gutters and Leaders: deteriorated	Replace 70%
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs: Poor condition	Install new asphalt shingle roof.
Some deteriorated structure	Replace deteriorated roof structure (10%)
Dormers in very poor condition	Replace dormer sidewall shingles; repair Sheathing.
Front porch roof: Asphalt - poor condition.	Install new asphalt shingle roof and flashings.
Some deteriorated structure	replace 10% of porch roof structure.
Doors	
Fair to poor condition	Repair 2 front doors; replace 2 rear doors Repair hardware at all doors.
Windows	
Several muntin configurations suggest many changes to windows	Conduct research to determine original muntin patterns
Dormer windows – Poor condition	Replace 4 double hung windows
General windows – Poor condition;	
Non-original	Replace 20%; restore 80% of Double hung
Steel windows at west elevation.	Replace with wood double hung windows
Basement windows - Poor condition.	Remove plywood panels from 2 basement openings; Replace all basement windows with new wood windows .
Front Porches: Fair condition.	Replace 1 missing wood column, Replace 25 lf
One missing column	of missing railings. Repair concrete steps.
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
Plaster walls and ceiling (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Bathroom and Lavatory fixtures and ceramic (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
First Floor	
Vestibule – Lavatory added (1935-39)	Leave in place as significant change; see Interior Recommendations for treatment
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change; see Interior Recommendations for treatment
Door enclosure at rear stair: Installed when Unit A was separated into two living units	Remove door enclosure

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - poor	30% peeling paint; scrape and feather
Walls - fair	15 % plaster replacement; patch remainder
Ceilings - poor	30 % plaster replacement; patch remainder
Attic – walls and ceilings - poor	50 % plaster replacement; patch remainder
Basement ceilings – fair	Patch cracks and deteriorated plaster 20%
Woodwork	
Casings – fair	Patch abrasions 15%; prepare for new finish 100%
Base – fair	Patch abrasions 15%; prepare for new finish 100%
Front stair handrail – poor	Replace all missing balusters; stabilize; prepare for new stained finish 100%
Rear Stair handrail – good	Replace several missing balusters; stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – fair	Restore 15%; prepare for new painted finish 100%
Fireplace mantle – removed but in building	Reinstall; prepare for new painted finish 100%
Doors	
38 five panel – 30% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remain ing doors
2 ten lite glass doors	Reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
Hardware - poor	Provide new stiles where damaged by hardware re moval 70% new hardware; repair existing
Floors	
Wood - poor	Remove carpet; repair few buckled areas; sand and refinish 100%
Linoleum on wood – poor	Replace linoleum; repair subfloor
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Lavatory	
Wainscot – ceramic tile - good	Clean 100%; replace missing or damaged accessories
Floor – wood – poor	Sand and refinish 100%
Plumbing fixtures – poor	Replace all plumbing
Kitchen	
Cabinets – poor	Need not restore function for office adaptation of units
Bathrooms and Second Floor Lavatory	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – poor	Replace all plumbing fixtures

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Interior Feature Conditions con't

Finishes
- Painted
- Stained

Basement
- Exterior walls – fair
- Interior masonry walls – good
- Concrete floor – good
- Ceilings – good

Structural Conditions

Floor loading
- Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

All interior surfaces two coats 100%
Stair front stair handrail 100%

Tuckpoint 100%; paint
Paint 100%
Clean 100%
10% paint; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 105 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

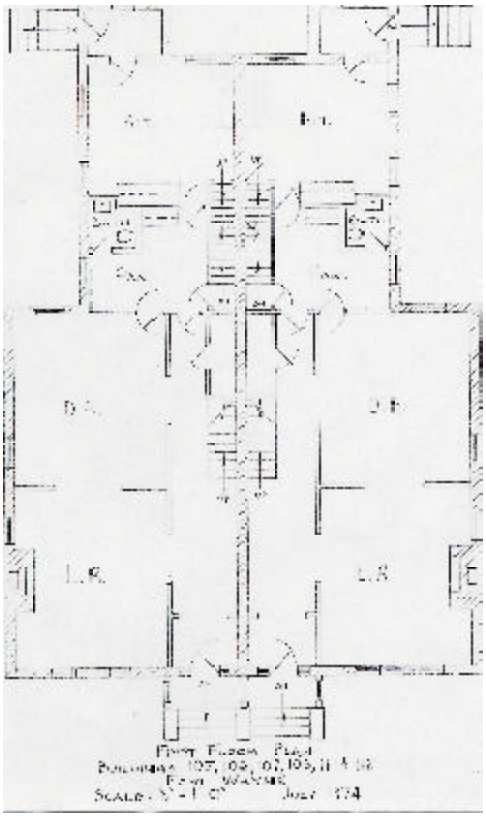
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

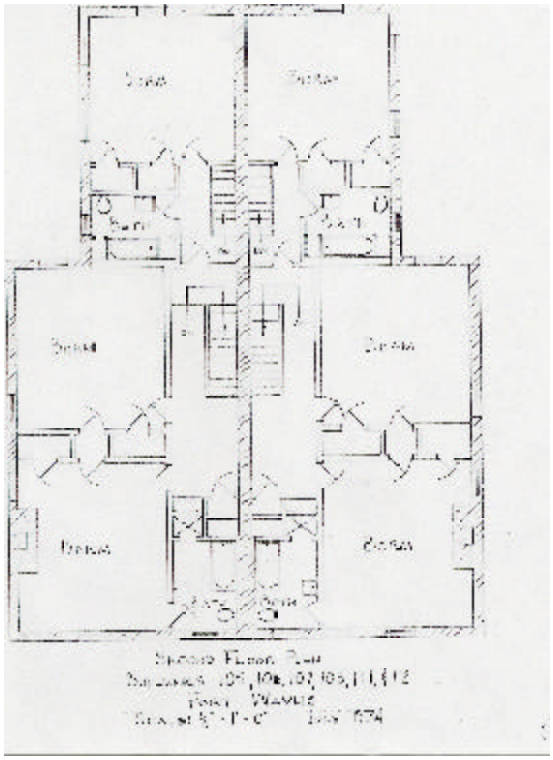
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 26 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as is; repoint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition: Evidence of previous powerwashing (eroded mortar)	Selectively repoint 5% of surface
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Masonry at rear porch deteriorated	Rebuild 20 sf of masonry.
Wood Trim:	
Rotted/damaged fascia	Replace 50 lf of fascia crown molding. Infill gaps.
Gutters and Leaders	
No gutters and leaders	Replace 100 lf of gutters with half-round gut ters and six 20' downspouts
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim; fill checked sills. Caulk.
Roofs:	
Fair condition, valleys severely deteriorated	Install new asphalt shingle roof.
No crickets at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition	Install new asphalt shingle roof.
Rear Porch roofs: Asphalt - good condition	No work.
Doors: Good condtion	Repair hardware. Miscellaneous minor repairs to wood doors
Windows: Good condition.	
First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace 2 broken lights
Basement windows. Fair condition.	Remove plywood panels from 8 openings; replace broken lights

Exterior Conditions con't	**Exterior Recommendations con't**
Front Porches: Fair condition. Missing railings; 1 missing wood column. Ceiling slightly deteriorated	Replace 3 missing wood railings and balusters. Replace 1 wood column. Replace 5 sf beaded ceiling
Rear Porches Concrete steps not original: fair condition.	Replace 2 railings with new wood Anachronistic railings
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Accessibility No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Half Bath	Not original but different than 1935-39 changes; leave in place
First Floor Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See Interior Recommendations for treatment

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - fair	20% peeling paint; scrape and feather
Walls – good except south rooms both floors	5% plaster replacement; patch remainder
Ceilings - fair	10% plaster replacement; patch remainder
Woodwork	
Casings – good	Patch abrasions 5%; prepare for new finish 100%
Base – good	Patch abrasions 5%; prepare for new finish 100%
Front stair handrail – poor	Replicate entire handrail both floors
Rear stair handrail – good	Replace several missing balusters; stabilize; prepare for new painted finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – good	Restore 10%; prepare for new painted finish 100%
Fireplace mantle – good	Prepare for new painted finish 100%
Doors	
36 five panel – 20% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
2 pair fifteen lite glass doors – 1 door destroyed	Replicate one door; reglue loose joints, repair abrasions; prepare for new painted finish 100%
Hardware - poor	Provide new stiles where damaged by hardware removal; 50% new hardware; repair existing
Floors	
Wood - fair	Remove carpet; repair few buckled areas; sand and refinish 100%
Linoleum on wood – poor	Replace linoleum; repair subfloor
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Half Bath	
Wainscot – ceramic tile – fair	Clean 100%; replace missing or damaged ceramic accessories
Floor – wood with vinyl base - poor	Sand and refinish 100%
Kitchen	
Cabinets – poor	Need not restore for office adaptation
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%; replace missing or damaged ceramic accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing

SmithGroup

Interior Conditions con't

Finishes
- Painted
- Stained

Basement
- Exterior walls – poor
- Interior masonry walls – poor
- Concrete floor – fair
- Ceilings – poor

Interior Recommendations con't

All interior surfaces two coats 100%
Stair front stair handrail 100%

Tuckpoint 100%; paint
Paint 100%
Clean 100%
30% repair; paint 100%

Structural Conditions

Floor loading
- Does not meet requirements for new use

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

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BUILDING 106 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

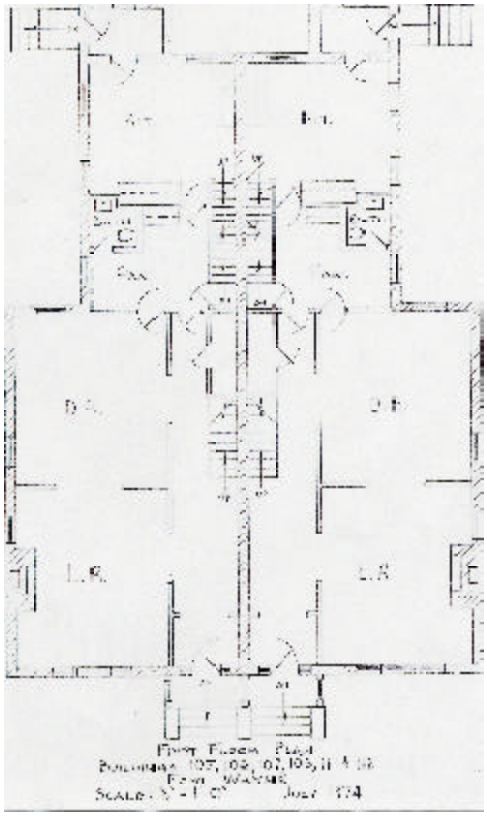
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

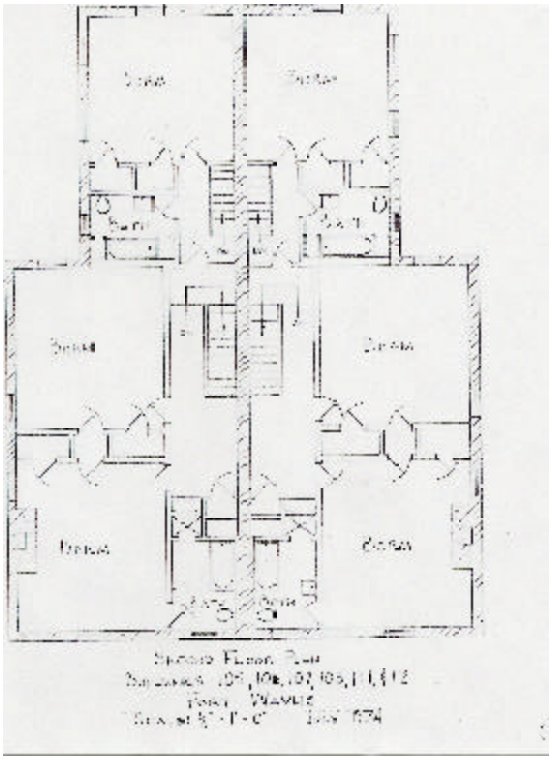
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition, except horizontal crack at front	Repair crack in concrete foundation
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 22 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as is; repoint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition: Evidence of previous power washing (eroded mortar)	Selectively repoint 5% of surface
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Masonry at rear porch deteriorated	Rebuild 20 sf of masonry.
Missing mortar at vertical sill joints	
Deteriorated porch cheekwall (masonry and parging)	Rebuild 30% of porch masonry
Wood Trim:	
Rotted/damaged fascia	Replace 75 lf of fascia crown molding. Infill gaps
Gutters and Leaders	
No gutters and leaders	Replace 75 lf of gutters with half-round gutters and six 20' downspouts
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Fair condition, valleys severely deteriorated	Install new asphalt shingle roof.
No cricket at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition	Install new asphalt shingle roof.
Rear Porch roofs: Asphalt - fair condition	Install new asphalt shingle roof.
Doors	
Fair condition	Repair hardware. Miscellaneous minor repairs to wood doors; Replace one paneled door.
Windows: Good condition.	
First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace 2 broken lights
Basement windows: Fair condition.	Remove plywood panels from 6 openings; Replace broken lights

Exterior Conditions con't	**Exterior Recommendations con't**
Front Porches: Fair condition. Missing railings	Replace 3 missing wood railings and balusters.
Rear Porches Concrete steps not original: Fair condition. Anachronistic railings	Replace 2 railings with new wood railings
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Accessibility No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment
Half Bath	Not original but different than 1935-39 changes; leave in place
First Floor Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See Interior Recommendations for treatment

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - fair	20% peeling paint; scrape and feather
Walls – good except south rooms both floors	10% plaster replacement; patch remainder
Ceilings - fair	15% plaster replacement; patch remainder
Woodwork	
Casings – good	Patch abrasions 5%; prepare for new finish 100%
Base – good	Patch abrasions 5%; prepare for new finish 100%
Front stair handrail – poor	Replicate entire handrail both floors
Rear stair handrail – fair/poor	Replace missing balusters and handrail in Unit A; replace entire handrail in Unit B; prepare for new painted finish
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – fair	Restore 30%; prepare for new painted finish 100%
Fireplace mantle – good	Prepare for new painted finish 100%
Doors	
36 five panel – 20% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
2 pair fifteen lite glass doors – missing	Replicate 2 pair wood and glass doors; prepare for new painted finish 100%
Hardware - poor	Provide new stiles where damaged by hardware removal; 50% new hardware; repair existing
Floors	
Wood - poor	Remove carpet; repair few buckled areas; sand and refinish 100%
Linoleum on wood – poor	Replace linoleum; repair subfloor
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – fair	Repair and clean 100%
First Floor Half Bath	
Wainscot – ceramic tile – fair	Clean 100%; replace missing or damaged ceramic accessories
Floor – Linoleum – poor	Remove linoleum; Sand and refinish 100%
Kitchen	
Cabinets – poor	Need not restore for office adaptation
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%; replace missing or damaged ceramic accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing

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Interior Conditions con't

Finishes
- Painted
- Stained

Basement
- Exterior walls – poor
- Interior masonry walls – poor
- Concrete floor – fair
- Ceilings – poor

Structural Conditions

Floor loading
- Does not meet requirements for new use.

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

All interior surfaces two coats 100%
Stair front stair handrail 100%

Tuckpoint 100%; paint
Paint 100%
Clean 100%
30% repair; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 107 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

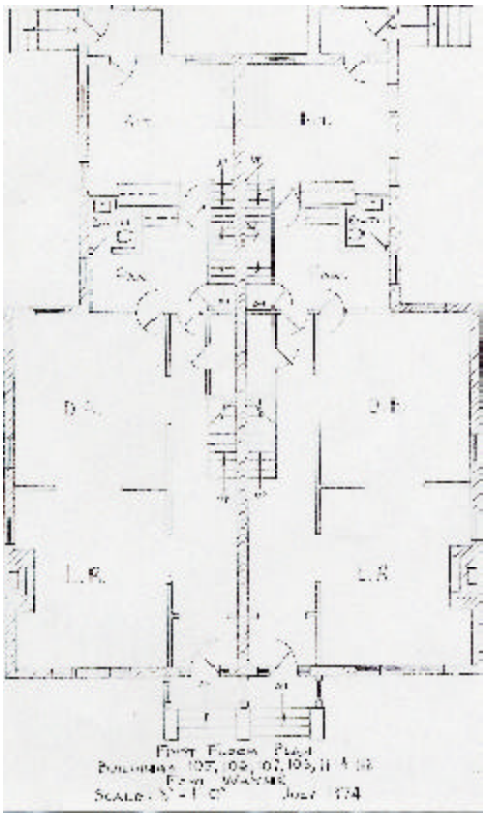
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

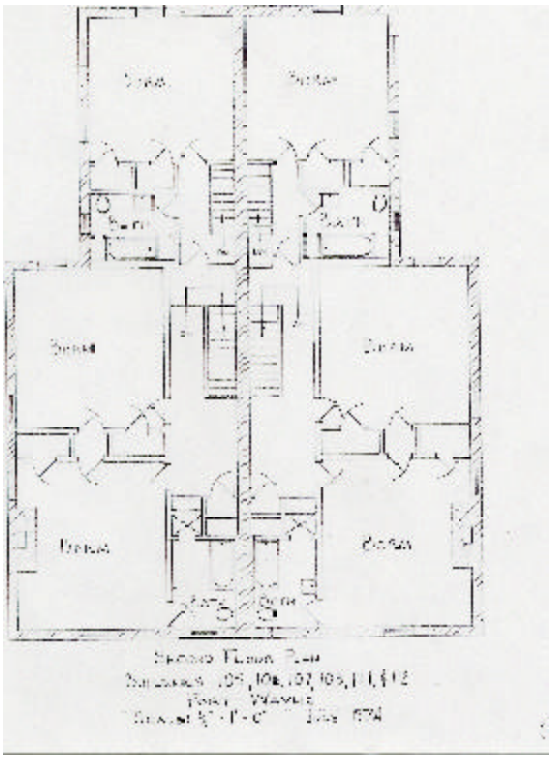
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 25 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as-is; repoint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition	Selectively repoint 5% of surface
Evidence of previous powerwashing (eroded mortar)	
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Wood Trim:	
Rotted/damaged fascia	Replace 40 lf of fascia crown molding. Infill gaps
Gutters and Leaders	
No gutters and leaders	Replace 100 lf of gutters with half-round gutters and six 20' downspouts
Paint: Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Poor condition, valleys severely deteriorated	Install new asphalt shingle roof.
No cricket at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition, Inadequate flashing	Install new asphalt shingle roof and flashing.
Rear Porch roofs: Asphalt - fair condition,	Install new asphalt shingle roof, new flashing.
Doors	
Fair condtion	Repair hardware. Miscellaneous minor repairs to wood doors.
Windows: Good condition.	First and second floor windows Reglaze 90%;
not original (aluminum jamb liners)	replace 2 broken lights
Basement windows: Fair condition.	Remove plywood panels from 2 openings; Replace broken lights

Exterior Conditions con't	**Exterior Recommendations con't**
Front Porches: Fair condition. Missing railings	Replace 2 missing wood railings and balusters.
Rear Porches	
Concrete steps not original: Fair condition.	Replace 2 railings with new wood
Anachronistic railings	Replace railings.
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Miscellaneous	
Vines on building; trees too close to building	Remove vines from building; remove overgrown weed trees.
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See interior recommendations for treatment
Woodwork (1935-39)	Leave in place as significant change - See interior recommendations for treatment
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See interior recommendations for treatment
First Floor	
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See interior recommendations for treatment
Openings created between units on both floors	Leave in place if units are to serve one tenant; close and restore surfaces if two different tenants will be using building

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - fair	20% peeling paint; scrape and feather
Walls – good except 2nd floor south rooms	2% plaster replacement; patch remainder
Ceilings - fair	5% plaster replacement; patch remainder
Woodwork	
Casings – good	Patch abrasions 5%; prepare for new finish 100%
Base – good	Patch abrasions 5%; prepare for new finish 100%
Front stair handrail – intact - fair	Repair; stabilize; prepare for new painted finish 100%
Rear stair handrail – intact - good	Repair; stabilize; prepare for new painted finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – removed	Do not replicate unless units adapted for residential use
Fireplace mantle – good	Prepare for new painted finish 100%
Doors	
36 five panel – 10% missing	Replicate missing doors; reglue loose joints, repair abrasions, prepare for new finish 100% on remaining doors
2 pair fifteen lite glass doors – intact	Reglue loose joints, repair abrasions; prepare for new painted finish 100%
Hardware - poor	Provide new stiles where damaged by hardware re moval; 30% new hardware; repair existing
Floors	
Wood - fair	Remove carpet; repair few buckled areas; sand and refinish 100%
Linoleum on wood – poor	Replace linoleum; repair subfloor
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Half Bath	
Wainscot – stripped	Prepare for new painted finish
Floor – wood - poor	Sand and refinish 100%
Kitchen	
Cabinets	Need not restore for office adaptation
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%; replace missing or damaged ceramic accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing

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Interior Conditions con't

Finishes
- Painted
- Stained

Basement
- Exterior walls – poor
- Interior masonry walls – poor
- Concrete floor – fair
- Ceilings – poor

Structural Conditions

Floor loading
- Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations

All interior surfaces two coats 100%
Stair front stair handrail 100%

Tuckpoint 100%; paint
Paint 100%
Clean 100%
30% repair; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

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BUILDING 108 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

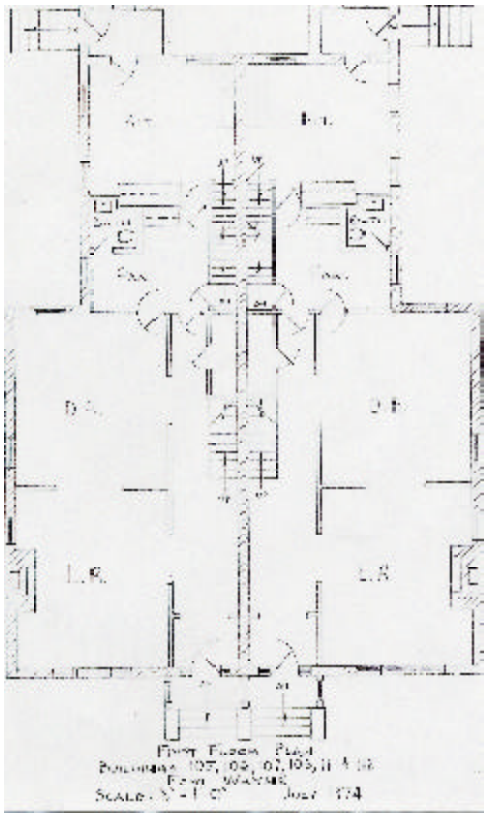
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

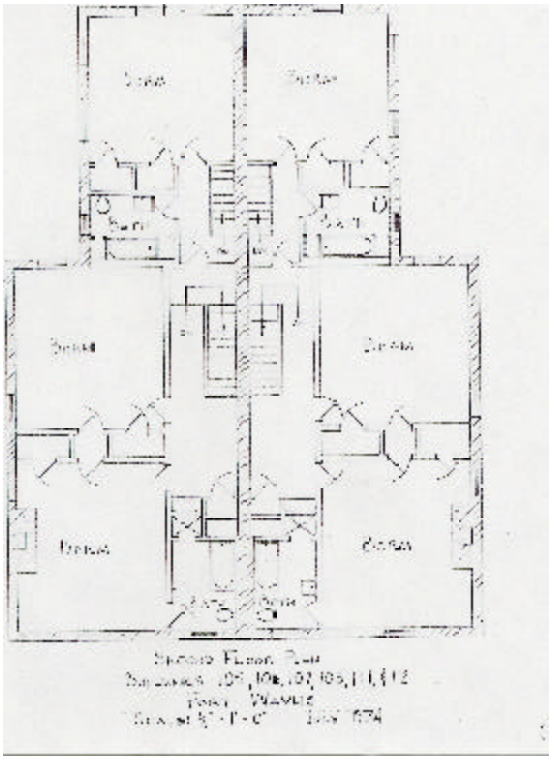
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 25 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as-is; repoint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition	Selectively repoint 5% of surface
Evidence of previous powerwashing (eroded mortar)	
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Missing mortar at vertical sill joints	Repoint.
Wood Trim:	
Rotted/damaged fascia. Deteriorated rafter tails	Replace 60 lf of fascia crown molding. Infill gaps. Fill or replace 8 rafter tails.
Gutters and Leaders: No gutters and leaders	Replace 110 lf of gutters with half-round gutters and six 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs	
Poor condition, valleys severely deteriorated	Install new asphalt shingle roof.
Inadequate flashing.	
No cricket at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition, Inadequate flashing	Install new asphalt shingle roof and flashing.
Rear Porch roofs: Asphalt - good condition,	No work
Doors	
Fair condition. 2 deteriorated doors; 4 rotted jambs	Replace 2 deteriorated rails and stile doors.
Plywood panels over trash area access door	Replace 4 rotted jambs; repair hardware; miscella neous minor repairs to wood doors; remove plywood from trash area access door; repair door

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Exterior Conditions Con't	**Exterior Recommendations Con't**
Windows: Good condition.	
First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace 1 broken lights
One half round window in attic missing	Replace 1 half-round window.
Basement windows: Fair condition.	Remove plywood panels from 6 openings; Replace broken lights
Front Porches: Fair condition. Missing railings	Replace 3 missing wood railings and balusters.
Rear Porches	
Concrete steps not original: Fair condition.	Replace 2 railings with new wood Anachronistic rail ings
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Accessibility	Access required from exterior to first floor only.
No barrier-free access from exterior to first floor	Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Half Bath: Not original but different than 1935-39 changes	Leave in place as significant change - See Interior Recommendations for treatment.
First Floor	
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See above
Openings created between units – first floor rear only.	Leave in place if single tenant is to use entire build ing; second floor front and rear close openings and restore surfaces if two tenants will be in building

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - poor	30% peeling paint; scrape and feather
Walls – fair except south rooms both floors	15% plaster replacement; patch remainder
Ceilings – fair except south rooms both floors and north bedroom	20% plaster replacement; patch remainder
Woodwork	
Casings – good	Patch abrasions 5%; prepare for new finish 100%
Base – good	Patch abrasions 5%; prepare for new finish 100%
Front stair handrail – intact Unit A	Replicate missing handrail; stabilize other; prepare for new finish 100%
Front stair handrail - missing Unit B	
Rear stair handrail – good	Stabilize; prepare for new painted finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Fireplace mantle – good	Prepare for new painted finish 100%
Doors	
36 five panel – 20% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
2 pair fifteen lite glass doors – all missing	Replicate missing doors; prepare for new painted finish
Hardware - poor	Provide new stiles where damaged by hardware removal; 50% new hardware; repair existing
Floors	
Wood - poor	Remove carpet; repair few buckled areas; sand and refinish 100%
Linoleum on wood – fair	Replace linoleum (only building original pattern and color is evident); repair subfloor
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Half Bath – partially stripped	
Wainscot – ceramic tile – poor	Restore; replace missing or damaged ceramic accessories
Floor – wood with vinyl base - poor	Sand and refinish 100%
Kitchen	
Cabinets	Need not restore for office adaptation
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%; replace missing or damaged ceramic accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing

Interior Conditions con't

Finishes
- Painted
- Stained

Basement
- Exterior walls – poor
- Interior masonry walls – poor
- Concrete floor – fair
- Ceilings – poor

Structural Conditions

Floor loading
- Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

All interior surfaces two coats 100%
Stair front stair handrail 100%

Tuckpoint 100%; paint
Paint 100%
Clean 100%
30% repair; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 109 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	6
Proposed Use:	Office
Area:	4,837 SF (+ 2,053 SF Basement)
Conceptual Cost Estimate:	$640,000 - $790,000

BUILDING TYPE 6

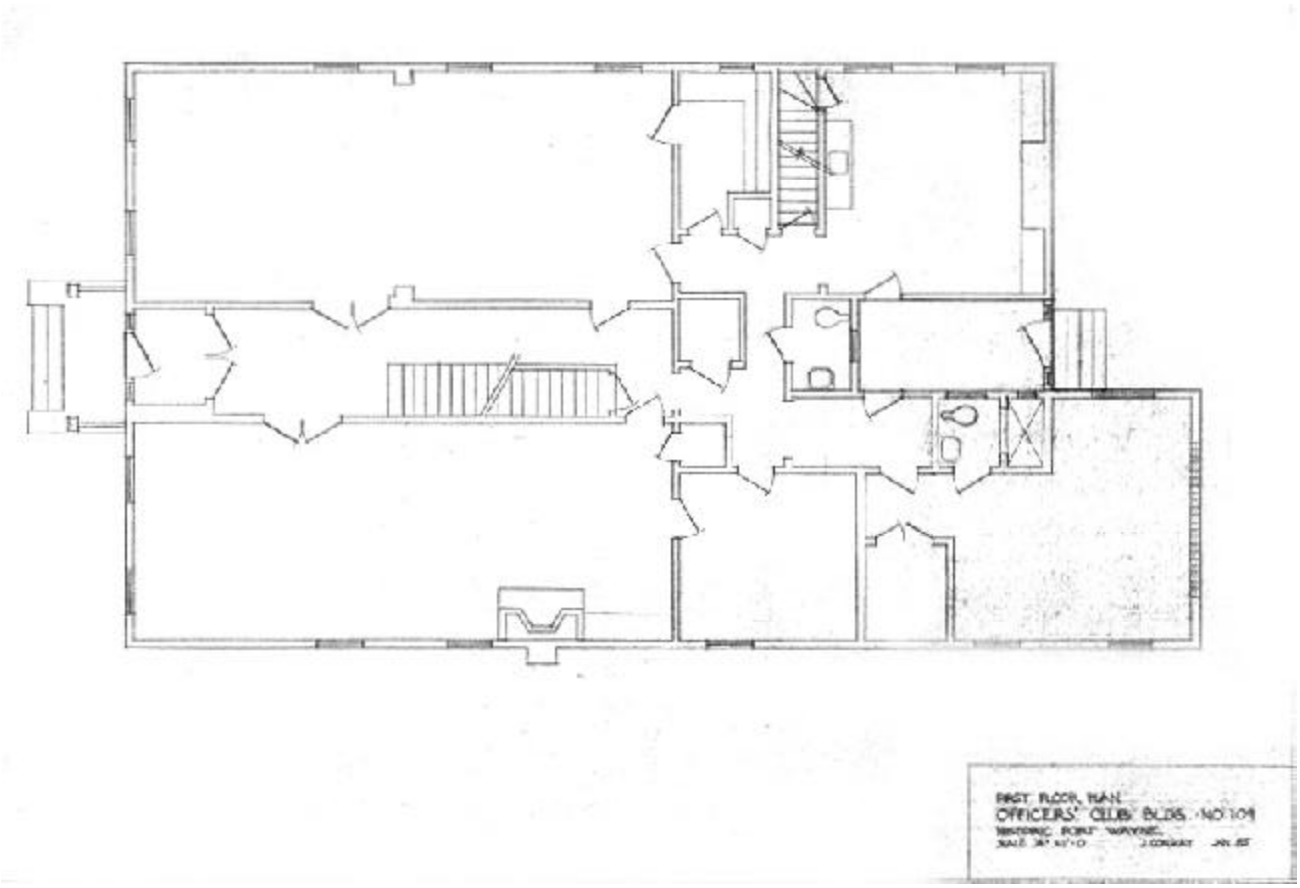
The type 6 Officers' residences were both built as single family residences in 1890. Both were clad with brick veneer during the 1930's by WPA workers. Building 110 was the Commanding Officer's home that has been totally restored to its 1890 appearance. Because of its condition and use as a house museum, it has not been included in this planning effort. Building 111 was identical to building 110 and was also remodeled in the 1930's. It has not been restored as was 110, but was adapted to serve the fort as an Officer's Club. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This single-family residence was originally a wood frame Victorian building on a brick foundation. It was reclad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with a subordinate off-center perpendicular gable at the east side that formed a side yard. All visible exterior surfaces and detail except windows date from the recladding. The general character of the reclad building is similar to buildings 105 through 108. The adjacent building 110 has had the brick veneer removed, and has been restored to its original Victorian style, depicting the appearance that both buildings 109 and 110 once presented. The general building massing and L-shaped footprint are from the original Victorian configuration, however a wing was added later to the northeast to provide space for an Officers' Club. The brick veneer is supported on a concrete foundation that that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. The building has a single brick masonry chimney at the west end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation. The porch has a brick masonry base that dates from the 1930's remodeling, which is parged with a cementitious coating. The current Colonial porch has two wood columns and a front-gabled pediment roof.

INTERIOR

This structure, originally built as a one-family Officer's housing facility, is two stories with full basement. When constructed it was identical to Building 110, the Commanding Officer's house that has been totally restored. However it was among the group at the post that were gutted and totally remodeled in the late 1930's. It was also converted, at a date currently unknown, to serve Fort Wayne as an officer's club. The manner in which each room was used as a club has not been recorded. Today the first floor consists of an entrance vestibule and front stair hall leading to a very long room on the east (originally a double parlor with the separating wall removed). On the west are two rooms (interpreted as a downstairs bedroom and dining room in the Commanding Officer's house restoration). These spaces undoubtedly served the club for dining and entertainment. To the rear of the first floor are a pantry and kitchen with a rear stair to the basement and the second floor between. Also an addition was constructed at the northeast corner that contain several medium sized rooms, two half baths (one with a shower), several closets and a rear entry hall. The second floor contains a major stair hall, five bedrooms, three full baths and the requisite number of closets. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39 although remnants of a coved plaster cornice remain in several first floor rooms. Primary floors are wood. The entrance vestibule has a quarry tile and ceramic tile wainscot (circa 1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several rooms and an access hall. Major basement walls are masonry and ceilings are plastered throughout.



Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 22 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as-is; reporint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition	Selectively repoint 5% of surface
Evidence of previous powerwashing (eroded mortar)	
Deteriorated chimney mortar	Repoint chimney above roof; provide new flashing
Front porch masonry deteriorated	Rebuild 50% of front porch masonry; re-stucco
Wood Trim: Good condition	Minor repairs, reattachment
Gutters and Leaders	
Deteriorated gutters and leaders	Replace 120 lf of gutters with half-round gutters and six 20' downspouts
Paint: Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Fair condition, valleys severely deteriorated	Install new asphalt shingle roof.
No cricket at chimney	Provide new cricket at chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - fair condition	Install new asphalt shingle roof and flashings.
Doors: Fair condition	Repair hardware. Miscellaneous minor repairs to wood doors
Windows: Fair condition.	
First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace 2 broken lights
Basement windows. Fair condition.	Remove plywood panels from 4 openings; Replace broken lights
Front Porches	
Fair condition. Missing railings	Replace 2 missing wood railings and balusters.
Rear Porches	
Concrete steps not original: Fair condition.	
Anachronistic railings	Replace 2 railings with new wood railings

Exterior Conditions con't	**Exterior Recommendations con't**
Cellar Door: Inadequate	Provide new locking cellar door.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Miscellaneous Northeast addition is not original, but has gained historic significance in it's own right	
Accessibility No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This building can be adapted to office use. A number of changes have been made to this single-family residential structure for its early adaptation as an officer's club. Since this use is part of the fort's military history, these can be considered to have gained their own significance and need not be restored back to original condition. Also, recent tenants have undertaken some crude interior renovations and good care has not been taken of the building. These changes should be removed. In spite of the past renovations, the building still can be adapted for office use. However, it should be limited to a single tenant. No additional original wall removals or additions are necessary to achieve a functional office arrangement. Residential bathrooms in this building should comfortably serve office rest room requirements. Any more changes to original spatial relationships within the building should be avoided and must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in usable condition for the proposed use.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior

Recommendations for treatment.

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Peeling paint	None
Inappropriate paint finish	
Ceilings – good - first floor NE room - fair	Patch areas of deteriorated plaster 2%
Walls – good - SE, NE, and SW bedrooms – fair	Patch cracks and areas of deteriorated plaster 5%
Coved cornice main first floor rooms – good	Preserve
Woodwork	
Casings – good	Patch abrasions 2%; prepare for new finish 100%
Base – good	Patch abrasions 2%; prepare for new finish 100%
Front stair handrail – missing	Replicate entire handrail; prepare for stained finish 100%
Front stair treads – poor	Sand and refinish 100%
Picture rail (main rooms only) – good	Patch abrasions 2%; prepare for new finish 100%
Fireplace mantels – good	Patch abrasions 2%; prepare for new finish 100%
Wainscot rail – first floor – good	Preserve
Doors	
30 six panel – five missing	Replicate missing doors; reglue loose joints; repair abrasions; prepare for new finish 100%
3 pair four panel and glazed over two panel – all	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor; missing	Provide 100% new hardware
Floors	
Wood - poor	Remove inappropriate paint; sand and refinish 100%
Miscellaneous coverings–masonite, carpet, asphalt, tile, linoleum – poor	Remove to original wood floor; sand and refinish 100% Replace linoleum
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – poor	Replace fixtures; repair plumbing
Finishes	
Painted surfaces – some inappropriate	All interior surfaces two coats 100%
Stained	Stair railing 100%

Structural Conditions

Floor loading
Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Plumbing

Electrical Systems Conditions

System Summary

(1) 100 amp panel boards - 240 V (This is a newer panel board)

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Plumbing

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

SmithGroup

BUILDING 111 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

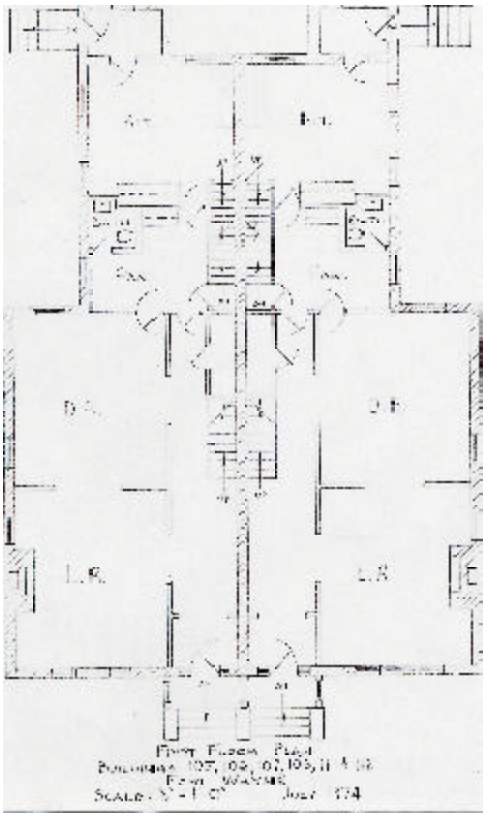
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

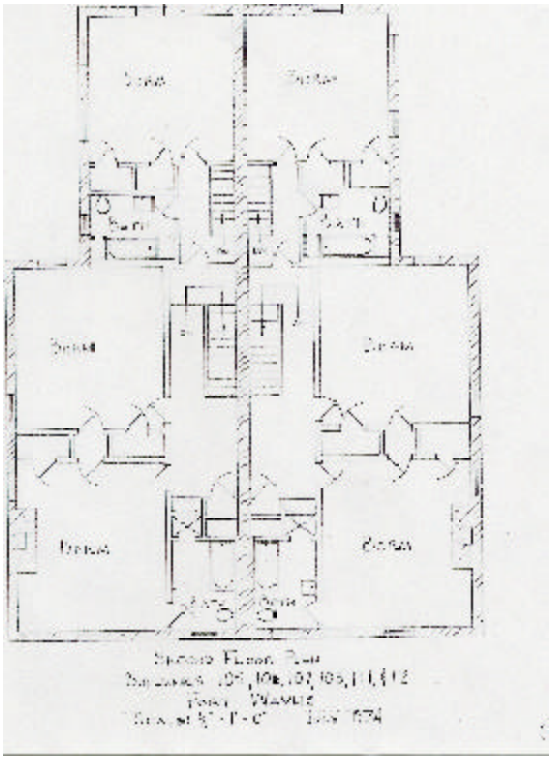
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 25 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as-is; reporint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition	Selectively repoint 5% of surface
Evidence of previous powerwashing (eroded mortar)	
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Wood Trim	
Rotted/damaged fascia	Replace 50 lf of fascia crown molding. Infill gaps
Gutters and Leaders	
No gutters and leaders	Replace 90 lf of gutters with half-round gutters and six 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Poor condition, valleys severely deteriorated	Install new asphalt shingle roof.
No cricket at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition, Inadequate flashing	Install new asphalt shingle roof and flashing.
Rear Porch roofs: Asphalt - fair condition	Install new asphalt shingle roof, new flashing.
Doors	
Fair condition	Repair hardware. Miscellaneous minor repairs to wood doors.
Windows	
Good condition. First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace broken lights
Wire grilles on first floor windows	Remove wire grilles from first floor windows.
Basement windows. Fair condition.	Remove plywood panels from openings; Replace broken lights
Front Porches	
Fair condition. Missing railings	Replace 2 missing wood railings and balusters.

Exterior Conditions con't	**Exterior Recommendations con't**
Rear Porches	
Concrete steps not original: Fair condition. Anachronistic railings	Replace 2 railings with new wood railings
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs: Fair condition.	Selectively repair concrete.
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Half Bath ceramic	Not original but different than 1935-39 changes; leave in place
First Floor	
Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See Interior Recommendations for treatment.
Window air conditioners	Remove when new mechanical system installed for adaptation
Unit B – openings between Front Hall and Living Room and Dining Room closed	Restore original openings
Unit A and B - new rough opening between units in closet under stair	Leave in place if single tenant is to use entire building; close opening and restore surfaces if two tenants will be in building

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish - fair	5% peeling paint; scrape and feather
Walls – excellent except SW bedroom Unit A and SE bedroom Unit B	2% plaster replacement; patch remainder
Ceilings – excellent except same as walls above	3% plaster replacement; patch remainder -
Woodwork	
Casings – good	Patch abrasions 2%; prepare for new finish 100%
Base – good	Patch abrasions 2%; prepare for new finish 100%
Front stair handrail – missing Unit A and B	Replicate entire handrail both floors
Rear stair handrail – missing 2 out of 3 balusters at Unit A – intact at Unit B	Replace several missing balusters; stabilize; prepare for new painted finish 100%
Picture rail (main rooms only) – good	Patch 5%; prepare for new finish 100%
Pantry cabinets – good – doors missing	Restore 10%; prepare for new painted finish 100%
Fireplace mantle – missing first floor Unit A - second fireplace in NW bedroom Unit A	Replicate missing mantel; restore existing; prepare for new painted finish 100%
Doors	
36 five panel – 40% missing	Replicate missing doors; reglue loose joints, repair abrasions and prepare for new finish 100% on remaining doors
2 pair fifteen lite glass doors – missing	Replicate doors; prepare for new painted finish 100%
Hardware - poor	Provide new stiles where damaged by hardware re moval; 30% new hardware; repair existing
Floors	
Wood - fair	Remove carpet; repair few buckled areas; sand and refinish 100%
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	Clean 100%
Floor – quarry tile – good	Clean 100%
First Floor Half Bath	
Wainscot and floor – ceramic tile – good	Clean 100%
All fixtures missing	Replace fixtures; repair plumbing
Kitchen	
Cabinets	Need not restore for office adaptation
Bathrooms (operational)	
Wainscot - ceramic tile– good	Clean 100%; replace missing or damaged ceramic accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing

Interior Conditions	**Interior Recommendations**
Finishes	
Painted	Touch up existing painted surfaces
Stained	Stair front stair handrail 100%
Basement (clean – used for storage)	
Exterior walls – fair	Tuckpoint 100%; paint
Interior masonry walls – good	Paint 100%
Concrete floor – good	Paint 100%
Ceilings – good	Paint 100%

Structural Conditions

Floor loading

Does not meet requirements for new use

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

SmithGroup

BUILDING 112 A / B

OFFICER'S QUARTERS

Constructed:	1890
Building Type:	5
Proposed Use:	Office
Area:	4,672 SF (+ 2,336 SF Basement)
Conceptual Cost Estimate:	$650,000 - $810,000

BUILDING TYPE 5

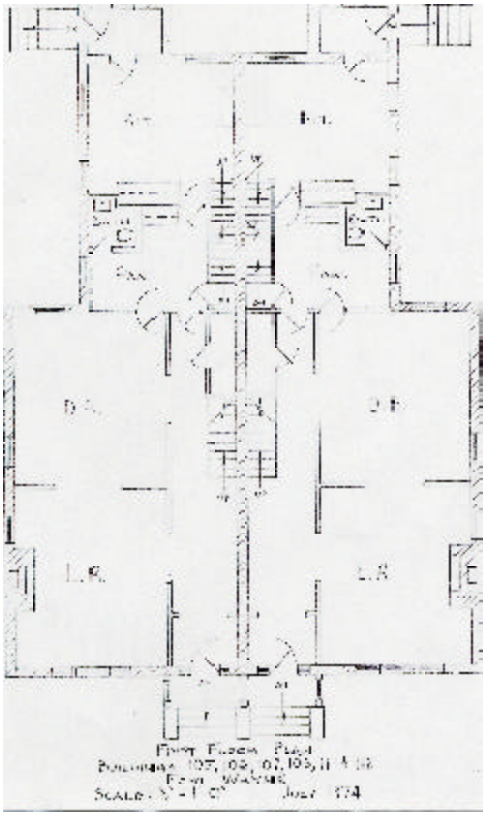
The Type 5 Officers' residences are all duplexes built at the same time in 1890. These residences were originally wood frame construction, but were clad with brick veneer during the 1930's by WPA workers. The resulting exterior brick, detailing and general appearance is similar to the Type 3 NCO residences (buildings 216 – 219). The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

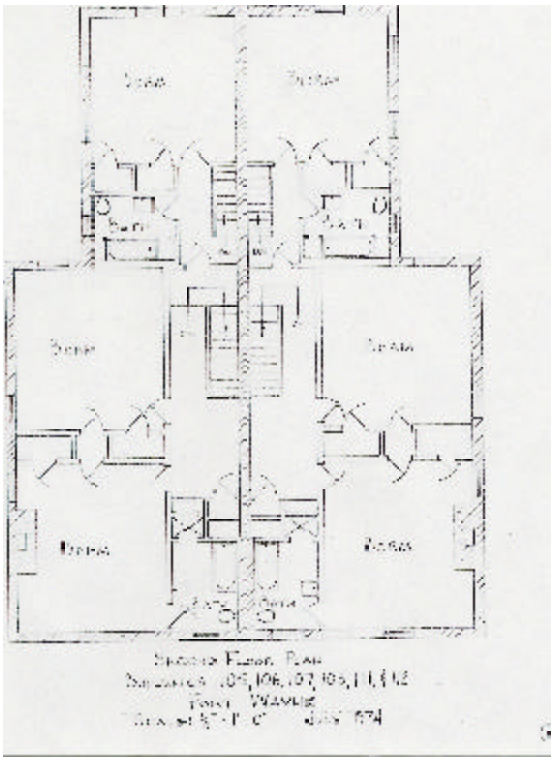
EXTERIOR

This duplex building was originally a wood frame Victorian building on a brick foundation. It was re-clad with brick veneer during the 1930's between 1937 and 1939, resulting in a side-gabled Colonial style exterior, with an intersecting perpendicular gable at the rear.. All visible exterior surfaces and detail except windows date from the recladding. The general building massing and footprint are from the original Victorian configuration. The brick veneer is supported on a concrete foundation that that is reported, but not confirmed, to extend a few feet below grade and is adhered to the original brick foundation. The veneer foundation extends upwards to first floor level, approximately 36" above grade. Window openings are rectangular and are formed by steel lintels. Each building has a brick masonry chimney on each gable end. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six, with some four-over-four. There is a single front porch on the south elevation serving the two dwelling entrances, with a demising dividing wall. The porch has a brick masonry base that may date from the original Victorian construction, which is parged with a cementitious coating. The current Colonial porch has three wood columns and a low sloped roof. At the rear are enclosed utility entries, with trash access openings and concrete steps. These entries appear to have been added during the 1937 – 1939 renovations. Exterior basement access stairs are located on the east and west walls.

INTERIOR

This duplex Officer's Housing structure is two stories with full basement. Each unit's first floor consists of a front entrance vestibule, front hall, living room, dining room, pantry, half bath, kitchen, and rear entrance. The front stair to the second floor is open to the front hall. The rear stair to the second floor is accessed from the kitchen. The second floor contains a stair hall, three bedrooms, closets, and two full three-piece bathrooms. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Primary floors are wood some of which are covered with carpet. The entrance vestibule has a quarry tile and ceramic tile wainscot (1935-39). The bathrooms have ceramic tile floor and wainscot (circa 1935-39). The basement is subdivided into several separate rooms and a central hall. Major walls are masonry and there are plastered ceilings throughout.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels, shifted brick veneer	Replace 25 rusted lintels. Further investigate shifted bricks and anchorage conditions via selective removal of bricks and borescope inspection. Repair options: 1. Replace/repair lintels and leave masonry as-is; repoint 2. Replace/repair lintels and rebuild masonry in immediate area of shifting 3. Repair/replace lintels, major rebuilding of veneer.
Mortar in good condition	Selectively repoint 5% of surface
Evidence of previous powerwashing (eroded mortar)	
Deteriorated chimney mortar	Repoint both chimneys; provide new flashing
Wood Trim: Rotted/damaged fascia	Replace 30 lf of fascia crown molding. Infill gaps
Gutters and Leaders	
No gutters and leaders	Replace 70 lf of gutters with half-round gutters and six 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs	
Fair condition, valleys deteriorated	Install new asphalt shingle roof.
No cricket at chimneys	Provide new crickets at 2 chimneys
Bowed ridge	Investigate bowed ridge; reinforce.
Front porch roof: Asphalt - poor condition,	Install new asphalt shingle roof and flashing. Inadequate flashing
Rear Porch roofs: Asphalt - fair condition	Install new asphalt shingle roof, new flashing.
Doors: Fair condtion	Repair hardware. Miscellaneous minor repairs to wood doors.
Windows: Good condition.	
First and second floor windows not original (aluminum jamb liners)	Reglaze 90%; replace broken lights
Basement windows. Fair condition.	Remove plywood panels from openings; Replace broken lights
Front Porches: Fair condition. Missing railings	Replace 2 missing wood railings and balusters.

SmithGroup

Exterior Conditions con't	**Exterior Recommendations con't**
Rear Porches Concrete steps not original: Fair condition. Anachronistic railings	Replace 2 railings with new wood railings
Cellar Doors: Inadequate	Provide new locking cellar doors.
Exterior Basement Stairs Fair condition.	Selectively repair concrete.
Accessibility No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Woodwork (1935-39) – except front stair balusters	Leave in place as significant change - See Interior Recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Half Bath	Not original but different than 1935-39 changes; leave in place
First Floor Vestibule – Quarry tile floor and ceramic added	Leave in place as significant change - See Interior Recommendations for treatment.
Window air conditioner	Leave in place until final HVAC changes are made

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster	
Finish – good	No work
Walls – good except for minor damage in south bedrooms in Unit B	1% plaster patch
Ceilings - good except for minor damage in south bedrooms in Unit B	1% plaster patch
Basement plaster – fair	Patch cracks
Woodwork	
Casings – good	No work
Base – good	No work
Front stair handrail – good (original balusters)	No work
Rear stair handrail – good	No work
Picture rail (main rooms only) – good	No work
Pantry cabinets – good	No work
Fireplace mantle – good	No work
Doors	
36 six panel – intact	No work
2 pair fifteen lite glass doors – intact	No work
Hardware – intact - fair	Repair 100%
Floors	
Wood - fair	Sand and refinish 100%
Vinyl tile on wood (Kitchen and Pantry) – fair	No work
First Floor Entrance Vestibule	
Wainscot – ceramic tile – good	No work
Floor – quarry tile – good	No work
First Floor Half Bath	
Wainscot – ceramic tile – good	Clean 100%
Floor – asphalt tile - poor	Replace
Kitchen	
Cabinets and accessories – good	Maintain kitchen in current kitchen until determination is made that future tenant will use space as is or require change
Bathrooms	
Wainscot - ceramic tile– good	Clean 100%
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – good	Repair plumbing
Finishes	
Painted	No work
Stained	No work

SmithGroup

Interior Conditions con't

Basement
- Exterior walls – poor
- Interior masonry walls – poor
- Concrete floor – fair
- Ceilings – poor

Structural Conditions

Floor loading
- Does not meet requirements for new use

Mechanical Systems Conditions

HVAC System

Heating is provided by a 15 psi steam heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Approx. 30 gallon water heater located in basement.

First Floor: Half-bathroom has one WC and one lavatory; Kitchen has one sink

Second Floor: Full bathroom has one basthtub, one WC, and one lavatory.

The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp panel boards - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Interior Recommendations con't

Clean100%; paint
Clean; paint 100%
Clean 100%
10% repair; paint 100%

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 114

OFFICER'S QUARTERS

Constructed:	1906
Proposed Use:	Office
Area:	8,574 SF (+ 2,976 SF Basement)
Conceptual Cost Estimate:	$1,170,000 - $1,460,000

BUILDING TYPE 114

The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

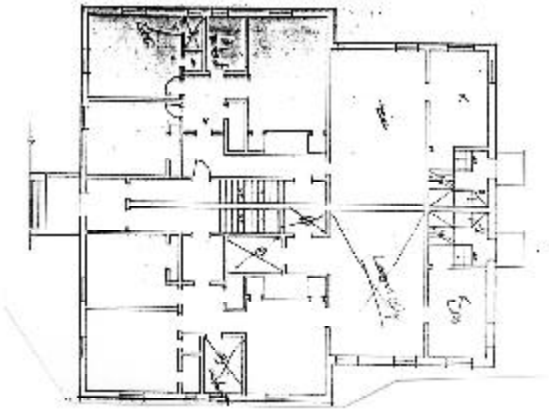
EXTERIOR

This large duplex residence is a Colonial Revival brick masonry bearing wall building, on a coursed ashlar limestone base. Joints in brickwork are pointed with red tinted mortar. The building's footprint is compressed "T"-shape. The building features a side gable roof on the front (south-facing) facing wing and a hipped roof rear wing. Two wood framed dormers are located on the front roof, and one on each of the east and west facing slopes of the rear hipped roof. Window openings are topped by jack arches, and have limestone sills. Windows are wood double-hung, with six-over-two muntin configurations. The building has two brick masonry chimneys. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. The front wing features a wide frieze with dentil which wrap around the building and form wood cornices which define the lower side of the side gables. There is a single front porch and entry on the south side. The porch has a front-gable roof. Supported on wood columns. There are two rear doors on the north elevation, served by concrete steps.

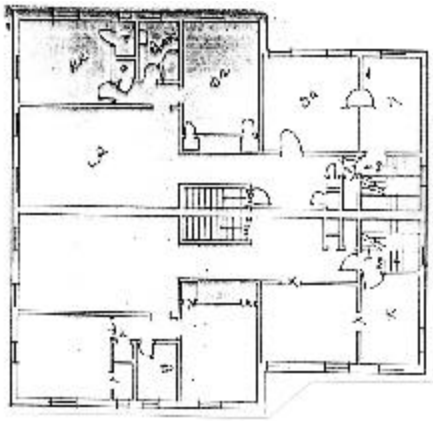
INTERIOR

This very large structure, originally built for officer's housing, is two-and-one-half stories with full basement. Identification signage "A", "B", and "C" at the rear entrance doors, believed to be original, indicate it contained three living units. However, the existing floor plan appears that there was a minimum of four units, two on each side. If, in fact, there were three units the single side would have had seven bedrooms and seven bathrooms or lavatories. The first floor on each side is a self-contained apartment with an independent front vestibule from a common vestibule that serves all apartments in the building. Also in each first floor unit are a living room, kitchen, three bedrooms, and multiple bathrooms (two on the west side and three on the east). The second and third floor units both have a living room, dining room, kitchen, four bedrooms and four bathrooms or lavatories. The common front entrance vestibule provides direct access to both the first floor units and a stair leading to the second and third floor units. To make matters even more confusing, both sides of the third floor have been combined with an opening broken through the common center wall. Because so many changes have been made, it is difficult to determine if this building was in the group that went through the 1935-39 plaster and woodwork renovations. Walls and ceilings are plastered throughout. The entrance vestibule has a quarry tile floor and ceramic tile wainscot. Inside, the units have wood floors with linoleum in the kitchens and a variety of ceramic tile floors and wainscots in bathrooms and lavatories.

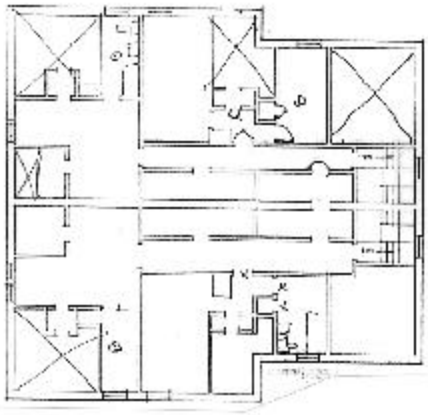
BUILDING 114



First Floor



Second Floor



Third Floor

Exterior Conditions	**Exterior Recommendations**
Foundations: Excellent condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry, extra attention to west side
Mortar in poor condition, weathered, many open joints	Selectively repoint 20% of surface.
Deteriorated chimney mortar	Repoint 2 chimneys above roof; provide new flashing
Wood Trim: Good condition.	Minor repairs
Dormer trim: Fair condition	Restore, 5% wood replacement
Gutters and Leaders	
All gutters and leaders missing	Replace all gutters and leaders
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs	
Main/dormer roofs: Poor condition	Install new asphalt shingle roof and flashings
Front porch roof: Poor condition	Install new asphalt shingle roof and flashings.
Dormers	
Main roof: Poor condition	Install new asphalt shingle roof and flashings
Doors: Fair condition.	Restore one front and two rear doors. Repair hardware at all doors.
Windows	
General – Fair to poor condition	Restore existing windows. Replace dormer windows
Basement windows - Poor condition.	Remove plywood panels from basement openings; Restore all basement windows. Replace two basement windows.
Front Porches: Fair condition	Repair, with selective wood replacement Deteriorated concrete steps Repair concrete steps.
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This residential structure can be adapted for office use. A number of changes have been made that are not related to its significance to adapt it to multiple housing. This includes wall addition and removal, ceiling changes, door openings closed, new openings constructed, and considerable original detail removed or destroyed. It would be best to restore the building's original configuration. However, the present room arrangement could be left intact. In either case planning can determine functional office plans and wall arrangement that would be in accordance with the SOI's Standards for Rehabilitation. The number of residential bathrooms is more than would be required for office rest room requirements. All should be replanned to achieve the required arrangement for the number of office units that the building could ultimately contain. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Plaster walls and ceilings (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
Woodwork (1935-39)	Leave in place as significant change - See Interior Recommendations for treatment.
This building has undergone considerable renovation	See Interior Recommendations for treatment.

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area is over 3,000 sq.ft. If separate office suites were to be planned for each half of the building, the second floor area for each would be less than 3,000 sq.ft. and barrier free access would not be required. If the entire building is planned for a single occupant the second floor area would exceed 3,000 sq.ft. and an elevator would be required.
Plaster	
Peeling paint	50% scrape and feather
Ceilings – very poor to fair	25% total replacement; patch other areas of deterioration and cracks 15%
Walls – very poor to fair	25% total replacement; patch other areas of deterioration and cracks 15%
Woodwork	
Casings – many changes - poor	Patch abrasions 20%; prepare for new finish 100%
Base – many changes – poor	Patch abrasions 20%; prepare for new finish 100%
Front stair railing – intact	Prepare for stained finish 100%
Rear stair handrail – mostly in tact	Replicate missing balusters; prepare for new paint finish 100%
Picture rail (main rooms only) - fair	Patch abrasions 20%; prepare for new finish 100%
Fireplace mantels – gone	Replicate; prepare for new finish 100%
Doors	
82 five and six panel – 50% missing	Replicate missing doors; reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 80% new hardware; repair remaining existing
Floors	
Wood – some carpet - poor	Remove carpet; repair buckled floor; sand and refinish 100%
Linoleum on wood – fair (excellent pattern and color sample)	Repair wood floor underlayment; replace linoleum
Bathrooms –	
Wainscot – varies (1935-39) and other	To be determined by replanning
Floor - varies (1935-39) and other	To be determined by replanning
Plumbing fixtures – poor	Replace fixtures when final number of bathrooms is determined; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%

Interior Conditions con't	**Interior Recommendations con't**
Basement	
Floors – poor	Raised wood floor on concrete in perimeter rooms; center concrete; remove and repair concrete floor 100%
Plaster ceilings – poor	Patch areas of deterioration and cracks 50%
Some plastered walls – poor	Repair
Structural Conditions	**Structural Recommendations**
Floor loading	
Does not meet requirements for new use	Reinforce all floors to 50 PSF live load capacity
Mechanical Systems Conditions	**Mechanical Systems Recommendations**
HVAC: Hydroid System	HVAC System
Heating is provided by a 15 psi, 525,000 Btuh input hot water boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.	Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.
There is no provision for cooling or necessary outside air for adequate ventilation.	A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.
Plumbing	Plumbing
The conditions of the plumbing fixtures (several of which are missing) and the water heater, do not justify refurbishing for re-use.	Replacement of all plumbing equipment, fixtures and piping is recommended.
Electrical Systems Conditions	**Electrical Systems Recommendations**
System Summary	Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.
(1) 100 amp panel boards - 240 V	
Standard light switches, plugs and fixtures	
System, including lighting, wiring, switches, panel boards and appurtenances is outdated.	Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 117

OFFICER'S QUARTERS

Constructed:	1906
Proposed Use:	Exhibit Center Office
Area:	7,732 SF (+ 2,216 SF Basement)
Conceptual Cost Estimate:	$740,000 - $925,000

BUILDING 117

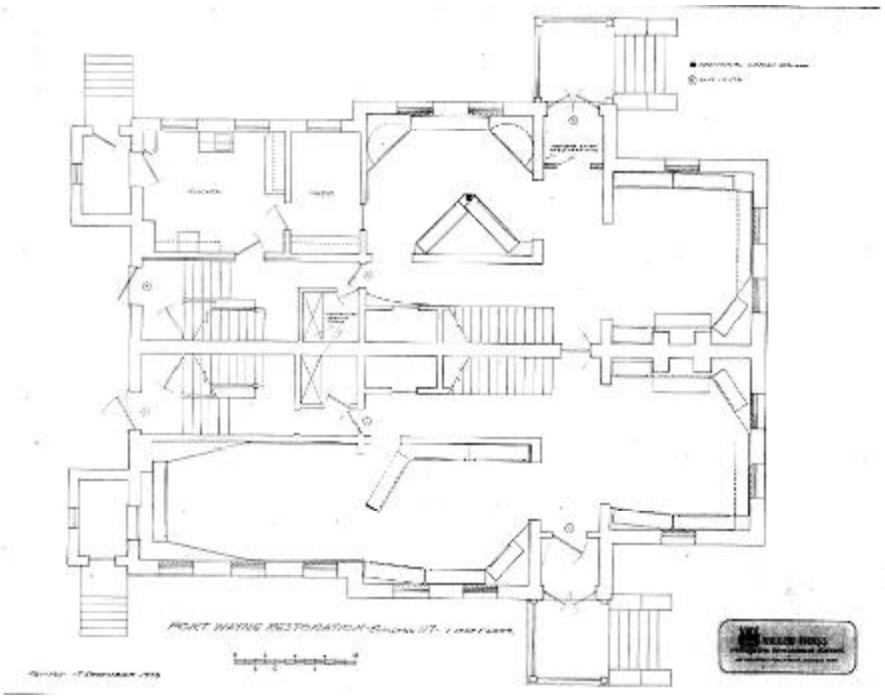
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

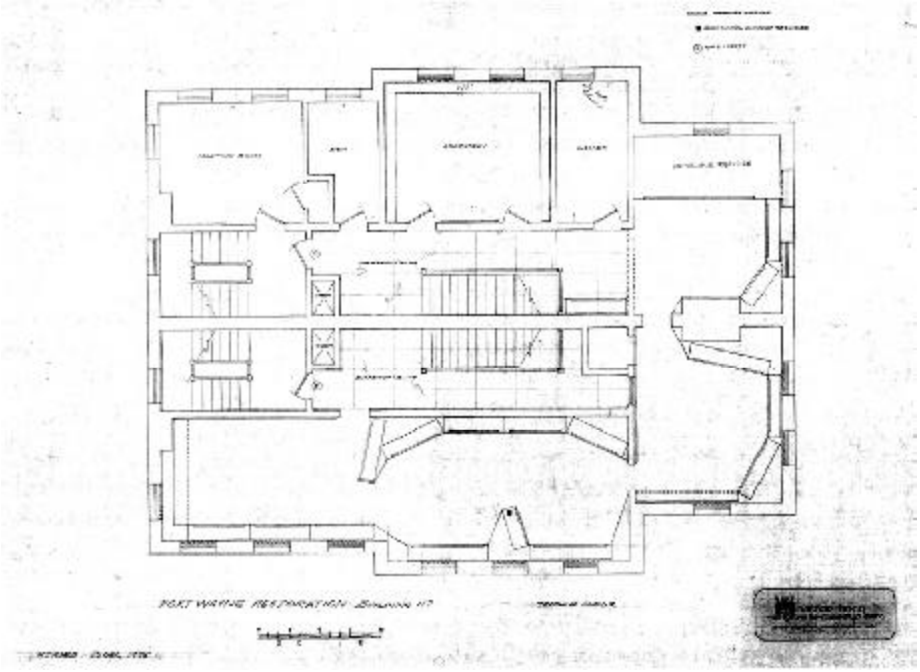
EXTERIOR

This large duplex residence is a Colonial Revival brick masonry bearing wall building, on a coursed ashlar limestone base. Joints in brickwork are pointed with red tinted mortar. The building's footprint is cruciform in shape. The building does not have a clearly defined "front," since the main entrances to the units are on two different and opposite sides. The building features a front gable facing west, with a subordinate cross gable. The rear roof is hipped. Non-original brick veneer entry vestibules and trash enclosures on concrete bases have been added at the rear, which are of similar construction to those found on Type 5 buildings, and are believed to date from the same period – the 1930's WPA modifications era. Window openings are topped by jack arches, and have limestone sills. Windows are wood double-hung, with several different muntin configurations. The building has one brick masonry chimney. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim, and wood cornices define the lower side of the front gables. There are hip-roofed front porches on the south and north elevations. Their concrete bases suggest that they are not original, and they likely also date from the 1930's.

INTERIOR

This structure, originally built as duplex Officer's housing, is two-and-one-half stories with full basement. It was among the group at the post that were gutted and totally remodeled in the late 1930's. In the 1970's it was altered again for museum exhibit space on the first and second floors. Each unit's first floor originally consisted of and entrance vestibule, "L" shaped front hall with an open stair to the second floor. In addition there was a dining room, pantry, kitchen, lavatory, and rear stair hall that served from the basement to the attic. Three bedrooms were located on the second floor along with a full three-piece bathroom. Today, the two main floors have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. For museum use new heating and air conditioning were introduced that resulted in major alterations to walls and particularly ceilings. Many other alterations were made for museum use. Although the museum display cases and much of the exhibit lighting is still in place, all interpretive exhibits have been removed. Primary floors are wood most of which has been carpeted. An additional rest room was added to provide facilities for men and women during its life as a museum. Both of these rest rooms were floored with vinyl tile.





Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 2 rusted lintels
Mortar in poor condition, weathered, many open joints	Selectively repoint 20% of surface.
Deteriorated chimney mortar	Repoint 2 chimneys above roof; provide new flashing
Front porch masonry deteriorated	Rebuild 50% of front porch masonry
Trash enclosures not original, deteriorated	Remove masonry trash enclosures; repair adjacent brick.
Wood Trim: Fair to good condition.	Minor repairs + 10% replacement.
Gutters and Leaders	
Deteriorated gutters. All leaders missing	Replace all gutters and leaders
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Main roof: Poor condition; some deteriorated structure	Install new asphalt shingle roof. Replace deteriorated roof structure (40 sf)
Front porch roof: Fair condition	Install new asphalt shingle roof and flashings.
Rear porch roof: Fair condition	Install new asphalt shingle roof and flashings
Doors	
Fair condition. Front doors are double – do not meet barrier – free access width requirements	Replace four front doors with two wider doors; Replace 2 rear doors; repair 2 rear doors Repair hardware at all doors.
Windows	
Many different muntin configurations suggest that many changes have been made to windows	Conduct research to determine original muntin patterns
General – Fair condition	Restore existing windows
Basement windows. Poor condition.	Remove plywood panels from 2 basement openings; Replace all basement windows with new wood windows.
Front Porches	
Poor condition. Two deteriorated column bases; Deteriorated concrete steps	Repair wood column bases Repair concrete steps.
Rear vestibule: fair condition – cracks in foundation	Analyze to determine cause of cracks; repair

PROPOSED USE

This residential structure can be adapted as an exhibit center or for office use. When it was remodeled as a museum, a number of changes were made. This includes wall addition and removal, extensive ceiling changes for HVAC ductwork, door openings closed, new openings constructed, and considerable original detail removed or destroyed. If the future use is to be an exhibit center, the museum changes could basically be left in place. However, if it is to be an office building it could be planned for one or two tenants. For two tenants it would be relatively simple to restore its original configuration. For one, the present room arrangement could basically be left intact. In either case functional office plans could be developed that would be in accordance with the SOI's Standards for Rehabilitation. The museum renovation resulted in constructing men and women's rest rooms on the second floor. This would satisfy an exhibit center or a single tenant arrangement. A two-tenant plan would require complete new rest room construction. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

This building has undergone considerable renovation to adapt for museum display and interpretation. Existing openings have been closed, new openings constructed, and considerable original detail removed or destroyed. Recommendations include: Remove all museum displays, replicate missing features, and rehabilitate for adaptive use

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Remodeling for museum use opened the second floor of both units to each other. The total second floor area is over 3,000 sq.ft. If the entire building is planned as an exhibit center or for a single office occupant, access to the second floor area would exceed 3,000 sq.ft. and an elevator would be required. If the two halves of the building were restored as independent office suites, the second floor area for each would be less than 3,000 sq.ft. and barrier free access would not be required.
Plaster	
Peeling paint	20% scrape and feather
Ceilings – good	Patch areas of deteriorated plaster 2%
Walls – good	Patch cracks and areas of deteriorated plaster 5%
Woodwork	
Casings – those that remain - good	Patch abrasions 2%; prepare for new finish 100%
Base – those that remain - good	Patch abrasions 2%; prepare for new finish 100%
Front stair handrail – intact	Prepare for stained finish 100%
Rear stair handrail – mostly in tact	Replicate missing balusters; prepare for new finish 100%
Picture rail – missing	Replicate; prepare for new finish 100%
Fireplace mantels – gone	Replicate; prepare for new finish 100%
Doors	
32 five and six panel – 15 missing	Replicate missing doors; reglue loose joints; repair abrasions; prepare for new finish 100%
2 fifteen lite glazed – 1 missing	Replicate missing door; reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 80% new hardware; repair remaining existing
Floors	
Wood – mostly carpeted - good	Remove carpet; sand and refinish 100%
Bathrooms – men and women's rest rooms 2nd floor	
Floor – vinyl tile – good	Determine bathroom number and location in adaptive use planning – see above
Plumbing fixtures – intact	Repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%

Structural Conditions

Floor loading

Does not meet requirements for new use

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity for Office use. If exhibit center use, may require 100 PSF to meet Assembly occupancy requirements.

Mechanical Systems Conditions

HVAC: Hydronic System

HVAC system consists of hot water heating boiler and a split cooling unit with humidification system.

The mechanical room appears abandoned except for the water heater.

No exhaust in bathroom.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Building has one Wc, one lavatory, and one urinal. All appear in good condition.

Water heater is in good condition.; in short-term, could be preserved for future use.

Plumbing

Water heater could be preserved for future use in short-term.

Existing plumbing fixtures could be preserved and cleaned for future use in short-term.

Replacement of all plumbing equipment, fixtures and piping is recommended for long-term.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 201

MAINTENANCE

Constructed:	1897
Proposed Use:	Site Maintenance Building
Area:	5,640 SF
Conceptual Cost Estimate:	$235,000 - $290,000

MAINTENANCE BUILDING

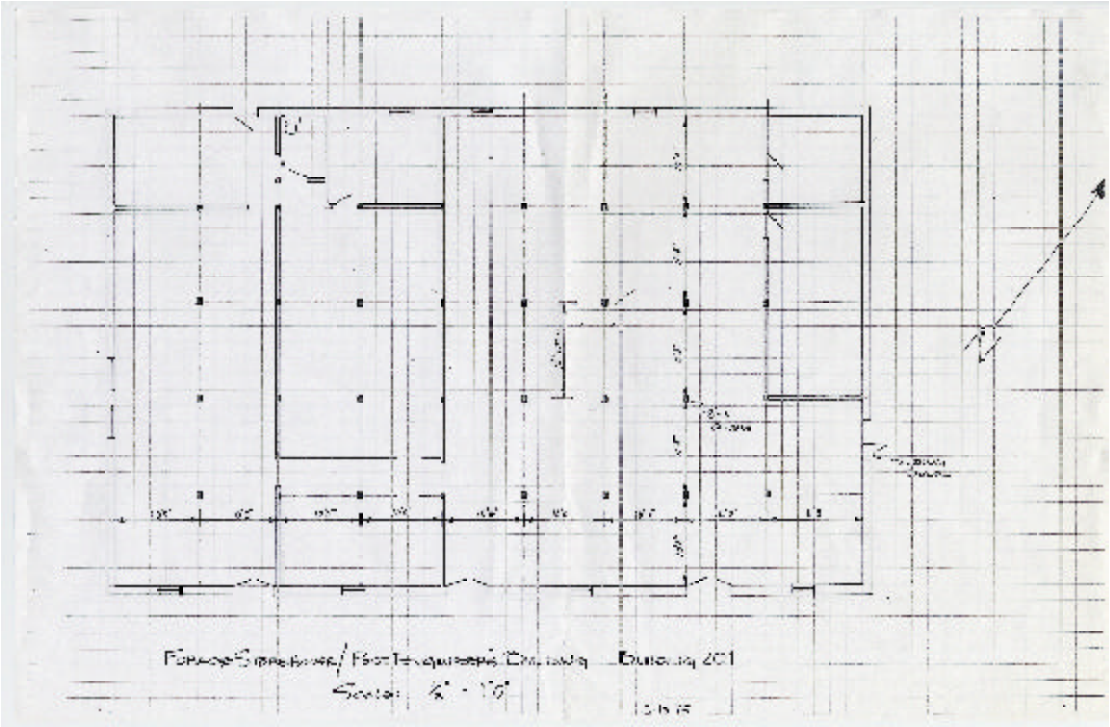
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This structure is a simple one-story brick masonry bearing wall utilitarian structure on a low rough coursed limestone masonry foundation. The foundation transitions to concrete on the north side. The first floor is elevated approximately 24 inches above grade. Openings are formed by segmental arches. Original windows are inswinging wood hoppers, with six light muntin configurations. Additional non-original steel sash industrial windows have been added at three locations. Doors appear to be original, and are of rail-and-stile construction with diagonal wide bead board panels. The roof is wood framed with a modern membrane covering, and is penetrated by several non-original ventilation structures. There is a tall brick chimney at the northeast corner of the building that appears to be non-original. There are two concrete stoops on the south side of the building that appear to be non-original. At the east gable end is a brick masonry wall with a parapet extending above the roof. The wall is partially painted and shows evidence that it was at one time an interior wall for a now-demolished addition.

INTERIOR

This warehouse type structure has been identified both as a forage storehouse and a Post Engineer's building. It very likely always has served for storage of some nature. At the present time it is used as a maintenance shop and storage for lawn and snow equipment, chain saws, spare doors, spare toilet seats, and anything else that could not find a home elsewhere. It has an open interior 5 bays wide by 9 bays long, each bay approximately 10' x 12' in dimension. The only substantial room in the building houses mechanical equipment and is in the northeast corner, one bay in size, with brick interior walls. The interior of the exterior walls is painted brick. Interior partitions are a mixture of wood studs surfaced on both sides with horizontal boarding, surfaced on one side with plywood, wire mesh, and a mixture of other materials. One rest room is located on the north exterior wall near the northwest corner. The floor is finished concrete and the ceiling is the underside of the roof structure with exposed truss components, supporting 2 x roof framing with exposed batt insulation between rafters. With the exception of the masonry enclosed mechanical room, it is impossible to understand which partitions are original. Probably many interior changes have been made over the years. Changes have also been made to window and door openings on the exterior walls.



Exterior Conditions	**Exterior Recommendations**
Wood Trim: Fair condition	Repair all wood trim; replace 30%
Gutters and Downspouts: all missing or severely damaged	Replace100%
Paint: Poor condition	Prep and repaint 100%
Masonry: Fair to poor condition. Extensive open joints. Heavily soiled. Paint on east wall.	 Repoint chimney 70%; Repoint building 90% Remove paint from east wall. Clean masonry 100%
Foundation: Rough coursed limestone. Sound, but extensive open joints	 Repoint 100%. 5% selective stone replacement.
Roof: Very poor condition – membrane is blown off.	Replace with new roof. Research historic photographs to determine appropriate material. Assume field fabricated standing seam metal. Repair some roof structure (assume 5%)
Porches: Two concrete stoops. Appear not to be original. One is in poor condition.	Replace one concrete stoop with new concrete stoop.
Doors: Heavy rail and stile with diagonal panels. Poor condition. – bottom rail rot, missing panels.	Repair three doors, replace three doors.
Windows Inswinging wood hopper + 3 non-original industrial steel sash in non-original openings. All in fair condition.	 Repair nine wood windows; replace two. Repair steel sash.

PROPOSED USE

The exterior of this building and its location as part of the fort complex are historically significant. However, with the exception of changes to original exterior walls, the interior has little historical character. The building is in good condition. Retaining its use for site maintenance will require little change with the exception of improving its existing interior characteristics. The following recommendations focus on material upgrading but functional improvement will require additional planning. The recommendations listed below are based on the SOI's Standards.

INTERIOR / EXTERIOR CHANGES

Original door openings closed and new window openings have been created on the east wall. Restore original openings for correct exterior restoration.

Interior Feature Conditions	**Interior Recommendations**
Walls	
Interior of brick exterior walls - good	Clean and paint 100%
Wood stud walls with horizontal board covering - good	Paint covering 100%; future location to be determined
Crib enclosures - good	Clean 100%; future location to be determined
Ceiling	
Underside of exposed roof deck framing	Finish ceiling with drywall, taped, spackeled, sanded and painted
Doors	
3 five panel – intact	Reglue loose joints; repair abrasions; prepare for new finish 100%
Metal door at mechanical room	Repair as required and prepare for new finish
Hardware - fair	Repair as required
Floors	
Concrete	Clean
Rest Room - good	Clean; repair plumbing as required; only one rest room exists; this should be expanded for both men and women
Finishes: Painted	All interior surfaces two coats 100%

Structural Conditions	**Structural Recommendations**
Concrete slab on earth. Assumed to be adequate for proposed use.	No work required.

Electrical Systems Conditions	**Electrical Systems Recommendations**
System Summary	Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.
Standard light switches, plugs and fixtures	
System, including lighting, wiring, switches, and appurtenances is outdated.	Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 202

POST QUARTERMASTER

Constructed:	1890
Proposed Use:	Office / Studio Conference/ Training Facility
Area:	4,900 SF (+ 4,900 SF basement)
Conceptual Cost Estimate:	$925,000 - $1,150,000

BUILDING 202

The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

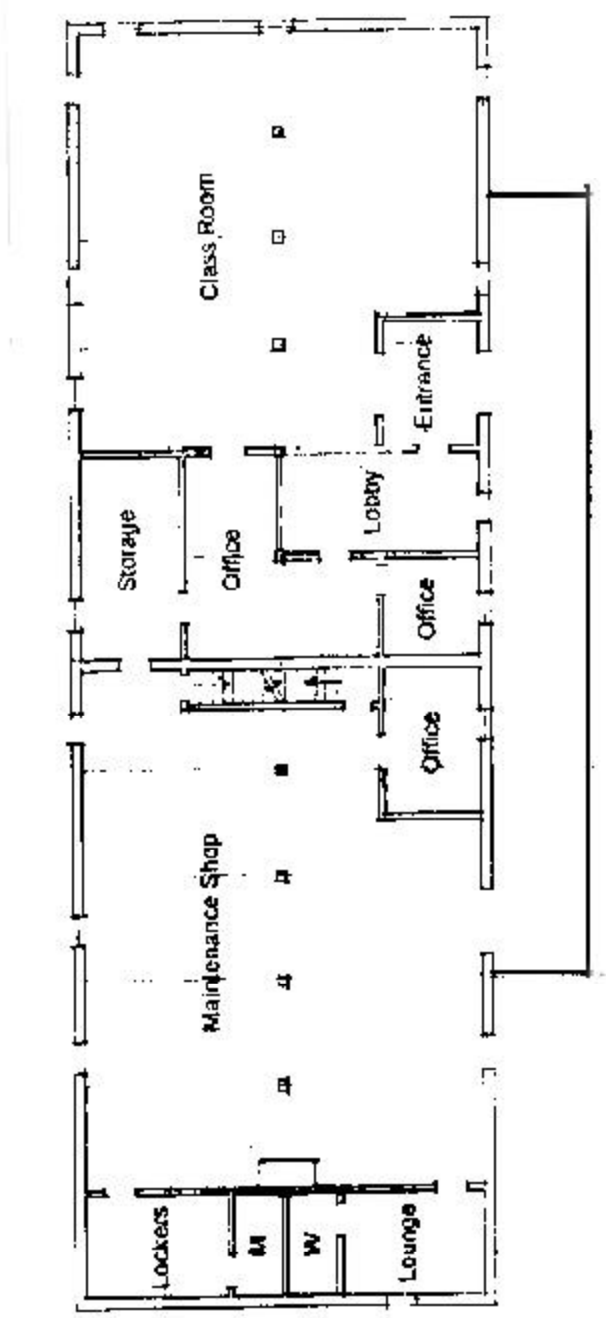
EXTERIOR

Although this is a utilitarian building, it has attractive detailing in the Colonial Revival style. It is a rectangular brick masonry bearing wall building, on a coursed ashlar limestone base. The building features a side gable roof, with a center dormer that may not be original. There have been several modifications to window openings, with some original openings blocked up, and new openings added. Original window openings have limestone lintels and sills, except basement and gable end windows have rowlock arches. New openings have a mix of stone and steel lintels. Windows are primarily wood double-hung, with six-over-six or four-over-four muntin configurations. Some windows are paired casements with ten-light sash. Doors to the main level are non-original hollow metal; the door to basement level is old – possibly original – wood. The building has one brick masonry chimney. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature a wide fascia with crown molding trim, and wood cornices with modillions at the eaves and rake. There is a small wood-sided structure attached to the north side of the building. There is a concrete loading dock located at the south elevation that does not appear to be original, containing aggregate similar to other concrete installed at the fort during the 1930's.

INTERIOR

This warehouse structure is one story with attic and basement. It was originally constructed for the post quartermaster and currently serves as maintenance headquarters at Fort Wayne. It has twelve 10'– 0" bays in its length with one row of columns at the center of the building. The main floor has a large classroom at the east end, several offices toward the center, and a large maintenance shop men and women's rest room with a lounge and locker room at the west end. The attic is used for wood storage accessed with a special lift for loading and unloading. The basement is also storage with a double walkout door at the west end. The interior of the exterior walls is painted brick in the shop end of the building and plastered in other rooms. Interior walls are mostly plastered with prefinished plywood paneling in some offices. The ceilings were originally plastered but suspended lay-in acoustic tile has been installed in smaller rooms. The main floor consists of heavy wood framing and is covered with vinyl or asphalt tile throughout the building.

BUILDING 202



Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Deteriorated, weathered brick	Replace 5% of brick surface
Mortar in poor condition, weathered, many open joints	Selectively repoint 60% of surface
Deteriorated chimney mortar	Repoint 1 chimney above roof; provide new flashing
Non-original opening modifications	Conduct research to determine configuration of original openings; restore.
Wood Trim:	
North side fascia – poor condition	Replace 100% with new with molded trim; repair modillions
South side fascia and ease and west rake trim – fair condition	Replace 50% with new with molded trim; repair modillions
Gutters and Leaders	
North gutters and leaders missing; south damaged	Replace all gutters and leaders with new copper
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Poor condition; some deteriorated sheathing	Install new asphalt shingle roof. Replace deteriorated roof sheathing (50 sf)
Dormer roof	Install new asphalt shingle roof.
Loading dock roof missing	Conduct research to determine configuration of loading dock roof – reconstruct with wood framing
Doors	
Main level doors - Anachronistic hollow metal.	Replace two pairs of front doors with new wood doors to match originals, based on research
Basement doors: poor condition (wood rail and stile)	Repair pair of doors Repair hardware at all doors.
Windows	
Poor condition. All are deteriorated. Many have louvers	Replace all double hung and casement windows with new to match existing. Eliminate louvers, or install new in a compatible manner.
Exterior Basement Stairs	
Concrete - Poor condition.	Repair deteriorated concrete surfaces.

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PROPOSED USE

The exterior of this building and its location as part of the fort complex are historically significant. With the exception of changes to original exterior walls, its interior is in excellent condition, but has little historical character. Its proposed use for office/conference/training facility use will require very little adaptation.. The recommendations listed below in accordance with the SOI's Standards for Rehabilitation

INTERIOR / EXTERIOR CHANGES

Original window and door openings changed on the east, south, and west walls. Restore original openings for correct exterior restoration.

Interior Conditions	**Interior Recommendations**
Interior barrier free access – none	Access not required for basement used only for storage
Walls	
Interior of brick exterior walls - good	Clean and paint 100%
Plaster	No work
Ceiling	
Plaster	No work
Doors	
12 five panel – intact	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware – good	Repair as required
Floors	
Vinyl and asphalt tile on wood	Patch as required and clean
Rest Rooms	
Walls and ceilings	Replace surfaces to improve maintenance; clean; repair plumbing as required; facilities may need to be expanded
Finishes: Painted	Painted brick walls two coats 100%; no other work required
Structural Conditions	**Structural Recommendations**
Concrete slab on earth. Assumed to be adequate for proposed use.	No work required.
Electrical Systems Conditions	**Electrical Systems Recommendations**
System Summary (1) 100 amp panel boards, 24 circuits - 240 (Panel board is fairly outdated.)	Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.
Standard light switches, plugs and fixtures	
System, including lighting, wiring, switches, panel boards and appurtenances is outdated.	Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 205

"OLD" GUARDHOUSE

Constructed:	1889
Proposed Use:	Museum
Area:	1,814 SF (+ 224 SF basement)
Conceptual Cost Estimate:	$115,000 - $140,000

BUILDING 205

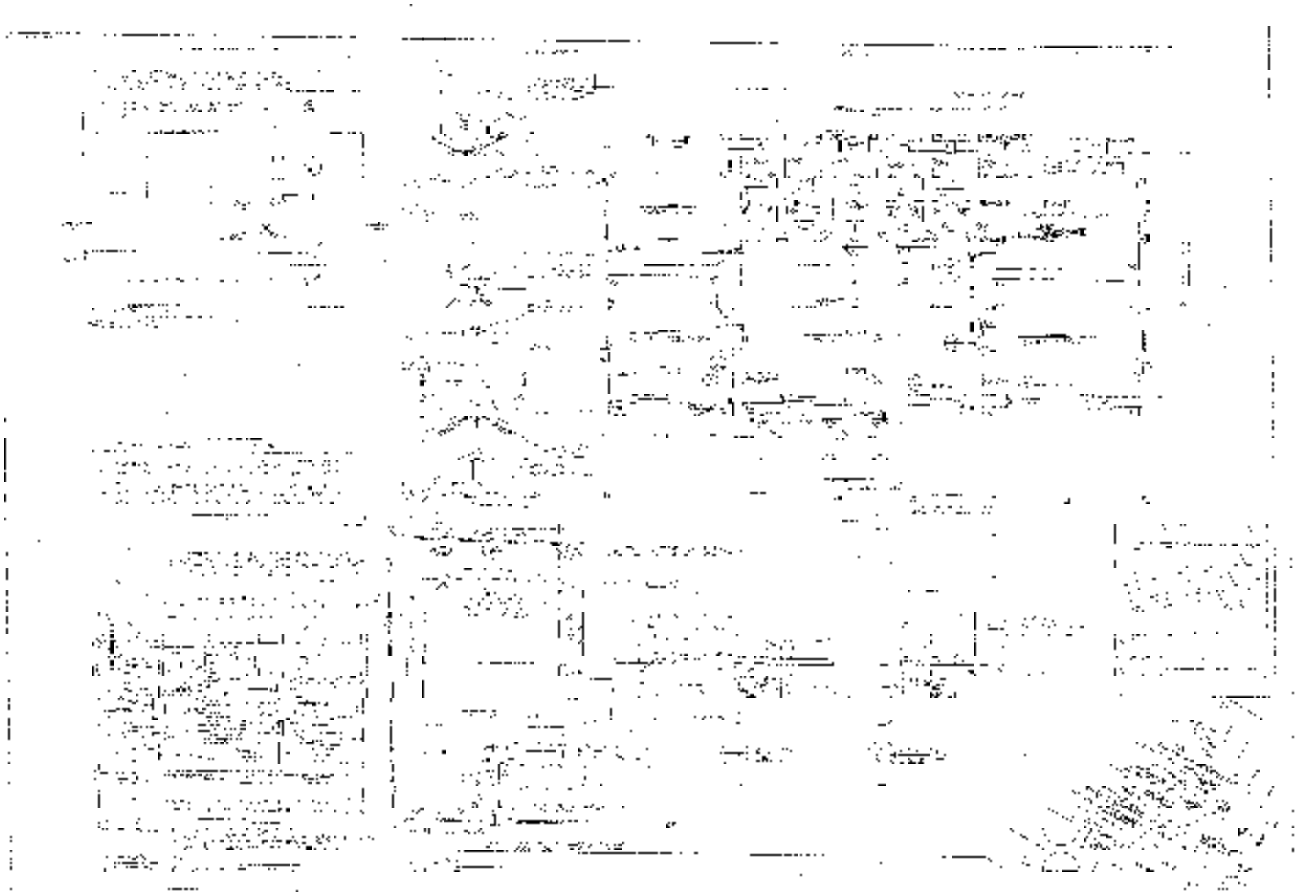
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This symmetrical side gabled building with a secondary front gable exhibits stylistic hallmarks of the Greek Revival style, with Italianate influences such as the full length open front porch and brackets at eaves. There are wood steps at the rear door with anachronistic 2 x 4 rails. The foundation is rough coursed limestone to the first floor, with exterior walls above the floor line being unpainted brick masonry with a bond course every seven courses. There are two brick chimneys, with stepped and corbelled tops. Limestone lintels finished with a margined pointed work support masonry over openings; except at the rear door, which is supported by a jack arch. Similarly finished limestone forms sills at windows. The roof is wood framed with wood shingles; front porch roof is wood framed low slope hipped with a membrane roof. Windows are wood double hung. Most are six-over-six, with some three-over-three, with four narrow one-over-one casements at the rear. The building has a small basement.

INTERIOR

Fort Wayne's first post guardhouse is a one-story brick masonry structure with a wood framed floor and roof. It was reportedly built to house Spanish-American War prisoners. By the 1970's it had become badly deteriorated. However, it was not until the 1980's that it was restored to the Spanish-American War period as an exhibit. It has been interpreted with period furniture. The building's main entrance is on the south façade and leads directly into a large guardroom at the center of the building. This serves four small cells on the north side of the room and two larger rooms to the east and west. The east rooms were probably both intended to house prisoners, but one is used today as a mechanical equipment room. The west rooms are today identified as a commander's room and a wash room. The original use of the cells is obvious, but the other rooms' functions have been taken from the August 1985 restoration drawings. The identified uses are reasonable, but at this time it is not known if they are correct.



Exterior Conditions	**Exterior Recommendations**
Foundations: Good Condition	No work recommended
Masonry:	
Good condition	No work recommended
Some restoration work inaccurate (improper size and finish on lintels at narrow windows)	No work recommended
Tuckpointing not well executed	No work recommended
Wood Trim:	
Poor condition: Deteriorated fascia	Replace 30% of fascia
Gutters and Leaders: Good condition	No work recommended
Paint: Fair condition	Scrape, prep, and repaint 100% of wood trim.
Roofs:	
Main roof: Wood Shingles - Fair condition	Monitor conditions
Front porch roof: Membrane – Good condition	No work recommended
Doors	
Rear 4-panel door deteriorated	Repair (clamp and glue) one door
Windows	
Good condition	No work recommended
Front Porches	
Open Joints in wood columns	Reset boards on wood columns
Rotted fascia and eave	Replace 30 lf of fascia and eave boards.
Rear Porches	
Anachronistic handrails	Replace handrails, repair steps

PROPOSED USE

Continued use of this building as a museum will require no changes.

Interior Conditions	**Interior Recommendations**
Walls	
Crack in northwest corner of Guard Room	Tuckpoint; touch up painted surface
Painted masonry – good. Existing red painted finish has faded, but still appears appropriate.	Consider touch up
Ceilings	
Painted narrow "V" grooved boards	No work

SmithGroup

Interior Conditions con't	**Interior Recommendations con't**
Woodwork	
Casings – good	No work
Base – good	No work
Molding – at wall and ceiling – good	No work
Doors	
5 four panel - intact	No work
1 two panel with metal bars above – intact	No work
4 metal bar doors at cells – intact	No work
Finishes	
Painted	Touch up masonry interior surface
Stained	No work

Mechanical Systems Conditions

HVAC: Hydronic System

Building has its own heating and cooling unit. (Williamson five-in-one type)

Plumbing

Electric water heater and service sink.

Building not safe for complete inspections of HVAC and plumbing systems.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 209

POST HOSPITAL

Constructed: 1889

Proposed Use: Preserve as a ruin/
Future - rehabilitate for museum storage facility

Area: Approximately 8,900 SF

Conceptual Cost Estimates:
Preserve as Ruin:
$50,000 - $100,000

Rehhabilitate for Storage
$1, 300,000 - $1,800,000

POST HOSPITAL

The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This Colonial Revival style building consists of the original two-story center core, and two symmetrical one-story wings and a non-symmetrical two-story addition at the north (perhaps a heating plant), added at a later date. It is a brick masonry bearing wall building with red Lake Superior sandstone trim. The center mass has decorative brick bond pattern belt between the first and second floor windows which is unique within the site to this building. The building features separate hip roofs on each wing. The center core has four hipped roof dormers. Window openings have red sandstone lintels and sills. The few remaining windows are wood double-hung, with four-over-two muntin configurations. Windows on the wings do not survive, but their openings are very tall, and may have had a different window configuration. There was a main entry door on the south elevation, but it is covered with plywood. It appears to be wide enough for double doors. There are indications on the building that there was once a wood porch at this location. Old floor plans suggest that there were secondary doors on the north side of the building. Archival drawings and photographs show that the building once had a wood-framed veranda that surrounded three sides of each wing. The center mass has one brick masonry chimney, and the north addition has a large free-standing three story chimney. Roof construction is wood framing, and surviving roofing is asphalt shingles. Eaves feature crown molding trim over a wide frieze with dentils.

INTERIOR

Not accessible. Drawings from 1945 indicate primarily open space in wings, presumably for hospital beds. The center of the building was partitioned for support space and offices on both floors.

The building is in a severe state of disrepair, and is partially collapsed, and as such, dangerous conditions prevented all access to the interior, and limited observation of the exterior.

Exterior Conditions	**Exterior Recommendations**
General:	
Center building appears relatively intact; actual structural condition not known. Roof is intact, but in poor condition. Evidence of brick masonry deterioration of wall surfaces due to long-term water saturation and freeze-thaw cycling. Exterior walls are intact.	Conduct detailed evaluation to determine condition. Some stabilization will be necessary to permit detailed inspection of the structure.It is possible that this portion of the structure may be salvageable, as it appears to be less deteriorated that the wings.
East wing:	
Roof totally collapsed, top courses of masonry collapsed. Exterior brick masonry heavily eroded due to long-term water saturation and freeze-thaw cycling.	Conduct detailed evaluation to determine condition. This wing is in the worst condition of any part of the building. Although it may be salvageable, significant wall reconstruction will be required
West wing:	
Roof partially collapsed. Exterior brick masonry heavily eroded due to long-term water saturation and freeze- thaw cycling.	Conduct detailed evaluation to determine condition. This wing may be salvageable at significant cost.
North wing:	
Roof intact but badly deteriorated Top courses of brick masonry in deteriorated due to long-term water saturation and freeze- thaw cycling.	Conduct detailed evaluation to determine condition. This wing may be salvageable at significant cost.
Missing Features:	
Veranda, front porch, windows, doors.	If restoration is undertaken, restore the verandas, front porch windows and doors.

Proposed Use

This structure is in a state of partial collapse, and the interior is believed to be substantially damaged, however it is architecturally and historically significant, so its retention is encouraged. An economical use would be as storage for the Detroit Historical Museums. It is likely that very little interior historic fabric remains. This condition makes the building's interior suitable for conversion to museum storage, with great flexibility as to arrangement for that use. Modern interior storage space could be created within the existing shell to meet storage requirements. Interior partitions should respect existing exterior openings. Alternatively, the building could be used as office space, however such use would involve more costly construction, and would add a

burden of more floor area to be leased. If the building is to be preserved as a ruin, there must be a clear understanding of what this means. In the context of these recommendations, preservation should not be construed as meaning abandon in place, without taking any action. Preservation as a ruin implies, at a minimum, removal of dangerous and unstable material, and stabilization of remaining material, and attempts to preserve the remaining elements for the future. If preservation as a ruin is understood to mean that that the building could be rehabilitated to be functional in the future, work could involve a wide range of actions, up to construction of new temporary roofs or canopies, and provision of wall closure. Costs range widely depending on what actions are taken.

Interior Changes

Unknown. Drawings from 1945 indicate repartitioning of the center building, however it ios not known if this work was ever undertaken. It is known that the wings are non-original additions, and their construction likely resulted in interior changes to the original center building.

InteriorConditions	**InteriorRecommendations**
General: Interior conditions unknown due to inaccessibility. Extensive severe water damage to finishes likely. Some failure of floor structures due to rotting is likely.	Conduct detailed evaluation to determine condition. Some stabilization will be necessary to permit detailed inspection of the structure Replace deteriorated floor structures (assume 70%) Replace all interior finishes.
Structural Conditions See Interior Conditions	**Structural Recommendations** See Interior Recommendations
Mechanical Systems Conditions	**Mechanical Systems Recommendations**
HVAC System: System could not be evaluated, however clearly is niether functional nor salvageable.	Entire mechanical systemsshould be demolished and removed from the site as part of enera demolitionl. Piping should be removed as appropriate; remainder should be cut and capped,. A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or elec tric heating and DX cooling unit is recommended.

Plumbing
System could not be evaluated, however clearly is niether functional nor salvageable.

Replacement of all plumbing equipment, fixtures and piping is necessary.

Electrical Systems Conditions

System could not be evaluated, however clearly is niether functional nor salvageable.

Electrical Systems Recommendations

Provide new electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 211 A / B

NCO QUARTERS

Constructed:	1931
Building Type:	2
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$395,000 - $495,000

BUILDING TYPE 2

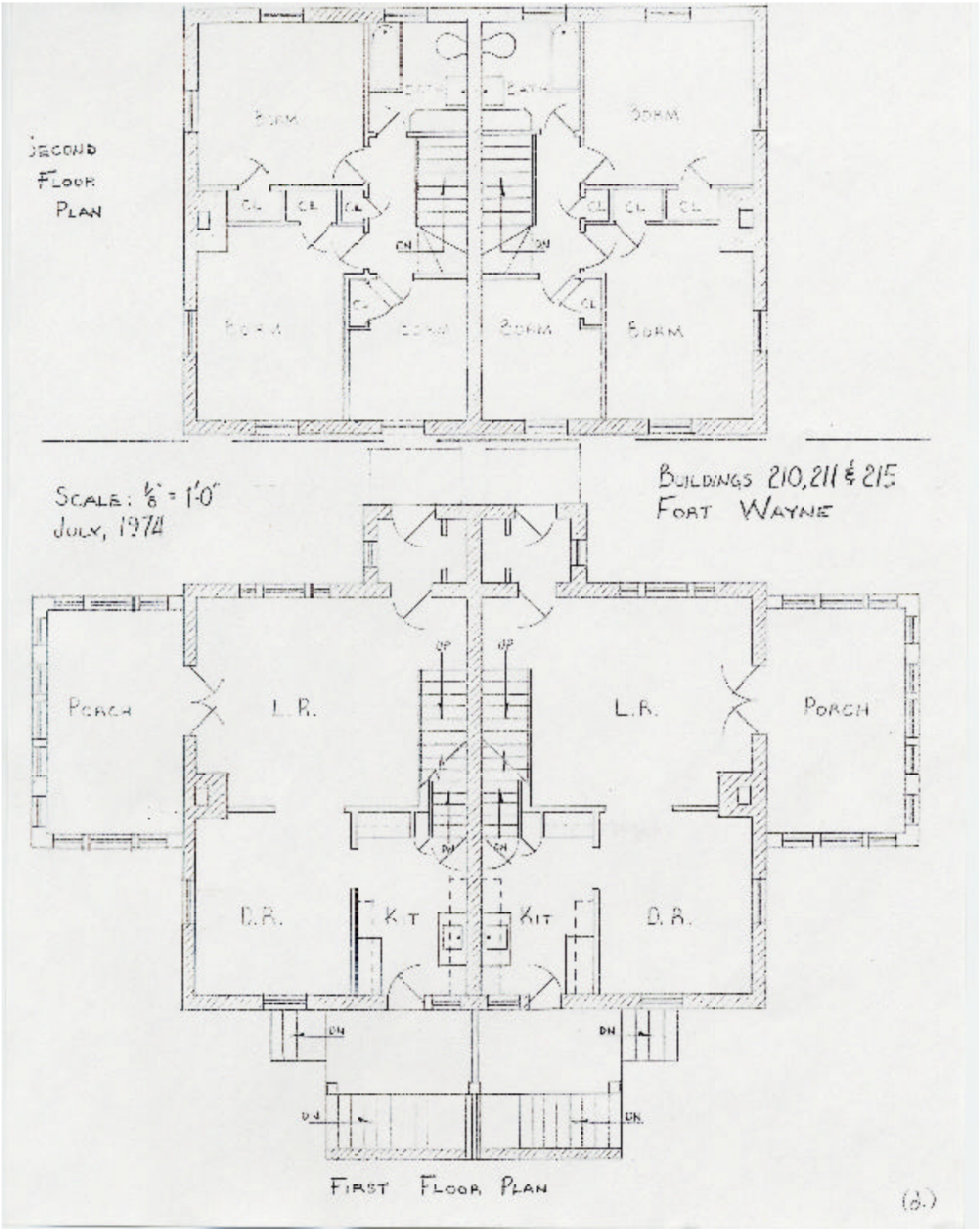
The Type 2 NCO residences are all duplexes, built at the same time in 1931. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR DESCRIPTION

This simple duplex unit is in the Colonial Revival style, similar, but not identical to the earlier Type 1 units, which have somewhat less refined detailing and trim. Foundations are formed concrete, extending above grade to the first floor line. Walls are tan brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney with corbelled tops and concrete caps located at each gable end of the roof. Roof construction is wood framing, and roofing is currently slate. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and small porches for each dwelling unit are centered as a single piece of construction on the north elevation. Combined open rear concrete porches do not appear to be original. Basement access stairs are located between the two rear porches. One-story sunrooms were located at each end but are now gone, except for their foundations. The sunrooms have been reconstructed at unit 210 – The Museum of the Tuskegee Airmen (not included in this survey).

INTERIOR DESCRIPTION

This duplex NCO building is two stories with basement. Original side porches for each unit have been removed but double entrance door openings still exist and are nailed shut with plywood. Each unit's first floor consists of a living room, dining room, and kitchen plus an enclosed front entrance vestibule. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings. Floors are wood with some carpet. The kitchen floor is covered with linoleum. The bathroom has plastered walls and ceramic tile wainscot and floor that is different in color and size than the typical green/black remodeling tile of 1935-39. It is therefore felt to be original to the 1931 construction date.


SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"
JULY, 1974
BUILDINGS 210, 211 & 215
FORT WAYNE
PORCH
L.R.
L.R.
PORCH
D.R.
KIT
KIT
D.R.
FIRST FLOOR PLAN
(6.)

Exterior Conditions	**Exterior Recommendations**
Foundations:	
Good Condition, except at northeast front porch (major settlement crack)	Investigate further, monitor crack progress. Possible new foundation under porch (50 sf)
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 20 rusted lintels
Weathered,deteriorated mortar;severe at south wall.	Repoint 50% of existing masonry
One deteriorated chimney	Repoint one chimney
One collapsed chimney	Rebuild one chimney from roofline to top
Severely deteriorated masonry under south eave (major water damage) masonry wall (2' x 40')	Remove and reconstruct top of 12" thick brick
Major settlement crack at north east porch	Rebuild porch masonry 120 sf of 8" brick masonry wall
Wood Trim:	
Rotted, Deteriorated eaves	Replace 100 lf of eave crown molding, soffit boards, and fascia.
Assumed deteriorated rafter ends	Repair deteriorated rafter ends.
Gutters and Leaders: No gutters and leaders	Replace 120 lf of gutters with half-round gutters and six 20' downspouts
Paint: Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs:	
Main roof: Poor condition – rotted and deteriorated rafters, sheathing and shingles	Rebuild 400 sf of roof, including rafter reinforcing and sheathing. Reroof entire roof with asphalt shingles
Sunroom roof: Standing Seam metal: poor condition - leaks	Replace with new membrane roof or historic standing seam metal roofing
Front porch roofs: rotted roofing and structure	Rebuild 100 sf of roofing, including rafters, sheathing and asphalt shingles
Rear Porch roofs: Missing	Rebuild.
Doors	
Three damaged doors	Repair three rail and stile doors; repair hardware
Three missing doors	Replace three rail and stile doors and hardware
Windows	
Fair condition; two missing	Reattach sash weights; weatherstrip, reglaze (typical for 54); replace 2 missing windows.
Front Porches	
Not original, but compatible and have existed many years; concrete slab topping deteriorated	Replace concrete slab topping. See masonry and roofs for other repairs.

Exterior Conditions Con't	**Exterior Recommendations Con't**
Rear Porches	
Missing. Existing porch base not original but has existed for many years.	Reconstruct two wood porches on existing concrete bases – each four wood columns supporting a flat roof.
Cellar Doors	
No door, only plywood panel	Install new sloped cellar door, or eliminate sloped door.
Exterior Basement Stairs: Not accessible	Inspect at a later date.
Sunrooms	
Not original, but compatible, and have existed for many years.	Repairs included in sections above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
First Floor	
Vestibule – Unit A – fair	Restore interior details; finish 100%
Vestibule – Unit B – poor	Reconstruct interior details and finishes 100%
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required

Interior Conditions	**Interior Recommendations**
Plaster walls and ceilings	
Finish	60% peeling paint; scrape and feather
Cracks and deterioration	Patch cracks and areas of deteriorated plaster 20%
Woodwork	
Casings – all intact - fair	Patch abrasions 5%; prepare for new finish 100%
Base – all intact - fair	Patch abrasions 10%; prepare for new finish 100%
Stair handrail – Unit A lower handrail missing	Replace missing handrail; stabilize; prepare for new stained finish 100%
Stair handrail - Unit B intact	Stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Dining room cabinets – fair	Restore 15%; prepare for new painted finish 100%
Doors	
20 interior six panel wood – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
4 interior wood stile and rail 10 light glazed missing	Provide new replicated doors for reconstructed porches
Hardware - fair	Provide 30% new hardware; repair existing
Floors	
Wood - poor finish	Remove carpet; sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 1 good 2 poor	Replace 2 fixtures; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – poor	Clean 100%

tructural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hydronic System

Heating is provided by a 15 psi hot water heating boiler for each side of building, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

211A: Water heater is missing.

211B: Water heater (by New Yorker) appears new. Needs to be preserved for future use.

The conditions of the plumbing systems for both sides of the building do not justify refurbishing for re-use.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended. (Further evaluate 211B water heater to determine re-use in lieu of replacement.)

Electrical Systems Conditions

System Summary

There is currently no electric service in this building.

Lighting, wiring, switches, and appurtenances are outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 212A / B

NCO QUARTERS

Constructed:	1904
Building Type:	1
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,920 SF (+ 1,430 SF Basement)
Conceptual Cost Estimate:	$690,000 - $860,000

BUILDING TYPE 1

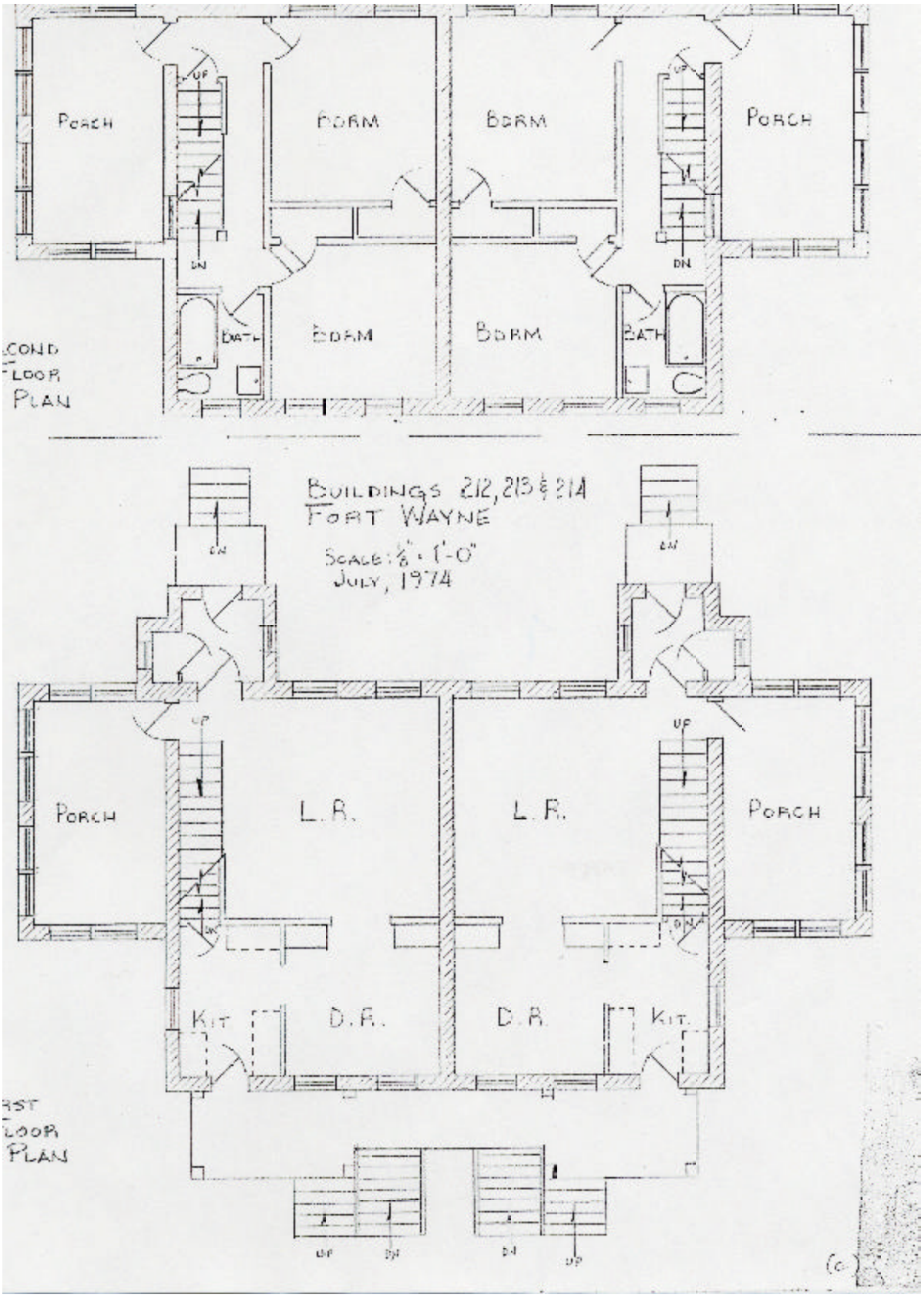
The Type 1 NCO residences are all duplexes, built at the same time in 1904. They are the oldest of the duplex units in the NCO Row. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This simple duplex unit's style generally reflects Georgian Colonial influences. Foundations are coursed ashlar limestone, supporting red brick masonry bearing walls with jack or segmental arch window openings. There are two brick masonry chimneys with corbelled tops and concrete caps. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Enclosed front porches and open rear concrete porches are not original. There appear to have been at least one previous version of the rear porch prior to the current one. Two-story sunrooms located at each end are not original. All of these additions feature concrete bases in lieu of coursed ashlar.

INTERIOR

This duplex NCO building is two-and-one-half stories with basement. Each unit's first floor consists of a living room, dining room, and kitchen plus an enclosed front entrance porch and sunroom. The stair to the second floor is open to the living room. Second floors contain a stair hall, two bedrooms, and a full three-piece bathroom. A stair leads from the second floor to a finished attic. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Floors are wood with the kitchen floor covered with linoleum. The bathroom has plastered walls and a ceramic tile wainscot and floor (circa 1935-39). The attic is finished plastered and basement is partially finished.


PORCH
UP
BDRM
BDRM
PORCH
DN
DN
BATH
BDRM
BDRM
BATH
BUILDINGS 212, 213 & 214
FORT WAYNE
SCALE: 1/8" = 1'-0"
JULY, 1974
DN
DN
UP
UP
PORCH
L.R.
L.R.
PORCH
DN
DN
KIT
D.R.
D.R.
KIT.
UP
DN
DN
UP

Exterior Conditions	**Exterior Recommendations**
Foundations:	
Good Condition, except at north east front porch (major settlement crack)	Investigate further, monitor crack progress. Possible new foundation under porch (50 sf)
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 20 rusted lintels
Weathered, deteriorated mortar; severe at south wall.	Repoint 50% of existing masonry
One deteriorated chimney	Repoint one chimney
One collapsed chimney	Rebuild one chimney from roofline to top
Severely deteriorated masonry under south eave (major water damage)	Remove and reconstruct top of 12" thick brick masonry wall (2' x 40')
Major settlement crack at north east porch	Rebuild porch masonry 120 sf of 8" brick masonry wall
Wood Trim:	
Rotted. Deteriorated eaves	Replace 100 lf of eave crown molding, soffit boards, and fascia.
Assumed deteriorated rafter ends	Repair deteriorated rafter ends.
Gutters and Leaders: No gutters and leaders	Replace 120 lf of gutters with half-round gutters and six 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs	
Main roof: Poor condition – rotted and deteriorated Rafters, sheathing and shingles	Rebuild 400 sf of roof, including rafter reinforcing and sheathing. Reroof entire roof with asphalt shingles
Sunroom roof: Standing Seam metal: Poor condition - leaks	Replace with new membrane roof or historic standing seam metal roofing
Front porch roofs: rotted roofing and structure	Rebuild 100 sf of roofing, including rafters, sheathing and asphalt shingles
Rear Porch roofs: Missing	Rebuild.
Doors	
Three damaged doors	Repair three rail and stile doors; repair hardware
Three missing doors	Replace three rail and stile doors and hardware
Windows	
Fair condition; two missing	Reattach sash weights; weatherstrip, reglaze (typical for 54); replace 2 missing windows.

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Exterior Conditions Con't	**Exterior Recommendations Con't**
Front Porches	
Not original, but compatible and have existed many years; concrete slab topping deteriorated	Replace concrete slab topping. See masonry and roofs for other repairs.
Rear Porches	
Missing. Existing porch base not original but has existed for many years.	Reconstruct two wood porches on existing concrete bases – each four wood columns supporting a flat roof.
Cellar Doors	
No door, only plywood panel	Install new sloped cellar door, or eliminate sloped door.
Exterior Basement Stairs: Not accessible	Inspect at a later date.
Sunrooms	
Not original, but compatible, and have existed for many years.	Repairs included in sections above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
Plaster walls and ceiling (1935-39)	See interior recommendations.
Woodwork (1935-39)	See interior recommendations.
Bathroom fixtures and ceramic (1935-39)	See interior recommendations
First Floor	
Sun porch – Good (1935-39)	Prepare surfaces and finish 100%
Vestibule – fair (1935-39)	Restore interior details 50%; finish 100%
Second Floor	
Sun porch – Good (1935-39)	Prepare surfaces and finish 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Finish	80% peeling paint; scrape and feather
South rooms - collapsed – two floors	Demolish 100% to sound conditions and reconstruct.
North rooms - fair – two floors	Patch areas of deteriorated plaster 20%
Attic - poor	Patch areas of deteriorated plaster 40%
Woodwork	
Casings – fair	Patch abrasions 5%; prepare for new finish 100%
Base – poor	Deteriorated 50% - provide new millwork; prepare for new finish 100%
Stair handrail – good	Stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Dining room cabinets – fair	Restore 25%; prepare for new painted finish 100%
Doors	
20 interior four, five and six panel – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 50% new hardware; repair existing
Floors	
Wood – poor	Buckled 10% - remove and replace; sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 1 good – 2 poor	Replace 2 fixtures; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – poor	Clean 100%

Structural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hyrdonic System

Heating is provided by a 15 psi hot water heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Water heater is missing.

The condition of the plumbing system, does not justify refurbishing for re-use.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

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BUILDING 213 A / B

NCO QUARTERS

Constructed:	1905
Building Type:	1
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,920 SF (+ 1,430 SF Basement)
Conceptual Cost Estimate:	$690,000 - $860,000

BUILDING TYPE 1

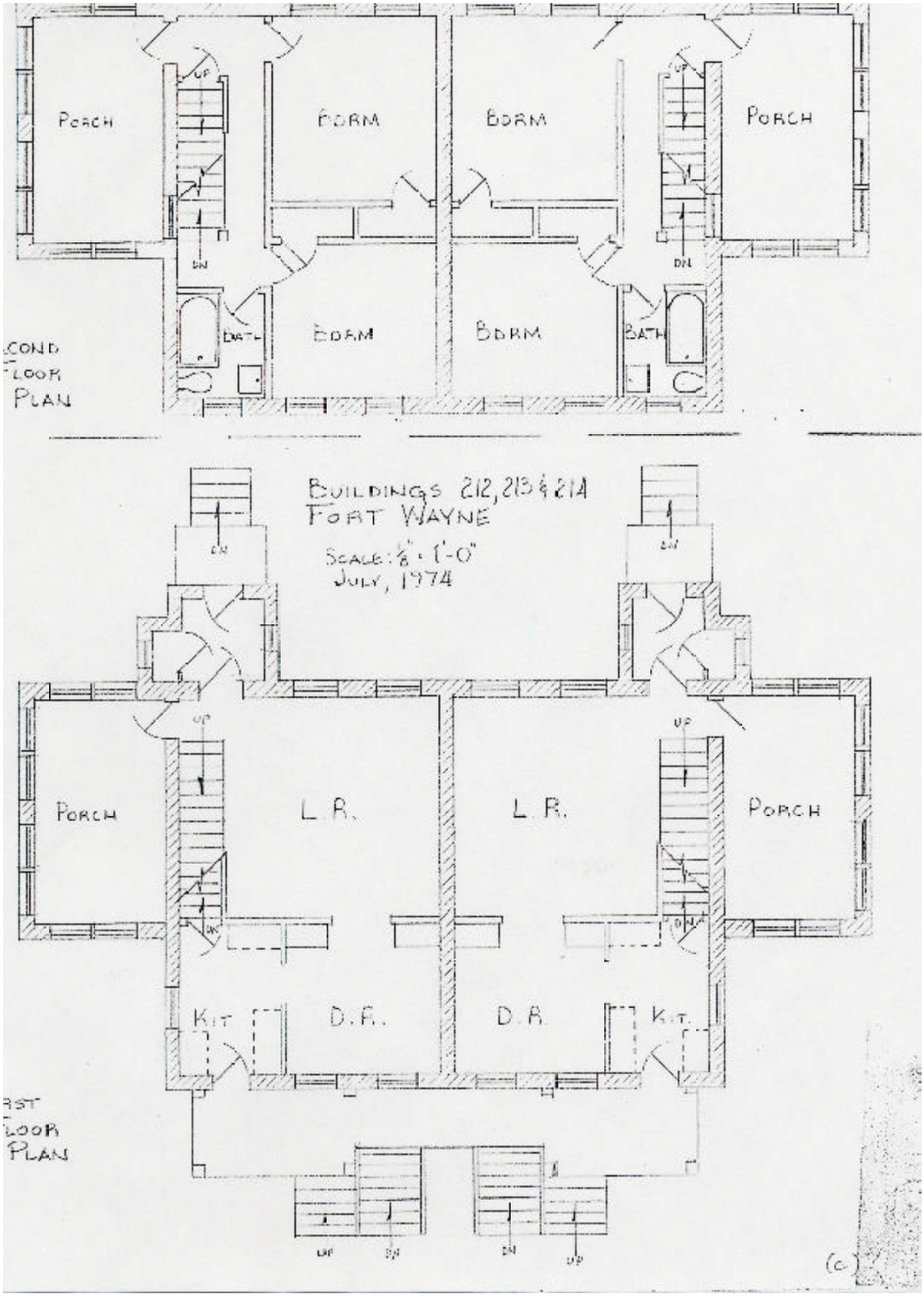
The Type 1 NCO residences are all duplexes, built at the same time in 1904. They are the oldest of the duplex units in the NCO Row. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This simple duplex unit's style generally reflects Georgian Colonial influences. Foundations are coursed ashlar limestone, supporting red brick masonry bearing walls with jack or segmental arch window openings. There are two brick masonry chimneys with corbelled tops and concrete caps. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Enclosed front porches and open rear concrete porches are not original. There appear to have been at least one previous version of the rear porch prior to the current one. Two-story sunrooms located at each end are not original. All of these additions feature concrete bases in lieu of coursed ashlar.

INTERIOR

This duplex NCO building is two-and-one-half stories with basement. Each unit's first floor consists of a living room, dining room, and kitchen plus an enclosed front entrance porch and sunroom. The stair to the second floor is open to the living room. Second floors contain a stair hall, two bedrooms, and a full three-piece bathroom. A stair leads from the second floor to a finished attic. The two main floor levels have fully plastered walls and ceilings. All original plaster and woodwork was removed and replaced in 1935-39. Floors are wood with the kitchen floor covered with linoleum. The bathroom has plastered walls and a ceramic tile wainscot and floor (circa 1935-39). The attic is finished plastered and basement is partially finished.


PORCH
BDRM
BDRM
PORCH
UP
DN
BATH
BDRM
BDRM
BATH
SECOND FLOOR PLAN
BUILDINGS 212, 213 & 214
FORT WAYNE
SCALE: 1/8" = 1'-0"
JULY, 1974
PORCH
L.R.
L.R.
PORCH
KIT
D.R.
D.R.
KIT
FIRST FLOOR PLAN

Exterior Conditions	**Exterior Recommendations**
Foundations: Good Condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 20 rusted lintels
Weathered, deteriorated mortar; severe at south wall.	Repoint 50% of existing masonry
One deteriorated chimney	Repoint one chimney
One collapsed chimney	Rebuild one chimney from roofline to top
Severely deteriorated masonry under south eave (major water damage)	Remove and reconstruct top of 12" thick brick masonry wall (2' x 40')
Wood Trim:	
Rotted. Deteriorated eaves	Replace 100 lf of eave crown molding, soffit boards, and fascia.
Assumed deteriorated rafter ends	Repair deteriorated rafter ends.
Gutters and Leaders	
No gutters and leaders	Replace 120 lf of gutters with half-round gutters and six 20' downspouts
Paint:	
Poor condition, moderately checked sills Fill checked sills.	Scrape, prep, and repaint 100% of wood trim.
Roofs:	
Main roof: Poor condition – rotted and deteriorated Rafters, sheathing and shingles	Rebuild 300 sf of roof, including rafter reinforcing and sheathing. Reroof entire roof with asphalt shingles
Sunroom roof: Standing Seam metal: poor condition - leaks	Replace with new membrane roof or historic standing seam metal roofing
Front porch roofs: rotted roofing and structure sheathing and asphalt shingles	Rebuild 100 sf of roofing, including rafters,
Rear Porch roofs: Missing	Rebuild.
Doors	
Three damaged doors	Repair three rail and stile doors; repair hardware
Three missing doors	Replace three rail and stile doors and hardware
Windows	
Fair condition; two missing	Reattach sash weights; weatherstrip, reglaze (typical for 54).

Exterior Conditions con't	**Exterior Recommendations con't**
Front Porches	
Not original, but compatible and have existed for many years; concrete slab topping deteriorated	Replace concrete slab topping. See masonry and roofs for other repairs.
Rear Porches	
Missing. Existing porch base not original but has existed for many years.	Reconstruct two wood porches on existing concrete bases – each four wood columns supporting a flat roof.
Cellar Doors	
No door, only plywood panel	Install new sloped cellar door, or eliminate sloped door.
Exterior Basement Stairs: Not accessible	Inspect at a later date.
Sunrooms	
Not original, but compatible, and have existed for many years.	Repairs included in sections above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
Plaster walls and ceiling (1935-39)	See interior recommendations for treatment.
Woodwork (1935-39)	See interior recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	See interior recommendations for treatment.
First Floor	
Sun porch – Good (1935-39)	Prepare surfaces and finish 100%; repair ceiling crack
Vestibule – poor (1935-39)	Restore interior details 70%; finish 100%
Second Floor	
Sun porch – Good (1935-39)	Prepare surfaces and finish 100%; repair ceiling crack

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Finish	80% peeling paint; scrape and feather
South rooms - collapsed – two floors	Demolish 100% to sound conditions and reconstruct.
North rooms - fair – two floors	Patch areas of deteriorated plaster 30%
Attic - poor	Patch areas of deteriorated plaster 30%
Woodwork	
Casings – fair	Patch abrasions 5%; prepare for new finish 100%
Base – fair	Patch abrasions 35%; prepare for new finish 100%
Stair handrail – good – missing 3 balusters	Replace balusters; stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Dining room cabinets – fair	Restore 25%; prepare for new painted finish 100%
Doors	
20 interior four, five and six panel – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 50% new hardware; repair existing
Floors	
Wood – poor	Buckled 30% - remove and replace; sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 2 good – 1 poor	Replace 1 fixture; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – poor	Clean 100%

Structural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hyrdonic System

Heating is provided by a 15 psi hot water heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Water heater is missing.

The condition of the plumbing system, does not justify refurbishing for re-use.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 214 A / B

NCO QUARTERS

Constructed:	1897
Building Type:	2
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,920 SF (+ 1,430 SF Basement)
Conceptual Cost Estimate:	$690,000 - $860,000

BUILDING TYPE 1

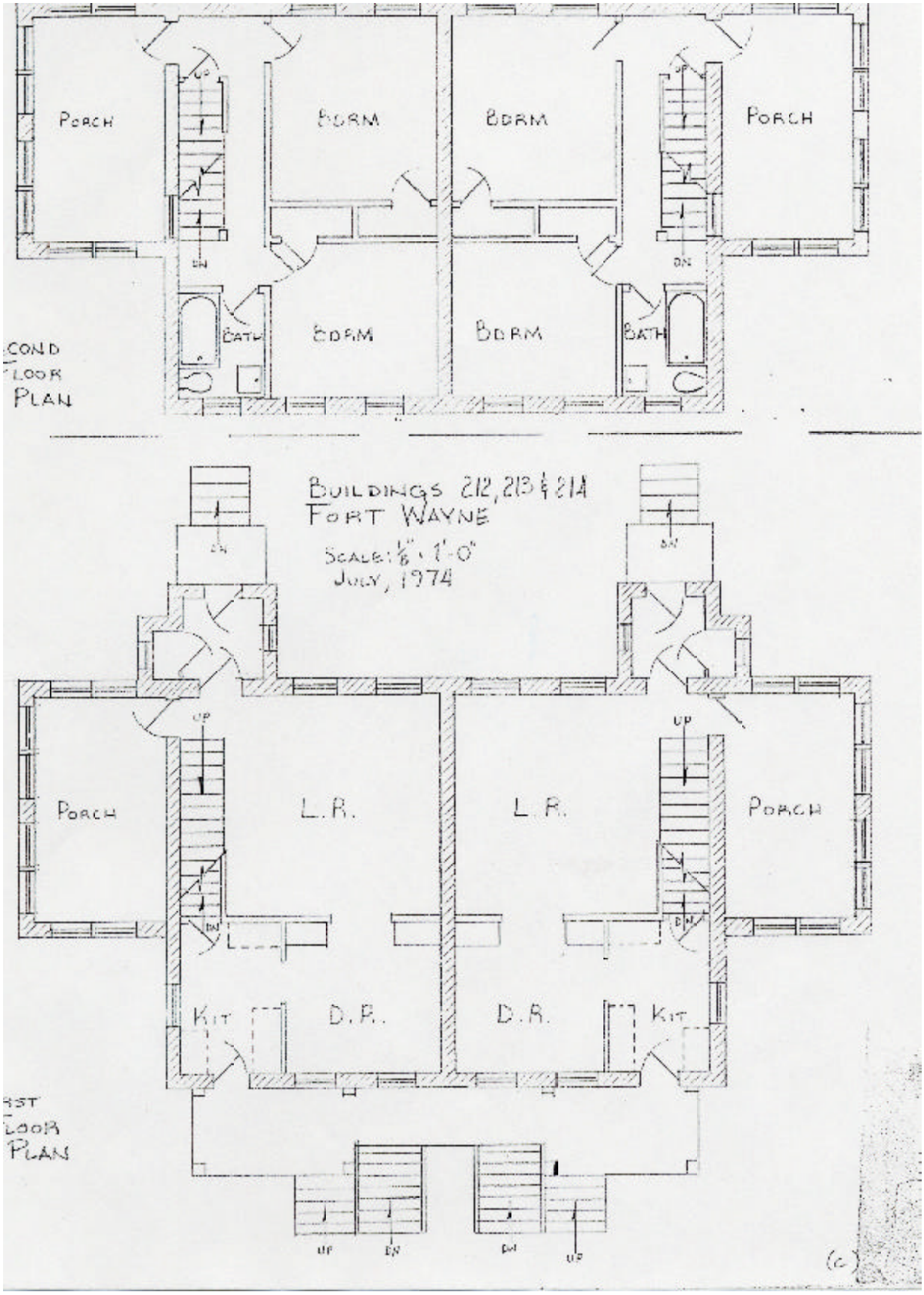
The Type 1 NCO residences are all duplexes, built at the same time in 1904. They are the oldest of the duplex units in the NCO Row. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This simple duplex unit is in the Colonial Revival style, with a side gabled roof. Foundations are coursed ashlar limestone, extending above grade to the first floor line, supporting red brick masonry bearing walls with jack or segmental arch window openings. There are two brick masonry chimneys with corbelled tops and concrete caps located at the center between the two units. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Each side of the duplex has an enclosed front entry and small porch and open rear concrete porches that are not original. There appear to have been at least one, and perhaps two, previous versions of the rear porch prior to the current one. Basement access stairs are located between the two rear porches. Two-story sunrooms located at each end are not original. All of these additions feature concrete bases in lieu of coursed ashlar.

INTERIOR

This duplex NCO building is two-and-one-half stories with basement. Each unit's first floor consists of a living room, dining room, and kitchen plus an enclosed front entrance porch and sunroom. The stair to the second floor is open to the living room. Second floors contain a stair hall, two bedrooms, and a full three-piece bathroom. A stair leads from the second floor to a finished attic. The two main floor levels have fully plastered walls and ceilings. All original plaster was removed and replaced in 1935-39. Floors are wood with the kitchen floor covered with linoleum. The bathroom has plastered walls and a ceramic tile wainscot and floor (circa 1935-39). The attic is finished plastered and basement is partially finished.


PORCH
BDRM
BDRM
PORCH
UP
DN
BATH
BDRM
BDRM
BATH
COND
FLOOR
PLAN
BUILDINGS 212, 213 & 214
FORT WAYNE
SCALE: 1/8" = 1'-0"
JULY, 1974
PORCH
L.R.
L.R.
PORCH
KIT
D.R.
D.R.
KIT
UP
DN
ST
FLOOR
PLAN

Exterior Conditions	**Exterior Recommendations**
Foundations: Good Condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 20 rusted lintels
Weathered, deteriorated mortar; severe at south wall.	Repoint 50% of existing masonry
One deteriorated chimney	Repoint one chimney
One collapsed chimney	Rebuild one chimney from roofline to top
Severely deteriorated masonry under south eave (major water damage)	Remove and reconstruct top of 12" thick brick masonry wall (2' x 40')
Wood Trim:	
Rotted. Deteriorated eaves	Replace 100 lf of eave crown molding, soffit boards, and fascia.
Assumed deteriorated rafter ends	Repair deteriorated rafter ends.
Gutters and Leaders	
No gutters and leaders	Replace 120 lf of gutters with half-round gutters and six 20' downspouts
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim; fill checked sills.
Roofs:	
Main roof: Poor condition – rotted and deteriorated rafters, sheathing and shingles	Rebuild 400 sf of roof, including rafter reinforcing and sheathing. Reroof entire roof with asphalt shingles
Sunroom roof: Standing Seam metal: poor condition - leaks	Replace with new membrane roof or historic standing seam metal roofing
Front porch roofs: rotted roofing and structure	Rebuild 100 sf of roofing, including rafters, sheathing and asphalt shingles
Rear Porch roofs: Missing	Rebuild.
Doors	
Three damaged doors	Repair three rail and stile doors; repair hardware
Three missing doors	Replace three rail and stile doors and hardware
Windows	
Fair condition; two missing	Reattach sash weights; weatherstrip, reglaze (typical for 54); replace 2 missing windows.

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Exterior Conditions con't	**Exterior Recommendations con't**
Front Porches	
Not original, but compatible and have existed for many years; concrete slab topping deteriorated	Replace concrete slab topping. See masonry and roofs for other repairs.
Rear Porches	
Missing. Existing porch base not original but has existed for many years.	Reconstruct two wood porches on existing concrete bases – each four wood columns supporting a flat roof.
Cellar Doors	
No door, only plywood panel	Install new sloped cellar door, or eliminate sloped door.
Exterior Basement Stair: Not accessible	Inspect at a later date.
Sunrooms	
Not original, but compatible, and have existed for a long time.	Repairs included in sections above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

This duplex residential structure can be adapted for office use. A functional office arrangement can be achieved without the necessity of changing spatial relationships. Residential bathrooms should comfortably serve office rest room requirements. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

Changes	**Recommendations**
Plaster walls and ceiling (1935-39)	See interior recommendations for treatment.
Woodwork (1935-39)	See interior recommendations for treatment.
Bathroom fixtures and ceramic (1935-39)	See interior recommendations for treatment.
First Floor	
Sun porch – good	Prepare surfaces and finish 100%
Vestibule – poor	Restore interior details and finishes 100%
Second Floor	
Sun porch – Good	Prepare surfaces and finish 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Finish	80% peeling paint; scrape and feather
South rooms - collapsed – two floors	Demolish 100% to sound conditions and reconstruct.
North rooms - fair – two floors	Patch areas of deteriorated plaster 10%
Attic - poor	Patch areas of deteriorated plaster 40%
Woodwork	
Casings – fair	Patch abrasions 5%; prepare for new finish 100%
Base – poor	Deteriorated 30% - provide new millwork; prepare for new finish 100%
Stair handrail – fair	Replace missing balusters; stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Dining room cabinets – fair	Restore 15%; prepare for new painted finish 100%
Doors	
18 four, five and six panel –four missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
2 six lite two panels – poor	Reglue loose joints; repair abrasions; repair glass; prepare for new finish 100%
Hardware - poor	Provide 70% new hardware; repair existing
Floors	
Wood – poor	Buckled 40% - remove and replace; sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– fair	Regrout joints; replace 20% spawled tile; Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – poor	Install new fixtures; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – poor	Clean 100%

Structural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hyrdonic System

Heating is provided by a 15 psi hot water heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

Water heater is missing.

The condition of the plumbing system, does not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(2) 100 amp - 20 circuit panel board in basement - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 215 A / B

NCO QUARTERS

Constructed:	1931
Building Type:	2
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$395,000 - $495,000

BUILDING TYPE 2

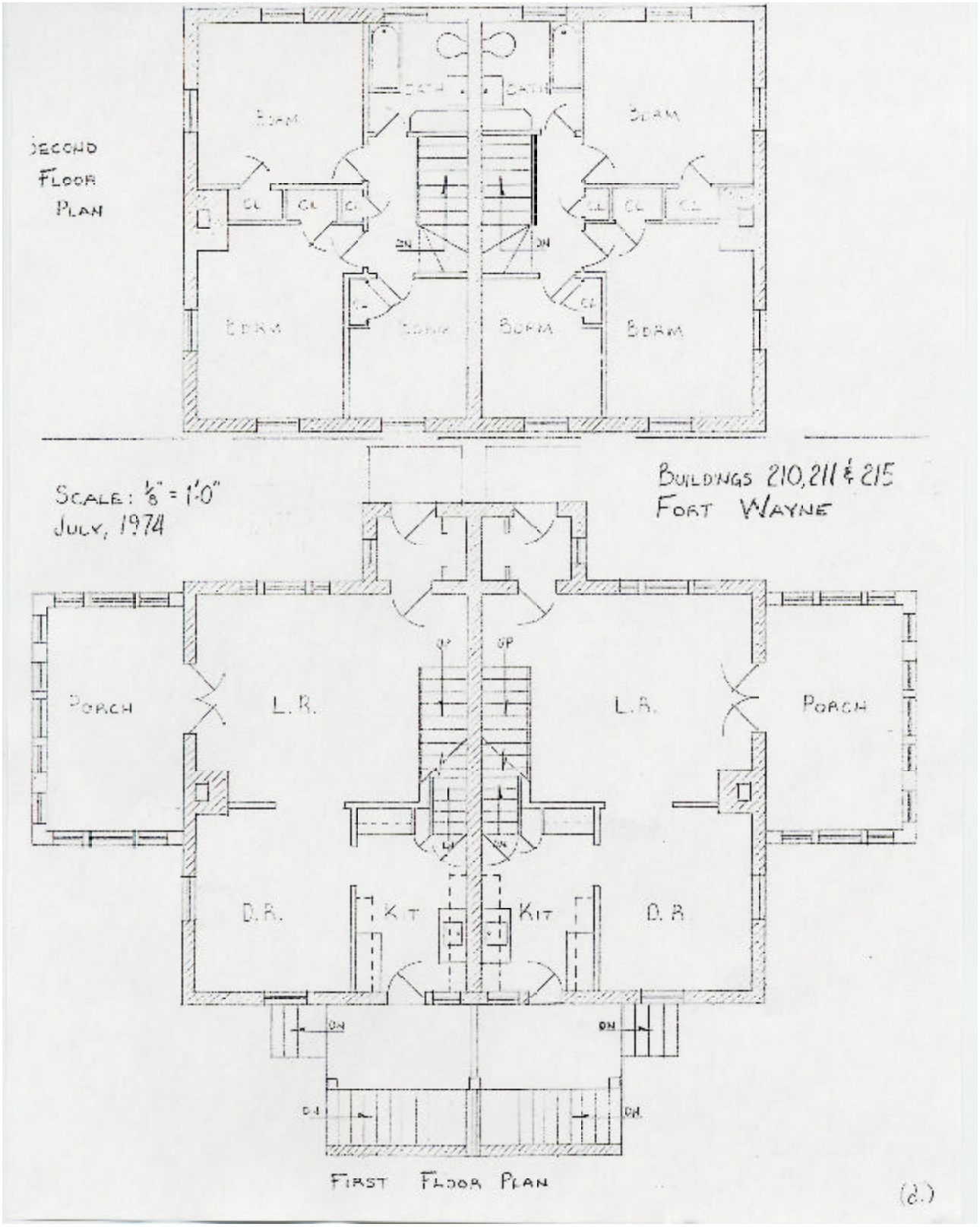
The Type 2 NCO residences are all duplexes, built at the same time in 1931. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This simple duplex unit is in the Colonial Revival style, similar, but not identical to the earlier Type 1 units, which have somewhat less refined detailing and trim. Foundations are formed concrete, extending above grade to the first floor line. Walls are tan brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney with corbelled tops and concrete caps located at each gable end of the roof. Roof construction is wood framing, and roofing is currently slate. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and small porches for each dwelling unit are centered as a single piece of construction on the north elevation. Combined open rear concrete porches do not appear to be original. Basement access stairs are located between the two rear porches. One-story sunrooms were located at each end but are now gone, except for their foundations. The sunrooms have been reconstructed at unit 210 – The Museum of the Tuskegee Airmen (not included in this survey).

INTERIOR

This duplex NCO building is two stories with basement. Original side porches for each unit have been removed but double entrance door openings still exist and are nailed shut with plywood. Each unit's first floor consists of a living room, dining room, and kitchen plus an enclosed front entrance vestibule. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings. Floors are wood with some carpet. The kitchen floor is covered with linoleum. The bathroom has plastered walls and ceramic tile wainscot and floor that is different in color and size than the typical green/black remodeling tile of 1935-39. It is therefore felt to be original to the 1931 construction date.


SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"
JULY, 1974
BUILDINGS 210, 211 & 215
FORT WAYNE
PORCH
L.R.
L.R.
PORCH
D.R.
KIT
KIT
D.R.
FIRST FLOOR PLAN
(2.)

Exterior Conditions	**Exterior Recommendations**
Foundations:	
Settlement crack at northwest corner, north elevation	Further investigate cause of crack. Rebuild Brick masonry and underpin foundation at affected area.
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels (minor)	Clean away rust and repaint. Re-mortar bearing areas
Mortar in fair condition	Selectively repoint 10% of surface
Deteriorated chimney mortar	Repoint both chimneys
Masonry at front porch badly deteriorated	Rebuild 120 sf of masonry wall.
Wood Trim:	
Rotted/damaged paneled sidelights	Replace 18 sf paneling next to doors.
Deteriorated wood trim at rear porch	Rebuild 150 lf of ornamental wood trim.
Gutters and Leaders	
No gutters and leaders	Replace 80 lf of gutters with half-round gutters and four 20' downspouts
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs:	
Main roof: Slate – Fair to poor condition – no ridge protection, many missing and loose slates	Replace slate roof, or install new asphalt roof
Front porch roofs: rotted roofing and structure	Rebuild 80 sf of roofing, including rafters, sheathing and asphalt shingles
Rear Porch roofs: Missing	Rebuild. New roof to be low slope with membrane roofing or flat seam metal roofing.
Doors	
Two damaged doors	Repair two rail and stile doors; repair hardware
Eight damaged or missing doors	Replace eight rail and stile doors and hardware (including basement doors and double sunroom doors).
Windows	
Fair condition; two missing at basement.	Reattach sash weights; weatherstrip, reglaze (typical for 32); replace 2 missing steel basement windows.
Front Porches	
Deteriorated roof	See roof and masonry recommendations above.

Exterior Conditions Con't	**Exterior Recommendations Con't**
	for repairs.
Rear Porches	
Missing. Existing porch base not original but has existed for many years	Reconstruct single combined wood porch on existing concrete base – four wood columns supporting flat roof.
.	
Cellar Doors	
No door, only plywood panel	Install new sloped cellar door, or eliminate sloped door.
Exterior Basement Stairs	
Not accessible	Inspect at a later date.
Sunrooms	
Missing. Only foundations survive.	Reconstruct two one-story sunrooms (wood frame construction with 8 double hung windows, with wood panels below windows.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

Change	**Recommendation**
First Floor	
Vestibule – Unit A – poor	Reconstruct interior details and finishes 100%
Unit B – poor	Reconstruct interior details and finishes 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Finish	80% peeling paint; scrape and feather
Some cracks, delamination, and deterioration	Patch cracks and areas of deteriorated plaster 40%
Woodwork	
Casings – all intact - fair	Patch abrasions 20%; prepare for new finish 100%
Base – all intact - fair	Patch abrasions 40%; prepare for new finish 100%
Stair handrail – Unit A I baluster missing	Replace missing baluster; stabilize; prepare for new stained finish 100%
Stair handrail - Unit B intact	Stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Dining room cabinets – fair	Restore 40%; prepare for new painted finish 100%
Doors	
20 interior six panel wood – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
4 interior wood stile and rail 10 lite glazed missing	Provide new replicated doors for reconstructed porches
Hardware - fair	Provide 30% new hardware; repair existing
Floors	
Wood - poor	Remove carpet; repair 10%; sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 1 good 2 poor	Replace 2 fixtures; repair plumbing
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – poor	Clean 100%

Structural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hydronic System

Heating is provided by a 15 psi hot water heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Water heater is missing.

The condition of the plumbing system, does not justify refurbishing for re-use.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 216 A / B

NCO QUARTERS

Constructed:	1939
Building Type:	3
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$600,000 - $750,000

BUILDING TYPE 3

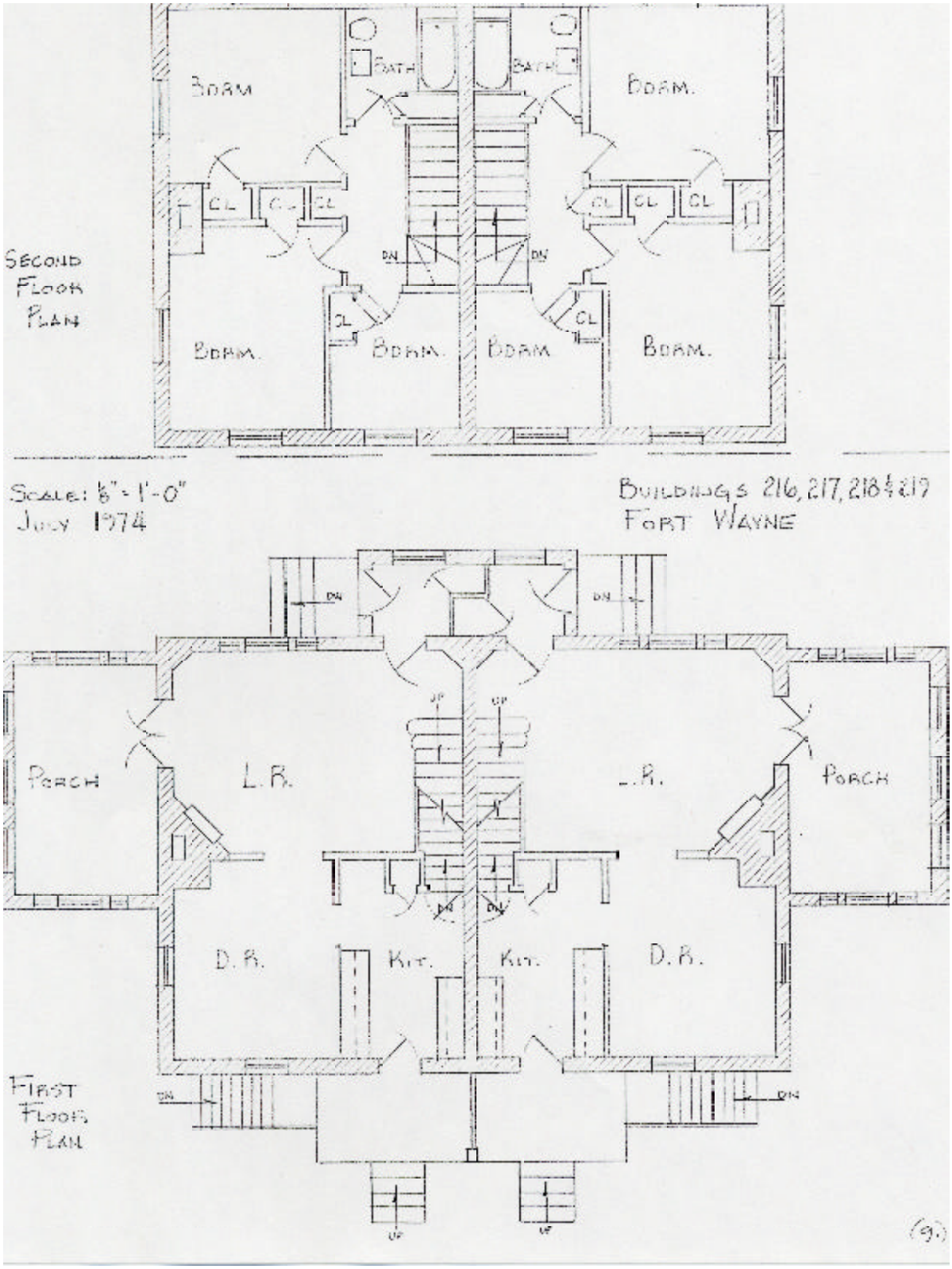
The Type 3 NCO residences are all duplexes, built at the same time in 1939. They are the last of the Non-commissioned Officers' residences built on NCO row. These four residences are all built on the same plan, and have the same general exterior configuration, however two have hip roofs and a federal style front porch, while the other two have gabled roofs and a more elegant Georgian style front porch. The brick and concrete work are very close to that found in the WPA-era cladding treatment of the Officers residences (buildings 105 – 112), and was presumably part of the same construction effort. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This duplex unit is in the Colonial Revival style, similar in size and configuration, but not identical to the earlier Type 1 and type 2 units. Foundations are formed concrete, but only extend a few inches above grade. Walls are red brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney located at each end of the building. The roof is a wood framed hip roof, and roofing is asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and for each dwelling unit are centered as a single piece of construction on the north elevation. The entrances are wood framed with an elegant panel treatment under double hung windows. Combined open rear brick masonry rear porches are located on the south elevations, with exterior basement stairs extending under the porch floors. One-story sunrooms are located at each end.

INTERIOR

This duplex NCO building is two stories with basement. Each unit's first floor consists of a living room, dining room, kitchen, enclosed side porch and a separate enclosed front entrance vestibule for each unit. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings. Except as noted, floors are wood. The kitchen floor is wood covered with linoleum. The bathroom has plastered walls and original ceramic tile wainscot and floor that is typical of the 1935-39 remodeling of other buildings.


BDRM
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SECOND FLOOR PLAN
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BDRM.
BDRM
BDRM.
SCALE: 1/8" = 1'-0"
JULY 1974
BUILDINGS 216, 217, 218 & 219
FORT WAYNE
DN
DN
UP
UP
PORCH
L.R.
L.R.
PORCH
DN
DN
D.R.
KIT.
KIT.
D.R.
DN
DN
FIRST FLOOR PLAN
UP
UP
(9)

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Mortar in good condition	Selectively repoint 5% of surface
Deteriorated chimney mortar	Repoint both chimneys
Masonry at front porch deteriorated	Repoint 120 sf of masonry kneewall.
Wood Trim:	
Rotted/damaged fascia	Replace 120 lf of fascia crown molding.
Gutters and Leaders	
No gutters and leaders	Replace 200 lf of gutters with half-round gutters and four 20' downspouts
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs:	
Main roof:– Poor condition	Replace asphalt shingle roof.
Front porch roofs: Poor condition	Rebuild roof structure and sheathing (75 sf). Install new membrane or flat seam metal roofing.
Rear Porch roofs: Poor condition	Rebuild roof structure and sheathing (135 sf). Install new roofing with membrane or flat seam metal roofing.
Sunroom roofs: Poor condition	Reroof 180 sf of roofing at each sunroom with membrane or flat seam metal roofing.
Doors	
Three damaged doors	Repair three rail and stile doors; repair hardware
Two missing doors	Replace two rail and stile doors and hardware
Windows	
Fair condition; two missing at basement.	Reattach sash weights; weatherstrip reglaze (typical for 30); replace 2 double hung windows at front porches. Repair steel basement windows.
Front Porches	
Poor condition	Rebuild 1 set of concrete steps. Completely rebuild above floor line (new walls, roofs – 75 sf) See roof and masonry recommendations above for other repairs.

Exterior Conditions con't	**Exterior Recommendations con't**
Rear Porches	
Poor condition – roof collapsing, deteriorated concrete	Rebuild 2 sets of concrete steps, replace concrete deck (135 sf). Rebuild three wood columns, handrails demising partition. See roof repairs above for roof structure work.
Cellar Doors: N/A	
Exterior Basement Stairs	
Poor condition, anachronistic railings	Resurface concrete steps. Install new railings
Sunrooms: Existing. Appear to be original.	Repairs included in other categories above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

First Floor	
Vestibule - poor	Reconstruct interior details and finishes 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Finish	80% peeling paint; scrape and feather
Some cracks and deterioration	Patch cracks and areas of deteriorated plaster 30%
Unit B ceiling – poor	100% replacement
Sun porch ceiling - poor	100% replacement
Woodwork	
Casings – all intact - fair	Patch abrasions 5%; prepare for new finish 100%
Base – all intact - fair	Patch abrasions 10%; prepare for new finish 100%
Stair handrail – intact - fair	Replace 3 balusters Unit B; Stabilize; prepare for new stained finish 100%
Picture rail (main rooms only) – fair	Patch as necessary 10%; prepare for new finish 100%
Fireplace mantel - fair	Patch 15%; prepare for new finish 100%
Doors	
20 interior six panel wood – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
4 interior wood stile and rail 10 lite glazed none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 100% new hardware
Floors	
Unit A – Sun porch – wood – buckled	Replace 100%; finish
Unit B – buckled in all of first floor and 2 bedrooms	Replace 100%; finish
Remaining wood - poor	Sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 3 poor	Replace 3 fixtures; repair plumbing
Basement – poor	Clean 100%
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%

Structural Conditions

Floor Load Capacities inadequate for office use

Structural Recommendations

Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hyrdonic System

Heating is provided by a 15 psi hot water heating boiler, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Water heater is missing.

The condition of the plumbing system, does not justify refurbishing for re-use.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 217 A / B

NCO QUARTERS

Constructed:	1939
Building Type:	3
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$600,000 - $750,000

BUILDING TYPE 3

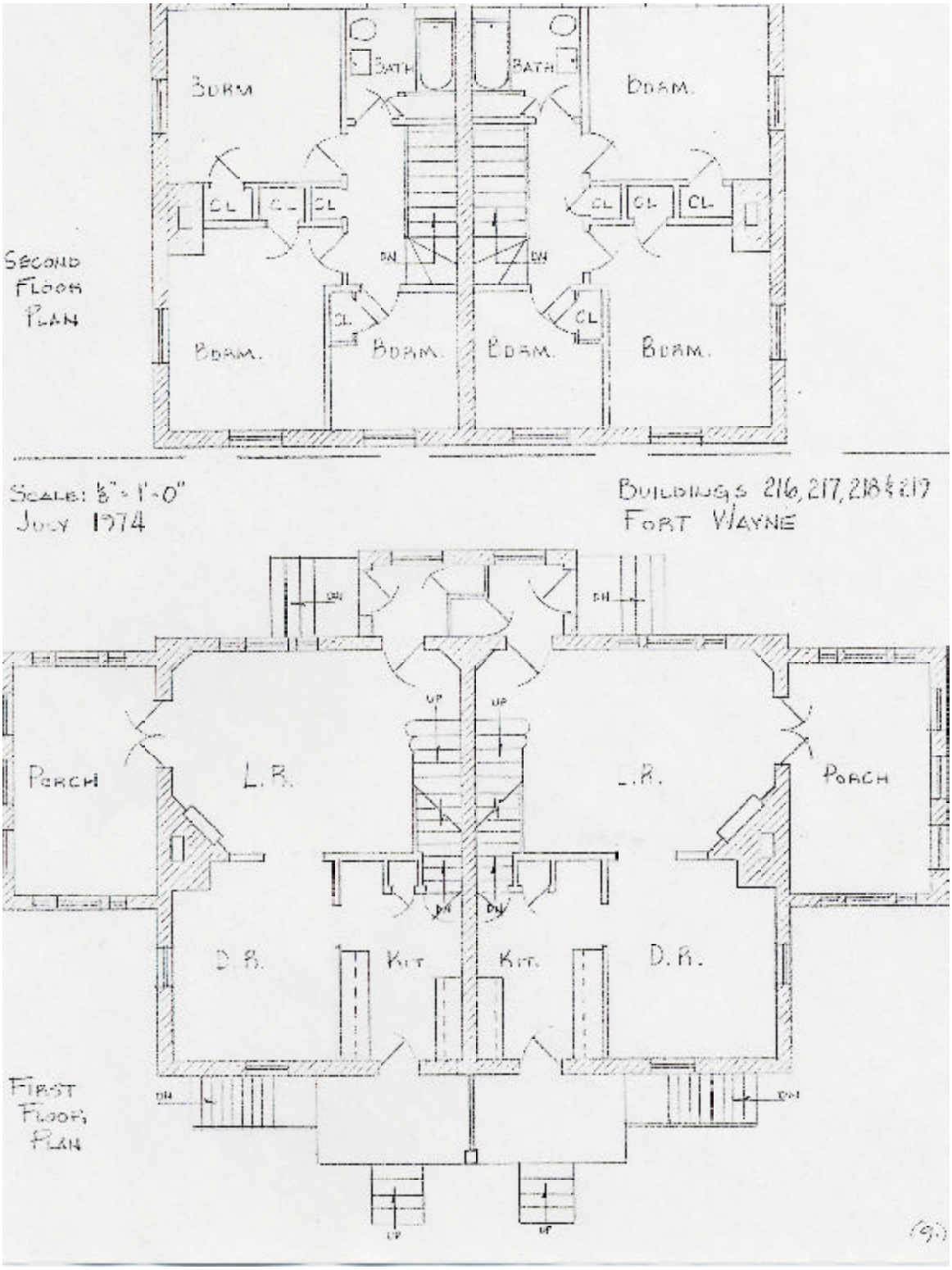
The Type 3 NCO residences are all duplexes, built at the same time in 1939. They are the last of the Non-commissioned Officers' residences built on NCO row. These four residences are all built on the same plan, and have the same general exterior configuration, however two have hip roofs and a federal style front porch, while the other two have gabled roofs and a more elegant Georgian style front porch. The brick and concrete work are very close to that found in the WPA-era cladding treatment of the Officers residences (buildings 105 – 112), and was presumably part of the same construction effort. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This duplex unit is in the Colonial Revival style, similar in size and configuration, but not identical to the earlier Type 1 and type 2 units. Foundations are formed concrete, but only extend a few inches above grade. Walls are red brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney located at each end of the building. The roof is a wood framed roof with gabled ends, with asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and for each dwelling unit are centered as a single piece of construction on the north elevation. The entrances are brick masonry with elliptical arched openings for double hung windows and doors. Windows in arches have leaded glass. Combined open brick masonry rear porches are located on the south elevations, with exterior basement stairs extending under the porch floors. One-story sunrooms are located at each end.

INTERIOR

This duplex NCO building is two stories with basement. Each unit's first floor consists of a living room, dining room, kitchen, enclosed side porch and a separate enclosed front entrance vestibule for each unit. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings. Except as noted, floors are wood. The kitchen floor is wood covered with linoleum. The bathroom has plastered walls and original ceramic tile wainscot and floor that is typical of the 1935-39 remodeling of other buildings.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SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"
JULY 1974
BUILDINGS 216, 217, 218 & 219
FORT WAYNE
DN
DN
UP
UP
PERCH
L.R.
L.R.
PORCH
DN
DN
D.R.
KIT.
KIT.
D.R.
DN
DN
UP
UP
FIRST FLOOR PLAN
(9)

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 3 rusted lintels
Mortar in good condition	Selectively repoint 5% of surface
Deteriorated chimney mortar	Repoint both chimneys
Masonry at front porch deteriorated	Repoint 25 sf of masonry kneewall.
Masonry at rear porch deteriorated	Repoint 10 sf of masonry.
Wood Trim:	
Rotted/damaged fascia	Replace 50 lf of fascia crown molding.
Gutters and Leaders	
No gutters and leaders	Replace 150 lf of gutters with half-round gutters and four 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs	
Main roof: Poor condition, deteriorated structure	Repair 200 sf of framing. Install new asphalt shingle roof.
Front porch roofs: Poor condition	Rebuild roof structure and sheathing (75 sf). Install new membrane or flat seam metal roofing.
Rear Porch roofs: Poor condition	Rebuild roof structure and sheathing (135 sf). Install new roofing with membrane or flat seam metal roofing.
Sunroom roofs: Poor condition	Reroof 180 sf of roofing at each sunroom with rane or flat seam metal roofing.
Doors	
Eight deteriorated doors	Repair four rail and stile doors; repair hardware, re place four rail and stile doors and hardware
Two missing doors	Provide 2 new rail and stile doors at basement
4 rotted frames	Provide 4 new wood frames.
Windows	
Fair to poor condition.	Reattach sash weights; weatherstrip reglaze (typical for 30); replace 2 double hung windows at front porches. Repair 4 arched leaded glass transom windows.
Front Porches	
Poor condition	See Door, window, roof and masonry recommendations above for repairs.

Exterior Conditions Con't	**Exterior Recommendations Con't**
Rear Porches	
Poor condition – roof collapsing, deteriorated concrete.	Rebuild 2 sets of concrete steps, replace concrete deck (135 sf). Rebuild three wood columns, handrails demising partition. See roof repairs above for roof structure work.
Cellar Doors: N/A	
Exterior Basement Stairs	
Good condition, anachronistic railings	Install new railings.
Sunrooms: Existing. Appear to be original.	Repairs included in other categories above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

First Floor	
Vestibule - poor	Reconstruct interior details and finishes 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Both units walls & ceiling – very poor	50% replacement
Sun porch walls & ceiling – very poor	100% replacement
Finish	80% peeling paint; scrape and feather
Remaining surfaces	Patch cracks and areas of deteriorated plaster 30%
Woodwork	
Casings – all intact - fair	Patch abrasions 10%; prepare for new finish 100%
Base – all intact - fair	Patch abrasions 10%; prepare for new finish 100%
Stair handrail – Unit A - missing (parts in Unit)	Replace handrail; prepare for stained finish 100%
Unit B – intact	Stabilize; prepare for stained finish 100%
Picture rail (main rooms only) – fair	Patch as necessary 10%; prepare for new finish 100%
Fireplace mantel - fair	Patch 20%; prepare for new finish 100%
Doors	
20 interior six panel wood – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
4 interior wood stile and rail 10 lite glazed none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 100% new hardware
Floors	
Unit A – all of first floor – buckled	Replace 100%; finish
Unit B – buckled at all of first floor and 2 bedrooms	Replace 100%; finish
Remaining wood - poor	Sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 3 poor	Replace 3 fixtures; repair plumbing
Basement – poor	Clean 100%
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%

Structural Conditions	**Structural Recommendations**
Floor Load Capacities inadequate for office use	Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hydronic System

Heating is provided by a 15 psi hot water heating boiler for each side of building, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

The conditions of the plumbing systems for both sides of the building do not justify refurbishing for re-use.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

SmithGroup

BUILDING 218 A / B

NCO QUARTERS

Constructed:	1939
Building Type:	3
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$600,000 - $750,000

Building Type 3

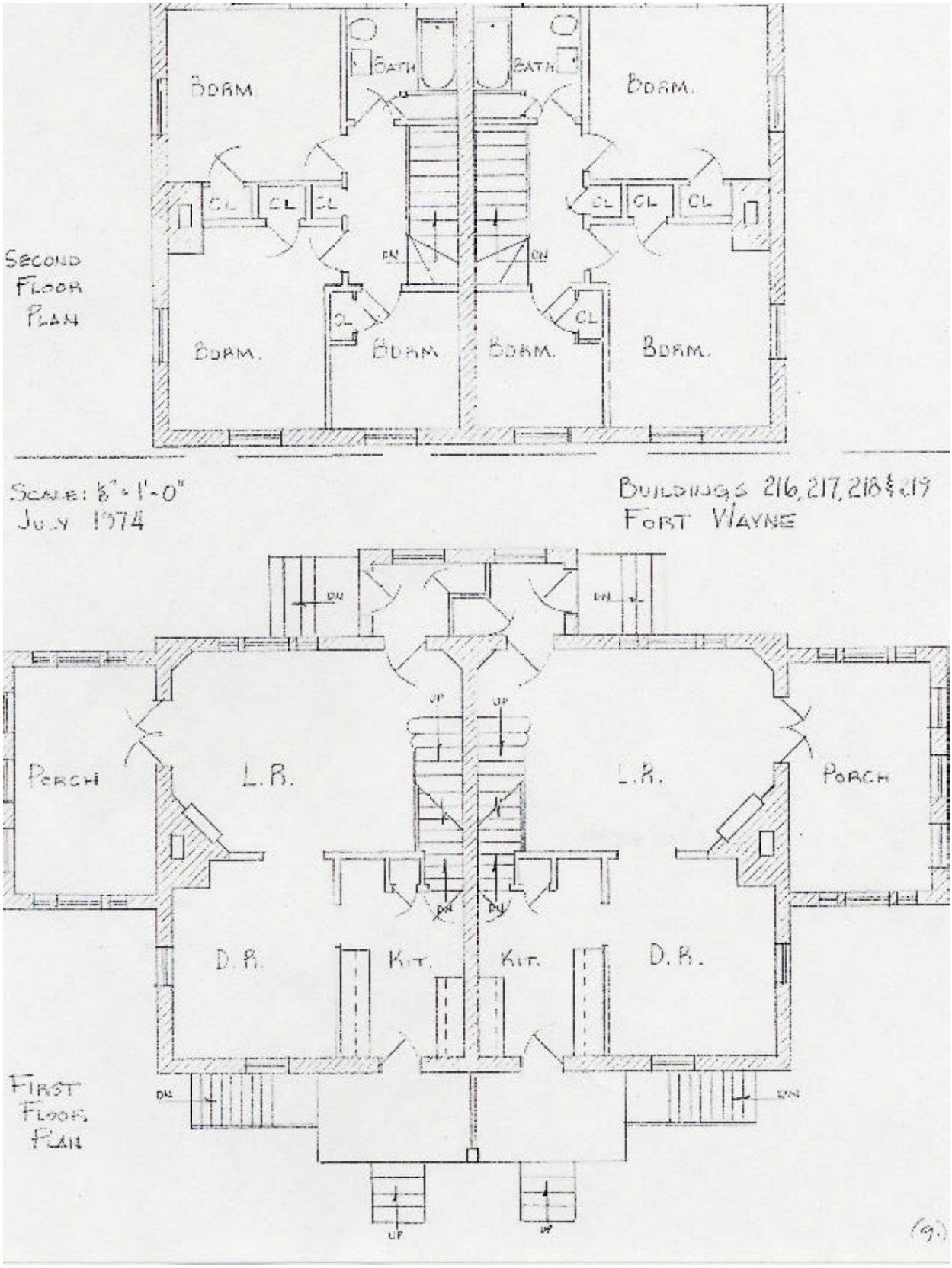
The Type 3 NCO residences are all duplexes, built at the same time in 1939. They are the last of the Non-commissioned Officers' residences built on NCO row. These four residences are all built on the same plan, and have the same general exterior configuration, however two have hip roofs and a federal style front porch, while the other two have gabled roofs and a more elegant Georgian style front porch. The brick and concrete work are very close to that found in the WPA-era cladding treatment of the Officers residences (buildings 105 – 112), and was presumably part of the same construction effort. The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

Exterior

This duplex unit is in the Colonial Revival style, similar in size and configuration, but not identical to the earlier Type 1 and type 2 units. Foundations are formed concrete, but only extend a few inches above grade. Walls are red brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney located at each end of the building. The roof is a wood framed hip roof, and roofing is asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and for each dwelling unit are centered as a single piece of construction on the north elevation. The entrances are wood framed with an elegant panel treatment under double hung windows. Combined open rear brick masonry rear porches are located on the south elevations, with exterior basement stairs extending under the porch floors. One-story sunrooms are located at each end.

Interior

This duplex NCO building is two stories with basement. Each unit's first floor consists of a living room, dining room, kitchen, enclosed side porch and a separate enclosed front entrance vestibule for each unit. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings. Except as noted, floors are wood. The kitchen floor is wood covered with linoleum. The bathroom has plastered walls and original ceramic tile wainscot and floor that is typical of the 1935-39 remodeling of other buildings.


BDRM.
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SECOND FLOOR PLAN
SCALE: ⅛" = 1'-0"
JULY 1974
BUILDINGS 216, 217, 218 & 219
FORT WAYNE
DN
DN
UP
UP
PORCH
L.R.
L.R.
PORCH
DN
DN
D.R.
KIT.
KIT.
D.R.
DN
DN
UP
UP
FIRST FLOOR PLAN
(9.)

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 2 rusted lintels
Mortar in fair condition	Selectively repoint 10% of surface
Deteriorated chimney mortar	Repoint both chimneys
Masonry at rear porch deteriorated	Rebuild 10 sf of masonry.
Wood Trim:	
Rotted/damaged fascia	Replace 60 lf of fascia crown molding.
Gutters and Leaders	
No gutters and leaders	Replace 150 lf of gutters with half-round gutters and four 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs:	
Main roof: Poor condition	Install new asphalt shingle roof.
Front porch roofs: Poor condition	Rebuild roof structure and sheathing (75 sf). Install new membrane or flat seam metal roofing.
Rear Porch roofs: Poor condition	Rebuild roof structure and sheathing (135 sf). Install new roofing with membrane or flat seam metal roofing.
Sunroom roofs: Poor condition, some structural deterioration	Repair 50 sf of roof framing. Reroof 180 sf of roofing at each sunroom with membrane or flat seam metal roofing.
Doors	
Four deteriorated doors	Repair 2 rail and stile doors; repair hardware, replace 2 rail and stile doors and hardware
Two rotted frames	Provide 2 new wood frames.
Windows	
Fair to poor condition.	Reattach sash weights; weatherstrip reglaze (typical for 30); replace 2 double hung windows at front porches.
Front Porches	
Poor condition	See Door, window, roof and masonry recommendations above for repairs.
Rear Porches	
Poor condition – roof collapsing	Rebuild three wood columns, handrails demising partition. Porch area: 135 sf. See roof repairs above for roof structure work.
Cellar Doors: N/A	

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Exterior Conditions Con't	**Exterior Recommendations Con't**
Exterior Basement Stairs	
Good condition, anachronistic railings	Install new railings.
Sunrooms: Existing. Appear to be original.	Repairs included in other categories above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

INTERIOR CHANGES

The following is a listing of building elements and features that have been modified since original construction, and recommendations for their treatment.

First Floor	
Vestibule - poor	Reconstruct interior details and finishes 100%

Interior Conditions	**Interior Recommendations**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Both units walls & ceiling – very poor	50% replacement
Sun porch walls & ceiling – very poor	100% replacement
Finish on remaining surfaces	80% peeling paint; scrape and feather
Cracks and deterioration on remaining surfaces	Patch cracks and areas of deteriorated plaster 30%
Woodwork	
Casings – all intact - fair	Patch abrasions 5%; prepare for new finish 100%
Base – all intact - fair	Patch abrasions 10%; prepare for new finish 100%
Stair handrail – Unit A - missing	Replace handrail; prepare for new stained finish 100%
Picture rail (main rooms only) – fair	Patch as necessary 10%; prepare for new finish 100%
Fireplace mantel - fair	Patch 15%; prepare for new finish 100%
Doors	
20 interior six panel wood – none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
4 interior wood stile and rail 10 lite glazed none missing	Reglue loose joints; repair abrasions; prepare for new finish 100%
Hardware - poor	Provide 100% new hardware
Floors	
Both units - buckled	Replace 60%; finish
Remaining wood - poor	Sand and refinish 100%
Linoleum on wood in kitchen – poor	Remove and replace 100%; repair subfloor
Bathroom	
Wainscot - ceramic tile– good	Clean 100%; replace missing accessories
Floor – ceramic tile – good	Clean 100%
Plumbing fixtures – 3 poor	Replace 3 fixtures; repair plumbing
Basement – poor	Clean 100%
Finishes	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%

Structural Conditions	**Structural Recommendations**
Floor Load Capacities inadequate for office use	Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hydronic System

Heating is provided by a 15 psi hot water heating boiler for each side of building, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

The conditions of the plumbing systems for both sides of the building do not justify refurbishing for re-use.

Mechanical Systems Recommendations

HVAC System

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Plumbing

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 219 A / B

NCO QUARTERS

Constructed:	1939
Building Type:	3
Proposed Use:	Office or Residential Rental/ 2 Unit
Area:	2,550 SF (+ 1,208 SF Basement)
Conceptual Cost Estimate:	$600,000 - $750,000

BUILDING TYPE 3

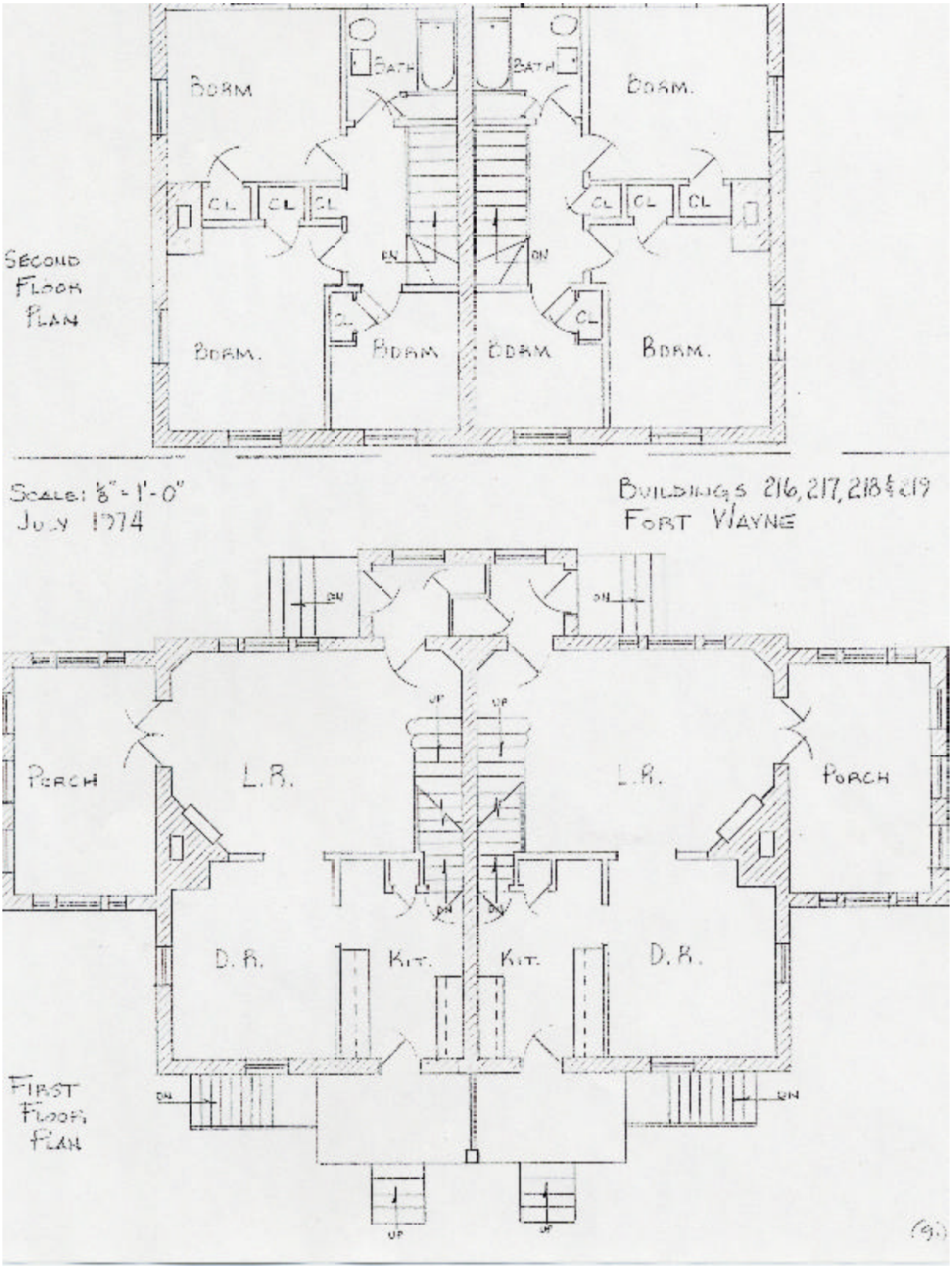
The Type 3 NCO residences are all duplexes, built at the same time in 1939. They are the last of the Non-commissioned Officers' residences built on NCO row. These four residences are all built on the same plan, and have the same general exterior configuration, however two have hip roofs and a federal style front porch, while the other two have gabled roofs and a more elegant Georgian style front porch. The brick and concrete work are very close to that found in the WPA-era cladding treatment of the Officers residences (buildings 105 – 112), and was presumably part of the same construction effort.

EXTERIOR

This duplex unit is in the Colonial Revival style, similar in size and configuration, but not identical to the earlier Type 1 and type 2 units. Foundations are formed concrete, but only extend a few inches above grade. Walls are red brick masonry bearing walls. Window openings have rectangular tops supported by concealed steel lintels. There is a brick masonry chimney located at each end of the building. The roof is a wood framed roof with gabled ends, with asphalt shingles. Eaves feature crown molding trim. Windows are wood double-hung, typically six-over-six. Basement windows are steel. Enclosed front entrances and for each dwelling unit are centered as a single piece of construction on the north elevation. The entrances are brick masonry with elliptical arched openings for double hung windows and doors. Windows in arches have leaded glass. Combined open brick masonry rear porches are located on the south elevations, with exterior basement stairs extending under the porch floors. One-story sunrooms are located at each end.

INTERIOR

This duplex NCO building is two stories with basement. Each unit's first floor consists of a living room, dining room, fully equipped kitchen (Unit A), no cabinets (unit B), enclosed side porch, and an enclosed front entrance vestibule that is open to both units. The stair to the second floor is open to the living room. Second floors contain a stair hall, three bedrooms, and a three-piece bathroom. The two main floor levels have original fully plastered walls and ceilings with two rooms in Unit A having suspended lay-in acoustic tile installed. Floors are original wood with some rooms covered with vinyl flooring. The bathroom has plastered walls and ceramic tile wainscot at the bathtub and simulated tile elsewhere. The basement has concrete and brick walls, concrete floor, and exposed first floor framing. A Detroit Recreation Department branch office occupies both units of this building. Unit A contains offices and Unit B is used as an active children's art and music facility. If 219 AB is to remain in this use, only minor repairs are necessary. If the use changes to a new market function, more serious rehabilitation will be necessary.


BDRM
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SECOND FLOOR PLAN
BDRM.
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BDRM.
SCALE: 3/8" = 1'-0"
JULY 1974
BUILDINGS 216, 217, 218 & 219
FORT WAYNE
PERCH
L.R.
L.R.
PORCH
D.R.
KIT.
KIT.
D.R.
FIRST FLOOR PLAN

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 4 rusted lintels
Mortar in good condition	Selectively repoint 5% of surface
Deteriorated chimney mortar	Repoint both chimneys
Masonry at rear porch deteriorated	Rebuild 20 sf of masonry.
Wood Trim	
Rotted/damaged fascia	Replace 40 lf of fascia crown molding.
Gutters and Leaders	
No gutters and leaders	Replace 150 lf of gutters with half-round gutters and four 20' downspouts
Paint	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills.
Roofs:	
Main roof: half of roof recently reroofed – Good Condition. Other half - Poor condition, deteriorated structure	Install new asphalt shingle roof on half of roof.
Front porch roofs: Membrane - good condition, but sloppy installation	Repair terminations.
Rear Porch roofs: Membrane - good condition, but sloppy installation	Repair terminations.
Sunroom roofs: fair condition	Reroof 180 sf of roofing at each sunroom with membrane or flat seam metal roofing.
Doors	
Eight deteriorated doors	Repair six rail and stile doors; repair hardware, replace four rail and stile doors and hardware Provide 2 new rail and stile doors.
Windows	
Fair condition.	Reattach sash weights; weatherstrip reglaze (typical for 30); replace 2 double hung windows at front porches. Repair 4 arched leaded glass transom windows
Front Porches	
Good condition	See Door, window, roof and masonry recommendations above for repairs. Replace 2 anachronistic raiilings
Rear Porches	
Fair condition – Ceiling deteriorated	Rebuild ceiling – 25 sf . See roof repairs above for roof structure work.
Cellar Doors: N/A	

Exterior Conditions Con't	**Exterior Recommendations Con't**
Exterior Basement Stairs	
Good condition, anachronistic railings	Install new railings.
Sunrooms: Existing. Appear to be original.	Repairs included in other categories above.

PROPOSED USE

This duplex residential structure can be converted to office use or remain as a duplex residential unit. The existing floor plan spatial arrangement can remain to accommodate either modern occupancy. In the final development of these units, all office units and a percentage of the residential buildings on the site must be made accessible to individuals with disabilities. Units used as residential occupancy would require conversion of some the current side-by-side duplexes into up/down duplexes, with barrier free units on the first floor. Existing residential bathroom spaces should comfortably serve modern needs, except at Barrier-Free units, where enlarged bathrooms will be required. This modification is readily achieveable. Any changes within the units must be made in accordance with the SOI's Standards for Rehabilitation. The recommendations listed below are those that would assure the building would be in acceptable condition for the proposed use.

Interior Feature Conditions	**Interior Recommendations - (Assuming a new use)**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Unit A – minor cracks and deterioration	Patch cracks and areas of deteriorated plaster 5%
suspended acoustic tile	Two rooms; remove and patch original plaster
Unit B – heavy over painting	80% paint removal; prepare for new finish
Cracks and deterioration	Patch cracks and areas of deteriorated plaster 5%
Woodwork	
Unit A - casings all intact - good	Prepare for new finish 100%
base all intact - fair	Patch abrasions 5%; prepare for new finish 100%
Unit B – casings all intact – fair	Patch abrasions 5%; strip and prepare for new finish 100%
Base all intact – poor	Patch abrasions 20%; strip and prepare for new finish 100%
Stair handrail – Unit A and B - intact	Stabilize; prepare for new stained finish 100%
Picture rail - Unit A and B (main rooms only) – good	Patch as necessary 5%; prepare for new finish 100%
Fireplace mantle - Unit A and B – good	Prepare for new finish 100%
Doors	
Unit A – 13 interior six panel wood – all intact	Prepare for new finish 100%
2 interior wood stile and rail 10 lite glazed	Prepare for new finish 100%
Unit B – 13 interior six panel wood – all intact	Reglue loose joints; repair abrasions; prepare for new finish 100%
2 interior wood stile and rail 10 lite glazed	Reglue loose joints; repair abrasions; prepare for new finish 100%
Unit A – Hardware – all intact	Clean and repair 100%
Unit B – Hardware – fair	Provide 15% new hardware; repair existing
Floors	
Unit A - Wood - fair	Remove vinyl; sand and refinish 100%
Unit B – Wood - poor	Remove vinyl; sand and refinish 100%

Interior Conditions con't	**Interior Recommendations - (Assuming a new use)**
Bathroom – Unit A and B	
Wainscot - ceramic tile at tub – good	Clean 100%
plastic tile elsewhere	Remove; match and extend ceramic tile
Floor – vinyl tile – poor	Remove and install new ceramic tile
Plumbing fixtures – 3 fair	Replace all fixtures; repair plumbing
Finishes – Unit A and B	
Painted	All interior surfaces two coats 100%
Stained	Stair railing 100%
Basement – Good	Refinish all surfaces if new use anticipated 100%

Interior Conditions	**Interior Recommendations (Assuming continued use)**
Barrier free access to second floor – none	Second floor area under 3,000 sq.ft. – not required
Plaster walls and ceilings	
Unit A – minor cracks and deterioration	Patch cracks and areas of deteriorated plaster 5%
suspended acoustic tile	No work
Unit B – heavy over painting	No work
Some cracks and deterioration	Patch cracks and areas of deteriorated plaster 5%
Woodwork	
Unit A - casings all intact - good	No work
base all intact - fair	No work
Unit B – casings all intact – fair	No work
Base all intact – poor	No work
Stair handrail – Unit A and B - intact	No work
Picture rail - Unit A and B (main rooms only) – good	No work
Fireplace - Unit A and B – good	No work
Doors	
Unit A – 13 interior six panel wood – all intact	No work
2 interior wood stile and rail 10 lite glazed	No work
Unit B – 13 interior six panel wood – all intact	Reglue loose joints; repair abrasions; prepare for new finish 100%
2 interior wood stile and rail 10 lite glazed	Reglue loose joints; repair abrasions; prepare for new finish 100%
Unit A – Hardware – all intact	Clean and repair 100%
Unit B – Hardware – fair	Provide 15% new hardware; repair existing
Floors	
Unit A - Wood - fair	Sand and refinish exposed wood floors only; 100%
Unit B – Wood - poor	No work

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Interior Conditions con't	**Interior Recommendations (Assuming continued use)**
Bathroom – Unit A and B	
Wainscot - ceramic tile at tub – good plastic tile elsewhere	Clean 100% No construction work
Floor – vinyl tile – poor	No construction work
Plumbing fixtures – 3 fair	Check plumbing
Finishes – Unit A and B	
Painted	No construction work; clean 100%
Stained	No construction work; clean 100%
Basement – good	No construction work; clean 100%
Structural Conditions	**Structural Recommendations**
Floor Load Capacities inadequate for office use	Double-up joists or reduce joist spans by adding beams and columns.

Mechanical Systems Conditions

HVAC: Hydronic System

Heating is provided by a 15 psi hot water heating boiler for each side of building, including cast iron radiators, piping and valves. Condition of system does not justify re-use.

There is no provision for cooling or necessary outside air for adequate ventilation.

Plumbing

The conditions of the plumbing systems for both sides of the building do not justify refurbishing for re-use.

Electrical Systems Conditions

System Summary

(1) 100 amp panel board - 240 V

(1) 60 amp panel board - 240 V

Standard light switches, plugs and fixtures System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Mechanical Systems Recommendations

Considering the age of the building, service duration of the mechanical systems, and present systems, it is recommended that the entire mechanical systems be demolished and removed from the site. Piping should be cut and capped, except in the case of interferences with new systems, where it should be removed as appropriate.

A new forced air HVAC system is recommended; this will provide required ventilation of the building. If, upon further comprehensive evaluation of the building, it is determined that installation of ductwork is not practical or too cost-prohibitive, a window type Ventilators Unit System with either hot water or electric heating and DX cooling unit is recommended.

Replacement of all plumbing equipment, fixtures and piping is recommended.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 222

STABLE

Constructed:	1890
Proposed Use:	Antique Emporium (Alternate: Stable)
Area:	11,060 SF
Conceptual Cost Estimate:	$510,000 - $640,000* $220,000 - $360,000*

Does not include cost for additional area*
(addition to building)
If re-used as stable *

STABLE

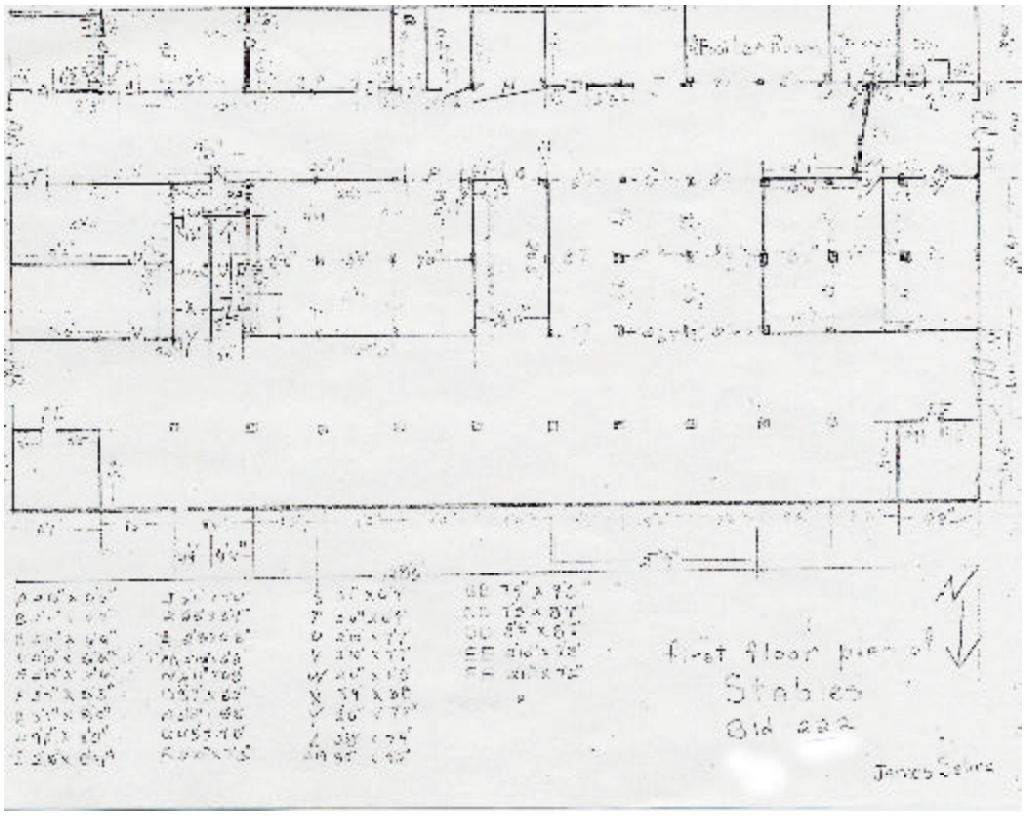
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

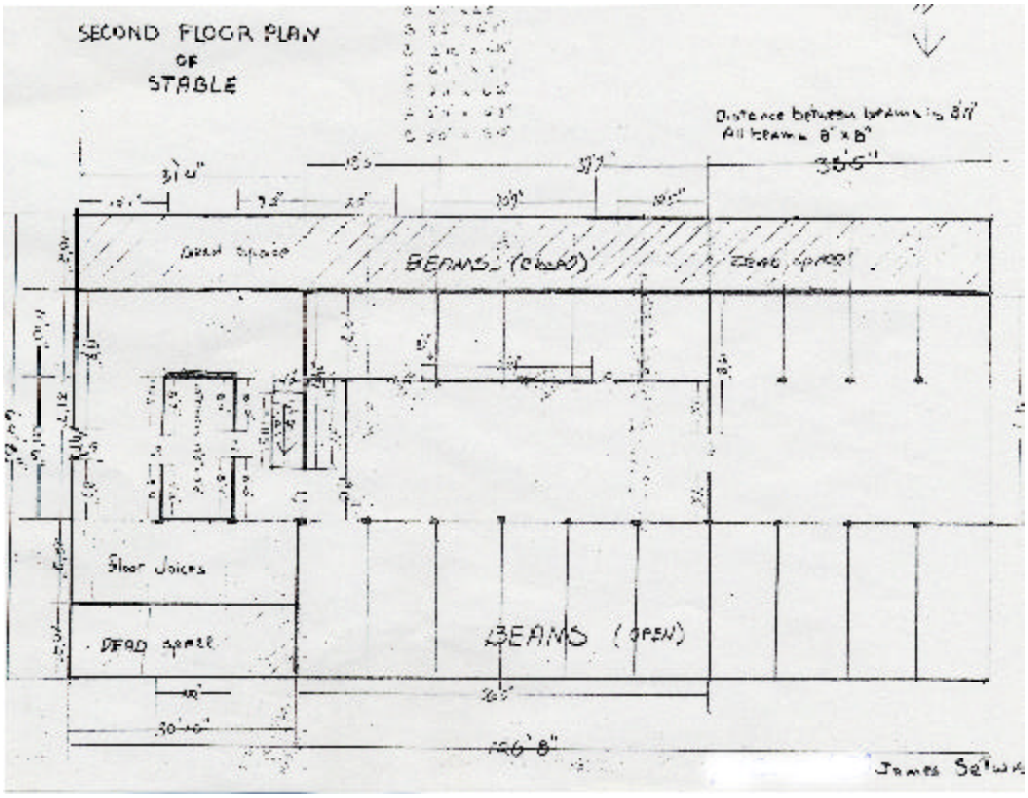
EXTERIOR

The stable is a simple, but elegant vernacular utility building. Its full length monitor is a feature typical of late 19th century small industrial buildings. The building is one story in height plus a loft. It is a brick masonry bearing wall structure, with its first floor at grade. Openings in masonry are formed by segmental arches. Windows are a mixture of wood inswinging hoppers with six lights (at the lower level), and small wood double hung windows with six-over-six muntin patterns (in the monitor). Doors are wood rail and stile. The roof is asphalt shingles, and eaves feature exposed rafters with tails cut into curves. The building contains much of its original exterior construction fabric.

INTERIOR

This structure was constructed for horses that were actively in use around the turn of the century at Fort Wayne. Currently it is used for miscellaneous collections storage for the Detroit Historical Museum. Its main floor is 13 bays long by 6 Bays wide, each bay measuring approximately 10’ x 10’. The plan is laid out with two single bay wide aisles one bay from the north and south exterior walls running the length of the building and a double bay down the center. The southern exterior bay contains a rest room, a boiler room, offices and miscellaneous storage compartments. The exterior bay on the north has two enclosed rooms in the corners, but is open the remaining length of the building. There is a 30’ wide crossover in the center bays about 30’ from the west wall. A stair toward the east end of the center section leads to a second floor loft. The insides of the exterior walls are exposed unpainted brick. Interior walls and partitions are wood framed with wire mesh, or covered on one side with plywood or horizontal wood boarding. The ceiling of the main level is exposed loft floor construction composed of beams, joists, and the underside of the loft flooring. The floor is brick in the main and crossover aisles and concrete in remaining areas. In some concrete floor locations the floor is raised with floor joists and wood flooring with asphalt tile, plywood or masonite surface. The loft is open with an exposed roof structure with a wood floor and wire mesh partitions for storage. This building is very utilitarian and serviceable but in poor condition from lack of maintenance. Changes have only been made to facilitate storage needs.


First floor plan of
Stables
Old 222


SECOND FLOOR PLAN
OF
STABLE
Distance between beams is 8'0"
All beams 8" x 8"
BEAMS (CLOSE)
Floor Joices
DEAD space
BEAMS (OPEN)

Exterior Conditions	**Exterior Recommendations**
Wood Trim: Fair condition. Some deterioration	Generally repair all trim; replace 20%
Gutters and downspouts: Deteriorated	Replace 100%
Paint: Poor condition	Prepare and repaint 100%
Masonry: Fair condition. Rising damp, some brick deteriorated near grade. Miscellaneous deterioratedmortar. Surface heavily soiled.	Repoint 50% of brick area; replace 5% of brick in areas of rising damp; Adjust drainage to provide positive drainage away from building.
Roof: Asphalt Shingles poor condition	Replace 100% of roofing. Some substrate and framing repair required, including some curved rafter tails. Assume 10% of substrate requires repair.
Doors: Fair condition. Some deterioration at bottom rails	Repair eight heavy duty rail and stile doors.
Windows: Fair condition	Repair all windows. Assume two replacements. Replace all glazing compound

PROPOSED USE

The interior of this building is utilitarian, but it has a unique character because of its original use. The proposed use as and Antiques emporium and the alternative use of restoring it to a stable would require minimal work. Involved would be clean up and some modernization, including the addition of toilet facilities. The recommendations listed below are for the Antiques emporium use and are in accordance with the SOI's Standards for Restoration. Other uses would require extensive interior alterations and would be pushing the Standards for Rehabilitation. However, if this use would result in positive renewal in the life of the building, it very likely could be justified.

Interior Conditions	**Interior Recommendations**
Walls	
Interior of brick exterior walls - poor	Clean
Wood – poor	Clean and paint
Ceiling	
Exposed structure	Clean
Doors	
Wood 5 and 2 panel, flush some with glass, and metal – poor. Most are not original to building.	Repair as necessary for continued temporary use until adaptation is determined.
Hardware – good	Repair as required

Interior Conditions con't

Floors

Brick, concrete and asphalt tile on wood

Rest Rooms

Walls and ceilings - poor

Fixtures - poor

Finishes

Painted

Interior Recommendations con't

Patch as required and clean

Replace surfaces to improve maintenance; clean

Provide expanded toilet facilities for public use.

Paint two coats

Mechanical Systems Conditions

HVAC: Hydronic System

Heating system consists of steam heating unit heaters.

There is an existing 6" riser fire protection system with annunciator center.

Plumbing

There is no existing plumbing in the building.

Mechanical Systems Recommendations

HVAC System

Dependent on proposed use of building, existing system can be preserved and refurbished for future use.

Plumbing

New plumbing system will need to be installed, including adequate toilet rooms for public use.

Electrical Systems Conditions

System Summary

200 amp Main Disconnect - 240 V

(1) 100 fuse panel

(1) 60 fuse panel

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 2A

WAREHOUSE

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Constructed: 1942

Proposed Use: Interactive Museum

Area: 37,568 SF

Conceptual
Cost Estimate: $1,730,000 - $2,160,000*

*Includes cost of upgrading basic building only. Does not include costs of any new construction that might result from design for new museum.

WAREHOUSE

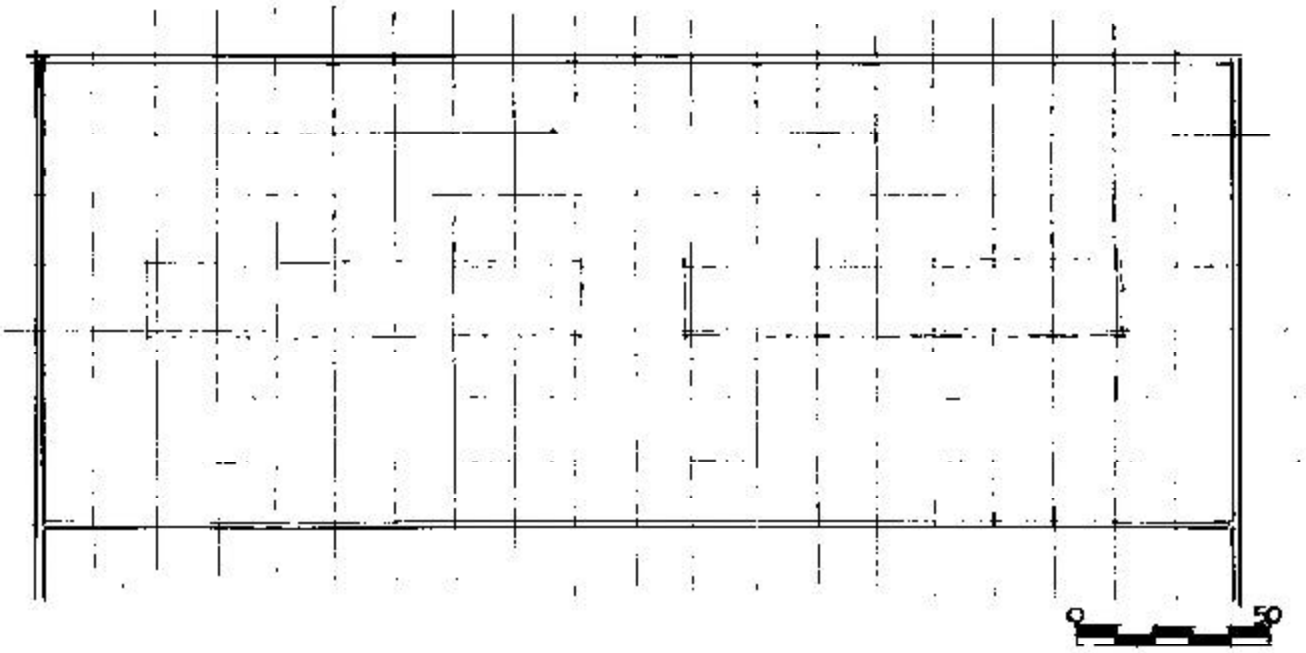
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This World War II-era structure is a utilitarian warehouse structure constructed of concrete block perimeter bearing walls on a concrete foundation. The building is partially painted. Original window openings were rectangular formed by precast concrete lintels and had precast sills. Steel lintels formed openings for large overhead doors. All original window openings blocked up. The roof structure is constructed of wood, supported on interior wood columns (refer to interior description for detailed information). The roof is low sloped, with built-up ballasted roofing , and drains to the west.

INTERIOR

This one-story building was originally constructed early during World War II to house military vehicles. It currently is used for miscellaneous storage. It is twenty bays in length and seven bays in width, each bay measuring approximately 17’ x 15.5’. The roof supports two seven bay long monitor roofs in the center of the building’s width that have operating windows to admit light and air. The interiors of the west, north and south exterior walls are bare concrete block. The east wall is common with Building 2B and is also concrete block. The few interior partitions that exist are concrete block or wood studs covered with drywall or horizontal “V” groove wood paneling. The ceiling is drywall applied directly to the underside of wood roof rafters. Structural columns are 8” x 8” wood supporting exposed heavy built-up wood girders with wood diagonal bracing. The floor is concrete generally sloping to the south. This building was constructed to be identical to Building 2B, but is not is as good condition.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Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry: Generally fair condition.	
Missing copings	Install 100% new copings.
Soiled surfaces	Clean all exterior masonry surfaces
Mortar in fair condition, weathered, many open	Selectively repoint 30% of surface.
Blocked up original windows	Restore original window masonry openings.
Gutters and Leaders: Missing at west end.	Replace 100%
Paint:	
Poor condition. Building partially painted. Not known if building was originally painted.	Prep, and repaint 100% of surfaces. Caulk.
Roofs:	
Viewed from interior only	
Building A: Roof in fair condition, some leaks	Repair existing roof.
Building B: Roof in poor condition. Holes, some collapsed areas	Replace 100% of roofing, Repair structure (10%)
Doors: Fair condtion	Repair hardware at all doors. Service overhead doors to restore to full operation
Windows: Openings blocked up.	Install new steel windows in original openings.
Miscellaneous: Museum use conversion	Make infrastructure and physical modifications to accommodate conversion to museum use (Details to be determined).

Note: Recommendations above are to restore building to sound, weathertight condition. Additional work is likely to be required to convert the building to museum use. Such work is highly dependent upon the final museum design and configuration. An allowance has been included in the cost estimate for such work, however museum design decisions that may be made after the completion of this master plan could necessitate revision this allowance.

Accessibility	
Currently has ground level access through grade-level rolling doors.	Existing access will likely be changed for new use. Provide new ramps as part of design of entry to new museum.

PROPOSED USE

The interior of this building is utilitarian, but it has a unique character because of its original use. After defective interior conditions are repaired, it would be very adaptable for use as an interactive museum for the Arsenal of Democracy. The recommendations listed below are those that would repair the building to usable condition for the proposed use. Other physical adaptations, presently unknown, will be necessary to implement the interpretive design. Such must be undertaken to respect the SOI's Standards for Rehabilitation.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Non-original partitions have been added for past functions no longer active	Remove

Interior Conditions	**Interior Recommendations**
Walls	
Interior of concrete block perimeter walls - poor	Clean and paint
Original interior walls	Clean and paint
Non-original interior walls	Remove
Ceiling	
Drywall	Remove and replace with new material after roof repair
Exposed structure	Clean and paint
Doors	
Flush wood and metal – poor	Remove and replace with new doors to match originals; additional exit doors will be required to meet current exit codes
Hardware – poor	Replace
Floor	
Concrete	Patch as required and clean
Rest Rooms	Remove and replace with new facilities to meet code and accessibility requirements
Finishes: Painted	Paint two coats

Structural Conditions	**Structural Recommendations**
Floor loading	
Existing concrete floors are believed to be adequate	Conduct tests to confirm thickness of flooring and to confirmstructural adequacy.

Mechanical Systems Conditions

HVAC System and Plumbing

Entire heating system is missing except for some piping. The water heater is not in working condition.

There is no cooling system or provision for outside air / ventilation of the building.

Mechanical Systems Recommendations

HVAC System and Plumbing

Entirely new HVAC and plumbing systems are required to meet the proposed use of the building.

Electrical Systems Conditions

System Summary

Outdoor Pad Mount Transformer

1200A 3P Main Disconnect

DP2C 400A Panel Board

Reheat Coils 600A Panel Board

Chiller 400A Panel Board

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 2B

WAREHOUSE

Constructed: 1924

Proposed Use: Interactive Museum

Area: 37,568 SF

Conceptual
Cost Estimate: $1,730,000 - $2,160,000*

*Includes cost of upgrading basic building only. Does not include costs of any new construction that might result from design for new museum.

WAREHOUSE

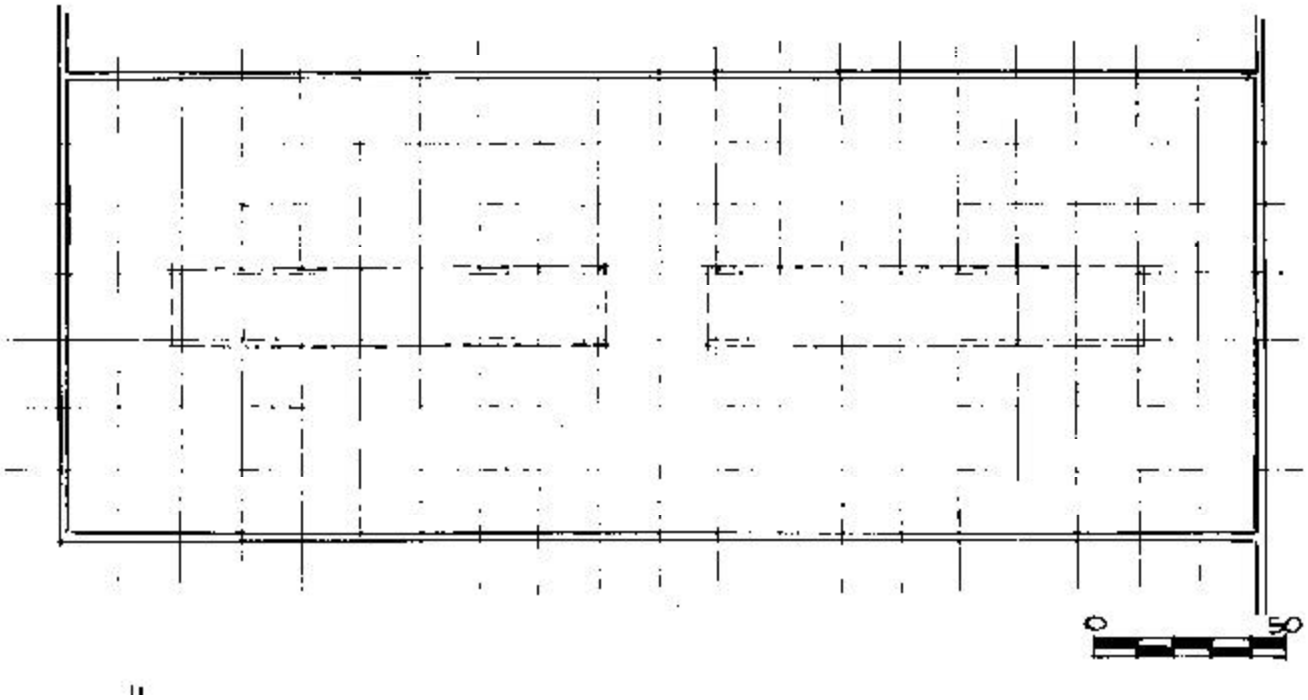
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This World War II-era structure is a utilitarian warehouse structure constructed of concrete block perimeter bearing walls on a concrete foundation. The building is partially painted. Original window openings were rectangular formed by precast concrete lintels and had precast sills. Steel lintels formed openings for large overhead doors. All original window openings blocked up. The roof structure is constructed of wood, supported on interior wood columns (refer to interior description for detailed information). The roof is low sloped, with built-up ballasted roofing , and drains to the west.

INTERIOR

This one-story warehouse building was originally constructed early during World War II. It currently is used by the Detroit Historical Museum for storage of historical vehicles. It is twenty bays in length and seven bays in width, each bay measuring approximately 17’ x 15.5’. The roof supports two seven bay long monitor roofs in the center of the building’s width that have operating windows to admit light and air. The interiors of the east and south exterior walls are bare concrete block. The north wall is common with Building 2C and is brick. The west wall is common with Building 2A and is concrete block. The ceiling is drywall applied directly to the underside of wood roof rafters. Structural columns are 8” x 8” wood supporting exposed heavy built-up wood girders with wood diagonal bracing. The floor is concrete generally sloping to the south. This building was constructed to be identical to Building 2A, but is in better condition.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Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry: Generally fair condition.	
Missing copings	Install 100% new copings.
Soiled surfaces	Clean all exterior masonry surfaces
Mortar in fair condition, weathered, many open	Selectively repoint 30% of surface.
Blocked up original windows	Restore original window masonry openings.
Gutters and Leaders:Missing at west end.	Replace 100%
Paint: Poor condition. Not known if building was originally painted.	Building partially painted. Prep, and repaint 100% of surfaces. Caulk.
Roofs: Viewed from interior only	
Building A: Roof in fair condition, some leaks	Repair existing roof.
Building B: Roof in poor condition. Holes, some collapsed areas(10%)	Replace 100% of roofing, Repair structure
Doors: Fair condition	Repair hardware at all doors. Service overhead doors to restore to full operation
Windows: Openings blocked up.	Install new steel windows in original openings.
Miscellaneous: Museum use conversion	Make infrastructure and physical modifications to accommodate conversion to museum use (Details to be determined).

Note: Recommendations above are to restore building to sound, weathertight condition. Additional work is likely to be required to convert the building to museum use. Such work is highly dependent upon the final museum design and configuration. An allowance has been included in the cost estimate for such work, however museum design decisions that may be made after the completion of this master plan could necessitate revision this allowance.

Accessibility	
Currently has ground level access through grade-level rolling doors.	Existing access will likely be changed for new use. Provide new ramps as part of design of entry to new museum.

PROPOSED USE

The interior of this building is utilitarian, but it has a unique character because of its original use. After defective interior conditions are repaired, it would be very adaptable for use as an interactive museum for the Arsenal of Democracy. The recommendations listed below are those that would repair the building to usable condition for the proposed use. Other physical adaptations, presently unknown, will be necessary to implement the interpretive design. Such must be undertaken to respect the SOI's Standards for Rehabilitation.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Non-original partitions have been added for past functions no longer active	Remove

Interior Conditions	**Interior Recommendations**
Walls	
Interior of concrete block perimeter walls - poor	Clean and paint
Original interior walls	Clean and paint
Non-original interior walls	Remove
Ceiling	
Drywall	Remove and replace with new material after roof repair
Exposed structure	Clean and paint
Doors	
Flush wood and metal – poor	Remove and replace with new doors to match originals; additional exit doors will be required to meet current exit codes
Hardware – poor	Replace
Floor	
Concrete	Patch as required and clean
Rest Rooms	Remove and replace with new facilities to meet code and accessibility requirements
Finishes	
Painted	Paint two coats

Structural Conditions	**Structural Recommendations**
Floor loading	
Existing concrete floors are believed to be adequate	Conduct tests to confirm thickness of flooring and to confirmstructural adequacy.

Mechanical Systems Conditions

HVAC System and Plumbing

Entire heating system is missing except for some piping. The water heater is not in working condition.

There is no cooling system or provision for outside air / ventilation of the building.

Mechanical Systems Recommendations

HVAC System and Plumbing

Entirely new HVAC and plumbing systems are required to meet the proposed use of the building.

Electrical Systems Conditions

System Summary

Outdoor Pad Mount Transformer

1200A 3P Main Disconnect

DP2C 400A Panel Board

Reheat Coils 600A Panel Board

Chiller 400A Panel Board

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 2C

WAREHOUSE

Constructed:	1942
Proposed Use:	Interactive Museum
Area:	27,500 SF
Conceptual Cost Estimate:	$1,270,000-$1,580,000*

*Includes cost of upgrading basic building only. Does not include costs of any new construction that might result from design for new museum.

WAREHOUSE

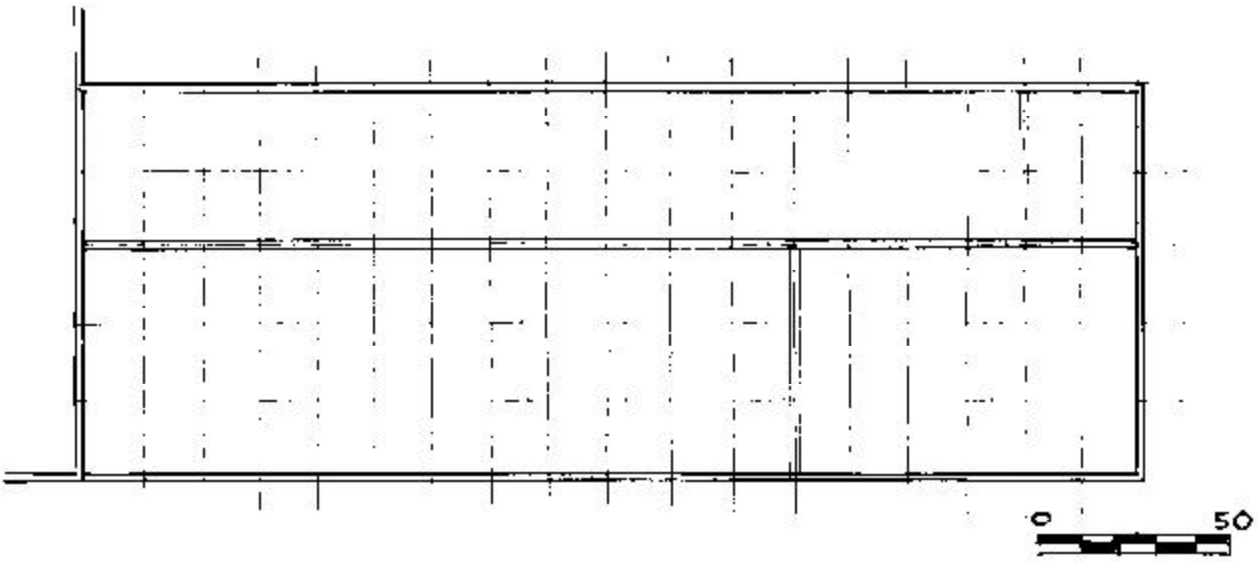
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This World War II-era structure is a utilitarian warehouse structure constructed of concrete block perimeter bearing walls on a concrete foundation. The building is painted. Original window openings were rectangular formed by precast concrete lintels and had precast sills. Steel lintels formed openings for large overhead doors. Openings have been much modified, with original window openings being blocked up, and new openings added along the west side to accommodate office use. The roof structure is wood, supported on interior wood columns (refer to interior description for detailed information). The roof is low sloped, and is assumed to have membrane roofing of unknown composition.

INTERIOR

This one-story warehouse building was also constructed early during World War II. It currently is used for storage for the Detroit Historical Museum. It is eighteen bays in length and seven bays in width, each bay measuring approximately 20' x 15'. The west portion of the building is office staff, rest rooms, workrooms and archival storage. These areas are quite well finished with painted drywall walls, 7' glass and drywall partitions, vinyl tile floors, and open painted roof framing serves as a ceiling. The rest rooms are finished with ceramic tile floors and base and painted plaster walls and ceiling. The east portion contains extensive artifact storage. It is finished with painted concrete floors and painted open structure and roof framing. This building was constructed at the same time as Buildings 2A and 2B, but has been nicely finished and is in excellent condition.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Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry: Generally fair condition.	
Missing copings	Install 100% new copings.
Soiled surfaces	Clean all exterior masonry surfaces
Mortar in fair condition, weathered, many open	Selectively repoint 30% of surface.
Blocked up original windows	Restore original window masonry openings.
Non-original window openings	Block up non-original openings.
Paint: Fair condition. Not known if building was originally painted.	Prep, and repaint 100% of surfaces. Caulk.
Roof:	
Viewed from interior only; appears to be in very good condition.	No work recommended. Inspect to confirm.
Doors: Good condition	Repair hardware at all doors.
Windows: Openings blocked up.	Install new steel windows in original openings.
Miscellaneous: Museum use conversion	Make infrastructure and physical modifications to accommodate conversion to museum use. (Details to be determined).

Note: Recommendations above are to restore building to sound, weathertight condition. Additional work is likely to be required to convert the building to museum use. Such work is highly dependent upon the final museum design and configuration. An allowance has been included in the cost estimate for such work, however museum design decisions that may be made after the completion of this master plan could necessitate revision this allowance.

Accessibility	
Currently has contemporary ramped access	Existing access will likely be changed for new use. Provide new ramps as part of design of entry to new museum.

PROPOSED USE

The interior of this building has been extensively remodeled to provide good quality, controlled archives and artifact storage for the Detroit Historical Museum. This building is in excellent condition. However, if a decision is made to relocate the current facilities, adaptation could easily be undertaken with Buildings 2A and 2B as an interactive museum for the Arsenal of Democracy. The recommendations listed below are those that would assure the building would be in usable condition for the proposed use. Other physical adaptations, presently unknown, will be necessary to implement the interpretive design. Such must be undertaken to respect the SOI's Standards for Rehabilitation.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Non-original partitions have been added for the current function	Current remodeled space has been undertaken within SOI's Standards for Rehabilitation; Changes should remain in place until final adaptive design has been formulated

Interior Feature Conditions	**Interior Recommendations**
Walls	
Interior of concrete block perimeter walls - good	No work
Original interior walls - good	No work
Non-original interior walls - good	No work until decisions are reached regarding require ments for museum adaptation
Ceilings	
Drywall	No work
Exposed structure	No work
Doors	
Flush wood and metal – good	No work; additional exit doors will be required to meet current exit codes
Hardware – good	No work
Floor	
Painted concrete east portion - good	No work
Carpet and vinyl tile west portion – good	No work
Rest Rooms	No work; adequacy and location of existing rest room will have to be calculated as a part of adaptive design
Finishes	
Painted	No work

Structural Conditions	**Structural Recommendations**
Floor loading	
Existing concrete floors are believed to be adequate	Conduct tests to confirm thickness of flooring and to confirm structural adequacy.

Mechanical Systems Conditions

HVAC System and Plumbing

Entire heating system is missing except for some piping. The water heater is not in working condition.

There is no cooling system or provision for outside air / ventilation of the building.

Mechanical Systems Recommendations

HVAC System and Plumbing

Entirely new HVAC and plumbing systems are required to meet the proposed use of the building.

Electrical Systems Conditions

System Summary

Outdoor Pad Mount Transformer

1200A 3P Main Disconnect

DP2C 400A Panel Board

Reheat Coils 600A Panel Board

Chiller 400A Panel Board

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 302

"NEW" GUARDHOUSE

Constructed:	1905
Proposed Use:	Visitor's Center
Area:	4,730 SF (+ 2,844 SF Basement)
Conceptual Cost Estimate:	$770,000 - $960,000*

*Does not include cost of roof scheduled for replacement

"NEW" GUARDHOUSE

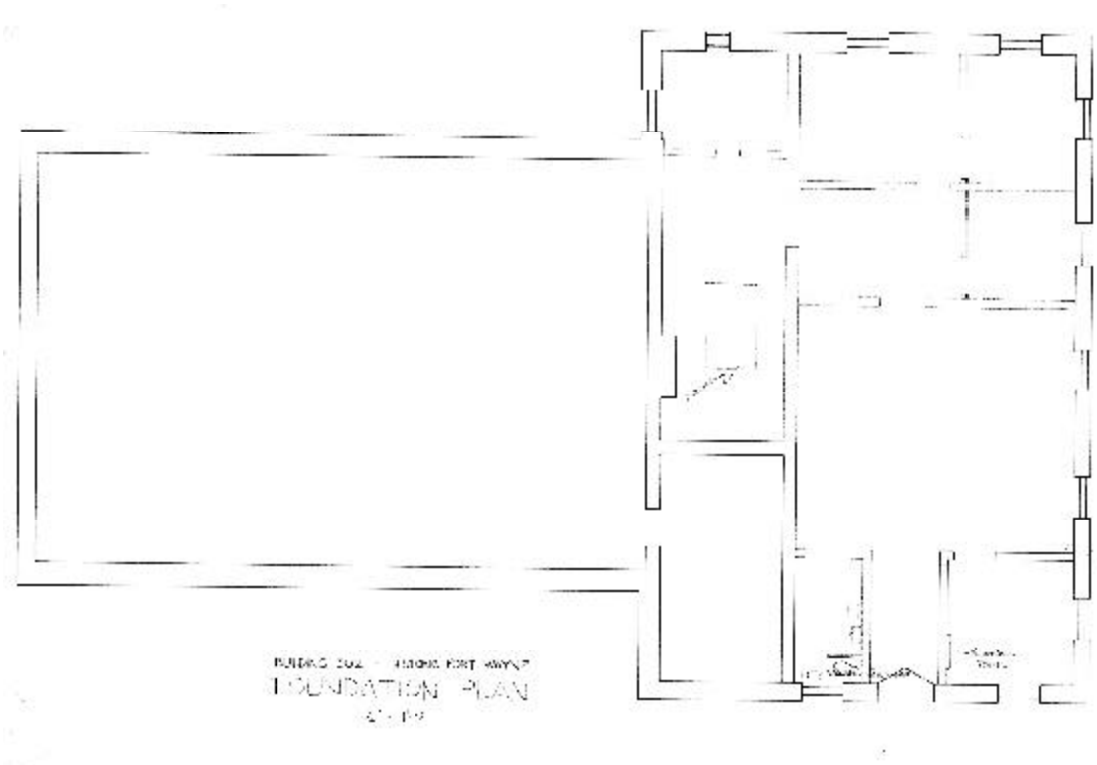
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

This buildng is a brick masonry bearing wall building, on a coursed ashlar limestone base. It reflects simplified Colonial Revival characteristics, however its single hipped-roof front dormer with rounded forms flanking the windows is a Shingle Style influence. Joints in brickwork are pointed with red tinted mortar. The building's footprint is an elongated "T"-shape, with hipped roofs on both masses. Window openings are formed by shallow rowlock arches at the front building mass, and roman arches at the rear mass. All windows have limestone sills. Windows are wood double-hung, with a variety of muntin configurations. Some windows have been blocked over, and some have been replaced. The building has one brick masonry chimney, and two large round metal sheet metal ventilators with star ornaments on top. Roof construction is wood framing, and roofing is currently asphalt shingles. Eaves are enclosed and have a plain fascia, however the dormer eave features crown molding trim, suggesting that the lower fascia my have been modified. There is a full nearly width concrete front porch on the south side, with a hipped roof supported on brick masonry columns. The concrete porch does not appear to be original, and the columns are identical to those found on Building 312, built in 1939, suggesting that this porch and columns may have also been built at that time. There is a pair of non-original entry doors in the original center masonry opening, and a second entry to the east, also on the porch. A rear door is located on each of the two building masses.

INTERIOR

This building is currently identified as the New Guardhouse. This reference relates to the "Old Guardhouse" built 16 years earlier at the center of the residential area of Fort Wayne. It also has been identified as the NCO Mess Hall. A small portion is currently used as an office for the security guards on duty at the fort entrance gate. The building is composed of a one story portion at the south that has a full basement and a one story wing to the north that is approximately 5' lower that has no basement. Two main entrances to the building enter the south portion under a full width front porch. One leads to the facilities used by the security guards that includes an office, rest room and stair to the basement. The other is a double door entrance to the large room that fills out the remainder of the south section of the building. At the rear of this room a door leads down stairs to the other large room that fills the entire north wing. This building is in very poor condition. However, a professional service contract has been awarded to restore the roof structure with its gaping holes that have led to the current extensive interior deterioration.


FOUNDATION PLAN

Exterior Conditions	**Exterior Recommendations**
Foundations: Good condition	No work
Masonry: Fair condition	
Soiled surfaces	Clean all exterior masonry
Deteriorated brick at west side, inside corner	Replace 40 sf of brick surface
Mortar: some deterioration, weathered, open joints	Selectively repoint 30% of surface
Deteriorated chimney mortar	Repoint chimney above roof; provide new Flashing
Wood Trim:	
Poor condition at eaves and fascia	Replace 100% with new with molded trim; Apply new beadboard at soffits
Gutters and Leaders: All missing	Roof replacement currently being designed; assumed to in clude gutter and leader replacement.
Paint: Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim. Fill checked sills. Caulk.
Roofs:	
Poor condition; some deteriorated sheathing	Roof replacement currently being designed
Doors	
Main entry doors-Anachronistic hollow metal.	Replace pair of front doors with new wood rail and stile doors, to match original, based on research.
Secondary front door: fair condition	Restore one rail and stile door.
Rear doors: one anachronistic steel, one deteriorated	Replace 2 existing rear doors with new 5 panel rail and stile doors.
Doors to basement: deteriorated	Replace one pair of wood rail and stile doors.
Windows	
Poor condition. Sash are deteriorated.	Replace all double hung sash with new to match existing.
Many have Louvers	Eliminate louvers, or install new in a compatible manner
Basement windows: Steel-poor condition	Replace all basement windows with new steel windows.
Porches	
Front: may not be original,some railings missing	Replace 2 lengths of steel pipe rail. Patch concrete stairs (at two sets of steps)
Rear porches missing	Construct of wood steps at each of two rear doors.

Exterior Conditions con't	**Exterior Recommendations con't**
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

PROPOSED USE

This building is centrally located and immediately adjacent to the fort's main entrance, ideal for adaptation as a visitor's center. This change could be successfully completed within the SOI's Standards for Rehabilitation. The recommendations provided below would achieve rehabilitation for the building shell. Imaginative planning would be necessary to develop an informative and exciting experience for the public. This planning must include new adequate public rest room facilities. Barrier free access would also have to be provided for guests to have full use of all three levels of the building.

INTERIOR CHANGES

The following is a list of building elements and features that have been modified since original construction, and recommendations for their treatment.

Changes	**Recommendations**
Non-original closure between office area and adjacent large room in south wing	Remove

Interior Feature Conditions	**Interior Recommendations**
Barrier free access to all three levels – none	Even though areas of the various portions of this building are less than 3,000 sq.ft. the public function proposed would demand full access for everyone to all three levels
Plaster	
Finish - poor	
Walls – covered with a non-original material or deteriorated	Replace 80%
Ceilings – Covered with suspended acoustic panels and deteriorated plaster	Replace 100%
Woodwork	
Casings – poor or missing	Replace 100%
Base – poor	Replace 70%; patch abrasions and prepare for new finish on remainder of woodwork
Doors	
Missing or non-original	Replicate all interior doors
Hardware – poor	Replace 100%
Floors	
Wood – south wing - poor	Replace 100%
Concrete – north wing – poor	Provide new topping material
Bathrooms	
Wainscot – none	Abandon existing rest rooms; new public rest rooms must be provided for adaptive use
Floor – asphalt tile – poor	
Plumbing fixtures – poor	
Finishes	
Painted	All interior surfaces two coats 100%
Basement	
Exterior walls – poor	
Interior walls – poor	All Surfaces 100% restoration
Concrete floor – poor	
Ceilings – poor	

Structural Conditions

Floor loading

Does not meet requirements for new use

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Electrical Systems Conditions

System Summary

200A main disconnect - 240 V

(2) 100 amp Panel board

(1) 60 amp Panel board

(1) 100 amp Panel board Sub-fed from 200A Panel board

Outdated outdoor PLD transformer

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Replace existing overhead electrical distribution with new underground service. Undertake further investigation to determine if new electrical substation is required.

BUILDING 303

THEATER

Constructed:	1939
Proposed Use:	Performance Theater
Area:	3,470 SF
Conceptual Cost Estimate:	$760,000 - $930,000*

*Does not include cost of roof scheduled for replacement. It does include a $100,000 allowance for theatrical equipment (projection equipment, stage line sets, lighting and sound.)

THEATER

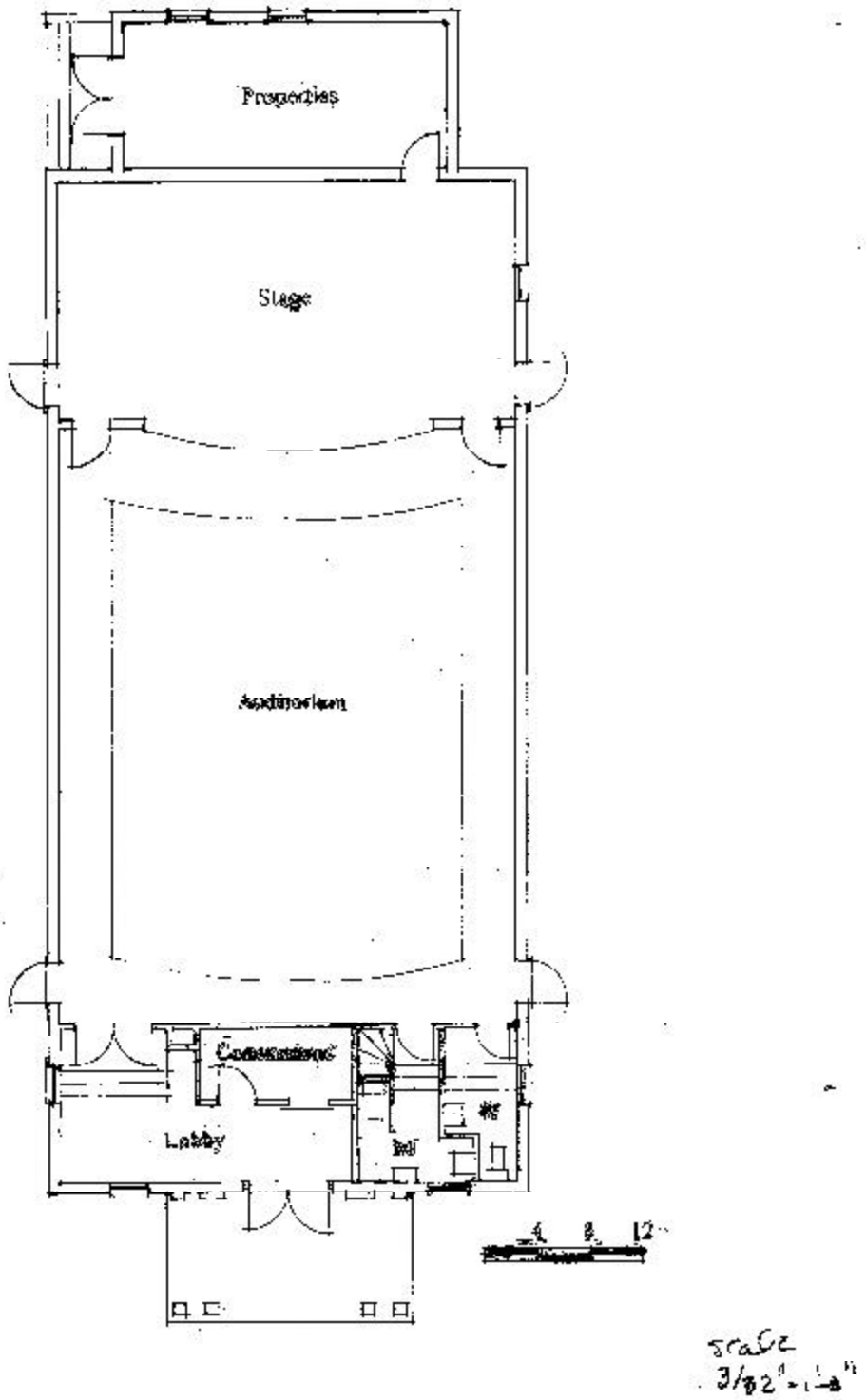
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

EXTERIOR

The theater is a one-story front gable brick veneer structure, with Colonial Revival detailing, including Georgian quoins on the four corners of the main mass of the building. A secondary brick veneer mass is located on the back (north) side of the building. The building sits on a formed concrete base with exposed course aggregate extending to just above the first floor line. Red brick in a common bond pattern, with header courses every 7th course, extends from that point to the roof. Masonry above window and door openings on the front elevation are topped with jack arches. These arches are largely ornamental, as they are supplemented with steel lintels. All other openings have standard common bond over the top, with steel lintels. The asphalt single roof sits on steel trusses. Windows are six-over-six wood double hung. Paired front entry doors are wood rail-and-stile, with 12 glass lights. Secondary doors are wood rail-and- stile with wood panels. The building has a columned front porch, with crown molding on the fascia. Eaves and rakes are trimmed with crown molding. The roof is collapsed at this writing, but is scheduled for replacement.

INTERIOR

This theater served Fort Wayne for movie entertainment late in its military history. The entrance to the building is under a protective exterior porch, through the double doors into a small lobby. Directly ahead is space for a concession stand and to the left three steps lead through another set of double doors to the rear of the auditorium. From here approximately 165 theater seats are attached to a floor which slopes gently to the stage. The proscenium wall has a rectangular proscenium opening at its center flanked by two doors that lead up to the stage and theater exits. The stage is raised without fly space and has minimal wings. Behind the stage is a property/storage room with exterior access from the west. At the rear of the auditorium are two more exit doors and very small men and women's rest rooms. This building is in very poor condition. However, a professional service contract has been awarded to restore the roof structure with its gaping hole that has led to the current extensive interior deterioration.


Properties
Stage
Auditorium
Lobby
4 8 12
scale
3/32" = 1'-0"

Exterior Conditions	**Exterior Recommendations**
Foundations: Good Condition	No work recommended
Masonry:	
Soiled surfaces	Clean all exterior masonry
Rusted lintels	Replace 12 rusted lintels
Major jacking ands shifting of brick at rusted lintels	Repoint after lintel replacement
Chimney cap deteriorated	Provide new concrete wash; repoint top 24" of chimney
Wood Trim: Fair condition	Replace100 lf of eave crown molding and fascia; repair wood at front porch.
Gutters and Leaders	
Gutter and Leader missing on west side	Assume that gutters and leaders will be as part of the roof replacement.
Paint:	
Poor condition, moderately checked sills	Scrape, prep, and repaint 100% of wood trim; fill checked sills.
Roofs:	
Main roof: Collapsed	Roof will be rebuilt as part of a separate project
Front porch roof: Membrane and flashing are deteriorated	Assume that porch roof will be replaced as part of the overall roof replacement
Doors	
Deteriorated but serviceable	Repair two rail and stile glass panel doors, four rail and stile two-panel doors, and replace two rail and stile five-panel doors; replace all hardware
Windows	
Fair to poor condition; plywood panels over some windows	Reattach sash weights; weatherstrip, reglaze (typical for all windows); replace 2 windows; major repair to 4 windows; minor repair to 6 windows.
Front Porches: Poor condition	Add handrails. Provide new topping on landing; see wood trim (above) for other work.
Exterior Stairs	
Handrails deteriorated	Replace handrails
Accessibility	
No barrier-free access from exterior to first floor	Access required from exterior to first floor only. Provide ramp or mechanical lift

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PROPOSED USE

The proposed use for the future is actually a continuing use. Therefore Restoration in accordance with the SOI's Standards is the most appropriate treatment. However, some up-to-date amenities will have to be included for the theater to function successfully for modern performance as well as film. New acoustical material, lighting, and sound systems must be state of the art. Existing rest rooms are woefully inadequate and new larger modern toilet facilities will have to be provided. Since there is no space for such in the original building shell, an addition will have to be considered.

INTERIOR CHANGES

With the present state of deterioration it is impossible to definitely determine original design and substantive changes may have been made. If original construction documents can be discovered, a rehabilitation can be achieved that is sensitive to the original design intent while upgrading to an up-to-date functioning theater

Interior Feature Conditions	**Interior Recommendations**
Barrier free access – none	Since this is a one story building, access would not seem to be a problem. However, the theater's origi nal design included a sloped floor in the auditorium that required three steps from the grade level entrance lobby up to the auditorium floor. A retractable chair lift at this location should solve the barrier free situa tion. Barrier free seating must also be included.
Walls	
Fabric covered drywall - poor	All must be replaced with finish to be selected
Ceilings	
Fiberglass panels in auditorium – collapsed	Must be replaced with material to be selected
Drywall elsewhere – poor	All must be replaced with finish to be selected
Woodwork: None	
Doors	
1 pair two panel from lobby to auditorium – poor	Restore if possible; replace if necessary
4 single two panel interior doors – all missing	Replicate missing doors
Hardware – poor	All new hardware required
Floors	
Asphalt tile on concrete - poor	Completely remove existing and replace with vinyl tile to simulate older asphalt design
Rest Rooms	
Wainscot – poor Floor - poor Plumbing fixtures - poor	Both original rest rooms have been completely destroyed; neither were in accordance with present day codes; since there is not space in the existing build ing to meet requirements, an addition will be neces sary; original rest room space can be used for other purposes.
Finishes	
Painted – poor	Entire interior requires completely new finishes

Structural Conditions

Floor loading
Does not meet requirements for new use

Structural Recommendations

Reinforce all floors to 50 PSF live load capacity

Electrical Systems Conditions

System Summary

There is currently no electrical service to this building. It was formerly fed underground from the Guardhouse.

Standard light switches, plugs and fixtures

System, including lighting, wiring, switches, panel boards and appurtenances is outdated.

Electrical Systems Recommendations

Upgrade entire electrical system to meet current codes and City standards; including lighting fixtures, wiring, switches, panel boards, appurtenances, and any other electrical equipment.

Undertake further investigation to determine if underground service is in condition for re-use of if new is required. Undertake further investigation to determine if new electrical substation is required.

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BUILDING 507

OLD STONE BARRACKS

Constructed: 1848 - 1849

Proposed Use: Museum (1st and 2nd)
Hospitality (3rd and attic)

Area: 29,400 SF

Conceptual
Cost Estimate: $3,520,000 - $4,400,000

Old Stone Barracks

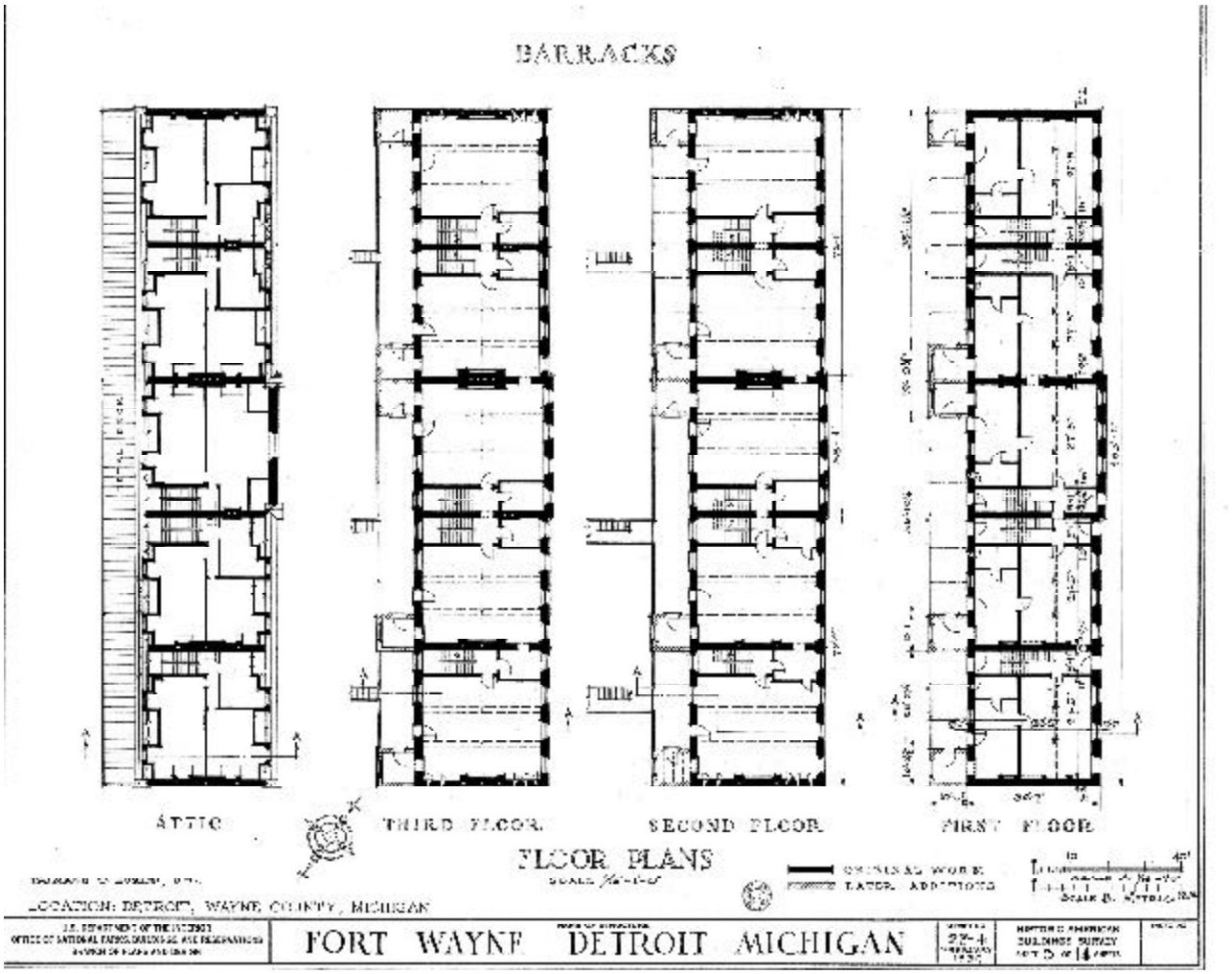
The conceptual cost estimate covers all stabilization, rehabilitation, and preservation recommendations related to the proposed use of the building as included herein, including exterior and interior treatment recommendations; recommendations regarding previous interior changes to the building; recommendations for upgrading of structural, mechanical and electrical systems; and modifications necessary for accessibility, building and life safety code compliance. This estimate range may vary with economy of scale; thus dependent upon the number of buildings undertaken as part of a single construction bid package.

Exterior

The Old Stone Barracks is a three story coursed and roughly squared limestone masonry structure, built in the late Georgian, or Adam style. It is five bays wide and has a side gabled roof with the center bay projecting and having a front gable. Eight dormers are located on the front roof slope, and ten are located at the rear. The rear elevation features a three story porch extending the full length of the building, interrupted with 5 vertical brick masonry towers. The porch floors at the second and third floor are formed by brick masonry vaults supported on cast iron beams and columns. The porch and masonry towers are old, but not original. Window openings are formed by limestone lintels (some have been replaced by concrete), and limestone sills. The tops of the stone walls terminate in brick dentils and cut stone cornices which once carried built-in gutters. The five entrance doors at the front elevation have roman arches. The barracks has 6 brick masonry chimneys, with concrete caps. Roof construction is wood framing, and roofing is currently random size contemporary three-dimensional asphalt shingles. Modern aluminum gutters have been installed atop remainders of modified stone cornices. Windows are wood double-hung, typically twelve-over-twelve. Front entrance doors are nine panel rail and stile doors, with Adam style fan light transom windows.

Interior

This three-story building with attic is the oldest and most significant structure besides the original star fortification at Fort Wayne. In was constructed in five identical sections with brick firewalls between. Each section contains a stair hall with steel plate stairs serving the upper three floors. The first floor was built with a mess hall and a kitchen in each section. Upper floors served as dormitory living quarters. No indoor sanitary facilities were included in the original construction. When Civil War troops were housed in the barracks it was found that the outside toilets were both impractical and unsanitary. As a result brick additions were constructed on the west rear side of the building to house new toilets. This provided verandas between. The building had a unique structural system with the upper two floors suspended from the roof with metal rods. Cast iron columns supported the lower floors. In 1934 it was reported that the building was in poor condition due to failure of the roof system. Apparently many of the rods had been cut to provide better access on the upper floors. In 1956 the building was repaired and now appears to be in good structural condition. In the 1970's the lowest two floors were developed as museum space with military exhibits and period rooms. Most of this is still in place today. Although remodeled to some extent to facilitate the exhibits, these two floors are in relatively good condition. The two upper floors, however, are in very poor condition.


BARRACKS
ATTIC
THIRD FLOOR
SECOND FLOOR
FIRST FLOOR
FLOOR PLANS
ORIGINAL WORK
LATER ADDITIONS
LOCATION: DETROIT, WAYNE COUNTY, MICHIGAN
FORT WAYNE DETROIT MICHIGAN

Historic Fort Wayne

■ ALTERNATIVES

A WEST RIVERFRONT PARK AT HISTORIC FORT WAYNE

Historic Campus
- Adaptive Reuse
- Minimize auto tru traffic
- Educational / office uses
- Stress compatible use-main continuity

Enhanced Main Entry

New Campus
- New museums
  - Corps
  - River
  - DHS
- New hospitality
  - Hotel / conference

Lighted Athletic Complex
- 8-10 soccer fields

Naturalized Riverfront
- Environmental Demonstration area

Fort Wayne
- Museum
- Highest level of restoration and display

Riverfront Esplanade
- Strolling, Rollerblading
- Naturalized shoreline for fishing

Marina
- Ships for sail, motor boats
- Restaurant for surrounding uses

Arsenal of Democracy
- Archive, open display area

SCALE

LEGEND

- WATER AREA
- PARK / GREEN SPACE
- CAMPUS
- PARKING
- SUPPORT ZONE
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC

SEPTEMBER 6, 2002

DETROIT HISTORICAL MUSEUMS

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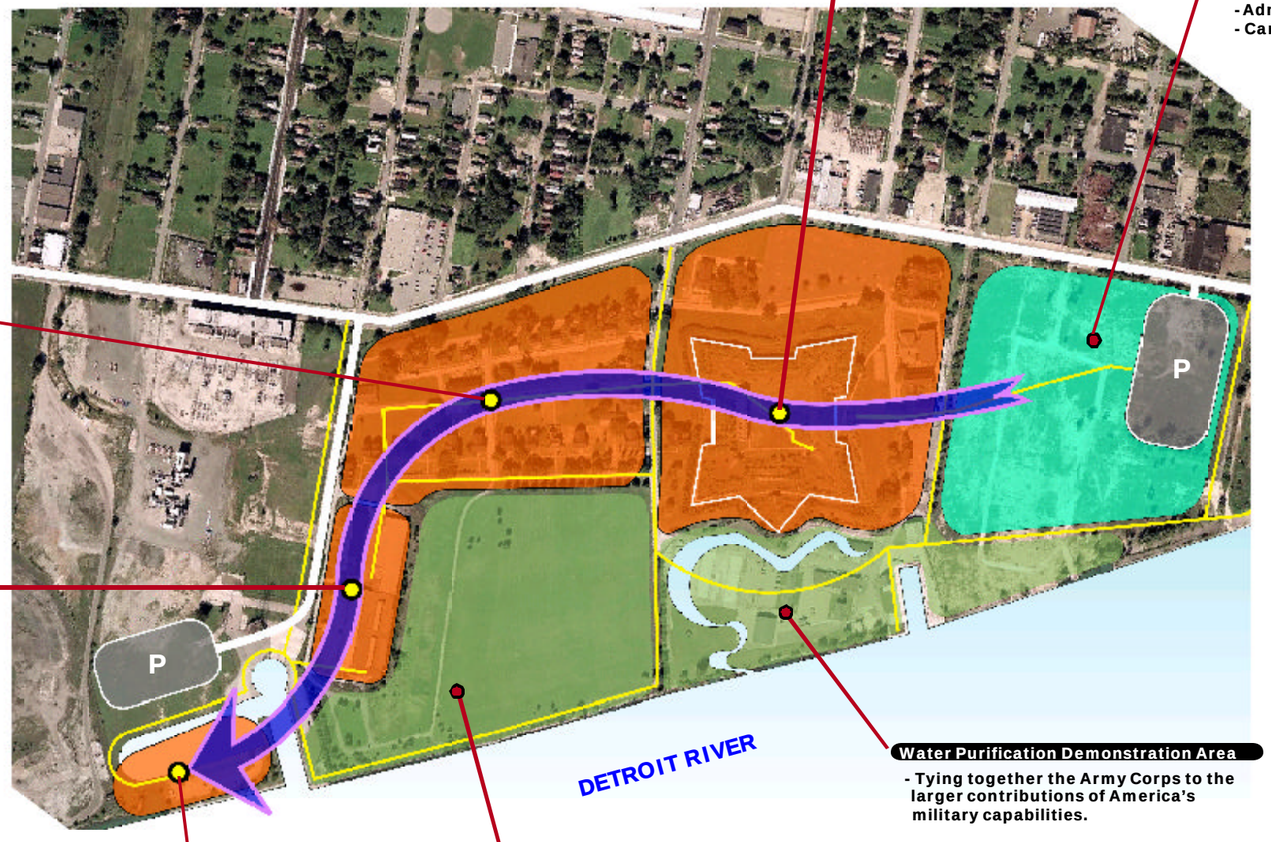
Historic Fort Wayne

■ ALTERNATIVES

B EDUTAINMENT PARK / EXHIBITION VILLAGE

An interactive time line utilizing all existing resources.



Destination #1: Renovated Fort
- In the army : 1812
- Corp slip for wooden ships
- Underground exhibit space

Support Zone
- Hotels / Conference center for 500+
- Administration
- Camping / RV

Destination #2: Military Vilage
- Slice of life: circa 1870
- Renovated vegetable gardens
- Academic outlets

Destination #3: Arsenal of Democracy
- Wheeled Military Vehicles
- Technology exhibit

Destination #4: Military on Water
- Decommissioned ships, subs, etc.
- Marina as a water taxi stop.

Preservation of Parade Ground

Water Purification Demonstration Area
- Tying together the Army Corps to the larger contributions of America's military capabilities.

SCALE

LEGEND

- WATER AREA
- PARK / GREEN SPACE
- DESTINATION
- PARKING
- SUPPORT ZONE
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC

SEPTEMBER 6, 2002

DETROIT HISTORICAL MUSEUMS

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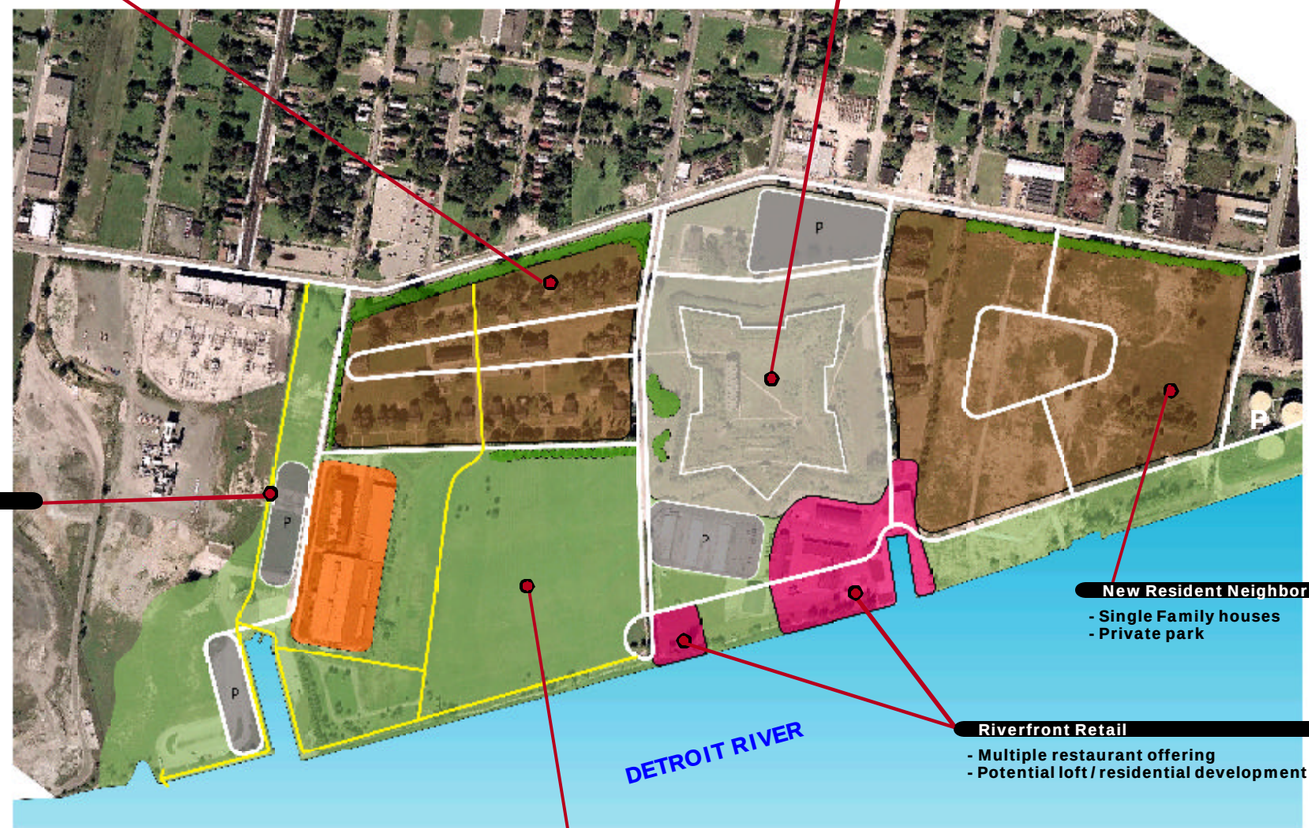
Historic Fort Wayne

■ ALTERNATIVES

C DEVELOPMENT SCENARIO

New 'Old' Neighborhood
- Expanded / renovate existing structures into residential
- Add new infill houses

100% Fort Renovation
- Museum for all time period
- Enhanced landscape
- Retail offerings



Easement Access
- Parking

New Resident Neighborhood
- Single Family houses
- Private park

Riverfront Retail
- Multiple restaurant offering
- Potential loft / residential development

Parade Ground Park
- Soccer Fields
- Warehouses converted to covered sports area

SCALE

LEGEND

- WATER AREA
- PARK / GREEN SPACE
- RESIDENTIAL
- PARKING
- COMMERCIAL
- PEDESTRIAN TRAFFIC
- VEHICULAR TRAFFIC

SEPTEMBER 6, 2002

DETROIT HISTORICAL MUSEUMS

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