Appendix E-3
Phase IA Archaeological Sensitivity Assessment



Phase 1A Archaeological Sensitivity Assessment

I-81 Viaduct Project

City of Syracuse and Towns of Salina, Cicero, and Dewitt, Onondaga County, New York

NYSDOT PIN 3501.60

Prepared for:

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S.Department of Transportation
Federal Highway Administration

Prepared by:

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.

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Redacted Version - November 2016

Phase 1A Archaeological Sensitivity Assessment (redacted version)

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November 2016

MANAGEMENT SUMMARY

PIN:	3501.60
NYSORHP Project Review:	16PR06314
DOT Project Type:	Highway demolition, reconstruction, and/or replacement
Cultural Resources Survey Type:	Phase 1A Archaeological Sensitivity Assessment
Location Information:	City of Syracuse and Towns of Salina, Cicero, and Dewitt Onondaga County
Survey Area:	
Project Description:	Reconstruction of I-81 and adjacent roadways in Syracuse, N. The Project is considering 2 alternatives – a Viaduct Alternative and Community Grid Alternative, described herein.
Project Area:	Area of Potential Effect (APE) for Direct Effects totals 458.9 acres
USGS 7.5-Minute Quadrangle Map:	Syracuse East, Syracuse West, Jamesville, Cicero and South Onondaga
Results of Archaeological Survey:	
Native American Archaeological Sensitivity:	19.1 acres of APE for Direct Effects is undisturbed (or disturbance cannot be determined) and therefore potentially sensitive for Native American archaeological resources
Historic Period Archaeological Sensitivity:	Potential for historic-period archaeological resources to be located throughout portions of the APE for Direct Effects; however, the APE for Direct Effects is for the most part within a heavily disturbed highway corridor
Authors/Institution:	Patrick J. Heaton, RPA; Grant Johnson; Nicholas Freeland, RPA; Susan Lawson; Daniel Barbato; Lisa Young; Sarah Bock, RPA; Kyle Somerville, Ph.D.; Jordon Loucks, RPA; Andrew Roblee *Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR), Syracuse, New York*
Date:	November 2016
Sponsor:	New York State Department of Transportation Federal Highway Administration

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

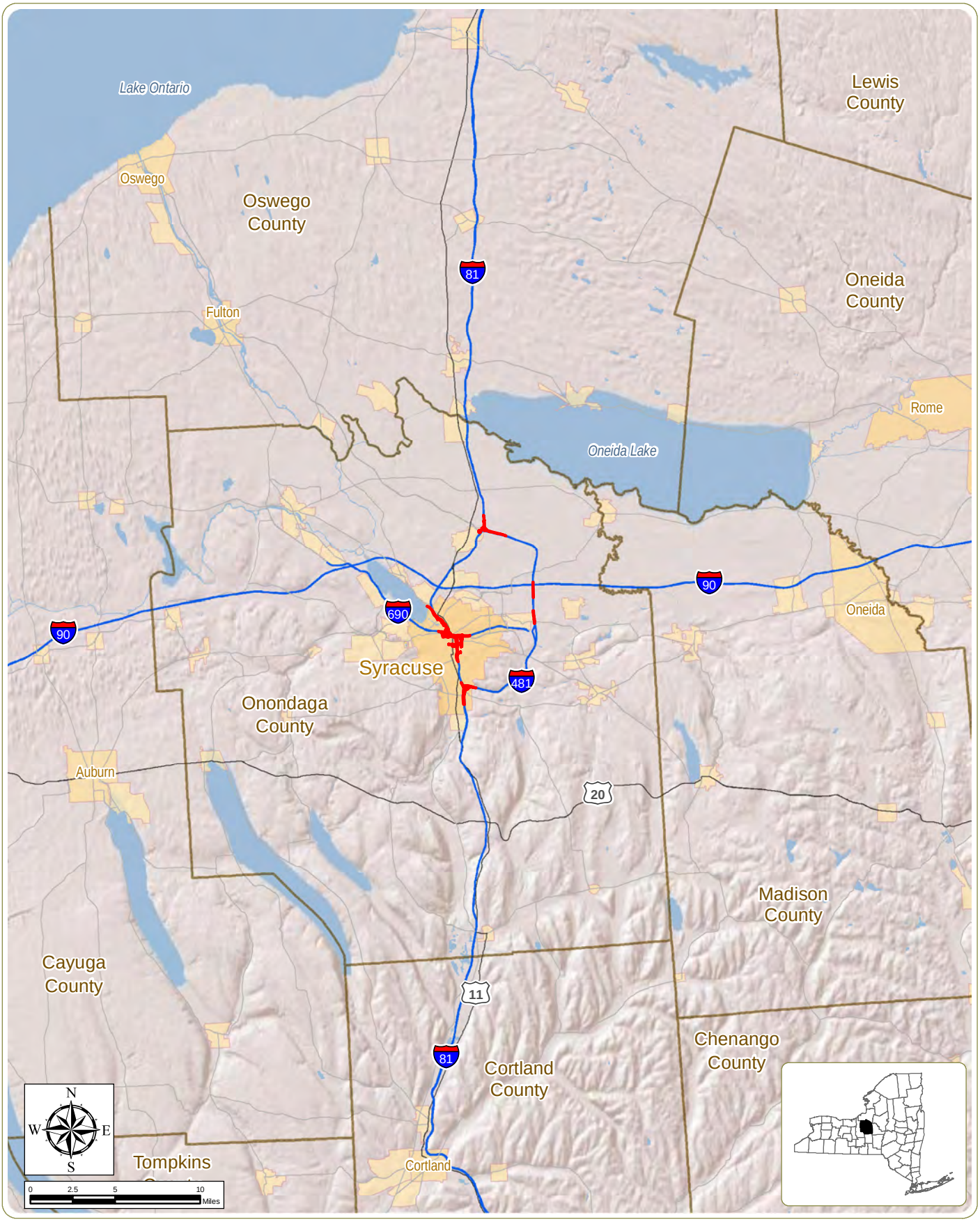
Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared a Phase 1A Archaeological Sensitivity Assessment for the I-81 Viaduct Project, which is located in the City of Syracuse and Towns of Salina, Cicero, and Dewitt, in Onondaga County, New York. The purpose of the Phase 1A Archaeological Sensitivity Assessment is to determine whether previously identified archaeological resources are located in the Project's Area of Potential Effect (APE), and to evaluate the potential for previously unidentified archaeological resources to be located within the APE. The report has been prepared in accordance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act (NEPA), and/or Section 14.09 of the New York State Parks, Recreation, and Historic Preservation Law, as applicable.

The Phase 1A Archaeological Sensitivity Assessment was prepared by professionals who satisfy the qualifications criteria per the Secretary of the Interior's Standards for Historic Preservation (36 CFR 61) in Archaeology and Historic Preservation and under the supervision of a Registered Professional Archaeologist (RPA). The research methods and report preparation were conducted in accordance with the New York Archaeological Council's (NYAC's) *Standards for Cultural Resources Investigations and the Curation of Archaeological Collections in New York* State (NYAC, 1994). This report includes the required information and sections for a Phase 1A archaeological assessment as specified in the New York State Education Department's (NYSED's) *Cultural Resources Survey Program Work Scope Specifications for Cultural Resources Investigations on New York State Department of Transportation Projects* (NYSED, 2004). However, the organization of the report has been modified to better account for the complexity and scale of the Project, and is organized in a manner consistent with the New York State Office of Parks, Recreation, and Historic Preservation's (NYSOPRHP's) *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005).

This Phase 1A Archaeological Sensitivity Assessment was previously submitted to NYSOPRHP and the Onondaga Nation on September 19, 2016. This redacted version of the report is included in the DEIS for the I-81 Viaduct Project and was revised to remove information about archaeological site locations.

1.2 Project Description

The I-81 Viaduct Project includes the proposed reconstruction or replacement of the elevated portions of Interstate 81 (the I-81 viaduct) through the City of Syracuse, in Onondaga County, New York (see Figure 1.2.1-1 and Appendix A: Map 1). This section of the report describes the purpose of the Proposed Action (the Project); the need for the Project; describes the proposed alternatives for the Project; and defines the APE and other terms that will be used throughout this report to describe the Project.



I-81 Viaduct Project

Onondaga County, New York

Figure 1.2-1: Regional Project Location

November 2016

APE for Direct Effects

Notes: 1. Basemap: ESRI ArcGIS Online "World Shaded Relief" Map Service and ESRI StreetMap North America, 2008.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation Federal Highway Administration

1.2.1 Purpose of the Proposed Action

The purpose of the I-81 Viaduct Project is to address the structural deficiencies and non-standard highway features in the I-81 corridor while creating an improved corridor through the City of Syracuse that meets transportation needs and provides the transportation infrastructure to support long-range planning efforts.

The future of the I-81 corridor is important to the efficient movement of people and goods in and around greater Syracuse and to the integrity of the national transportation network. Within the greater Syracuse metropolitan area, I-81 is a principal north-south transportation route for commuters, travelers, and commercial vehicles and provides direct access to Downtown. Nationally, I-81 is a major north-south transportation corridor that extends from Tennessee to Canada, providing links to major cities, such as Washington, D.C., Philadelphia, and New York City, via east-west connections. I-690 is a principal east-west arterial in Syracuse that also provides direct access to Downtown. The I-81/I-690 interchange is located in the northern portion of Downtown Syracuse.

As described in the *I-81 Corridor Study* (New York State Department of Transportation [NYSDOT], 2013), the I-81 viaduct and I-81/I-690 interchange have been the subject of community and agency concern because of ongoing congestion and safety issues, as well as its aging infrastructure. The *I-81 Corridor Study* identified a section of I-81 and I-690 in and near Downtown Syracuse as a priority area for improvements due to a concentration of structural and geometric deficiencies, as well as frequent congestion and high accident rates, and defined this area as the "I-81 Viaduct Priority Area." In many instances, existing highway design features (such as shoulder widths, median widths, interchange spacing, etc.) pre-date current design standards and, coupled with heavy traffic volumes, have led to recurring congestion and high accident rates. In addition, the highway infrastructure is nearing the end of its intended design life, and the viaduct and other highway bridges have deteriorated due to age, wear, and harsh winter weather conditions.

1.2.2 Need for the Proposed Action

The I-81 Viaduct Priority Area exhibits a high concentration of traffic incidents and nonstandard features. Although highway infrastructure is maintained in a state-of-good repair to ensure its structural integrity and to remain safe for the traveling public, continued deterioration could lead to increased maintenance costs, weight and speed restrictions on bridges, and potentially, eventual closure of bridges. Preliminary planning has identified the following with respect to the need for the Project:

- The need to improve traffic flow and safety
- The need to correct nonstandard and nonconforming design features

- The need to improve highway bridge infrastructure
- The need for transportation infrastructure to support long-range planning efforts

Important indicators of the functionality of a highway network are levels of congestion and accidents rates. Level of service (LOS) is a measurement of congestion and travel delays, based on a scale from LOS A (free flowing) to LOS F (highly congested). The I-81 Viaduct Priority Area is prone to congestion and high accident rates, largely due to high traffic volumes combined with nonstandard and nonconforming design features.

According to the NYSDOT *Highway Design Manual* (HDM) design criteria, interstate highways should function at LOS C or better. During peak periods (i.e., AM and PM rush hours), traffic congestion is a frequent occurrence in certain sections of the I-81 viaduct priority area where traffic conditions typically operate below LOS C. Many roadway and ramp segments in these areas often approach capacity (LOS D to E) or are over capacity (LOS F). This often results in reduced travel speeds that average about 20 mph (well below the posted 45 mph speed limit), indicating notable travel delays. Frequent peak hour congestion is a result of heavy traffic volumes combined with numerous highway design features that do not meet current standards, largely due to the viaduct's age and physical constraints. The I-81 and I-690 corridors accommodate nearly 100,000 vehicles per day in some downtown sections near the I-81/I-690 interchange.

To ensure safety and conformity throughout the national highway system, the American Association of State Highway and Transportation Officials (AASHTO) has established interstate highway design standards, which are implemented by the FHWA and NYSDOT. In New York State, AASHTO standards are supplemented by NYSDOT's HDM. These standards vary based on design speed and include criteria for grades and roadway curvatures, lane widths, shoulder dimensions, median design, and interchange spacing, among many others. Design standards have evolved over time as engineering and safety practices have improved. As such, highway infrastructure that was constructed in the 1950s and 1960s, including portions of the I-81 corridor, does not always meet current standards.

Infrastructure that pre-dates current design standards is considered "nonstandard" or "nonconforming." Nonstandard design features include geometrical aspects that are considered critical design elements, such as lane and shoulder widths, sight-line distances, grades (i.e., slopes or steepness), etc. Nonconforming design features include design elements that do not conform to accepted engineering practice but are not considered critical design elements, such as the spacing between interchanges and the lengths of acceleration and deceleration lanes.

I-81 and I-690 are elevated through Downtown Syracuse. The I-81/I-690 interchange and viaduct comprise 33 highway bridges, with 17 additional bridges along the I-81/I-690 interchange approaches. These bridge structures were

constructed primarily in the 1960s and many of their components are nearing the end of their design service life. Over time, these structures have experienced varying levels of deterioration from exposure to weather, de-icing salts, and heavy vehicle use. Bridges are particularly susceptible to wear and tear because many of the structural elements are directly exposed to weather conditions (i.e., ice in winter and heat in summer).

Several local and regional long-range plans have established goals for the regional transportation network, and/or have identified I-81, particularly the I-81 viaduct, as an influential feature within Downtown Syracuse and adjacent neighborhoods. The I-81 viaduct and I-690 interchange are visually prominent elevated features in Downtown Syracuse that can affect adjacent land uses and connectivity between land uses, thereby influencing the livability, sustainability, and economic vitality of the City. As such, in addition to the structural and design needs previously described, project development has and will continue to be mindful of regional and community planning initiatives.

1.2.3 Description of Alternatives

The following summarizes the reasonable alternatives that are evaluated in the Interstate 81 (I-81) Viaduct Project Draft Environmental Impact Statement (Draft EIS). The Preferred Alternative will be identified in the Final Environmental Impact Statement (Final EIS).

No Build Alternative

NEPA requires examination of a No Build Alternative. The No Build Alternative serves as the baseline against which the other alternatives can be compared. The No Build Alternative would maintain the highway in its existing configuration, although ongoing maintenance and repairs to ensure the safety of the traveling public will continue. In addition, NYSDOT would implement safety measures to the extent feasible and financially practicable.

Structural deficiencies and safety considerations would be addressed as part of NYSDOT's ongoing maintenance program. In addition to routine maintenance efforts (such as filling pavement cracks, patching holes in bridge decks, cleaning drainage systems, and operational considerations (e.g., signage and other low-cost improvements), the facility has required an increasing number of emergency repairs of greater magnitude to keep it serviceable. Over time, these repairs would become increasingly costly as the highway continues to deteriorate. At the time when NYSDOT determines that a maintenance and repair program is too costly or that conditions result in an increased safety risk to the public, the facility would be closed to traffic.

Under the No Build Alternative, large-scale replacement and rehabilitation efforts would not be undertaken, nonstandard highway features would not be corrected, and existing interchanges would not be modified.

The No Build Alternative would not involve changes in right-of-way (property line). Any maintenance or safety repairs would include upgrades to the existing highway or operational modifications, such as changes in the posted speed limit, safety signage, restrictions on vehicle weights, or adjustments to traffic signals at intersections leading to and from the highway.

There would be costs associated with the No Build Alternative in each year that repairs are undertaken. As the facility continues to deteriorate, the level of effort and associated costs would increase. Over time, the maintenance may be costlier than NYSDOT's budgets can tolerate, making continued operation unreasonable.

Viaduct Alternative

The Viaduct Alternative (formerly known as Option V-4) would involve a full reconstruction of I-81 between approximately Colvin Street and Spencer Street, as well as modifications to highway features north of Spencer Street to Hiawatha Boulevard and along I-690. The new viaduct would provide four 12-foot travel lanes (a minimum of two in each direction), as well as inside shoulders (a minimum of four feet in each direction) and outside shoulders (a minimum of 10 feet in each direction).

From the south, the Viaduct Alternative alignment would begin as I-81 approaches the city in the vicinity of Colvin Street. Near Van Buren Street, the interstate would go over the bridge carrying the New York, Susquehanna and Western Railway, at approximately the same elevation as the existing I-81 viaduct, and begin to climb until nearby Adams Street, where it would be approximately 10 to 15 feet higher than the existing viaduct, which is approximately 20 feet tall. This increased height generally would be maintained throughout the length of the viaduct. South of Harrison Street, the new viaduct generally would be approximately 10 to 20 feet wider, depending on the section, than the 66-foot-wide existing viaduct. Between Harrison and Genesee Streets, the viaduct would begin to split into two separate bridges, with the bridge on the west carrying two southbound I-81 through lanes, as well as additional lanes for ramp connections, and the bridge on the east carrying a similar number of lanes for northbound I-81. As a result of these connections, the separate bridges, wider shoulders, and other improvements, the footprint of the new viaduct would be substantially wider than the existing viaduct footprint, ranging from approximately 95 feet at Harrison Street (30 feet wider than existing) to 280 feet at Genesee Street (150 feet wider than the existing). From Genesee Street to the I-690 interchange, I-81 would continue on separate bridges, which would join and end around Salina Street (for comparison, the existing I-81 viaduct rejoins at approximately State Street). From Salina Street northward, the interstate would be carried on an embankment. Elevations would match those of the existing interstate near existing Butternut Street.

The Viaduct Alternative would correct most non-standard and non-conforming highway features within the I-81 priority area. It would meet 60 mph design standards except for horizontal stopping sight distance[1] at five curves. Three curves would meet 55 mph design standards and two curves would meet 50 mph design standards. The sight distance restriction would apply to only the inside lane of the five curves. The posted speed limit on the viaduct would be 55 mph, but warning signs to encourage motorists to reduce speed would be installed at the five curves.

Based on the current design, it is estimated that approximately 23 buildings would need to be acquired for the construction of the Viaduct Alternative; in addition, there would be one partial impact to a building, involving the removal of its smokestack.

Major elements of the Viaduct Alternative, including interchange modifications, bridge replacements, and other features, include the following:

- New partial interchange on I-81 at Dr. Martin Luther King, Jr. East (MLK, Jr. East, formerly East Castle Street)
- I-81 Interchange 18 (Harrison/Adams Streets) improvements
- Reconstruction of I-690 and existing i-81/i-690 interchange and provision of missing I-81/I-690 connections (between eastbound I-690 and northbound I-81 and between southbound I-81 and westbound I-690)
- Consolidation of I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street)
- Rebuilding of Butternut Street overpass in a new location (over existing Genant Drive to connect to Clinton and Franklin Streets in the Franklin Square neighborhood)
- Addition of one lane in each direction on I-81 from I-690 to Hiawatha Boulevard and replacement of existing Bear Street, Court Street, and Spencer Street bridges with new structures
- I-690 Interchange 11 (West Street) improvements and removal of the West Street overpass of West Street
- Onondaga Creekwalk Improvements including the creation of a new path along the west bank of Onondaga Creek between Erie Boulevard and Evans Street
- I-690 Interchange 13 (Townsend Street/Downtown Syracuse) improvements.

In addition, the Viaduct Alternative would include bicycle and pedestrian facilities to improve connectivity between existing multi-use paths within the project limits. Streets would be designed to incorporate ADA needs and requirements and to be in compliance with New York State complete streets requirements. Efforts would be made to create a

[1] As defined by FHWA, "stopping sight distance is the distance needed for drivers to see an object on the roadway ahead and bring their vehicles to a safe stop before colliding with the object." "Horizontal stopping sight distance" refers to the distance that a motorist needs to see around horizontal curves at a given speed.

distinctive identity through the use of an aesthetically unified design and measures to improve safety. Special pavements, planting areas, medians, pedestrian refuge areas, site furnishings, and green infrastructure would be considered. Local street improvements would include pedestrian and bicycle safety and connectivity enhancements in the priority area, such as:

- Distinctive pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Signals to facilitate pedestrian crossings while encouraging bicycle use;
- Bollards and traffic islands to provide safe refuge for pedestrians; and
- "Bump-outs," or extensions, of the sidewalk corners, to narrow roadway crossing distance for pedestrians.

Newly created bicycle facilities along Almond Street would connect to existing bicycle facilities at Water Street and East Genesee Street (Connective Corridor) and allow for future connections to bicycle facilities identified in the *Syracuse Bicycle Plan: A Component of the Syracuse Comprehensive Plan* at Burnet Avenue, Burt Street, and MLK, Jr. East.

Community Grid Alternative

The Community Grid Alternative would involve demolition of the existing viaduct between the New York, Susquehanna and Western Railway bridge and the I-81/I-690 interchange. The section of I-81 between the southern I-81/I-481 interchange and the I-81/I-690 interchange in Downtown Syracuse would be de-designated as an interstate, and existing I-481 would be re-designated as the new I-81. The section of I-81 between the I-81/I-690 interchange and the northern I-81/I-481 interchange would remain an interstate but would be re-designated with a different interstate route number. The remaining portion of former I-81 south of MLK, Jr. East to the former I-481 interchange would be reclassified from an interstate to a state route. North of MLK, Jr. East the state route would transition to a two-way street with signalized intersections ("urban arterial") to become integrated into the city street system.

The Community Grid Alternative would disperse traffic throughout the city grid by promoting broader use of the existing street network. Vehicular traffic would be channeled through Almond Street and along parallel corridors such as Crouse Avenue, Irving Avenue, State Street, and Townsend Street, as well as other local streets that would have the capacity to accommodate this traffic. By dispersing traffic to these other streets, the reconstructed Almond Street would maintain a narrow vehicular transportation footprint (with generally two lanes, as well as turn bays when needed, in each direction). Streets incorporated into the Community Grid Alternative would be designed to meet FHWA, NYSDOT, and local design standards consistent with their anticipated function.

For purposes of the discussion that follows, the section of the existing I-81 between its southern interchange with I-481 (Exit 16A) and MLK, Jr. East, which would be renamed as a New York State Route, is referred to as the "State route." The section of I-81 between Butternut Street and its northern interchange with I-481 (Exit 29), which would be renumbered as another interstate (e.g., I-581, I-781, etc.), is referred to as the "former I-81 northern segment."

Between East Kennedy Street and MLK, Jr. East, the former I-81 south segment, or State route, would transition from a highway to a boulevard, reaching the same level as the street at its first intersection at MLK, Jr. East. It would then descend to go underneath the New York, Susquehanna and Western Railway and return to street level at Van Buren Street. Almond Street would provide two 11-foot travel lanes in each direction; turning lanes at intersections (where needed); cycle track(s), which are physically separated from both vehicular lanes and the sidewalk; widened sidewalks; and a landscaped median. Curbside parking lanes would be provided, except in the portion between East Adams Street and MLK, Jr.

The new Almond Street would provide vehicular access to all existing intersections. However, only right turns would be possible to and from Madison and Monroe Streets because of the presence of a continuous median on this portion of Almond Street. Only access to and from northbound Almond Street would be available at these two intersections; access to and from southbound Almond Streets would not be possible.

Once designated as the new I-81, I-481 would carry a minimum of four lanes (two in each direction) of through traffic. Interstate re-designation and associated numbering must meet American Association of State Highway Transportation Officials (AASHTO) protocols and receive approval from FHWA. The change in highway designation and associated changes in traffic volumes would require modifications to the new I-81. These modifications would include:

- I-81/I-481 South Interchange (Interchange 16A): Reconstruction of this interchange would involve re-routing existing I-81 to connect with existing I-481, which would serve as the new I-81. The new I-81 would meet 70 MPH design standards, with the State route. The existing ramps that connect northbound I-81 to northbound I-481 and southbound I-481 to southbound I-81 would be demolished, and these movements would be made on the main line of re-designated I-81. The East Brighton Avenue bridge over the interchange would be reconstructed. The intersection of East Brighton Avenue and Rock Cut Road would be maintained.
- Motorists traveling north on I-81 south of Interchange 16A who are headed to Downtown Syracuse would exit the interstate to the State route, while through travelers would continue onto the re-designated I-81. Travelers on the southbound State route headed to the re-designated northbound I-81 would turn left at a new signalized intersection with a new road, which would connect to Brighton Avenue.

Major elements of the Community Grid Alternative, including interchange modifications, bridge replacements, and other features, are described below:

- Construction of a new intersection at MLK, Jr. East
- Construction of a new I-690 Interchange at North Crouse and Irving Avenues
- Improvements to the I-690 Interchange 13 (Townsend Street/Downtown Syracuse)
- Reconstruction of I-690 and former I-81/I-690 Interchange and provision of missing I-81/I-690 connections (between eastbound I-690 and northbound I-81 and between southbound I-81 and westbound I-690)
- I-690 Interchange 11 (West Street) improvements and removal of the West Street overpass of West Street
- Rebuilding of Butternut Street overpass in a new location (over existing Genant Drive to connect to Clinton and Franklin Streets in the Franklin Square neighborhood),
- Onondaga Creekwalk improvements including the creation of a new path along the west bank of Onondaga Creek between Erie Boulevard and Evans Street
- Improvements to the former I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street); and
- Addition of one lane in each direction on I-81 from I-690 to Hiawatha Boulevard and replacement of existing Bear Street, Court Street, and Spencer Street bridges with new structures.

The Community Grid Alternative would include bicycle and pedestrian facilities to improve connectivity between existing multi-use paths within the project limits. Streets would be designed in compliance with New York State complete streets requirements through the use of an aesthetically unified design and measures to improve safety. Special pavements, planting areas, medians, pedestrian refuge areas, site furnishings, and green infrastructure would be considered. Local street improvements would include pedestrian and bicycle safety and connectivity enhancements in the priority area, such as:

- Distinctive pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Synchronized signals to facilitate pedestrian crossings while encouraging bicycle use;
- Bollards and traffic islands to provide safe refuge for pedestrians; and
- “Bump-outs,” or extensions, of the sidewalk corners, to narrow roadway crossing distance for pedestrians.

Newly created bicycle facilities along Almond Street would connect to existing bicycle facilities at Water Street and East Genesee Street (Connective Corridor) and allow for future connections to bicycle facilities identified in the Syracuse Bicycle Plan: A Component of the Syracuse Comprehensive Plan at Burnet Avenue; Burt Street; MLK, Jr.

East; Lodi Street; Crouse Avenue; and North Salina Street. The Fineview Place bridge, which would be removed as described above to allow for the eastward realignment of southern Almond Street, is currently used for bicycle access to University Hill due to its low grade relative to alternative nearby routes; in its place, a new bicycle/pedestrian path would connect the Almond Street/Van Buren Street intersection with the Fineview Place/East Raynor Street intersection.

1.3 **Project's Area of Potential Effect**

FHWA and NYSDOT provided documentation describing the Project's APE to the NYSOPRHP on September 20, 2016 (NYSDOT, 2016). As defined in 36 CFR Part 800.16(d), the APE represents the geographical area within which the Project "may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist," and defines the area in which identification efforts will occur for architectural and archaeological properties.

In accordance with 36 CFR Part 800.4(a)(1), an area of potential effects (APE) has been defined for the I-81 Viaduct Project based upon a combined scope of work for both alternatives under consideration and will establish the geographical scope of efforts for the identification of historic properties:

- archaeological resources within APE associated with direct physical effects, and
- architectural resources within the Project APE, including both direct and indirect effects.

The entire Project APE incorporates potential direct and indirect (visual and auditory) effects associated with the two build alternatives under consideration. Within the APE, a smaller area representing potential direct effects from physical alterations or ground disturbance associated with the project has been identified. This area, defined herein as the APE for Direct Effects, represents the combined limits of disturbance (LOD) of the two build alternatives and includes the area in which the proposed build alternatives have the potential to result in direct effects to cultural resources. The APE for Direct Effects includes all areas where there is a potential for physical alterations or ground disturbance during Project construction and includes approximately 459 acres of land. The APE for Direct Effects is shown in Figure 1.2-1 and Appendix A: Map 1.

The APE also includes those areas where there is a potential indirect (visual and/or auditory) effect on historic-architectural resources. Information concerning the Project's potential effect on historic-architectural resources is being addressed in a separate report for the Project.

The Project (and APE for Direct Effects) includes four areas, including the Viaduct Priority Area (the largest portion of the Project site in downtown Syracuse) and three outlying areas: the I-81/I-481 Southern Interchange, the I-81/I-481 Northern Interchange, and the I-481 Eastern Improvements (see Appendix A: Map 1). These areas include all of the areas where potential ground disturbance is anticipated for the Project and are referred to throughout this report and on maps included in this report, where applicable.

2.0 BACKGROUND RESEARCH

2.1 Environmental Setting, Geology, and Soils

This section describes the environmental setting for the Project vicinity relevant to evaluating the potential for archaeological resources to be present. This includes descriptions of the geographic setting, paleo-environmental context, and soils within the APE for Direct Effects.

2.1.1 Geographic Setting

Onondaga County is an approximately 793.5-square-mile area in the center of New York State. It is bounded by Oswego County to the north, Madison County to the east, Cortland County to the south and Cayuga County to the west. The county straddles two physiographic regions, the Erie-Ontario Plain in the north and the Allegheny Plateau in the south, which are separated by the east/west-trending Onondaga Limestone Escarpment south of the City of Syracuse. The Erie-Ontario Plain is characterized by low-lying lake plains interspersed with low hills and ridges and the Allegheny Plateau is characterized by rolling till uplands interspersed with steep-sided U-shaped glacial valleys that generally trend north/south (SCS, 1977:230). Soil Conservation Service [SCS], 1977).

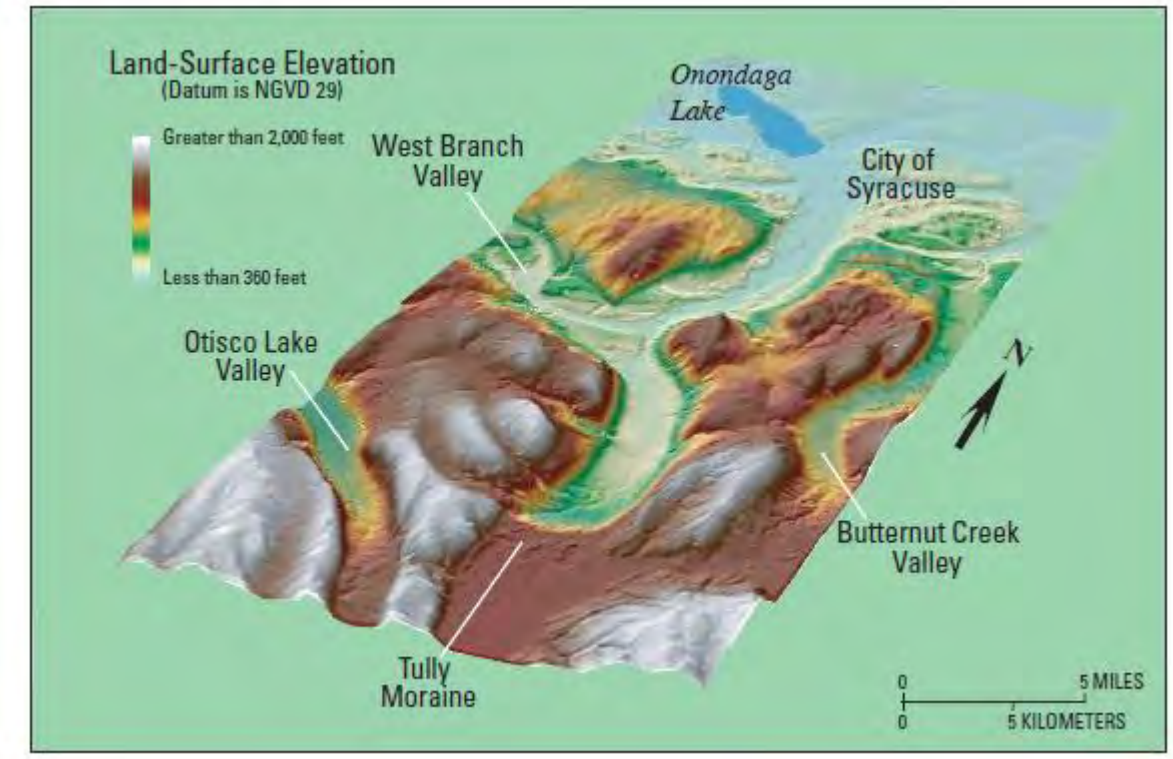


Figure 2.1.1-1. Oblique View of the Land Surface in and around the Onondaga Trough
The Viaduct Priority Area is located near the southeast end of Onondaga Lake. The feature identified in the image as "Tully Moraine" is part of the "Valley Heads Moraine system. This image is taken from USGS, 2005: Figure 1.

The APE for Direct Effects is located within a physiographic feature known as the Onondaga Trough which occurs on the boundary between the Erie-Ontario Plain and the Allegheny Plateau physiographic provinces. The Onondaga Trough is a low-lying valley system containing Onondaga Lake and Onondaga Creek within the Onondaga, Tully, and West Branch valleys (see Figure 2.1.1-1). The valleys that make up the Onondaga Trough are partially filled with fluvial sediment that was deposited as glacial outwash at the end of the Pleistocene (ca. 12,000 to 14,000 years ago) (USGS, 2007).

Elevations in the Project vicinity range from approximately 390 feet (119 meters) above sea level on the shore of Onondaga Lake to approximately 485 feet (148 meters) above sea level at the southern end of the Viaduct Priority Area, near Oakwood Cemetery. West of Syracuse elevation ranges from 380-600 feet (116-183 meters) above sea level and topography is characterized by till plains, drumlins, outwash plains, and lacustrine deposits. East of Syracuse elevation ranges from 370-450 feet (113-137 meters) and the landscape consists of lake-plain topography, low hills of sandy and gravelly glacial till punctuating shallow basins and lowlands with muck accumulations and lacustrine silts and clays (SCS, 1977; USGS, 2007).

Bedrock in the vicinity of Onondaga Lake consists of Salina Group calcareous shales, including Vernon Shale which underlies the City of Syracuse (SCS, 1977). Relevant to regional archaeology, the Onondaga Limestone Escarpment, which forms the boundary between the Erie-Ontario Plain and the Allegheny Plateau in the area, contains large beds of high quality Onondaga chert, especially in its Edgecliff Member, which was utilized extensively by prehistoric Native American populations (Jarvis, 1988).

The APE for Direct Effects occurs within the Onondaga Lake Watershed, part of the larger Oswego River Basin which drains all but the westernmost portion of the Finger Lakes Region. Onondaga Lake is fed by several streams including Onondaga Creek, Geddes Brook, and Nine Mile Creek. The lake outlets into the Seneca River which flows north and west, and joins with the Oneida River to form the Oswego River which flows into Lake Ontario, which in turn drains into the St. Lawrence River. There is an east/west-trending drainage divide in southern Onondaga County, south of the Onondaga Limestone Escarpment. This divide occurs at the Valley Heads Moraine system which was formed during late Pleistocene glaciation of the area (Yang, 1992) (Figure 2.1.1-1) and essentially represents the northernmost extent Allegheny Plateau in the region. Areas south of the divide are part of the Susquehanna watershed whereas areas north of the divide are part of the Lake Ontario watershed (SCS, 1977).

A unique feature of the Onondaga Trough is a brine-filled aquifer which is the source of the salt springs for which Syracuse is named “the Salt City” (see Section 2.4.3 of this report for the history of the salt industry in the vicinity of

the Project). The brine is contained within a valley-fill aquifer within the Onondaga Trough and is up to six times as salty as sea water (USGS, 2005). The United States Geological Survey (USGS) has recently demonstrated that the brine found within the aquifer derives from local halite (i.e., rock salt) beds located within the Syracuse Shale Formation south of the City of Syracuse (USGS, 2005). Salt concentrations are highest in the brine-aquifer immediately surrounding Onondaga Lake; however, in their study, the USGS (2005: Figure 12) collected brine samples as far south as the Tully Valley (approximately 15 miles [24 km] south of Onondaga Lake) that contained salt concentrations equivalent to sea water.

2.1.2 Glacial Geology and Paleo-Environmental Setting

A temporal framework of late Pleistocene (ca. 12,000 to 30,000 years ago) deglaciation for the Onondaga Trough is presented by Ridge (2003). There were three primary periods in the local chronology of deglaciation:

- The *Last Glacial Maximum* occurred between approximately 28,200 and 27,200 years ago. During this period the Laurentide Ice Sheet reached is furthest southern extent. Syracuse was underneath an ice sheet that was up to 1 mile (1.6 km) thick and extended south beyond the modern day New York/Pennsylvania state line.
- The *Advanced Valley Heads Ice Positions* occurred between approximately 17,200 and 16,200 years ago. At this time, the Laurentide Ice Sheet had receded to the Valley Heads Moraine (discussed above), although the moraine itself had not formed yet (it would form during this period and final glacial recession ca. 14,000 years ago). The *Advanced Valley Heads Ice Position* formed and scoured the modern Finger Lakes valleys south and west of Syracuse.
- The *Glacial Recession from the Northeastern United States* occurred by approximately 13,400 years ago. At this point, the Laurentide Ice Sheet had receded north of the modern Canadian border leaving a scoured periglacial landscape in its wake. Immediately following the recession of the ice sheets, Proglacial Lake Iroquois occupied the modern Lake Ontario basin and a portion of the modern Erie-Ontario Plain, including Oneida Lake and the Onondaga Trough. The proglacial like rapidly drained through the Mohawk River Valley and the St. Lawrence River Valley following glacial recession.

Immediately following the glacial recession (ca. 13,000 to 14,000 years ago), soil development and vegetation growth within the Onondaga Trough was relatively minimal. Algal growth was relatively low within Onondaga Lake, indicating low levels of organic input from the surrounding landscape (USGS, 2007). Due to the lack of developed soils and vegetation, runoff appears to have been high in the Onondaga Trough and a series of proglacial lake basins occupying what would become the Onondaga Creek watershed discharged significant amounts of sediment into Onondaga Lake (USGS, 2007). During this time, cool periods associated with the expansion of proglacial Lake Iroquois (ca. 14,000

years ago) as well as the Younger Dryas climatic period (a return to cold and arid near-glacial conditions ca. 12,900 to 11,600 years ago) limited growth and establishment of vegetation in the region. Established vegetation communities developed first in the uplands surrounding the Onondaga Trough and then spread into the lowlands (USGS, 2007). The vegetation probably resembled modern day subalpine vegetation present in northern Canada, with open sedge-dominated tundra alternating with spruce-dominated parkland and closed boreal forest (Lothrop et al., 2011).

By approximately 10,000 to 12,000 years ago[2], climate in the region had stabilized and the subalpine vegetation belt was shifting north to be replaced by pine- and oak-dominated forests (Lothrop et al., 2011). Between approximately 10,000 and 4,000 years ago, Onondaga Lake received significantly increased input of organic matter relative to earlier periods, likely resulting from the establishment of stable vegetation communities more similar to those seen in modern and historic times (USGS, 2007). Curtin et al. (2006) have suggested that an increased rate of wildfire may have characterized the Finger Lakes Region between approximately 10,000 and 5,500 years ago. Between approximately 4,000 and 2,000 years ago, algal production in Onondaga Lake decreased significantly relative to the period between approximately 10,000 and 4,000 years ago. The decrease in algal production is most likely attributable to decreased regional temperatures during this period (USGS, 2007). The region cooled somewhat after approximately 4,000 years ago (consistent with global trends) with a brief return to the warm and wet conditions experienced during the middle Holocene (ca. 8,000 to 4,000 years ago) during the Medieval Climatic Anomaly ca. 1,000 years ago (Mullins, 1998). In the western Finger Lakes, Curtin et al. (2006) note evidence for increased deposition of granular materials after approximately 5,500 years ago which they interpret to indicate either increased major flood events or significant drops in lake levels.

During the early historic period, prior to significant Euro-American settlement, Onondaga County was forested with mixed hardwoods and conifers, including beech, red and white oak, sugar maple, and chestnut on the well-drained soils and willow, elm, black ash, and soft maples on poorly drained soils. An early account describes "…the valley in which Syracuse is now situated was originally covered with heavy timber and thick underbrush, the prevailing kinds being hemlock, birch and soft maple in the western part, and in the eastern portion, cedar and pine" (Clayton, 1878:137). A ca. 1800 map of the Syracuse vicinity (see Figure 2.1.2-1) substantiates this description of the vegetation surrounding Onondaga Lake, showing uplands with oak, beech and chestnut southwest of the lake, and wetlands/salt springs and varying combinations of black ash, soft maple, sedge, tamarack, hemlock, and cedar. The area of the APE for Direct Effects is described as consisting of "soft maple, ash, and cedar swamp…hemlock swamp…cedar swamp…(and) black ash, some tamarack, and much cedar". This map also depicts uplands labeled as "beech & chestnut…oak" in the areas surrounding Onondaga Lake and the Onondaga Creek Valley.

[2] Note: the review of terminal Pleistocene/early Holocene climatic conditions presented herein focuses on broad, millennial-scale trends at the rather than finer-grained decadal- and century-scale variations.



Figure 2.1.2-1. *A Map of Part of Onondaga Lake and its Vicinity in the State of New York.*
This unattributed ca. 1800 historic map depicts vegetation and hydrology surrounding the southeastern half of Onondaga Lake. Note that the map is not oriented north/south. (Unknown, N.D.; map from the digital collections of the American Philosophical Society).

At the time of early Euro-American exploration and occupation of the area, much of what would become the City of Syracuse was occupied by low-lying wetlands and the delta associated with the inlets of Onondaga Creek and Yellow Brook[3] into Onondaga Lake. Relevant to Native American and Euro-American subsistence alike, freshwater wetlands interspersed the forest, creating a rich environment to fish, hunt, and gather wild plants. The lake, streams, and wetlands provided habitat for salmon trout, eel, deer, porcupine, and various birds, as well as economically important plants such as sassafras (at the northern extent of its range), fruits, nuts, and wild greens (Clark, 1849; Clayton, 1878; Bruce, 1891).

Historic sources describe the landscape of the Project vicinity during the late-eighteenth and early-nineteenth centuries, prior to the development of City of Syracuse:

[3] Yellow Brook is no longer extant; it was filled in during the 19th century construction of downtown Syracuse. See Section 2.6 of this report for further discussion.

> "The dark, gloomy and almost impenetrable swamp, now occupied by the city [Syracuse] was then [1793] a favorite resort for wolves, bears, wild-cats, mud-turtles, and swamp rattlesnakes. The western portion of the valley about Syracuse, was originally timbered with hemlock, birch and soft maple; the eastern portion with cedar and pine." (Clark, 1849 Vol. 2:83)

> "Even the great turnpike from east to west, finished in 1812, was thus constructed [i.e., in the "corduroy" style, with logs laid in the mud perpendicular to the direction of the road] across the swampy jungle on which now stands the business center of the city. And the Indian's shunned it also, for their trails passed over the high grounds on either side. Quite extensive tracts of this territory would not produce even forest trees of any considerable size, and were overgrown by the rank shrubbery and large and small saplings that constitute the ordinary cedar swamp. The Onondaga creek, then much greater in volume than now, wound its wonderfully devious way from south to north across the tract, and the Yellow brook flowed into it from the northeastward, trailing its sluggish current among the logs and sink-holes…" (Bruce, 1891:94)

> "That portion of the city through which extends Onondaga street was in 1824 a cedar swamp with its many old logs, stumps and trunks of fallen trees slowly going to decay and filling the air with noxious vapors. Wherever the land was sufficiently firm and dry to afford a suitable soil, a very luxuriant growth of blackberry bushes had sprung up." (Bruce, 1891:122)

This landscape was radically transformed by urban development during the nineteenth and twentieth centuries. Section 2.6 of this report describes the history of landscape engineering and landfilling that set the stage for the development of the City of Syracuse.

2.1.3 Soils within APE for Direct Effects

Dominant soils within Onondaga County are derived from parent limestone, shale, and siltstone. With the exception of postglacial alluvium found on the flood plains, all other soils are glacially deposited. Given that the Syracuse area was glaciated approximately 13,000 years ago[4] (Yang, 1992; USGS, 2007), the soils in the vicinity are all relatively young and closely related to their parent materials. Lairdsville, Lockport and Brockport soils formed from the clayey Vernon Shale are the most common around Onondaga Lake (SCS, 1977). However, the APE for Direct Effects is dominated by Urban Land, Cut and Fill Land, and Made Land, as well as several other mapped soil units present in significantly smaller percentages (see Table 2.1.3-1 and Appendix A: Map 2; Esri and Natural Resources Conservation Service [NRCS], 2016; NRCS, 2016).

[4] All prehistoric dates are provided in calibrated radiocarbon years (i.e., calendar years) before present unless otherwise noted.

Table 2.1.3-1. Soils within the APE for Direct Effects (Esri and NRCS, 2016; NRCS, 2016).

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
Viaduct Priority Area							
Urban land	87.8%	231.9	Variable	Variable	Variable	Variable	Variable
Cut and fill land	4.8%	12.8	H1 - 0 to 4 inches	gravelly sandy loam	0-8%	Somewhat excessively drained	N/A
			H2 - 4 to 70 inches	very gravelly sandy loam			
Palmyra gravelly loam	4.3%	11.3	H1 - 0 to 14 inches:	gravelly loam	3-8%	Well drained	Deltas, outwash plains, terraces
			H2 - 14 to 31 inches:	gravelly loam			
			H3 - 31 to 60 inches:	stratified very gravelly sand			
Palmyra gravelly loam	1.4%	3.7	H1 - 0 to 14 inches:	gravelly loam	0-3%	Well drained	Outwash plains, terraces
			H2 - 14 to 31 inches:	gravelly loam			
			H3 - 31 to 60 inches:	stratified very gravelly sand			
Cazenovia silt loam	0.5%	1.4	H1 - 0 to 12 inches	silt loam	8-15%	Moderately well drained	Till plains, reworked lake plains
			H2 - 12 to 36 inches	silty clay loam			
			H3 - 36 to 60 inches	gravelly silty clay loam			
Cazenovia soils	0.4%	1.1	H1 - 0 to 12 inches	silt loam	15-25%	Moderately well drained	Till plains, reworked lake plains
			H2 - 12 to 36 inches	silty clay loam			
			H3 - 36 to 60 inches	gravelly silty clay loam			
Alton gravelly fine sandy loam (rolling)	0.3%	0.8	H1 - 0 to 8 inches	gravelly fine sandy loam	8-15%	Well drained	Deltas, outwash plains, terraces
			H2 - 8 to 36 inches	gravelly sandy loam			
			H3 - 36 to 46 inches	very gravelly sandy loam			
			2C - 46 to 144 inches	stratified very gravelly sand			
Cazenovia silt loam	0.3%	0.7	H1 - 0 to 12 inches	silt loam	2-8%	Moderately well drained	Till plains and reworked lake plains
			H2 - 12 to 36 inches	silty clay loam			
			H3 - 36 to 60 inches	gravelly silty clay loam			
Water	0.2%	0.5	N/A	N/A	N/A	N/A	N/A
I-81/I-481 Northern Interchange							
Cut and fill land	14.6%	33.7	H1 - 0 to 4 inches	gravelly sandy loam	0 to 8 percent	Somewhat excessively drained	N/A
			H2 - 4 to 70 inches	very gravelly sandy loam			
Palms muck	2.9%	6.7	H1 - 0 to 24 inches	muck	0 to 3 percent	Very poorly drained	Marshes, swamps
			H2 - 24 to 60 inches	clay loam			
Galen very fine sandy loam, 2 to 6 percent slopes	2.2%	5.2	H1 - 0 to 9 inches	very fine sandy loam	2 to 6 percent	Moderately well drained	Deltas on lake plains
			H2 - 9 to 15 inches	very fine sandy loam			
			H3 - 15 to 48 inches	loamy fine sand			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
			H4 - 48 to 60 inches	stratified loamy fine sand to fine sand to silt loam			
Williamson silt loam, 2 to 6 percent slopes	1.9%	4.3	H1 - 0 to 9 inches	silt loam	2 to 6 percent	Moderately well drained	Lake plains
			H2 - 9 to 22 inches	silt loam			
			H3 - 22 to 45 inches	very fine sandy loam			
			H4 - 45 to 60 inches	very fine sandy loam			
Lockport and Brockport silty clay loams, 0 to 6 percent slopes	1.2%	2.9	H1 - 0 to 9 inches	silty clay loam	0 to 6 percent	Somewhat poorly drained	Benches, ridges, till plains
			H2 - 9 to 30 inches	silty clay			
			H3 - 30 to 36 inches	channery silty clay			
			H4 - 36 to 40 inches	weathered bedrock			
Collamer silt loam, 0 to 2 percent slopes	0.9%	2.1	H1 - 0 to 10 inches	silt loam	0 to 2 percent	Moderately well drained	Lake plains
			H2 - 10 to 16 inches	silt loam			
			H3 - 16 to 42 inches	silt loam			
			H4 - 42 to 60 inches	stratified silt loam to very fine sand			
Collamer silt loam, 2 to 6 percent slopes	0.9%	2.0	H1 - 0 to 10 inches	silt loam	2 to 6 percent	Moderately well drained	Lake plains
			H2 - 10 to 16 inches	silt loam			
			H3 - 16 to 42 inches	silt loam			
			H4 - 42 to 60 inches	stratified silt loam to very fine sand			
Colonie loamy fine sand, rolling	0.5%	1.2	H1 - 0 to 6 inches	loamy fine sand	8 to 15 percent	Somewhat excessively drained	Beach ridges, deltas
			H2 - 6 to 65 inches	fine sand			
			H3 - 65 to 72 inches	fine sand			
Dunkirk silt loam, rolling	0.4%	1.0	H1 - 0 to 5 inches	silt loam	6 to 12 percent	Well drained	Lake plains
			H2 - 5 to 16 inches	silt loam			
			H3 - 16 to 36 inches	silt loam			
			H4 - 36 to 72 inches	stratified silt loam to very fine sand			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
Williamson silt loam, rolling	0.3%	0.8	H1 - 0 to 9 inches	silt loam	8 to 15 percent	Moderately well drained	Lake plains
			H2 - 9 to 22 inches	silt loam			
			H3 - 22 to 45 inches	very fine sandy loam			
			H4 - 45 to 60 inches	very fine sandy loam			
Ontario loam, 2 to 8 percent slopes	0.3%	0.7	H1 - 0 to 14 inches	loam	2 to 8 percent	Well drained	Drumlins, till plains
			H2 - 14 to 32 inches	gravelly loam			
			H3 - 32 to 60 inches	gravelly loam			
Fluvaquents, frequently flooded	0.3%	0.7	H1 - 0 to 5 inches	mucky silt loam	0 to 5 percent	Poorly drained	Flood plains
			H2 - 5 to 70 inches	very gravelly silt loam			
Borrow pits	0.2%	0.5	Variable	Variable	Variable	Variable	Variable
Minoa fine sandy loam, 0 to 2 percent slopes	0.2%	0.5	H1 - 0 to 10 inches	fine sandy loam	0 to 2 percent	Somewhat poorly drained	Deltas on lake plains
			H2 - 10 to 38 inches	loamy very fine sand			
			H3 - 38 to 60 inches	stratified very fine sand to fine sand to silt loam			
Aurora silt loam, 0 to 6 percent slopes	0.1%	0.2	H1 - 0 to 12 inches	silt loam	0 to 6 percent	Moderately well drained	Benches, ridges, till plains
			H2 - 12 to 38 inches	channery silt loam			
			H3 - 38 to 42 inches	weathered bedrock			
Madrid gravelly loam, 8 to 15 percent slopes	0.1%	0.2	H1 - 0 to 9 inches	fine sandy loam	8 to 15 percent	Well drained	Hills, till plains, drumlinoid ridges
			H2 - 9 to 19 inches	fine sandy loam			
			H3 - 19 to 42 inches	fine sandy loam			
			H4 - 42 to 72 inches	fine sandy loam			
Carlisle muck	0.1%	0.1	H1 - 0 to 99 inches	muck	0 to 2 percent	Very poorly drained	Marshes, swamps
Williamson silt loam, 0 to 2 percent slopes	<0.1%	0.1	H1 - 0 to 9 inches	silt loam	0 to 2 percent	Moderately well drained	Lake plains
			H2 - 9 to 22 inches	silt loam			
			H3 - 22 to 45 inches	very fine sandy loam			
			H4 - 45 to 60 inches	very fine sandy loam			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
I-481 Eastern Improvements							
Cut and fill land	25.4%	8.2	H1 - 0 to 4 inches	gravelly sandy loam	0 to 8 percent	Somewhat excessively drained	N/A
			H2 - 4 to 70 inches	very gravelly sandy loam			
Minoa fine sandy loam, 0 to 2 percent slopes	24.9%	8.0	H1 - 0 to 10 inches	fine sandy loam	0 to 2 percent	Somewhat poorly drained	Deltas on lake plains
			H2 - 10 to 38 inches	loamy very fine sand			
			H3 - 38 to 60 inches	stratified very fine sand to fine sand to silt loam			
Lockport and Brockport silty clay loams, 0 to 6 percent slopes	20.2%	6.5	H1 - 0 to 9 inches	silty clay loam	0 to 6 percent	Somewhat poorly drained	Benches, ridges, till plains
			H2 - 9 to 30 inches	silty clay			
			H3 - 30 to 36 inches	channery silty clay			
			H4 - 36 to 40 inches	weathered bedrock			
Lairdsville silt loam, 2 to 6 percent slopes	9.0%	2.9	H1 - 0 to 8 inches	silt loam	2 to 6 percent	Moderately well drained	Benches, ridges, till plains
			H2 - 8 to 30 inches	silty clay loam			
			H3 - 30 to 34 inches	weathered bedrock			
Saprists and Fluvaquents, ponded	7.2%	2.3	H1 - 0 to 70 inches	muck	0 to 1 percent	Very poorly drained	N/A
Niagara silt loam, 0 to 4 percent slopes	1.5%	0.5	H1 - 0 to 11 inches	silt loam	0 to 4 percent	Somewhat poorly drained	Lake plains
			H2 - 11 to 39 inches	silt loam			
			H3 - 39 to 60 inches	stratified silt loam to loamy very fine sand			
Teel silt loam	0.2%	0.1	H1 - 0 to 10 inches	silt loam	0 to 3 percent	Moderately well drained	Flood plains
			H2 - 10 to 28 inches	silt loam			
			H3 - 28 to 60 inches	silt loam			
I-81/I-481 Southern Interchange							
Cazenovia silt loam	17.6%	17.5	H1 - 0 to 12 inches	silt loam	8 to 15 percent	Moderately well drained	Till plains, reworked lake plains
			H2 - 12 to 36 inches	silty clay loam			
			H3 - 36 to 60 inches	gravelly silty clay loam			
Benson-Wassaic-Rock outcrop	17.3%	17.2	H1 - 0 to 8 inches	silt loam	25 to 70 percent	Somewhat excessively drained	Benches, ridges, till plains
			H2 - 8 to 18 inches	very channery loam			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
association, very steep			H3 - 18 to 22 inches	unweathered bedrock			
Honeoye silt loam, rolling	13.3%	13.2	H1 - 0 to 10 inches	silt loam	8 to 15 percent	Well drained	Drumlins, till plains
			H2 - 10 to 29 inches	loam			
			H3 - 29 to 60 inches	gravelly loam			
Cut and fill land	12.2%	12.2	H1 - 0 to 4 inches	gravelly sandy loam	0 to 8 percent	Somewhat excessively drained	Variable
			H2 - 4 to 70 inches	very gravelly sandy loam			
Palmyra and Howard soils, hilly	10.9%	10.9	H1 - 0 to 14 inches	gravelly loam	15 to 25 percent	Well drained	Deltas, outwash plains, terraces
			H2 - 14 to 31 inches	gravelly loam			
			H3 - 31 to 60 inches	stratified very gravelly sand			
Made Land	8%	8	H1 - 0 to 4 inches	channery loam	0-5 percent	Somewhat excessively drained	Variable
			H2 - 4 to 70 inches	very channery loam			
Honeoye, Lansing, and Ontario soils, steep	4.7%	4.7	H1 - 0 to 10 inches	silt loam	35 to 50 percent	Well drained	Drumlins, till plains
			H2 - 10 to 29 inches	loam			
			H3 - 29 to 60 inches	gravelly loam			
Honeoye silt loam, 2 to 8 percent slopes	2.9%	2.9	H1 - 0 to 10 inches	silt loam	2 to 8 percent	Well drained	Drumlins, till plains
			H2 - 10 to 29 inches	loam			
			H3 - 29 to 60 inches	gravelly loam			
Cazenovia silt loam	2.8%	2.8	H1 - 0 to 12 inches	silt loam	2 to 8 percent	Moderately well drained	Till plains, reworked lake plains
			H2 - 12 to 36 inches	silty clay loam			
			H3 - 36 to 60 inches	gravelly silty clay loam			
Arkport very fine sandy loam, 2 to 6	2.5%	2.5	H1 - 0 to 10 inches	very fine sandy loam	2 to 6 percent	Well drained	Deltas on lake plains
			H2 - 10 to 18 inches	very fine sandy loam			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
percent slopes			H3 - 18 to 60 inches	very fine sandy loam			
			H4 - 60 to 70 inches	very fine sand			
Benson-Wassaic-Rock outcrop association, sloping	2.1%	2.1	H1 - 0 to 8 inches	silt loam	0 to 25 percent	Somewhat excessively drained	Benches, ridges, till plains
			H2 - 8 to 18 inches	very channery loam			
			H3 - 18 to 22 inches	unweathered bedrock			
Honeoye and Lansing gravelly silt loams, 15 to 25 percent slopes	1.7%	1.7	H1 - 0 to 10 inches	silt loam	15 to 25 percent	Well drained	Drumlins, till plains
			H2 - 10 to 29 inches	loam			
			H3 - 29 to 60 inches	gravelly loam			
Honeoye very stony soils, sloping	1.1%	1.1	H1 - 0 to 10 inches	silt loam	0 to 25 percent	Well drained	Drumlins, till plains
			H2 - 10 to 29 inches	loam			
			H3 - 29 to 60 inches	gravelly loam			
Dunkirk silt loam, rolling	1.1%	1.1	H1 - 0 to 5 inches	silt loam	6 to 12 percent	Well drained	Lake plains
			H2 - 5 to 16 inches	silt loam			
			H3 - 16 to 36 inches	silt loam			
			H4 - 36 to 72 inches	stratified silt loam to very fine sand			
Wassaic silt loam, 0 to 8 percent slopes	0.6%	0.6	H1 - 0 to 11 inches	silt loam	0 to 8 percent	Moderately well drained	Benches, ridges, till plains
			H2 - 11 to 23 inches	channery silt loam			
			C - 23 to 35 inches	channery loam			
			R - 35 to 39 inches	unweathered bedrock			
Collamer silt loam, 0 to 2 percent slopes	0.4%	0.4	H1 - 0 to 10 inches	silt loam	0 to 2 percent	Moderately well drained	Lake plains
			H2 - 10 to 16 inches	silt loam			
			H3 - 16 to 42 inches	silt loam			
			H4 - 42 to 60 inches	stratified silt loam to very fine sand			
Urban land	0.3%	0.3	Variable	Variable	Variable	Variable	Variable
Benson silt loam, undulating	0.3%	0.3	H1 - 0 to 8 inches	silt loam	0 to 8 percent	Somewhat excessively drained	Benches, ridges, till plains
			H2 - 8 to 18 inches	very channery loam			
			H3 - 18 to 22 inches	unweathered bedrock			
Arkport very fine sandy loam, hilly	0.1%	0.1	H1 - 0 to 10 inches	very fine sandy loam	15 to 25 percent	Well drained	Deltas on lake plains
			H2 - 10 to 18 inches	very fine sandy loam			

Map Unit Name	% of APE Area	Acres within APE Area	Soil Horizon Depth	Texture, Inclusions	Slope %	Drainage	Landform
			H3 - 18 to 60 inches	very fine sandy loam			
			H4 - 60 to 70 inches	very fine sand			

The significant characteristics of mapped soils within the APE for Direct Effects include the following:

- Approximately 67.7% (or 311.3 acres) of soils within the APE for Direct Effects are indicative of moderate to severe disturbance (Cut and Fill Land, Made Land, and Urban Land). These soil units are variable in their characteristics but all are man-made through various processes including excavation, filling with non-native soils, filling with other materials (i.e., demolished structural remains), paving, and mixing soil horizons and units through grading and contouring. For example, in the description of Urban Land in the *Soil Survey of Onondaga County*, the NRCS (1977:100) states "buildings or pavement cover more than 50 percent of such areas." Urban Land occurs primarily within the Viaduct Priority Area in downtown Syracuse, Cut-and-Fill Land occurs along interstate, railroad, and major highway rights-of-way in all four areas of the APE for Direct Effects, and Made Land, consisting of an open quarry, occurs only within the I-81/I-481 Southern Interchange.
- The landforms associated with the native soil units are overwhelmingly till plains, reworked lake plains, deltas, outwash plains, and terraces. This is indicative of the area's natural history as a low-lying delta and outwash plain at the inlet of Onondaga Creek into Onondaga Lake.
- In general, the native soil units (i.e., not Cut and Fill Land, Made Land, and Urban Land) are moderately well drained to well drained.

The predominance of Cut and Fill Land, Made Land, and Urban Land in downtown Syracuse is a direct result of the area's natural (i.e., pre-development) state as low-lying wetland and delta. As described more fully in Section 2.6 of this report, prior to and during the early urban development of the city the natural ground surface throughout a large extent of the area was altered, with high spots graded flat and low spots filled.

In addition to the mapped soils data, the NYSDOT has an extensive archive of geotechnical borings documenting subsurface stratigraphy in and around the APE for Direct Effects. These geotechnical boring data were reviewed in order to establish the depth of artificial fill throughout the area. The results of the boring log analysis are discussed fully in Section 2.6 of this report.

In summary, the APE for Direct Effects was covered by the Laurentide Ice Sheet until approximately 14,000 years ago. Following deglaciation, the area was covered briefly by Proglacial Lake Iroquois, then became lakeside wetlands

around the deltas of Onondaga Creek and Yellow Brook where they fed into Onondaga Lake. In the historic period, the area has experienced significant earth disturbance, consisting of leveling high spots and filling wetlands, associated with the development of the City of Syracuse. Mapped soils within the APE for Direct Effects are for the most part Cut and Fill Land, Made Land, and Urban Land, which indicates that portions of the APE for Direct Effects have been experienced significant prior ground disturbance.

2.2 Previously Identified Archaeological Sites

In the *Archaeological History of New York State*, Parker (1922:636) notes that "Onondaga County contains perhaps more abundant traces of aboriginal occupation than any other [county] in the state." This statement in part reflects Parker's (1922) focus on Late Prehistoric and Protohistoric period Haudenosaunee villages, many of which were located in Onondaga County. It also reflects the extent to which the early-twentieth-century understanding of Native American Archaeology in New York was shaped by William M. Beauchamp and his seminal work *Aboriginal Occupation of New York* (Beauchamp, 1900). Beauchamp based his work largely on previously published accounts; however, as a longtime resident of Syracuse and Baldwinsville, his personal knowledge of New York State archaeology may have been disproportionately greater for the area surrounding Onondaga Lake.

Nonetheless, Onondaga County contains a substantial number of Pre-Contact Native American archaeological sites and finds, spanning the entire prehistory of human occupation in the area (Figure 2.2-1). Ritchie (1957; 1980) and Lothrop et al. (2014) have noted moderate to high densities of Paleoindian archaeological sites within the footprint of Proglacial Lake Iroquois, several of which occur in northern Onondaga County. The Archaic and Early Woodland Brewerton Sites occur partially within the county (Ritchie, 1946; 1971) as does the Late Archaic and Middle Woodland Robert Simonds Site (New York State Museum [NYSM], 2012) and the Middle Woodland Kipp Island Site (Ritchie, 1980). These last two sites both occur on the Seneca River in Onondaga County. The Late Woodland and Contact eras are the best represented archaeological periods in Onondaga County. Terminal Late Woodland/Contact Period villages and settlements associated with the Onondaga Nation of the Haudenosaunee are known from the Limestone Creek and Onondaga Creek Valleys (Jones, 2006; 2010; Tuck, 1971), as well as from the shores of Onondaga Lake (Fischer, 2008; Parker, 1922). Prehistoric and contact era cultural contexts are presented in Section 2.4.1 and 2.4.2 of this report, respectively.

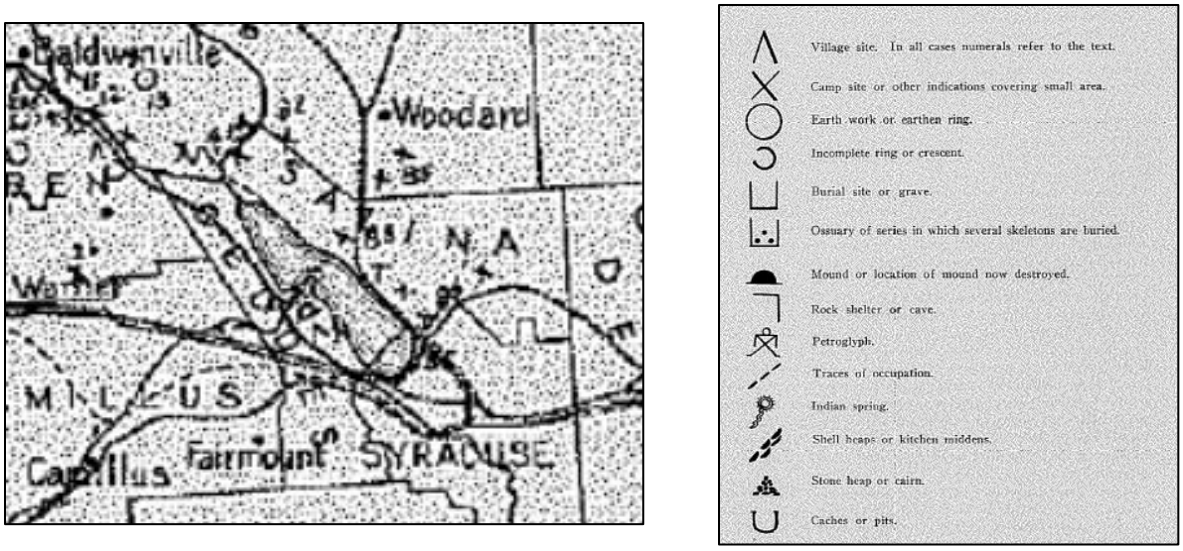


Figure 2.2-1. Archaeological Sites in the Vicinity of Syracuse and Onondaga Lake (from Parker, 1922).
Map (left) and legend (right) of archaeological sites in the vicinity of the Project's APE from the Archaeological History of New York State, Part 2 (Parker, 1922: Plate 196 (left) and Figure 69 (right).

EDR conducted a review of the consolidated archaeological site files of the NYSOPRHP and New York State Museum (NYSM) to identify previously documented archaeological sites located within 0.5-mile of the APE for Direct for Effects. Given the scope of the currently proposed Project, the developed urban character of the Project vicinity, and the relatively high density of previously recorded archaeological sites within the Syracuse/southern Onondaga Lake area, consideration of sites located within 0.5 miles (0.8 km) of the APE for Direct Effects provides an adequate basis for evaluating the likelihood for archaeological resources to be present within the APE for Direct Effects. EDR conducted a site visit to NYSOPRHP on August 4, 2014 to review the consolidated archaeological site files of the NYSOPRHP and NYSM, as well as review NYSOPRHP's archaeological report library. Additionally, EDR conducted a file review of the NYSOPRHP's online Cultural Resource Information System (CRIS) database in June, 2016 to confirm the information collected during the initial files search and identify any previously recorded sites not identified during the initial search.

According to the NYSORPHP's CRIS database, 14 previously recorded archaeological sites occur within or adjacent to (defined as within 500 feet [152 meters]) the APE for Direct Effects (see Table 2.2-1 and Appendix A: Map 3). These include nine sites recorded in NYSOPRHP's archaeological site files, as well as five sites recorded in the NYSM site files. The NYSOPRHP Sites consist of eight historic sites and one prehistoric site. Four of the historic sites have undetermined State/National Register of Historic Places (S/NRHP) eligibilities, three are not eligible for listing on the S/NRHP, and one is eligible for listing on the S/NRHP. The single prehistoric site has an undetermined S/NRHP eligibility. The NYSM Sites consist of two prehistoric villages/hamlets, two artifact scatters/traces of occupations, and one camp, as described by Parker (1922). All five of these areas have undetermined S/NRHP eligibilities.

Table 2.2-1. Archaeological Sites within or Adjacent (<500 feet) of the APE for Direct Effects.

Site Identifier	Site Name	Time Period	Site Description	Distance from Project	S/NRHP
USN 6740.000389	Old Arsenal Site	1810-1812	War of 1812 Arsenal	340 feet (104 m)	Undetermined
USN 6740.000416	"Camp or hamlet"	Prehistoric	Described by Beauchamp (1900:120) (and re-reported in Parker [1922:647]) as a "camp or hamlet north of the marsh and half a mile east of the lake."	0 feet (within APE for direct effects)	Undetermined
USN 6740.004364	Clinton Square Boat Basin- Erie Canal	c. 1820-1921	Clinton Square Boat Basin, a component of the Erie Canal which was in use between 1820-1921.	35 feet (11 m)	Eligible
USN 6740.005256	Historic structure	historic	Brick and cut limestone foundation buried under modern/historic fill.	35 feet (11 m)	Undetermined
USN 6740.006101	Syracuse Armory House (SUBi-2376)	Late 19th century	Extensive historic sheet midden with intact stratigraphy associated with four map-documented structure locations.	390 feet (119 m)	Undetermined
USN 6740.008691	Dickerson St. Historic Site	c. 1870-1930	Stone foundation and a wooden-lined shaft feature with associated historic artifacts.	400 feet (122 m)	Undetermined
USN 6740.012400	J.F. Freidel Historic Site (SUBi-2933)	Late 19th/early 20th century	Concrete foundation remnants which were associated with the J.F. Freidel paper box factory.	0 feet (within APE for direct effects)	Not Eligible
USN 6740.012401	F.A. Austin Historic Site (SUBi-2934)	Late 19th/early 20th century	Concrete foundation remnants which were associated with the F.A. Pattern Shop.	0 feet (within APE for direct effects)	Not Eligible
USN 6740.012402	D.M. Gale Historic Site (SUBi-2935)	Late 19th/early 20th century	Concrete foundation remnants which were associated with the O.M. Gale Machine Shop.	0 feet (within APE for direct effects)	Not Eligible
NYSM Site 4192	Arthur C. Parker-Onondaga 38	Unknown prehistoric	Described by Parker (1922:641) as many early artifacts near the arsenal on the east side of the Onondaga Valley.	0 feet (partially overlaps with APE for Direct APE)	Undetermined
NYSM Site 4235	Village of Kaneenda	ca. A.D. 1700	Parker (1922:646-647) as the Kaneenda Onondaga village site dating to approximately AD 1700. Located on a creek and south of the lake, within the Syracuse city limits.	0 feet (partially overlaps with APE for Direct Effects)	Undetermined
NYSM Site 4239	"Camps"	Unknown prehistoric	Described by Parker (1922:647) as multiple camps and scattered lodges along lakeshore.	430 feet (131 m)	Undetermined
NYSM Site 4240	"Camps and Hamlets"	Unknown prehistoric	Described by Parker (1922:647) as scattered camps and hamlets with early relics along Onondaga Lake toward the northern Liverpool town line.	325 feet (99 m)	Undetermined
NYSM Site 7368	"Traces of occupations"	Unknown prehistoric	Noted by Parker (1922) as traces of occupations.	0 feet (partially overlaps with APE for direct effects)	Undetermined

More detailed descriptions of these sites are included in the copy of the Phase 1A report that was provided to NYSOPRHP and the Onondaga Nation, but have been redacted from this version of the report.

The NYSM Sites consist of broad areas defined by Parker (1922) often on the basis of second-hand reports. Whereas NYSOPRHP Sites could be considered to represent specific resources (which may or may not be extant), NYSM Sites represent broadly defined areas of elevated prehistoric archaeological sensitivity which may or may not contain extant resources within their boundaries. NYSM Sites are not considered to be equivalent to formally defined archaeological site boundaries and, therefore, they are treated here only as areas of elevated prehistoric archaeological sensitivity. Three of the NYSM Sites overlap with the APE for Direct Effects and two occur within 500 feet of the APE for Direct Effects. More detailed descriptions of these sites are included in the copy of the Phase 1A report that was provided to NYSOPRHP and the Onondaga Nation, but have been redacted from this version of the report.

According to the NYSORPHP's CRIS files, 29 identified archaeological sites occur in the vicinity of (between 500 feet and 0.5 miles [0.8 km]) the APE for Direct Effects (see Table 2.2-2 and Figure 2.2-1). Of these, three are NYSM Sites, which consist of two instances of "early relics" (i.e., lithic scatters), one cemetery, and one camp, all of which have undetermined S/NRHP eligibilities. The 29 archaeological sites consist of 24 historic sites, four prehistoric sites, and one multicomponent historic/prehistoric site. Seventeen of the historic sites are located underwater in Onondaga Lake[5] and the remaining seven historic sites, four prehistoric sites, and one multicomponent site are located on land. Twenty-one of the sites have undetermined S/NRHP eligibility's, three sites are not eligible for listing on the S/NRHP, and two sites are eligible for listing on the S/NRHP. The two eligible sites are the Spencer St. Bridge Pump House & Salt Manufacturing (USN 6740.001211) and the Salina Pier Wreck (USN 6740.013083). Additionally, three NYSM Sites occur within the vicinity of the APE for Direct Effects. They consist of one prehistoric cemetery, one prehistoric camp, and one site described as "early relics."

Table 2.2-2. Archaeological Sites in the Vicinity (between 500 feet and 0.5-mile) of the APE for Direct Effects.

Site Identifier	Site Name	Time Period	Site Description	Distance from Project	S/NRHP
USN 6740.000415	"Early relics"	Unknown prehistoric	Described by Parker (1922:647) as "early relics…found all along the line of salt vats on the bluff."	750 feet	Undetermined
USN 6740.000729	Underground Railroad Site	19th & 20th Century	Wesleyan Methodist Church, faces carved in relief on basement walls.	1,075 feet	Undetermined
USN 6740.001211	Spencer St. Bridge Pump House & Salt Manufacturing	c. 1860	Pipe encased in wooden trough, pump house remains.	950 feet	Eligible
USN 6740.004569	Kirkpatrick Street Pump Station Site	19th century	White Oak Springs Bathhouse stables/ salt spring.	1,230 feet	Undetermined
USN 6740.004570	Van Rensselaer Street Site	Late 19th/ early 20th century &	Salt works wood structure & precontact chipped mollusk shell.	1,850 feet	Undetermined

[5] Note that the APE for Direct Effects does not include any underwater areas, so no impacts to submerged archaeological resources are anticipated as part of the Project.

Site Identifier	Site Name	Time Period	Site Description	Distance from Project	S/NRHP
		Unknown prehistoric			
USN 6740.007252	Hughson Carriage Works Site (SUBi-2509)	Mid-19th to mid-20th century	Concrete & brick foundations	620 feet	Not Eligible
USN 6740.008692	Clinton Station Site Railroad Machine Shop	ca. 1870-1906	Machine shop foundations, domestic glass/ceramic, metal tools etc. related to machine shop & railroad, post-demolition deposits	1,225 feet	Undetermined
USN 6740.012292	A1 and A2 Salina Pier	Historic	Salina Pier (underwater)	780 feet	Undetermined
USN 6740.012293	A3 Wooden Barge	Historic	Wooden Barge (underwater)	605 feet	Undetermined
USN 6740.012294	A4-1 and A4-2, Wooden Dump Scows	Historic	Wooden Dump Scows (underwater)	1,800 feet	Undetermined
USN 6740.012296	A12 Wooden Derrick Lighter Spud Barge	Historic	Wooden Derrick Lighter Spud Barge (underwater)	2,180 feet	Undetermined
USN 6740.012300	A33 Wooden Canal Boat	Historic	Wooden Canal Boat (underwater)	1,600 feet	Undetermined
USN 6740.012302	A35 Unidentified Wooden Watercraft	Historic	Wooden Watercraft (underwater)	1,990 feet	Undetermined
USN 6740.012303	A38 Iron Pier Marine Infrastructure	Historic	Iron Pier (underwater)	1,415 feet	Undetermined
USN 6740.012306	A55 Wooden Canal Scow	Historic	Wooden Canal Scow (underwater)	1,000 feet	Undetermined
USN 6740.012307	A73 Pier	Historic	Pier (underwater)	715 feet	Undetermined
USN 6740.012308	A75 Rock Pile	Historic	Rock Pile (underwater)	1,035 feet	Undetermined
USN 6740.012309	A76 Rock Pile	Historic	Rock Pile (underwater)	870 feet	Undetermined
USN 6740.012310	A72 Wood Pilings	Historic	Wood Pilings (underwater)	1,570 feet	Undetermined
USN 6740.012398	Hughson Carriage Works Historic Site (SUBi-2509)	Historic	Historic carriage works	885 feet	Not Eligible
USN 6740.012399	K.A. Hughson Carriage Works Historic Site (SUBi-29)	Historic	Historic carriage works	815 feet	Not Eligible
USN 6740.013083	Iron Pier Harbor Site (SUBi-3037)	Historic	Iron Pier Harbor (underwater)	1,815 feet	Eligible
USN 6740.013167	A2-1 Salina Pier Wreck 1	Historic	Salina Pier Wreck (underwater)	685 feet	Undetermined
USN 6740.013169	A2-3 Salina Pier Wreck 3	Historic	Saline Pier Wreck (underwater)	750 feet	Undetermined
USN 6740.013168	A2-2 Salina Pier Wreck 2	Historic	Salina Pier Wreck (underwater)	695 feet	Undetermined
USN 6740.013170	A2-4 Salina Pier Wreck 4	Historic	Salina Pier Wreck (underwater)	675 feet	Undetermined
NYSM Site 6641	"Large cemetery"	Unknown prehistoric	Described by Parker (1922:647) as a "large cemetery" with no additional detail.	1,975 feet	Undetermined
NYSM Site 7367	"Early relics"	Unknown prehistoric	Described by Parker (1922:646) as early period	1,750 feet	Undetermined

Site Identifier	Site Name	Time Period	Site Description	Distance from Project	S/NRHP
			artifacts located near creeks within the city of Syracuse.		
NYSM Site 9327	"Camps"	Unknown prehistoric	Described by Parker (1922:646) as "small camps on the islands in Cicero Swamps."	2,100 feet	Undetermined

2.3 Previous Archaeological Investigations

EDR conducted a review of the consolidated archaeological files of the NYSOPRHP and NYSM to identify previously conducted archaeological surveys and projects within the vicinity of the APE for Direct Effects. EDR conducted a site visit to NYSOPRHP on August 4, 2014 to request information while access to the NYSOPRHP archaeological site files was temporarily restricted. Additionally, EDR conducted a file review of the NYSOPRHP's online CRIS database on June 16, 2016 to confirm the information collected during the initial files search and identify any previously conducted surveys/projects not identified during the initial search[6].

According to the NYSORPHP's CRIS database, 30 previously conducted archaeological surveys/projects have been conducted within or adjacent to (defined as within 500 feet [152 meters]) the APE for Direct Effects (see Table 2.3-1 and Appendix A: Map 3). The projects were conducted between 1977 and 2016, and consist of 11 (37%) Phase 1A studies, 8 (27%) combined Phase 1A/1B studies, seven (23%) Phase 1B studies, one (3%) Phase 1B work scope, one (3%) monitoring/data recovery plan, one (3%) Phase III investigation, and one (3%) combined Phase II/Phase III investigation. The cultural resources investigations were undertaken for 10 (33%) sewer projects, 8 (27%) highway/streets projects, four (13%) municipal parks/footpaths, four (13%) commercial development projects, one (3%) fiber optic line, one (3%) communications tower, one (3%) academic building, and one (3%) residential building. The previous archaeological surveys and projects conducted within or adjacent to the APE for Direct Effects are described below and summarized in Table 2.3-1 and their locations are depicted in Appendix A: Map 3.

[6] Some of the reports for archaeological survey projects conducted within or adjacent to the Project's APE for Direct Effects were not readily available in CRIS or otherwise not in NYSOPRHP's report library. EDR appreciates the assistance of Matthew Shepherd at NYSOPRHP, Darryl Straight at Hartgen Archaeological Associates, Inc., and Charles Stanton at C&S Companies for providing copies of reports that were otherwise not readily available.

Table 2.3-1. Previous Archaeological Projects within or Adjacent (<500 feet) to the APE for Direct Effects.

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
PIN 3298.00 (no CRIS survey number)	Phase 1: Highway Program PIN 3298.00, Onondaga Co	Phase 1	0 ft (overlaps APE for Direct Effects)	No archaeological sites identified. Widespread disturbance noted.	Public Archaeology Facility, State University of New York at Binghamton (PAF, 1977b)
Onondaga County Report No. 26 (no CRIS survey number)	Cultural Resources Survey of the Proposed Sewer Overflow Facilities in the City of Syracuse, New York: Stage 1A	Phase 1A	0 ft (overlaps APE for Direct Effects)	Assigned moderately high to high prehistoric archaeological sensitivity to and low to high historic archaeological sensitivity to project area, based on previously recorded archaeological sites and historical research.	Pratt Archaeological Consultants, Inc. (Pratt & Pratt), 1979
AR0004499_26 (no CRIS survey number)	Stage 1B Cultural Resource Survey for the Proposed Best Management Practices Program of the Combined Sewer Overflow (CSO) Facilities System in the City of Syracuse, New York	Phase 1B	0 ft (overlaps APE for Direct Effects)	Fifteen shovel tests and 29 soil borings identified fill and low density 20th century debris throughout majority of project area. Identified remnants of the Enlarged Erie Canal at three locations (recommended avoidance or Phase II investigations) and remnants of the Fay Foundry/Ironworks at one location (recommended for Phase II investigations which were never accomplished).	Pratt & Pratt, 1981
PIN 3506.21.101 (no CRIS survey number)	Phase 1: PIN 3506.21.101 I-690 Exit Lane at Townsend St., Syracuse	Phase 1	0 ft (overlaps APE for Direct Effects)	No archaeological sites identified. Widespread disturbance noted.	PAF, 1990
98PR3902 (no CRIS survey number)	Stage 1B West St Sewer Separation (Onondaga Co. CSO Lake Improvement Program)	Phase 1B	0 ft (overlaps APE for Direct Effects)	No archaeological sites identified. Widespread disturbance noted.	Parsons Engineering Science (Parsons), 1999
99SR50210	Phase 1A Archaeological Sensitivity Assessment Surface Reconnaissance and Phase 1B Archaeological Field Investigation Proposed Fiber Optic Line, City of Syracuse, Onondaga County, New York	Phase 1A/1B	0 ft (overlaps APE for Direct Effects)	Limited shovel testing encountered historic fill deposits. No archaeological sites identified. No further archaeological work recommended.	Hartgen Archaeological Associates, Inc. (Hartgen), 1999
00SR50711	Phase 1A: Proposed Clinton Square Project	Phase 1A	0 ft (overlaps APE for Direct Effects)	Project area assessed as not sensitive for prehistoric archaeology; portions of the area considered highly sensitive for historic archaeological resources related to the Enlarged Erie	Edward V. Curtin (Curtin), 2000

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
				Canal and the historic Soldiers and Sailors monument. Avoidance of sensitive areas or Phase 1B recommended.	
00SR50766	Phase 1A: Syracuse Sanitary Sewer Upgrades	Phase 1A	0 ft (overlaps APE for Direct Effects)	Determined project had potential to impact historic Enlarged Erie Canal and Oswego Canal. Phase 1B investigations recommended at specific locations.	Hartgen, 2000a
00SR5205	Phase 1B: Clinton Square Project	Phase 1B	0 ft (overlaps APE for Direct Effects)	Identified two sites: USN 6740.004364-Clinton Square Boat Basin (NRHP-eligible) and USN 6740.005256-historic structural foundations (NRHP-undetermined). Mitigation recommended.	Panamerican Consultants, Inc. (PCI), 2000
01SR51425	Stage 1 Cultural Resource Investigation for the 554 East Brighton Avenue Cell Tower Location	Phase 1	290 ft (88 m)	No archaeological sites identified; no further work recommended.	Commonwealth Cultural Resources Group, Inc. (CCRG), 2001a
01SR51475	Stage 1 Cultural Resource Investigation for the Solar/Kirkpatrick Street Improvement Project	Phase 1A	0 ft (overlaps APE for Direct Effects)	No potential to impact archaeological sites based on previous surveys and geotechnical boring logs (no fieldwork conducted)	CCRG, 2001b
01SR51587	Phase 1A Onondaga Creekwalk	Phase 1A	0 ft (overlaps APE for Direct Effects)	Project area assessed as sensitive for prehistoric and historic archaeology. Phase 1B survey recommended.	PAF, 2001
01SR51627	Phase 1B Archaeological Field Investigation, EBSS Gate Chamber No. 4, Storm and Sanitary Sewer Modification.	Phase 1B	100 ft (31 m)	Identified dry-laid fieldstone walls of enlarged Erie Canal; recommended project modifications to avoid canal.	Hartgen, 2001a
01SR51900	Phase IA Literature Review and Archaeological Sensitivity Assessment, Onondaga County Combined Sewer Overflow Lake Improvement Program: Alternate Feasibility Study for the Proposed Clinton Station Overflow Control Facility	Phase 1A	325 ft (99 m)	Evaluated six potential project locations within downtown Syracuse. All six found to be highly sensitive for historic archaeology and of low sensitivity for prehistoric archaeology. Recommended Phase 1B investigations at all six sites if they were to be considered for the project. Also recommended avoidance of the Washington Street Site if possible due to the potential for human remains associated with a 19th century cemetery.	Hartgen, 2001b
02SR53186	Phase 1 Cultural Resource Survey, Central New York	Phase 1	260 ft (79 m)	Project area found to be disturbed by grading and construction of residences and	Pratt & Pratt, 2002

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
	Services, Single Room Occupancy Enriched Services			driveways. No archaeological sites identified and no further work recommended.	
03SR53265	Phase 1B: Syracuse Creekwalk Project	Phase 1B	0 ft (overlaps APE for Direct Effects)	No archaeological sites identified; extensive fill stratigraphy identified in trenches, shovel tests, and geotechnical borings.	PAF, 2003a
03SR53395	Onondaga County Combined Sewer Overflow Lake Improvement Program: Archaeology Plan and Work Scope. Phase IB Archaeological Field Reconnaissance of the Dickerson Street West Option and Clinton Station Sites, Proposed Clinton Street Combined Sewer Overflow	Phase 1B Work Plan/Scoping	325 ft (99 m)	Described results of subsurface borings, assessed archaeological sensitivity, recommended Phase 1B methods and established MOA between Onondaga County and OPRHP.	Hartgen, 2003a
03SR53404	Phase 1A Cultural Resource Assessment, Syracuse Armory House Project	Phase 1A	330 ft (101 m)	Area identified as potentially sensitive for prehistoric and historic archaeology. Phase 1B investigations recommended.	PAF, 2003b
03SR53405	Phase 1B Cultural Resource Assessment, Syracuse Armory House Project	Phase 1B	330 ft (101 m)	Identified the Syracuse Block 205 Historic Site. Recommended either site avoidance or Phase II investigation.	PAF, 2003c
03SR57080	Phase 1B Archaeological Field Reconnaissance: Clinton Street CSO Abatement Project, Clinton Station Site	Phase 1B	325 ft (99 m)	Excavated nine backhoe trenches throughout project area. Identified two historic archaeological sites: the Railroad Machine Shop site-USN 06740.008692 (S/NRHP-undetermined) and the Dickerson Street Historic site – USN 06740.008691 (S/NRHP-undetermined). Recommended avoidance or Phase II investigations for the Railroad Machine Shop and avoidance or Phase II/III investigations for the Dickerson Street Historic Site.	Hartgen, 2003b
04SR55013	Report of Field Reconnaissance: Phase 1A Cultural Resource Assessment Syracuse University Health Science Addition	Phase 1A	490 ft (149 m)	Project area found to be disturbed and filled based on soil borings. No further work recommended.	PAF, 2004a

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
08SR58239	Phase 1: Erie Blvd. over Onondaga Creek Project	Phase 1	0 ft (overlaps APE for Direct Effects)	Identified historic culvert associated with Erie Canal. No further work recommended.	PAF, 2008
08SR58349	Phase 1: Washington Station Office Building	Phase 1	385 ft (117 m)	Project area found to be severely disturbed with no potential to contain significant intact archaeological materials. No further work was recommended.	Rochester Museum & Science Center (RMSC), 2008
09SR59513	Phase 1: Syracuse Connective Corridor	Phase 1	0 ft (overlaps APE for Direct Effects)	Hartgen (2009b:19) recommended that project designers limit ground disturbance to less than 1 ft below the modern ground surface and limit the overall amount of ground disturbance at the western end of the project, within Fayette and Forman Parks, and along University Avenue.	Hartgen, 2009b
09SR60101	Phase II/III: Clinton Street CSO Abatement Project	Phase II & III	330 ft (101 m)	Hartgen (2009a) identified 12 historic features and a moderately sized historic debris associated with both businesses and residences. Site is currently covered by asphalt parking lots.	Hartgen, 2009a
09SR60227	Phase III Data Recovery and Historic Context Development: Clinton Station Site Railroad Machine Shop, City of Syracuse, Onondaga County, New York	Phase III	325 ft (99 m)	Hunter (2009) determined that significant data were recovered from the site excavations pertaining to the late 19th century history of the Delaware, Lackawanna, and Western Railroad, and the site was recommended eligible for listing on the S/NRHP under criteria C and D. Hunter (2009) recommended that the finding of adverse effect for the site had been resolved by the Phase III data recovery and historic context development. no further archaeological work recommended.	Hunter Research (Hunter), 2009
10SR60134	Phase 1: PIN 3506.32.101 I-690 Bridges	Phase 1	0 ft (overlaps APE for Direct Effects)	No archaeological sites identified. No further work recommended.	PAF, 2010b
12SR61167	Archaeological Monitoring and Data Recovery Plan: East Genesee Street Reconstruction Project	Archaeological Monitoring and Data Recovery Plan	0 ft (overlaps APE for Direct Effects)	Presented monitoring and data recovery plan for project based on Hartgen's (2009b) conclusions and recommendations for project 09SR59513.	PAF, 2012
16SR00343	Phase 1A Archaeological	Phase 1A	210 ft (64 m)	Area identified as sensitive for archaeological material	Alliance Archaeological

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
	Background and Literature Review of the Proposed Project Site at 405 Spencer Street			associated with 19th century salt industry. Archaeological construction monitor recommended.	Services (AAS), 2016
16SR00464	Archaeological Resources Screening, I-690 Over Teall Avenue and Beech Street Bridge Replacement	Phase 1A	0 ft (overlaps APE for Direct Effects)	No intact natural soils appeared to be present within the APE for direct effects and therefore, no additional archaeological investigation was recommended.	EDR, 2016

The previously conducted cultural resources surveys conducted within or immediately adjacent to the APE for Direct Effects are discussed below:

- Project Name: Phase 1: Highway Program PIN 3298.00, Onondaga Co (PAF, 1977b)
    - Survey Number: PIN 3298.00 (no CRIS survey number)
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: PAF (1977b) conducted a Phase 1 survey for a large area along I-81 within the City of Syracuse and the Hamlets of Galeville and Mattydale. The proposed project included re-routing, widening and new access construction of a section of I-81 between the Bear Street interchange on the north side the City of Syracuse and the Brewerton Road interchange in the Hamlet of Mattydale. PAF's (1977b) reconnaissance of the project site revealed extensive disturbance including "filled, graded, banked and paved highway right of ways, bulldozing, and landfill" (PAF, 1977b:30). Select areas between the former Route 57 interchange (now the Park Street Bridge) and the Brewerton Road interchange were identified for shovel testing because they consisted of undisturbed or mildly disturbed residential lawns, open fields and shrubby or forested land. PAF (1977b) excavated a total of 164 shovel tests. Although they recovered scattered modern and historic material, no archaeological sites were identified. Also of note, PAF (1977b) reported that several residents of the Hamlet of Mattydale stated that "the water level of Onondaga Lake was lowered quite a long time ago" (PAF, 1977b:38).

- Project Name: Cultural Resources Survey of the Proposed Sewer Overflow Facilities in the City of Syracuse, New York: Stage 1A (Pratt & Pratt, 1979)
    - Survey Number: Onondaga County Report No. 26 (no CRIS survey number)
    - Project Type: Phase 1A

- Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
- Survey/Project Description: Pratt & Pratt (1979) conducted a Phase 1A literature review and limited field reconnaissance for the proposed project which occurs within downtown Syracuse and extends into the south side of the City of Syracuse. The report investigated the archaeological sensitivity of seven proposed sewage treatment facility sites and associated infrastructure. Based on the locations of previously recorded prehistoric archaeological sites, Pratt & Pratt (1979) determined two proposed treatment facility sites (the Maltbie Street and Franklin Street sites) to have high sensitivity for prehistoric archaeology, two treatment facility sites and one proposed sewer line (the Emerson and State Fair Sites and the State Fair Sewer line) to have moderately high sensitivity for prehistoric archaeology, and the remaining portions of the project area to have moderate sensitivity for prehistoric archaeology. Pratt & Pratt (1979:45) state that "aboriginal occupation cannot be ruled out at any of these areas."

  Based on the historical development of the City of Syracuse, Pratt & Pratt (1979) identify four treatment facilities and one sewer line (the Maltbie, Franklin Street, State Fair, and Clinton Street sites, and the Clinton Street Sewer Line) as having high sensitivity for historic archaeology, three treatment facilities and two sewer lines (the Emerson Street, Midland Avenue, Newell Street sites, and the Midland Avenue and State Fair sewer lines) as having moderately high sensitivity for historic archaeology, one treatment facility and two sewer lines (the Delaware Street Facility site and the Delaware Street and Erie Boulevard sewer lines) as having low sensitivity for historic archaeology. Pratt & Pratt's (1979) assessment of low sensitivity for historic archaeology for these latter three locations was based on the Delaware Street Facility and Line's location within an area of historic low-lying wetland that experienced little historic development. The Erie Boulevard Sewer Line was considered to be of low sensitivity for historic archaeology because the proposed improvements to the line were minimal and had a low potential to impact historic resources.

  Pratt & Pratt (1979) conclude by recommending Phase 1B field investigations at eight of the proposed treatment facilities and sewer lines. They note that:

  > "some of the proposed project areas may have been disturbed in the past. In some areas buildings have been removed, areas filled or otherwise modified. In many cases, however, this type of disturbance may be quite superficial, and only extent a short distance into the cultural deposit" (Pratt & Pratt, 1979).

- Project Name: Stage 1B Cultural Resource Survey for the Proposed Best Management Practices Program of the Combined Sewer Overflow (CSO) Facilities System in the City of Syracuse, New York (Pratt & Pratt, 1981)
    - Survey Number: AR0004499_26 (no CRIS survey number)
    - Project Type: Phase 1B
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Pratt & Pratt (1981) excavated 15 shovel tests and oversaw the excavation of 29 soil borings for the project throughout the City of Syracuse. Subsurface testing identified no prehistoric cultural material but historic material was identified throughout much of the project area. However, Pratt & Pratt (1981) note that much of the material represents low density 20th century refuse that is not considered indicative of S/NRHP-eligible archaeological resources. Testing also encountered structural remnants of the historic Enlarged Erie Canal (at three locations) and the historic Fay's ironworks. In the case of the Enlarged Erie Canal, Pratt & Pratt (1981) recommended the site either be avoided by project impacts or Phase II investigations be conducted if avoidance was not possible. In the case or Fay Ironworks, they recommended Phase II investigations and additional documentary research, as the site would be impacted under the current project design. The ironworks are recorded in the CRIS database as the Fay Foundry (USN 06740.000487), and it does not appear that Phase II investigations were conducted at the site. The site occurs more than 0.5 miles away from the APE for Direct Effects for the current Project and is not discussed further in this report.

- Project Name: Phase 1: PIN 3506.21.101 I-690 Exit Lane at Townsend St., Syracuse (PAF, 1990)
    - Survey Number: PIN 3506.21.101 (no CRIS survey number)
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)

      Survey/Project Description: PAF (1990) conducted a pedestrian reconnaissance of the project area at the Townsend Street exit off I-690 in downtown Syracuse and found the area not suitable for a conventional Phase 1B archaeological survey. Instead, they conducted interviews with local landowners and focused on documentary research. PAF (1990) found the project area to have been highly disturbed by historic and modern development and concluded that the area unlikely to contain significant intact buried prehistoric archaeological materials. They also noted that the majority of the area was unlikely to contain significant intact buried historic archaeological materials, with the exception of a small area underneath Brown Street between Burnet Avenue and North Townsend Street.

Due to the heavily disturbed nature of the project area, PAF (1990) focused on the identification of historic bridges and architectural resources within the project area. Three bridges within the project area were found to post-date 1945. A freight and mail terminal complex built in the early 1930s was fully recorded by PAF (1990). An associated passenger station south of I-690 had already been determined NRHP-eligible by Heritage Coalition, Inc.

- Project Name: Stage 1B West St Sewer Separation (Onondaga Co. CSO Lake Improvement Program) (Parsons, 1999)
    - Survey Number: 98PR3902 (no CRIS survey number)
    - Project Type: Phase 1B
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Parsons (1999) completed a Phase 1B survey of the project area on West and Plum streets between West Genesee and Tracy streets in downtown Syracuse which consisted of mechanized test excavations (backhoe trenches) at eight locations throughout the project area where archaeological resources were predicted to be present. Parsons (1999) found that all eight locations had been significantly disturbed by previous construction activities. They did not encounter any intact archaeological artifacts in their test excavations. Based on the results of the test excavations, Parsons (1999) recommended no further archaeological work.

- Project Name: Phase 1A Archaeological Sensitivity Assessment Surface Reconnaissance and Phase 1B Archaeological Field Investigation Proposed Fiber Optic Line, City of Syracuse, Onondaga County, New York (Hartgen, 1999).
    - Survey Number: 99SR50210
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Hartgen (1999) conducted a Phase 1A and limited Phase 1B survey for the project within downtown Syracuse and along the east and west shores of Onondaga Lake. Hartgen (1999) conducted Phase 1 archaeological investigation for a 14.5 mile (23.3 km) proposed fiber optic line corridor. Dominant soils within the project corridor included made land, cut and fill land, borrow pit land, or urban land disturbed by railroad and highway construction. Hartgen (1999) excavated 32 shovel tests along the green space within Lake County Park along the eastern shore of Onondaga Lake. The shovel tests identified historic 19th and 20th century fill including coal ash and

fragmented historic debris but no intact soils. No archaeological sites were identified and no further archaeological work was recommended.

- Project Name: Phase 1A: Proposed Clinton Square Project (Curtin, 2000)
    - Survey Number: 00SR50711
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Curtin (2000) found the Project location, at the site of the current Clinton Square Park at the corner of North Salina and Water streets in downtown Syracuse, to be sensitive for historic archaeological resources related to the Enlarged Erie Canal, including the canal prism itself as well as the Clinton Square Boat Basin which was estimated to be between 4 and 7 ft (1.2 and 2.1 m) deep based on historic documents. The location was not found to be sensitive for prehistoric archaeological materials or historic archaeological materials pre-dating the Enlarged Erie Canal because the area had been significantly disturbed by the construction of the canal. Curtin (2000) recommended that ground disturbance associated with the proposed project be restricted to certain areas identified as non-sensitive. If these recommendations could not be accommodated by project design, Curtin (2000) recommended that a plan to identify archaeological resources within the project area (potentially including a Phase 1B survey utilizing mechanized excavation) be developed in consultation with the NYSOPRHP.

- Project Name: Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000a)
    - Survey Number: 00SR50766
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Hartgen (2000a) completed a Phase 1A archaeological literature review and sensitivity assessment for the project area which is located at 15 discrete locations spread along Erie Boulevard between Onondaga Creek and Teall Avenue (storm sewer) and along Burnet Avenue between James Street and Teall Avenue (sanitary sewer) within the City of Syracuse. Due to the potential for intact portions of the Enlarged Erie Canal beneath Erie Boulevard and intact portions of the Oswego Canal beneath the intersection of Oswego and Erie Boulevards. Phase 1B testing was recommended in certain locations where the potential for the project to impact historic canal remnants was judged to be greatest.

- Project Name: Phase 1B: Clinton Square Project (PCI, 2000)
    - Survey Number: 00SR5205
    - Project Type: Phase 1B
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: Based on Curtin's (2000) recommendations, PCI conducted a Phase 1B archaeological investigation at the project location, at the site of the current Clinton Square Park at the corner of North Salina and Water streets in downtown Syracuse. The Phase 1B investigations consisted of a combination of mechanized backhoe and hand excavations at five locations identified as having a high potential to contain intact components of the Enlarged Erie Canal. As discussed in Section 2.2 of this report, PCI (2000) identified two sites: USN 6740.004364, Clinton Square Boat Basin, which was determined eligible for listing on the NRHP; and USN 6740.005256, historic structural foundations, which currently has an undetermined NRHP eligibility. PCI (2000) recommended a mitigation plan be developed to address the intact Erie Canal components identified during the survey.

- Project Name: Stage 1 Cultural Resource Investigation for the 554 East Brighton Avenue Cell Tower Location (CCRG, 2001a)
    - Survey Number: 01SR51425
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 290 ft (88 m)
    - Survey/Project Description: CCRG (2001a) conducted a Phase 1 archaeological survey of the project location on the west side of Brighton Avenue on the south side of the City of Syracuse. No archaeological sites were identified during the survey and no further work was recommended.

- Project Name: Stage 1 Cultural Resource Investigation for the Solar/Kirkpatrick Street Improvement Project (CCRG, 2001b)
    - Survey Number: 01SR51475
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: CCRG conducted a Phase 1 cultural resources survey for the project location along Solar Street between Bear Street and Plum Street on the west side of downtown Syracuse. CCRG (2001b) noted that the project location would have been highly sensitive for prehistoric archaeological material due to its proximity to Onondaga Lake and the inlet of Onondaga Creek. However, CCRG (2001b) reviewed the history of development in the area as well as

geotechnical boring logs from the vicinity and concluded that the area was heavily disturbed by historic and modern development. The geotechnical boring logs indicated that the modern ground surface is approximately 12 feet (4 meters) above the historic ground surface in this portion of downtown Syracuse. The area had contained salt sheds during the 19th century and CCRG (2001b) noted that recent surveys by Hartgen (2000b; 2001a) had identified structural remains associated with the historic salt industry in the area. However, the proposed Solar/Kirkpatrick Street Improvement Project would not impact these remains which were buried at least 4 feet below the modern ground surface. It should also be noted that Hartgen conducted Phase 1B reconnaissance (Hartgen, 2001a), Phase 1B monitoring (Hartgen, 2003b), and Phase 2 investigations (Hartgen, 2001d) for the project (see additional discussion of these projects below). In their Phase 1, CCRG recommended no additional archaeological work at the site because the proposed project would only impact fill.

- Project Name: Report of Field Assessment Stage 1A Cultural Resources Survey, Onondaga Creekwalk, City of Syracuse, Onondaga County, New York (PAF, 2001)
    - Survey Number: 01SR51587
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
    - Survey/Project Description: PAF (2001) conducted a Phase 1A cultural resources assessment for the project area between the Armory Square neighborhood and the southwestern shore of Onondaga Lake on the west side of downtown Syracuse. The Phase 1A survey included documentary research and a pedestrian walkover reconnaissance of the project area. PAF (2001) found the project area to be sensitive for prehistoric and historic archaeological materials and recommended a Phase 1B survey be conducted consisting of a combination of backhoe trenching and shovel testing, depending on the depth of proposed disturbance.

- Project Name: Phase 1B Archaeological Field Investigation, EBSS Gate Chamber No. 4, Storm and Sanitary Sewer Modification (Hartgen, 2001a)
    - Survey Number: 01SR51627
    - Project Type: Phase 1B
    - Distance from APE for Direct Effects: 100 ft (31 m)
    - Survey/Project Description: Hartgen conducted phase 1B investigations at the project location in the northeastern portion of downtown Syracuse based on the potential for the project to impact the Enlarged Erie Canal at this location. The Phase 1B survey involved a single backhoe trench in addition to hand excavation in certain sensitive areas. Hartgen (2001a) identified the intact canal

prism, including the stone canal wall, in the backhoe trench. The prism was documented and Hartgen (2001a) recommended the project be redesigned to avoid damaging the intact portions of the canal prism.

- Project Name: Phase IA Literature Review and Archaeological Sensitivity Assessment, Onondaga County Combined Sewer Overflow Lake Improvement Program: Alternatives Feasibility Study for the Proposed Clinton Station Overflow Control Facility (Hartgen, 2001b)
    - Survey Number: 01SR51900
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 325 ft (99 m)
    - Survey/Project Description: Hartgen (2001b) evaluated the archaeological sensitivity at six alternative sites within the Armory Square neighborhood of downtown Syracuse being considered for the proposed project. All six project alternatives were found to have a low sensitivity for prehistoric archaeology and a high sensitivity for historic archaeology. Hartgen (2001a) recommended a Phase 1B survey be conducted regardless of which alternative site was selected for development. Furthermore, they noted that portions of the West Washington Street Site had been used as a cemetery between ca. 1830 and 1860 and that buried human remains might still be present at that location.

- Project Name: Phase 1 Cultural Resource Survey, Central New York Services, Single Room Occupancy Enriched Services (Pratt & Pratt, 2002)
    - Survey Number: 02SR53186
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 260 ft (79 m)
    - Survey/Project Description: Pratt & Pratt conducted Phase 1 archaeological survey for the proposed project on the east side of downtown Syracuse at the corner of East Fayette Street and University Avenue. Pratt & Pratt (2002) conducted historic documentary research and a field reconnaissance/site visit to assess the archaeological sensitivity of the project area. Pratt & and Pratt (2002) found the project area to be disturbed by grading and construction of residences and driveways. No archaeological sites were identified and no further work was recommended.

- Project Name: Phase 1B: Syracuse Creekwalk Project (PAF, 2003a)
    - Survey Number: 03SR53265
    - Project Type: Phase 1B

- Distance from APE for Direct Effects: 0 ft (overlaps APE for Direct Effects)
- Survey/Project Description: PAF (2003a) completed the Phase 1B survey of the project location along Onondaga Creek in the western portion of downtown Syracuse. The Phase 1B survey consisted of eight shovel tests and 17 backhoe trenches excavated in areas of high archaeological sensitivity. Soil stratigraphy identified during the Phase 1B survey consisted of the following:
    - Trenching between Walton and West Fayette Streets identified fill depths of between 3.7 and 5.1 ft (1.1 and 1.6 m) below the modern ground surface.
    - Two trenches between West Fayette Street and the former railroad track retaining wall contained ash and coal between 5-6.7 ft (1.5-2.0 m) below the modern ground surface, underlain by a 4.5-4.8-ft (1.4-1.5 m) thick layer of red brown sandy loam containing brick fragments.
    - One trench was excavated at West Washington Street, which contained 1 ft (0.3 m) of asphalt and gravel underlain by possible historic/modern fill.
    - Two trenches and two shovel tests were excavated between West Washington Street and Water Street, which identified 1.9 ft (0.6 m) of historic debris underlain by possible intact soils.
    - A trench was excavated north of West Genesee Street. It encountered historic/modern fill to a depth of 6.7 ft (2.0 m) below the modern ground surface.
    - Six trenches were placed near Hiawatha Boulevard. They encountered soda ash deposits to a depth of 5-8.7 ft (1.5-2.7 m) below the modern ground surface. The fill was underlain by intact wetland soils.
    - Borings were excavated between Spencer and Kirkpatrick Streets. They encountered between 13-19 ft (4.0-5.8 m) of fill, underlain by intact wetland soils.
    - Soil borings excavated south of Walton Street identified fill to a depth of 8 -12 ft (2.4-3.7 m) below the modern ground surface.

  No intact prehistoric or historic archaeological sites were identified and no additional work was recommended.

- Project Name: Phase 1A Cultural Resource Assessment, Syracuse Armory House Project (PAF, 2003b)
    - Survey Number: 03SR53404
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 330 feet (101 m)
    - Survey/Project Description: PAF (2003b) conducted a Phase 1A survey of the project area west of downtown Syracuse at the corner of Water Street and University Avenue. Due to its proximity to an intact glacial drumlin and the high density of map-documented structures in the vicinity, the project

area was identified as potentially sensitive for prehistoric and historic archaeology. Phase 1B investigations were recommended.

- Project Name: Phase 1B Cultural Resource Assessment, Syracuse Armory House Project (PAF, 2003c)
    - Survey Number: 03SR53405
    - Project Type: Phase 1B
    - Distance from APE for Direct Effects: 330 ft (101 m)
    - Survey/Project Description: During the Phase 1B survey, PAF (2003c) excavated eight shovel tests and 12 backhoe trenches. The subsurface testing identified the Syracuse Block 205 Historic Site (A06740.006101) which consists of four loci of foundations and artifacts, representing three map-documented residences and one map-documented commercial shop. The site contained intact stratigraphy underneath approximately 14 to 54 inches (37 to 137 cm) of clay fill. The S/NRHP eligibility of the site is currently undetermined. PAF (2003c) recommended either site avoidance or Phase II investigation if the site could not be avoided. Currently, the site is located underneath a sports field and, to date, no Phase II investigations have occurred at the site.

- Project Name: Onondaga County Combined Sewer Overflow Lake Improvement Program: Archaeology Plan and Work Scope. Phase IB Archaeological Field Reconnaissance of the Dickerson Street West Option and Clinton Station Sites, Proposed Clinton Street Combined Sewer Overflow (Hartgen, 2003a).
    - Survey Number: 03SR53395
    - Project Type: Phase 1B Work Plan/Scoping
    - Distance from APE for Direct Effects: 325 feet (99 m)
    - Survey/Project Description: Following the Phase 1A for this project (Hartgen, 2001b), Hartgen (2003a) drafted a Phase 1B work plan to test archaeologically sensitive areas within the project area located in the on the south side of downtown Syracuse. The work plan summarized the results of 17 soil borings conducted within the project area in 2002. The borings generally identified a sequence of historic/modern fill to depths of between 4 and 16 feet below the modern ground surface, underlain by (from shallowest to deepest) alluvium, lacustrine deposits, and glacial-fluvial soils. Groundwater was encountered at an average depth of 14 feet.

      Hartgen (2003a) proposed Phase 1B methodology aimed at identifying pre-contact Native American materials and historic 19th century materials within the project area. Due to the complex nature of the project, Hartgen (2003a) also included a memorandum of agreement (MOA) between NYSOPRHP and Onondaga County to guide consultation between the two parties as the project developed.

- Project Name: Phase 1B Archaeological Field Reconnaissance: Clinton Street CSO Abatement Project, Clinton Station Site (Hartgen, 2003b)
    - Survey Number: 03SR57080
    - Project Type: Phase 1B Survey
    - Distance from APE for Direct Effects: 325 feet (99 m)
    - Survey/Project Description: Hartgen (2003b) excavated nine backhoe trenches throughout project area on the west side of downtown Syracuse. The backhoe trenches identified two historic archaeological sites: the Railroad Machine Shop site (USN 06740.008692) and the Dickerson Street Historic site (USN 06740.008691). The S/NRHP eligibilities of both sites were left undetermined at conclusion of the Phase 1B survey. Hartgen (2003b) recommended avoidance or Phase II investigations for the Railroad Machine Shop and avoidance or Phase II/III investigations for the Dickerson Street Historic Site.

- Project Name: Report of Field Reconnaissance: Phase 1A Cultural Resource Assessment Syracuse University Health Science Addition (PAF, 2004a)
    - Survey Number: 04SR55013
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 490 feet (149 m)
    - Survey/Project Description: PAF (2004a) conducted a Phase 1A cultural resources survey for the proposed project on the Syracuse University campus near the southeast periphery of downtown Syracuse. As part of the Phase 1A survey, soil borings were conducted which encountered fill to depths of approximately 10 to 15 ft (3.1 to 4.6 m) below the modern ground surface. Based on the results of documentary research and the soil borings, PAF (2004a) found the project area to have low sensitivity for prehistoric and historic archaeological material and no further work was recommended.

- Project Name: Phase 1: Erie Blvd. over Onondaga Creek Project (PAF, 2008)
    - Survey Number: 08SR58239
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 feet (overlaps APE for Direct Effects)
    - Survey/Project Description: PAF (2008) conducted archaeological monitoring and a historic architectural resources survey for the proposed rehabilitation of the bridge conveying Erie Boulevard over Onondaga Creek on the western side of downtown Syracuse.

As discussed in Section 2.1, PAF (2008) monitored a series of seven auger probes conducted by C&S Engineers (C&S) which identified the subsurface stratigraphy at the point where the modern alignment of Erie Boulevard crosses the modern alignment of Onondaga Creek (PAF, 2008). These auger probes were conducted on top of an existing limestone culvert that was constructed in 1838 (at the location of an earlier culvert) to convey Onondaga Creek under the Erie Canal. Three of the auger probes encountered the historic culvert at depths between 12.8 and 16.1 feet below the modern ground surface, two of the auger probes did not encounter the culvert at all, and two of the auger probes encountered concrete at an unspecified depth. PAF (2008) recommended no further archaeological work for the proposed project.

- Project Name: Phase 1: Washington Station Office Building (RMSC, 2008)
    - Survey Number: 08SR58349
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 385 feet (117 m)
    - Survey/Project Description: RMSC (2008) completed a Phase 1A survey for the Washington Station Office Building project area at the corner of West Washington Street and South Franklin Street on the west side of downtown Syracuse. RMSC (2008) found the project area occurred completely on soil units mapped as Urban Land. Additionally, the project area was severely disturbed by historic development including railroads, roads, and heavily industry. RMSC (2008) found the project area to be severely disturbed with no potential to contain significant intact archaeological materials. No further archaeological work was recommended.

- Project Name: Phase II/III: Clinton Street CSO Abatement Project (Hartgen, 2009a)
    - Survey Number: 09SR60101
    - Project Type: Phase II & III
    - Distance from APE for Direct Effects: 330 feet (101 m)
    - Survey/Project Description: In association with the Onondaga County Combined Sewer Overflow Lake Improvement Project, Hartgen (2009a) conducted Phase II and III investigations at the Dickerson Street Historic Site (USN 06740.008691) in on the southwest side of downtown Syracuse. As noted in Section 2.2 of this report, the Dickerson Street Historic Site dates to between approximately 1870-1930. The site was identified and investigated by Hartgen during Phase 1B (Hartgen, 2003b) and Phase II/III (Hartgen, 2009) investigations. Hartgen (2003b) identified the site through the excavation of backhoe trenches in the vicinity of the Dickerson Street Bridge over Onondaga Creek. One of the trenches exposed the corner of a stone foundation and a wooden-lined

shaft feature which was interpreted at the time to represent a privy. Hartgen (2003b) estimated that both features dated to ca. 1900. They recommended Phase II/III investigation occur at the site if it could not be avoided by the proposed project (Hartgen, 2003b).

Phase II/III data recovery was conducted at the site in 2007. The site was mechanically stripped of overburden to expose features and foundations associated with historical structures. Seven excavation units were placed across the site to explore potential features and foundation walls. Hartgen (2009a) identified foundations and fill deposits dating to between ca. 1870 and 1930. The site consists of primarily commercial structures associated with the railyard, with a minor residential component which included the childhood home of noted children's author Howard Garis. Hartgen (2009a) identified 12 historic features and a moderately sized historic debris associated with both businesses and residences. Hartgen (2009a) excavated much of the site in 2007 and presumably the remainder was destroyed by the construction of the Combined Sewer Lake Overflow Program. Currently, the vicinity of the site is covered by asphalt parking lots.

Hartgen (2009a) found that overburden extended to a minimum depth of 2.2 feet (0.7 m) below the modern ground surface, and in some places as deep as 6.6 feet (2.0m). Soil in the vicinity was assumed to contain lead so only 25% of recovered soils were screened.

- Project Name: Phase 1: Syracuse Connective Corridor (Hartgen, 2009b)
    - Survey Number: 09SR59513
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 feet (overlaps APE for Direct Effects)
    - Survey/Project Description: Hartgen (2009b) conducted a Phase 1A cultural resources survey for the proposed project which consists of improvements to transportation, architecture, lighting, telecommunications, public art displays, and other features along a corridor connecting downtown Syracuse with Syracuse University via Fayette Street, East Genesee Street, and University Avenue. Hartgen (2009b) found mapped soils within the project area to consist largely of Urban Land, the exception being the portion of the proposed project along University Avenue which is mapped as native soil.

      Hartgen (2009b) noted that while much of the project route had been heavily disturbed by 20th century improvements to streets and sidewalks, Fayette Park and Forman Park, as well as some residential lawns along East Genesee Street and University Avenue potentially remained undisturbed.

Regarding prehistoric archaeological sensitivity, Hartgen (2009b:18) concluded: "Fayette Street west of Franklin Street, the eastern half of Forman Park, and University Avenue have a moderate sensitivity for precontact sites. The rest of the project corridor has a low sensitivity for precontact sites."

Regarding historic archaeological sensitivity, Hartgen (2009b) concluded that the entire area was highly sensitive, but that "the depth of potential archaeological significance begins at a depth of approximately one foot (0.3 m) below sidewalks, at 2.5 feet (0.8 m) below curbs, and at 1.5 feet (0.5 m) below road surfaces" (Hartgen, 2009b:18).

Hartgen (2009b:19) concluded by recommending that project designers limit ground disturbance to less than 1 ft below the modern ground surface and limit the overall amount of ground disturbance at the western end of the project, within Fayette and Forman Parks, and along University Avenue. Hartgen (2009b:19) further recommended that, as the project design was finalized, the specific impacts associated with the proposed project be reviewed by an archaeologist.

- Project Name: Phase III Data Recovery and Historic Context Development: Clinton Station Site Railroad Machine Shop, City of Syracuse, Onondaga County, New York.
    - Survey Number: 09SR60227
    - Project Type: Phase III
    - Distance from APE for Direct Effects: 325 feet (99 m)
    - Survey/Project Description: Hunter (2009) completed the Phase III data recovery investigations at the project site on the west side of downtown Syracuse. An approximately 7,000-square-foot area was mechanically stripped of overburden to expose features and foundations of the railroad machine shop. Nine 5 x 5 ft (1.5 x 1.5 m) and 2.5 x 10 ft (0.8 x 3.0 m) excavation units were placed throughout the remains of the machine shop. The excavations exposed extensive post-demolition fill deposits throughout the site. No remains of the original machine shop, which was destroyed during an 1869 fire, were identified due to the extensive disturbance by fill and foundation construction for the second machine shop (which was constructed following the 1869 fire). However, Hunter (2009) determined that significant data were recovered from the site excavations pertaining to the late 19th century history of the Delaware, Lackawanna, and Western Railroad, and the site was recommended eligible for listing on the S/NRHP under criteria C and D. Hunter (2009) recommended that the finding of adverse effect for the site had been resolved by the Phase III data recovery and historic context development and recommended no further archaeological work for the site.

- Project Name: Phase 1: PIN 3506.32.101 I-690 Bridges (PAF, 2010b)
    - Survey Number: 10SR60134
    - Project Type: Phase 1
    - Distance from APE for Direct Effects: 0 feet (overlaps APE for Direct Effects)
    - Survey/Project Description: PAF (2010b) conducted archaeological and architectural reconnaissance surveys for the project in the vicinity of the West Street Interchange on I-690 on the northwest side of downtown Syracuse. The most significant proposed disturbance associated with the project consisted of the construction of an access road along the banks of Onondaga Creek where it is crossed by I-690. As noted in Section 2.1 of this report (Inset 2.1.2-2), this section of Onondaga Creek near its inlet into Onondaga Lake was heavily rerouted and channelized between 1904 and 1916 (Onondaga Environmental Institute, 2008). Furthermore, PAF (2010b) noted that the entire project area is mapped as Urban Land, although they also noted that small pockets of intact soils might remain in the area. The vicinity has been heavily disturbed by the construction of I-690 and associated interchanges and bridges (PAF, 2010b). However, this area in the vicinity of Onondaga Creek on the southwest shore of Onondaga Lake contains several documented prehistoric and protohistoric archaeological sites, including the Late Prehistoric Onondaga Village of Kaneenda (Beauchamp, 1900; Parker, 1922). PAF (2010b) also described extensive historic development within the project area but noted that any historic archaeological materials in the vicinity were likely destroyed by the construction of I-690 and associated bridges and interchanges.

      PAF (2010b) conducted a pedestrian reconnaissance walkover of the project area to assess the extent of previous disturbance and the potentially to encounter intact soils. Based on the results of the walkover, PAF (2010b) archaeologists excavated seven shovel tests in alluvial deposits along the banks of Onondaga Creek. All seven shovel tests encountered limestone paving stones between 27 and 50 cm below the modern ground surface. No artifacts were recovered from the shovel tests.

      PAF (2010b) recommended no further archaeological work for the project.

- Project Name: Archaeological Monitoring and Data Recovery Plan, PIN 3754.46 East Genesee Street Reconstruction Project, City of Syracuse (6740), Onondaga County, New York (PAF, 2012)
    - Survey Number: 12SR61167
    - Project Type: Monitoring and Data Recovery Plan
    - Distance from APE for Direct Effects: 0 feet (overlaps APE for Direct Effects)

- Survey/Project Description: PAF's (2012) monitoring and data recovery plan covers the portion of East Genesee Street between Forman Street and University Avenue, including Forman Park, east of downtown Syracuse. PAF (2012) summarized the conclusions of the Phase 1A report for the project (Hartgen, 2009b), which had recommended limiting project disturbance in archaeologically sensitive areas as well as final review of the project design by an archaeologist prior to construction. PAF (2012) outlined a protocol for archaeological construction monitoring and data recovery if significant archaeological resources were identified during monitoring. No final monitoring/data recover report has been submitted to NYSOPRHP as of this writing.

- Project Name: Phase1A Archaeological Background and Literature Review of the Proposed Project Site at 405 Spencer Street (AAS, 2016)
  - Survey Number: 16SR00343
  - Project Type: Phase 1A
  - Distance from APE for Direct Effects: 210 feet (64 m)
  - Survey/Project Description: AAS (2016) conducted a Phase 1A archaeological study of the project area at the corner of Spencer Street and Maltbie Street on the northwest side of downtown Syracuse. As part of the Phase 1A study, AAS (2016) excavated one test hole which encountered historic limestone foundations at a depth of 5 ft below the modern ground surface. This foundation is likely associated with 19th century salt works at the location. AAS excavated 18 shovel tests within the project area as part of the Phase 1A survey. Sixteen of the shovel tests encountered filled modern/historic fill deposits and two encountered potentially intact soils. No artifacts or features were identified within any of the excavated shovel tests.

    AAS (2016) also noted the presence of somewhat intact limestone foundations on the ground surface associated with the previously recorded Pump House and Salt Manufacturing Site (USN 06740.001211). The site is eligible for listing on the S/NRHP.

    Because the proposed project was only anticipated to cause ground disturbance to a depth of 2 ft below the modern ground surface, AAS (2016) did not recommend additional testing or data recovery at the location but did recommend an archaeological monitor be present during project construction, due to the high sensitivity of the area for historic archaeology associated with 19th century salt works. Additionally, AAS (2016) noted that the aboveground foundation remnants associated with Site A06740.001211 would not be impacted by the proposed project.

- Project Name: Archaeological Resources Screening, I-690 Over Teall Avenue and Beech Street Bridge Replacement (EDR, 2016)
    - Survey Number: 16SR00464
    - Project Type: Phase 1A
    - Distance from APE for Direct Effects: 0 feet (overlaps APE for Direct Effects)
    - Survey/Project Description: EDR (2016) conducted a Phase 1A cultural resources screening for the project area at the I-690 viaduct over Beech Street and Teall Avenue on the east side of the City of Syracuse. The Phase 1A report considered the impacts to cultural resources of four project alternatives for the viaduct rehabilitation and two alternatives for improving the I-690/Teall Avenue Interchange.

      Based on a review of historic maps and photographs, EDR found the project area to have been significantly disturbed by historic and modern development, and therefore, of low sensitivity for prehistoric archaeology. Regarding the sensitivity for historic archaeology, EDR (2016:13) stated:

      > "Due to previous ground disturbance from road widening, construction of road ramps and associated grading, and prior demolition and construction on adjacent parcels, there is minimal likelihood of intact historic sites to be present in the areas immediately adjacent to the existing highway."

      EDR (2016) concluded that no intact natural soils appeared to be present within the APE for direct effects and therefore, no additional archaeological investigation was recommended.

In addition, 19 cultural resources projects have been conducted between 500 feet and 0.5 miles from the APE for Direct Effects (see Table 2.3-2 and Appendix A: Map 3). These consist of eight (42%) combination Phase 1A/Phase 1B surveys, five (26%) Phase 1A surveys, two (11%) construction monitors, one (5%) Phase 1B survey, one (5%) Phase 1B scope, one (5%) academic research project, and one (5%) Phase II investigation. The cultural resources surveys/projects were conducted for six (32%) sewer projects, three (16%) highway/streets projects, three (16%) municipal parks/footpaths, three (16%) residential development projects, two (10%) commercial development projects, one (5%) religious building project, and one (5%) academic research project. Previously conducted surveys and projects located within the vicinity of the APE for Direct Effects but not within or immediately adjacent (i.e., those surveys and projects between 500 feet and 0.5 miles from the APE for Direct Effects) are summarized in Table 2.3-2.

Table 2.3-2. Previous Archaeological Projects located between 500 feet and 0.5-mile of the APE for Direct Effects.

Survey/ Project No.	Survey/ Project Name	Type	Distance from APE for Direct Effects	Findings and Recommendations	Reference
PIN 3750.45 (no CRIS survey number)	Phase 1: Highway Program PIN 3750.45, Onondaga Co.	Phase 1	630 ft (192 m)	No archaeological sites identified	PAF, 1977a
125 (no CRIS survey number)	Phase 1: Remington Garden Apartments, Syracuse	Phase 1	870 ft (265 m)	Phase 1B survey recommended	R. Joseph Murphy & Associates (Murphy), 1996
98SR50341	Faces of the Past: Archaeology of an Underground RR Site	Academic Research	925 ft (282 m)	Identification of Underground Railroad-associated features in the basement of the Wesleyan Methodist Church.	Armstrong and Wurst, 1998
00SR51202	Phase 1: COR Collamer Rd. Company Development, Dewitt	Phase 1	525 ft (160 m)	Low density of historic material, not considered to represent an archaeological site. No further work recommended.	Columbia Heritage, Ltd. (Columbia) 2000
00SR51398	Phase 1: Thornden Park Carriage House Renovations, Syracuse	Phase 1	2,350 ft (716 m)	No archaeological sites identified. No additional work recommended.	Rochester Museum & Science Center (RMSC), 2000
00SR62060	Phase 1B Work Scope: Kirkpatrick Street Pump Station Upgrade Project and Onondaga Creek Floatables Facility Project	Phase 1B Scope	1,100 ft (335 m)	High sensitivity for historic archaeology; low sensitivity for prehistoric archaeology, based on results of soil borings. Recommended Phase 1B survey including a combination of construction monitoring, backhoe trenching and shovel testing.	Hartgen 2000b
01SR51366	Stage III Ammonia and Stage II Phosphorus Removal Project, Metropolitan Syracuse Wastewater Treatment Plant,	Phase 1A	2,100 ft (640 m)	Found project area was inundated by Onondaga Lake prior to Mid-19th century and disturbed by industrial development and Solvay Waste deposition. Determined low sensitivity for	Hartgen, 2001c

Survey/ Project No.	Survey/ Project Name	Type	Distance from APE for Direct Effects	Findings and Recommendations	Reference
				prehistoric and historic archaeology. No further archaeological work recommended.	
01SR51367	Phase 1B Archaeological Field Reconnaissance, Kirkpatrick Street Pump Station and Force Main Project	Phase 1B	1,100 ft (335 m)	Recommended Phase II investigations.	Hartgen, 2001d
01SR53147	Phase 2 End of Fieldwork Letter and Phase 2 End of Field Work Letter Addendum: Kirkpatrick Street Pump Station Project	Phase 2	1,100 ft (335 m)	Feature investigated lacked integrity. No further work recommended.	Hartgen, 2001e
N/A (not currently accessioned by NYSOPRHP)	Phase 1A Literature Review, Dickerson Street Site, East and West Options, Onondaga Combined Sewer Overflow Lake Improvement Program: Clinton Street Overflow Control Facility, City of Syracuse, Onondaga County, New York	Phase 1A	875 ft (267 m)	Project area found to largely lack prehistoric sensitivity but to be highly sensitive for historic archaeology. Phase 1B aimed at identifying intact historic foundations recommended.	Hartgen, 2002
03SR53498	Phase 1B Archaeological Monitoring, Kirkpatrick Street Pump Station Upgrade and Force Main Project	Archaeological Construction Monitoring	2,325 ft (709 m)	Identified one historic feature and one possible prehistoric artifact. No further work recommended with condition that project avoid impacting a buried terminal Pleistocene beach.	Hartgen, 2003c
04SR54225	Phase 1: SRO 24 Bed Community Facility	Phase 1	1,230 ft (375 m)	Historic/modern fill encountered. No prehistoric material identified. No further work recommended.	PAF, 2004b
04SR55062	Phase 1B Construction Monitoring: Walton St. Bridge & Creek Walk	Archaeological Construction Monitoring	985 ft (300 m)	Identified fill deposits associated with the historic Mill Pond. Identified the Hughson Carriage Works historic archaeological site	PAF, 2004c

Survey/ Project No.	Survey/ Project Name	Type	Distance from APE for Direct Effects	Findings and Recommendations	Reference
				(USN 06740.007252) which was recommended not eligible for listing on the S/NRHP. No further work recommended.	
05SR56196	Phase 1: Homestead Housing Project, Syracuse	Phase 1	1,370 ft (418 m)	Historic/modern fill encountered. No prehistoric material identified. No further work recommended.	PAF, 2005
06SR58137	Phase 1A: Rt. 370 between I-81 & Old Liverpool Rd.	Phase 1A	715 ft (218 m)	Found low sensitivity for prehistoric archaeological and moderate to high sensitivity for historic archaeology. Recommended Phase 1B survey if subsurface impacts are proposed.	New York State Museum Cultural Resources Survey Program, 2006
06SR60210	Phase 1A: Wal-Mart Supercenter	Phase 1A	1,975 ft (602 m)	Found low sensitivity for prehistoric and historic archaeology. Recommended no further work based on heavy disturbance and large wetland.	RMSC, 2006
15SR00066	Phase IA/IB Archaeological Investigation for the Proposed Central New York Islamic Center	Phase 1	1,060 (323 m)	No archaeological sites identified. No further work recommended.	Alliance Archaeological Services, 2014
15SR00154	Phase I Archaeological Survey (PIN 3754.83) Seneca Turnpike (NY 173) Corridor Improvement Project	Phase 1	1,800 ft (549 m)	No archaeological sites identified. No further archaeological work recommended.	PAF, 2014
16SR00589	Phase 1A: Walton St. Bridge & Creek Walk	Phase 1A	700 ft (213 m)	Project area found to be highly sensitive for historic archaeology. Phase 1B survey recommended	Hartgen, 2000c

2.4 Historic Context for the APE and Vicinity

EDR conducted historical research at local and on-line archives and repositories to document the historical development of the Project's APE and vicinity. Archives consulted during EDR's research for the Project included:

- the collections of the Onondaga Historical Association in Syracuse,
- the Local History collection of the Central Branch of the Onondaga County Public Library,
- the collections of the Erie Canal Museum in Syracuse,
- the Digital Collections of the Library of Congress,
- the Digital Collections of the New York State Archives,
- NYSDOT's archives and record plans,
- NYSOPRHP's on-line CRIS inventory of previous cultural resources survey reports,
- Ancestry.com, the David Rumsey Historical Map Collection, and other on-line history resources, and
- EDR's in-house collection of reference materials.

Historical sources reviewed for the Project are cited throughout the following historic context sections and are listed in Section 5.0 References Cited of this report. An important focus of EDR's research was the review and analysis of historical map sources. Details from selected historical maps and other historical imagery are included as inset figures throughout the following historic context narrative. Selected historical maps were geo-referenced and overlain on contemporary plans and aerial photos to help identify historic map-documented structures and other potential archaeological features that were formerly located within the APE for Direct Effects. In addition, representative geo-referenced historical maps are included in Appendix A: Maps 4-9.

2.4.1 Pre-Contact Native American Period (ca. 14,000 BP to 1654 AD)

A discussed in Section 2.1 of this report, the APE for Direct Effects is located within the Onondaga Trough in Central New York. More specifically, it is located along the southeast shore of Onondaga Lake and encompasses and area that would have historically included lakeside wetlands surrounding the Onondaga Creek inlet into Onondaga Lake, as well as smaller portions of the surrounding uplands. Since the last glacial recession around 14,000 years ago, humans have utilized the area both for short term resource acquisition and longer term residential habitation. Onondaga Lake (and the APE for Direct Effects) is located at the border between the Erie/Ontario Lake Plain physiographic province to the north and the Allegheny Plateau physiographic province to the south. This location provided access to a variety of lowland and upland resources to groups based in the area. Furthermore, the Seneca/Oswego River system (of which Onondaga Lake and Onondaga Creek are a part) provided water-borne access to Montezuma Swamp and the Finger Lakes to the west and south, Oneida Lake to the northeast, and Lake Ontario to the north. A short overland route also

provided access to the Mohawk River, and thereby the Hudson Valley. Prehistoric settlement trends in the region are summarized in Table 2.4.1-1 and discussed below.

Table 2.4.1-1. Summary of Prehistoric Native American Cultural Periods for Central New York.

Time Period[1]	Paleoenvironment	Settlement Pattern & Subsistence Strategy	Artifact Assemblage	Comments
Paleo-Indian Period (ca. 13,000-10,000 years ago)	Regional lakes lower than present day. Pleistocene megafauna present early in period. Open sedge-dominated tundra alternating with spruce-dominated parkland and closed boreal forest, giving way to closed pine forests by ca. 10,000 years ago.	Mobile hunting and gathering. In Central New York, sites cluster within former lakebed of proglacial Lake Iroquois.	Diagnostic fluted points, including Gainey, Barnes, and Crowfield, and unfluted points including Holcombe, Hi-Lo, and Lanceolate/Plano types. Mix of local and exotic lithic materials used (all high quality). Unifacial end- and side- scrapers, knives, borers and gravers.	Sites in areas of high elevation, margins of low wetlands, lake shorelines, following major river systems. Sites rare. Low population density.
Early Archaic Period (ca. 10,000-8,000 years ago)	Warmer and wetter conditions relative to previous period. Pine- and oak-dominated forests.	Mobile hunting and gathering (but decreased mobility compared to previous period)	Side- and corner-notched projectile points.	Sites rare. Interpreted as very low population density.
Middle Archaic Period (ca. 8,000-6,000 years ago)	Continuation of warm and wet conditions. Pine- and oak-dominated forests give way to mixed deciduous forests including beech, maple, and oak. Increase in deer, turkey and squirrel with increased mast trees.	Mobile hunting and gathering.	Bifurcated-base, stemmed, and notched projectile points.	Increase in sites relative to previous period but still low population density.
Late Archaic Period (ca. 6,000-3,500 years ago)	Continuation of warm and wet conditions. Mixed deciduous forests similar to modern day forests persist.	Somewhat high residential mobility, likely on a seasonal basis.	Side-, corner-notched, and stemmed projectile points. Antler pendants, and exotic goods including copper and marine shells.	Diverse settlement patterns including partial sedentism. Residential base camps near water in spring & summer, upland wetlands in fall & winter. Increased ceremonialism including large cemeteries and internments with exotic grave goods.
Transitional Period (ca. 4,000 – 3,000 ago)	Cooling trend. Mixed deciduous forests persist.	Somewhat high residential mobility, likely on a seasonal basis.	Broad-bladed bifaces, projectile points, drills, flake knives. Increase in Jasper and Rhyolite.	Transition from Archaic to Woodland Period is marked by the inception of portable cooking containers, increased reliance on

Time Period[1]	Paleoenvironment	Settlement Pattern & Subsistence Strategy	Artifact Assemblage	Comments
			Steatite and early ceramic vessels.	native plants. Increased trade. More elaborate mortuary sites.
Early Woodland Period (ca. 3,000-2,300 years ago)	Cooler temperatures persist. Mixed deciduous forests persist.	Foraging ("Hunting & Gathering"), supplemented by cultivation of squash.	Chord-marked ceramics, stemmed, bi-pointed, side-notched, and fishtail projectile points.	Settlement near major waterways. Shift in diet to increased reliance on plant foods, including cultivated squash.
Middle Woodland Period (ca. 2,300-1,000 years ago)	Warming and drying trend (Medieval Climatic Anomaly). Mixed deciduous forests persist.	Foraging ("Hunting & Gathering"), slight increase in sedentism. Adoption of maize agriculture.	Stylistic changes in ceramics. Paddle, cord and net impressed, incised, dentate stamping.	Decorated ceramic vessels. Elaboration of burial ritual, expanding reliance on squash and maize agriculture.
Late Woodland Period (ca. 1,000-400 years ago)	Warm and dry conditions persist. Mixed deciduous forests persist.	Sedentary villages supported by large scale agriculture and logistical foraging.	Triangular projectile points (bow and arrow), paddle & anvil and corded ceramics, knives, hoes, hammerstones, anvils, grindstones, mortars and pestles.	Cultural continuity with previous period, settlement shifts to nucleated longhouse villages in floodplains by 900 years ago; villages shift to upland settings by end of period. Increasing interpergroup conflict toward end of period.
Contact Period (ca. 400-200 years ago) (discussed further in Section 2.4.2)	Cooler and wetter conditions (Little Ice Age). Mixed deciduous forests persist.	Sedentary villages. Maize, beans & squash agriculture. Still some hunting and gathering of wild animals and plants.	European trade goods.	Development of villages with up to 500 residents, longhouses, palisades and storage facilities. Contact with European settlers. Adoption of European settlement patterns (i.e., cabins, hamlets)

[1] Time periods are described in calendar years before present and represent approximate time ranges for these archaeological periods.

Paleoindian (approximately 13,000 to 10,000 years ago)

The prehistory of Central New York begins with the initial colonization of the area by Paleoindian groups following the retreating continental glaciers around 13,000 years ago. Immediately following glacial recession, much of Central New York, including the current APE for Direct Effects was inundated by pro-glacial Lake Iroquois which quickly drained out the Mohawk and St. Lawrence River valleys as the ice sheet receded to the north (Lothrop et al., 2014). The first human groups to enter the region appear to have specialized in hunting large game (likely caribou; and possibly mammoth and mastodon) in the recently exposed periglacial tundra and spruce parkland. Paleoindians also exploited diverse floral resources, small game, and fish available in the post-glacial ecosystems (Ritchie and Funk, 1973). Although these early groups were highly mobile and typically would have operated in small nuclear family or extended family groups, there is also evidence of moderate to large aggregations at certain times and places (e.g., the Bull Brook sites in Massachusetts) (Curran, 1999). In Central New York, Paleoindians may have come together at certain times of the

year to take advantage of seasonal caribou aggregations or seasonal fish runs. These earliest inhabitants of Central New York utilized the high quality chert found within the Onondaga Escarpment, but also utilized nonlocal lithic (i.e., stone tool) materials from the Hudson Valley to the east, the Delaware Valley to the south, and as far west east-central Ohio (Lothrop et al., 2014).

The climate in Central New York was dry throughout the entire Paleoindian period and lake levels were significantly lower than they are in the present day. For instance, during its early Holocene low stand (ca. 12,300-8,300 years ago) the southern shoreline of Lake Ontario was between 5 and 10 km north of the modern shoreline and the lake had no outlet because its level was below the sill of the St. Lawrence River Valley (Lothrop et al. 2014). This is significant because Paleoindian groups would have occupied the exposed portions of the Ontario Basin. Any sites left in these areas are now under tens or hundreds of feet of water and therefore, precluded from current analyses of Paleoindian settlement and subsistence in Central New York (Lothrop et al., 2014). Even given this incomplete record, Central New York was densely settled by Paleoindians relative to the surrounding area, prompting Ritchie (1980) to state that the area contained the highest density of fluted points in the state of New York.

More recently, Lothrop et al. (2014) have analyzed the distribution of Paleoindian archaeological sites and projectile point finds in Central New York. They found that Paleoindian materials are most densely clustered along the shore of Oneida Lake and the Seneca and Oneida Rivers, some distance north of the current APE for Direct Effects. No Paleoindian projectile points have been found in the City of Syracuse or the Towns of Geddes and Salina to date. Notable regional Paleoindian sites include the Toad Harbor Site on the north shore of Oneida Lake, the Oberlander No. 1 and Robinson Sites (both of which were occupied during the Archaic Period as well) on the Oneida River near the outlet of Oneida Lake, and the Glass Factory Site in Madison County.

Early and Middle Archaic (approximately 10,000 to 6,000 years ago)

As occurred in many areas in North America, indigenous populations settled into the landscape during the Archaic Period in Central New York. Post-Glacial conditions had stabilized by approximately 10,000 years ago, and small groups of hunter-gatherers reduced their mobility and exploited the diverse resources available to them in the newly emerging mixed deciduous/coniferous forests. This process of settling in began during the late Paleoindian Period around 10,000 years ago as groups adapted to the changing climate and a shift from open spruce/fir parkland to closed pine and oak forest. Mammoth and mastodon were extinct in the area by approximately 10,000 years ago (Lothrop et al. 2014), but big game such as deer, elk, moose, and perhaps woodland caribou remained available, as well as small game, fish, and wild plants. Archaic sites are often larger and denser than Paleoindian sites (Funk, 1978); however, in Central New York, this is true primarily of Late Archaic sites. Early and Middle Archaic sites are rare in the area and often exhibit a continuation of the low population densities mobile lifeways characteristic of the late Paleoindian Period.

In New York, the Archaic period is broken into the Early (approximately 10,000 to 8,000 years ago), Middle (approximately 8,000 to 6,000 years ago) and Late (approximately 6,000 to 3,500 years ago) subperiods with the Transitional Period as a brief interval between the Late Archaic and the subsequent Early Woodland. Early and Middle Archaic sites are more common in southern and coastal New England and New York than in the northern portion of this region, where they are quite rare. Bifurcate-base points are the most common Early Archaic time markers in Upstate New York and the Middle Archaic is characterized by stemmed and corner-notched projectile points as well as the first appearance of notched stone net-sinkers (Funk, 1978).

Early and Middle Archaic components in Central New York have often been overlooked in favor of the more mysterious Paleoindian sites or the more spectacular Late Archaic and Woodland sites. As a result, the Early and Middle Archaic occupation of Central New York is not particularly well understood. Furthermore, sites dating to the Early and Middle Archaic are relatively rare in the region, and those known are often small relative to Late Archaic sites. In fact, some of the best researched Early and Middle Archaic site components in Central New York occur underneath substantial Late Archaic campsites, such as the Brewerton sites on the Oneida River in Onondaga and Oswego Counties and the Frontenac Island Site in Cayuga Lake in Cayuga County (Ritchie, 1980). Additionally, Parker's (1922) descriptions of "early relics" and "traces of occupation" around Onondaga Lake and Onondaga Creek (NYSM Areas 4192, 4240, and 7368) may refer to Early or Middle Archaic sites; however, no archaeological sites have been formally documented in these areas.

Late Archaic (approximately 6,000 to 3,500 years ago)

Far more Late Archaic sites are documented in New York than Early or Middle Archaic sites. This has led many archaeologists to argue for population increase, likely driven by changing environmental conditions, during the Late Archaic. Sassaman (2010:24-25) has noted that Late Archaic sites in the eastern woodlands tend to be located on more stable landforms than sites dating to preceding periods. This is in large part due to a climatic trend during the Late Archaic toward more stable conditions similar to the those of the present day. Sassaman (2010:24-25) notes that many drainages became more aggradational and less erosional during this period and that this may have led to a higher frequency of preserved archaeological sites from the Late Archaic and Woodland periods than from the preceding Early and Middle Archaic and Paleoindian periods.

Diagnostic artifacts from the Late Archaic include broad side-notched projectile points as well as gouges (broad-bladed chisel-like wood working tools), grooved net sinkers, and ground slate artifacts (Funk, 1978). Groundstone plant processing technology, including nutting stones which indicate the first systematic exploitation of mast resources such as acorns, hickory nuts, and chestnuts, first appear during the Late Archaic (Funk, 1978; Ritchie and Funk, 1973:7). In

Central New York, two separate cultural traditions characterize the Late Archaic period: the Laurentian and the Lamoka cultures (Ritchie, 1980). As currently understood, the Laurentian culture originated *in situ* in northern and Central New York and New England, whereas the Lamoka culture immigrated to the area from southern Appalachia (Ritchie, 1971; 1980; Sassaman, 2010). The Lamoka culture was named for the type site on Lamoka Lake in Schuyler County, New York whereas the Laurentian culture was defined on the basis of several sites, including a cluster known as the Brewerton Sites located at the outlet of Oneida Lake on both sides of the Oneida River in Onondaga and Oswego Counties (Ritchie, 1946; 1980).

The Brewerton sites represent the most significant Late Archaic sites in close proximity to the current Project. The Late Archaic components at the Brewerton sites are most significant at two sites (the Robinson and Oberlander 1 sites) located on opposite sides of the Oneida River from each other, but potentially occupied at the same time (Ritchie, 1946). The density and diversity of artifacts at these sites led Ritchie (1946) to describe them as villages. They contain exotic materials such as copper from the western Great Lakes and marine shells from Maine or the Mid-Atlantic coast. The sites appear to represent seasonal population aggregations, likely to take advantage of seasonal fish and eel runs into and out of Oneida Lake via the Oneida River. If this is the case, the two separate sites may represent different social groups who cooperated to an unknown extent to procure fish and eels during these times (Curtin, 2015; Ritchie, 1946). Other Late Archaic sites such as the Lamoka Lake Site in Schuyler County also focus on fishing and aquatic resource procurement, although not to the exclusion of terrestrial floral and faunal resources such as deer, passenger pigeon, and tree nuts. The Late Archaic component at the Frontenac Island Site in Cayuga Lake in Cayuga County consists primarily of a cemetery with little evidence of a residential village or camp (Ritchie, 1980). The Robert Simonds Site (USN 06709.000224) is a recently discovered Late Archaic campsite on the Seneca River immediately north of Onondaga Lake in Onondaga County. Although not yet fully investigated, it appears to contain a substantial Late Archaic/Transitional component (based on five Lamoka projectile points and one Brewerton Corner-notched projectile point) and its location on a major river is consistent with other large Late Archaic Campsites (NYSM, 2012).

Recently, several archaeologists (Curtin, 1998; Levine, 2004; Madrigal, 1999; Versaggi et al. 2001) have argued that these large Late Archaic campsites should be considered the exception and not the norm for the period. Recent research at upland Late Archaic sites has revealed that the higher elevations in Central New York and the northern Allegheny Plateau were significant in Late Archaic settlement and subsistence, although the sites in these areas do not approach the size of their better known lakeside and riverside counterparts. These upland sites were typically utilized by small task-oriented groups to obtain specific resources or suites of resources available at certain times of the year. While groups were primarily based in large residential camps located to take advantage of major resource patches, small foraging or hunting groups would travel throughout the surrounding landscape to exploit specific more ephemeral resource patches (Levine, 2004). Levine (2004:176-177) argues additional study of these small upland sites

may provide a valuable opportunity to better understand the roles of women in Late Archaic society as some of these sites may have been all female plant procurement and processing locales.

Overall, the Late Archaic Period in Central New York can be characterized as a period of population growth and cultural diversification, likely due to both *in situ* cultural change and the immigration to the area of groups from southern Appalachia and possibly elsewhere.

Transitional (approximately 4,000 to 3,000 years ago)

The Transitional Period is not a well-defined cultural period or complex unto itself but rather, as the name implies, a period of transition between the technological complexes identified with the Late Archaic and the Early Woodland Periods (Ritchie and Funk, 1973). Whitthoft (1949) defined the Transitional Cultural Complexes of the northeast by their manufacture and use of steatite bowls, early ceramic vessels, heavy soapstone gorgets, and broad-stemmed projectile points and drills as well as the appearance of burial ceremonialism (Ritchie and Funk, 1973). The latter portion of the Transitional Period is also characterized by fishtail style points in much of the northeast (Tuck, 1978). Tuck (1978:38) argues that, despite the distinctive technology of Transitional peoples, their subsistence and mobility patterns did not differ significantly from the preceding Late Archaic or subsequent Early Woodland. For this reason, Transitional sites lacking clearly diagnostic artifacts such as fishtail points or steatite vessels are difficult to differentiate from the preceding or following periods. No significant Transitional Period sites are known from Onondaga County.

Early Woodland (approximately 3,000 to 2,300 years ago)

The Early Woodland Period in the northeast is broadly characterized by the earliest beginnings of agriculture (although no agricultural sites are known from Central or Western New York for this period), widespread use of ceramics, stylized ornamental luxury goods such as tobacco pipes and worked copper, and an elaborate ritual system involving complex burial traditions (Tuck, 1978). All of these cultural traits appear to have spread north and east from the Mississippi River Valley (Tuck, 1978); however, many of them are present in Central New York to some extent during the Late Archaic (Ritchie, 1947; 1980). Ritchie and Funk (1973:96) and Tuck (1978:41) have argued that the overall subsistence pattern in the region does not change drastically from the Late Archaic to the Early Woodland, aside from a possible increased influence on fishing in Central and Western New York. However, based on lithic analysis of upland sits in Western New York, Cowan (1999) demonstrates a shift from a system of high residential mobility (i.e., moving the entire group to resources) during the Late Archaic to a system of reduced residential mobility and increased logistical mobility (i.e., task-specific groups operating out of base camps to procure resources). Significantly, Hart et al. (2007) have recently identified domesticated squash (*Curcubita* sp.) phytoliths in cooking residue adhering to ceramic sherds radiocarbon dated to the beginning of the Early Woodland Period in Central New York. The sherds with the earliest dates (ca. 3,000 years ago) are from the Scaccia Site in Livingston County and Hart et al.'s (2007) results indicate that squash was

being cultivated in Central and Western New York at this time, although macrobotanical evidence is still lacking. The presence of domesticated squash during the Early Woodland Period helps to explain the shift to reduced residential mobility. Cultivating crops such as squash requires occupation of the same location by at least part of the social group throughout the growing season as well as reduced mobility throughout the winter months to take advantage of stored surpluses.

Fiedel (2001) argues that, for a number of reasons, the widespread advent of ceramic technology during the Early Woodland Period could have both allowed for and encouraged population growth throughout the northeast. However, he (Fiedel, 2001) also notes that some archaeologists have argued for a regional population decline or even a crash in the Early Woodland based on a perceived paucity of sites and radiocarbon dates attributable to this period. This appears to be borne out by Fiedel's (2001) analysis of diagnostic projectile point type frequencies across the Late Archaic and Early, Middle, and Late Woodland Periods for coastal New York and the Hudson Valley (corrected for the variable lengths of the temporal periods examined) which indicates a disproportionately low frequency of Early Woodland diagnostic points known from the region. Fiedel (2001) argues that the apparent increase in ceremony and ritual observed during the Late Archaic and Transitional Periods could have been in response to economic hardship caused by adverse climatic conditions which finally led to a population crash during the Early Woodland Period.

The pattern of low site density during the Early Woodland Period holds for other parts of New York State as well. In a study of rockshelters from eastern New York, Funk (1989) noted an almost complete lack of Early Woodland components in rockshelters containing Late Archaic components. Furthermore, in their study of the upper Hudson River Valley, Bender and Curtin (1990:83) noted a dramatic rise in Late Archaic site frequency (relative to the Middle Archaic Period) followed by a decrease in sites during the Early Woodland.

In Central New York, Meadowood type projectile points and Vinette Type I ceramics are the most commonly identified artifacts diagnostic of the Early Woodland Period. Many major Early Archaic sites in the region (e.g., the Brewerton sites) were reoccupied during the Early Woodland, but much less intensively (Ritchie, 1980). In Central New York Orient and Meadowood are contemporaneous (Fiedel, 2001:108), whereas elsewhere Orient predates Meadowwood.

Middle Woodland (approximately 2,300 to 1,000 years ago)

The first substantial and widespread development of agriculture in northeastern North America occurred during the Middle Woodland Period, possibly in response to favorable climatic conditions during the Medieval Climatic Anomaly (Fitting, 1978:44). Following the initial appearance of cultigens in Central New York during the Early Woodland period, the role of agriculture in regional subsistence strategies appears to have gradually increased throughout the Middle Woodland Period. Hart et al. (2007) have documented cooked maize (*Zea mays*) phytoliths adhering to ceramic sherds

from the Vinette Site in Oswego County radiocarbon dated to the early to mid-Middle Woodland Period. Although macrobotanical evidence for maize cultivation is not known from Central New York this early, it would appear, based on Hart et al.'s (2007) study that it was being grown on a somewhat widespread basis in this area by approximately 1,600 year ago, and appears to have been present in the area as early 2,300 years ago. As previously noted, Hart et al. (2007) also demonstrated the presence of domesticated squash use in Central New York by the beginning of the preceding Early Woodland Period.

Aside from squash and maize agriculture, Hopewellian influence in Central and Western New York was characterized by mound burials and other earthworks, dentate-stamped and rocker-stamped ceramic vessels, elaborate tobacco pipes, and stemmed, side-notched, and triangular unnotched Levanna projectile points (Engelbrecht, 2014; Ritchie and Funk, 1973). In her analysis of collared ceramic vessels from the Finger Lakes region, Brumbach (2011) notes simple decorative bands on the mouths of ceramic vessels become more common over the course of the Middle Woodland Period, eventually progressing into the truly collared vessels of the late Middle Woodland and Late Woodland which are considered ethnic markers of the groups known in historic times as the Haudenosaunee.

People in the northeast during this period also maintained extensive trade networks, evidenced by the presence of exotic goods at sites in the region (Fitting, 1978; Ritchie 1980; Ritchie and Funk, 1973). Ritchie and Funk (1973:118) note the emphasis on fishing apparent at many Early Woodland sites in New York appears to continue throughout the Middle Woodland, and settlement occurs in small villages or residential camps during this period (Ritchie and Funk, 1973). Although no major Middle Woodland sites occur in the Syracuse vicinity, the Felix Site on the Seneca River in the town of Elbridge, Onondaga County is a significant residential site representing Ritchie's (1980) Kipp Island Phase of the Middle Woodland Period. Additionally, the Robert Simonds, site also on the Seneca River in Onondaga County (previously discussed for its Late Archaic component), contains a small early Middle Woodland component based on one Levanna projectile point and one radiocarbon date calibrated to approximately 2,225 years ago (NYSM, 2012).

Late Woodland (approximately 1,000 to 400 years ago)

Ritchie and others (Ritchie, 1980; Ritchie and Funk, 1973) have argued that the Middle Woodland/Late Woodland boundary around 1,000 years ago marked the arrival of proto-Iroquoian[7] groups (the Owasco culture) in Central and Western New York. They argued for cultural discontinuity around 1,000 years ago hinging on dramatic changes in ceramic styles and technology, the arrival of full-fledged maize/squash/bean agriculture, and the development of

[7] The terms Iroquois and Iroquoian are used here to describe indigenous groups with a suite of cultural traits (e.g., ceramic styles and settlement patterns) and linguistic traits. The term Haudenosaunee is used specifically to denote the five (and later) six nation confederacy in place during the contact and early historic era. Although the roots of the Haudenosaunee likely extend beyond the contact era, this is difficult to document archaeologically, and therefore, the terms Iroquois and Iroquoian will be applied to all cultural manifestations for which only archaeological data are available.

nucleated longhouse villages. However, MacNeish (1952) and Tuck (1971) argued for an *in situ* development of Iroquois culture dating as early as 750 years ago. More recently, Hart and Brumbach (2003; 2005; 2009; Brumbach, 2011; Hart, 2011), among others, have presented evidence which suggests cultural continuity between the Middle and Late Woodland Periods. This indicates a deeper *in situ* development of the Iroquois cultural complex than previously suggested, reaching back at least 1,000 years into prehistory. It is interesting to note that this model, with its deeper local origins for the Iroquois (and potentially Haudenosaunee), accords better with the Onondaga Nation's own understanding of its origins (e.g., Onondaga Nation, 2016). Hart (2011) summarizes the data pointing toward longer term cultural continuity in Central New York which consist overlap between Middle Woodland and Late Woodland ceramic styles and technology as well as recently identified evidence for squash and maize agriculture during the Early and Middle Woodland periods, respectively (discussed in more detail above). Furthermore, Hart (2011) points out large nucleated longhouse villages do not appear in the archaeological record until approximately 700-900 years ago (under the previously held model, this type of village appeared abruptly in the area around 1,000 years ago). To summarize Hart's (2011) argument, no dramatic cultural change indicative of migration or displacement is visible in the archaeological record of Central and Western New York at 1,000 years ago.

The Late Woodland period marks the first time Native American groups in Central New York were fully sedentary in agricultural villages, although an extensive system of logistical resource procurement would have still been necessary to supply villages with non-agricultural resources (Cowan, 1999). Late Woodland sites also include small nuclear family summer residences or "cabins" where single families would tend isolated garden plots away from the main village (Cowan, 1999). The typical Late Woodland village housed approximately 200 people and was occupied for a period of 20 to 30 years before being abandoned in favor of a new location (Snow, 1994). Tuck (1971) describes several residential sides dating from possibly as early as 700 years ago and later in the towns of Baldwinsville, Elbridge, Fabius, Jamesville, Manlius Onondaga, Pompey, Syracuse (the far south side) in Onondaga County, as well as Cazenovia in Madison County. Tuck's (1971) study identified evidence of a palisaded village as early as 700 years ago at the Furnace Brook Site in the town of Onondaga.

Around approximately 500 years ago, village size increased to as much as 500 residents and most villages were sited on low hills or hillside terraces throughout Central New York. This appears to have been partially in response to increased intergroup conflict during this period as the upland locations provided increased intervisibility with nearby villages as well as presenting a longer frost-free growing season than valley bottom locations (Jones, 2006; 2010; Snow, 1994; Tuck, 1971).

Building on this trend, during the sixteenth and seventeenth centuries (the early Contact Era – see Section 2.4.2), the Onondaga in Central New York continued to shift their villages to higher elevation, more defensible locations and

aggregated their population in a smaller number of large fortified villages with populations of up to 2,500 people (Birch, 2012; Jones, 2006; 2010). Some of the growth in village size may also have been due to emigration of St. Lawrence Iroquois populations into the area (Jones, 2010). The St. Lawrence Iroquois were a group of Iroquoian people who lived in villages on both sides of the St. Lawrence River in northern New York and Southern Canada during the terminal Late Woodland through early Contact Era (i.e., the fourteenth through sixteenth centuries). The St. Lawrence Iroquois exhibited a suite of cultural traits including settlement patterns which are consistent with Haudenosaunee groups to the south (Abel, 2001).

Around A.D. 1600, many of the St. Lawrence Iroquois living on the south (U.S.) side of the St. Lawrence River relocated across the river into modern-day Ontario to either form new villages or join existing villages (Abel, 2001:172-173). However, the occupants of two late-sixteenth-century village clusters in the vicinity of modern-day Watertown, New York, defy explanation under Abel's (2001) model. He allows that the people occupying these sites may have moved south to join the Onondaga, per Bradley (1987), or southeast to join the Mohawk, per Engelbrecht (2003) (Abel, 2001); however, firm evidence has yet to be produced demonstrating the Watertown groups' fusion with either the Onondaga or the Mohawk (Abel, 2001). In the case of the Onondaga, however, the period around A.D. 1600 saw unprecedented population growth (Jones, 2010) and some settlement reorganization with groups coming together in larger villages in the Limestone Creek and West Branch, Limestone Creek valleys (Bradley, 1987; Jones, 2006; Tuck, 1971). Furthermore, St. Lawrence Iroquois ceramic styles have been in Onondaga, Oneida, and Mohawk village sites dating to this period (Bradley, 1987; Jones, 2006, 2010; Snow 1995; 2001; Tuck, 1971). Jones (2010:399) posits a large scale migration of St. Lawrence Iroquois as refuges or captives to their southern Haudenosaunee neighbors during this period.

Much of the current APE for Direct Effects occurs within what would have been low-lying wetlands around the south end of Onondaga Lake. This area would have been rich in resources and an attractive area for Haudenosaunee settlement. However, no Late Woodland Period archaeological sites are known from the vicinity of the APE for Direct Effects for the Current Project. Two Contact Era Onondaga sites have been reported to occur within the City of Syracuse, and may have partially overlapped with the APE for Direct Effects prior to their destruction during the twentieth century. One, the Village of Kaneenda as reported by Parker (1922) has already been discussed in Section 2.2 of this report. Both sites will be discussed further in the following Section (2.4.2).

2.4.2 Euro-American and Native American Contact during the Colonial Era (ca. A.D. 1534 to 1786)

Initial European Contact in the Eastern Great Lakes Region occurred in 1534 on the St. Lawrence River (Eccles, 1972), 1609 on Lake Champlain (Fischer, 2008), and 1614 on the Hudson River at the future site of the City of Albany (Richter, 2005). In 1610, Henry Hudson was hired by the Dutch to find a northerly passage to east Asia. He explored the Hudson

River, traveling approximately half the distance from the Atlantic to the site of present day Albany. Although Hudson did conduct some trade with the Native Americans he encountered along his route, much of his interactions were hostile (Morgan, 1993). Following Hudson's initial explorations, the Dutch established a fort and trading post called Ft. Orange at the future site of Albany, New York in 1624 (Huey, 1991). The Dutch Trading Post at Fort Orange at the future site of Albany was the first direct access the Haudenosaunee groups had to European trade goods. Due to their geographic location as the easternmost of the (then) five nations[8], the Mohawk had the most direct and unencumbered access to the Dutch traders (Richter, 2005). Sustained contact with Europeans occurred by 1624 at Ft. Orange (Huey, 1991; Snow and Lanphear, 1988), and Eccles estimates sustained contact by 1615 for the Georgian Bay/Lake Ontario region. The first smallpox epidemic is noted in the Mohawk Valley in 1633 (Bradford, 1952; Jones, 2014), with unspecified epidemics among the Seneca in 1634, the Oneida in 1635, and the Onondaga in 1645 (Jones, 2014). Jones (2010) estimates that the Onondaga population was at its largest between 1645 and 1650, followed by a precipitous decline (the estimated population fell from approximately 2,600 to approximately 1,000, a loss of 62%). Jones (2010; 2014) interprets the population decline between 1645 and 1650 as evidence of a European-introduced epidemic disease.

In 1603, Samuel de Champlain sailed up the the Saint Lawrence River on a mission of trade and exploration from the French monarch, Henry IV (Fischer, 2008). Additional expeditions followed in 1604 and 1608, and soon Champlain was the preeminent explorer and geographer of New France (modern day Canada). Crucial to his success was his establishment of respectful and mutually beneficial relationships with the Native groups along the St. Lawrence, especially the Algonquin and the Wendat-Huron. In 1609 and 1610, Champlain participated in two punitive raids against the Mohawk in the vicinity of modern day Lake Champlain in order to further his relationship with his Wendat-Huron and Algonquin allies (Fischer, 2008). Several years later, in October of 1615, Champlain and several of his soldiers, armed with muskets, again joined their Wendat and Algonquin allies in a raid deep into Onondaga territory. The group left their canoes near the mouth of the Salmon River on the shore of Lake Ontario and traveled overland past the west end of Oneida Lake (modern day Brewerton) until they arrived at a large fortified Onondaga Town on the shore of a lake (Fischer, 2008). Although there is some debate as to the precise location of the town, most scholars agree that it was on the southeast shore of Onondaga Lake in the area currently occupied by the DestiNY USA shopping mall and its parking lots (Engelbrecht, 2003; Fischer, 2008; Pratt, 1976). This is also the location ascribed to the Kaneenda Village archaeological site by Parker (1922). Along with the Huron and Algonquin, Champlain and his men laid siege to the Onondaga Village, eventually constructing a siege tower which allowed them to fire their muskets into the interior of the palisaded village (Fischer, 2008). Although Champlain and his allies never broke through the fortifications, the surprise attack appears to have discouraged the Onondaga from further entanglements with the French along the St. Lawrence for the next 25 years (Fischer, 2008; Trigger, 1985).

[8] The nations of the Haudenosaunee were (from east to west) the Mohawk, the Oneida, the Onondaga, the Cayuga, and the Seneca. In A.D. 1722, the Tuscarora joined the Confederacy as the sixth nation.

During the early- to mid-sixteenth century, the Haudenosaunee first gained access to European trade goods. Through their relationship with Dutch traders at Ft. Orange, the Mohawk became some of the first Native Americans in the region with widespread access to firearms. European guns soon spread throughout the five nations of the Confederacy, allowing the Haudenosaunee to aggressively raid their European and Native rivals throughout the region. Conflicts throughout the second half of the seventeenth century were often with the French and their Wendat-Huron allies throughout the eastern Great Lakes and along the St. Lawrence River (Richter, 2005; Viola, 1990). The Seneca, Cayuga, Onondaga, and Oneida made peace with the French in 1665. The British, however, had gained control of New Netherlands, including Ft. Orange, in 1664 (Richter, 2005). Wielding their newfound economic influence on the Haudenosaunee, the British pushed the Confederacy into renewed conflicts with the French and Wendat throughout the final quarter of the seventeenth century (Richter, 2005).

Clark (1849:139) states that in 1646, Jesuit Father Isaac Iogues visited the Onondaga as an envoy for France. This visit would have been during the immediate aftermath of the 1645 epidemic and ensuing population crash (Jones, 2010; 2014). In July and August, 1654, Father Simon Le Moyne traveled from Montreal to Onondaga Lake to meet with the Haudenosaunee and discuss initiating a mission among them (Clark, 1849; Hewett, 1909). In July, 1656, a group of French Jesuits and soldiers arrived with their Native guides on the eastern shore of Onondaga Lake with the intent of establishing a mission (Bruce, 1896). Their assignment was to build the Jesuit mission, Sainte Marie du lac Gannentaha, the first permanent European settlement in Haudenosaunee territory. Their position at Onondaga Lake placed them centrally among the five nations of the Haudenosaunee Confederacy and made their settlement accessibly by river from Quebec (via the Seneca River which, through the Oswego River, provides access to Lake Ontario the St. Lawrence River). The mission was built in a cleared portion of the forest with abundant natural resources, near both a freshwater spring and a salt spring (Clark, 1849; Clayton, 1878; Hewitt, 1909). Old growth forests of chestnut and walnut trees surrounded the site. The location was well-sited for the placement of agricultural fields as well as access to fresh water, salt springs, fish, wild game, and wild plant foods (Clayton, 1878).

Regarding the original appearance and layout of St. Marie de Gannentaha, Metz (1995:9-10) states:

> No definitive details on the appearance of *Ste. Marie* were found in a literature search. However, the province of Ontario conducted extensive archaeological investigation of the site of the *Ste. Marie Among the Hurons* occupied from 1639 to 1649. Their reconstruction of the mission depicts a complex of several specialized buildings including residence, barn, animal yards, a chapel, work shops [sic], and elements of basic military fortification, located on high ground with nearby fields.

Archaeological investigations at the probable site of the St. Marie de Gannentaha on Old Liverpool Road in Salina were conducted in 1974 and 1979 by the New York State Archaeological Association. These excavations identified a small

assemblage of European artifacts dating to the mid-sixteenth century as well as a portion of a palisade wall and possible remnants of a bastion or collapsed chimney (Connors et al., 1980; Metz, 1995). Therefore, although the specifics of the mission's layout remain unknown, it can be said with relative certainty that it contained a palisade wall surrounding a chapel, residence, and other specialized buildings.

Despite a promising start to the mission, the French at St. Marie de Gannentaha soon became distrustful of their Onondaga allies and abandoned the mission in the middle of the night in March, 1658 (Bruce, 1896). The former site of the mission is approximately 1.5 miles (2.4 km) northwest of the APE for Direct Effects for the current Project. As related by Clark (1849:186-196), the Jesuit Relations of 1667 and 1668 make reference to a second attempt at establishing a mission among the Onondaga. It appears that this renewed mission was located nearby the modern-day village of Jamesville, close to a contemporary Onondaga Village on the West Branch of Limestone Creek. This small mission lasted for three years before its residents were driven out and possibly killed by the Onondaga according to a lecture given by Governor Dewitt Clinton and reproduced by Clark (1849:194-196).

A dramatic recurring theme of the Jesuit Relations from the 1660s, reproduced in Clark (1849), is the high mortality rate of the Onondaga and other nations of the Haudenosaunee with which the Jesuits came into contact. For instance, one passage from the Relation of 1667 states: "thirty-nine persons had received the grace of holy baptism, twenty of whom, a short time after, entered into full possession of their glory" (reproduced in Clark, 1849:202). Although such a high mortality rate (over 50% in this example) seems possible given the recent introduction of European diseases, those individuals baptized by the Jesuits should not be considered a representative sample of the Onondaga population. It is possible that the Jesuits preferentially baptized individuals who were near in an attempt to save their souls. The Jesuits typically required a certain amount of instruction in the faith and commitment by the individual before they would consent to perform a baptism; however, there is some indication in Clark's (1849) own writing and in the Jesuit Relations which he reproduces that those nearing death would be baptized regardless of these factors.

King William's War between France and Great Britain began in 1689 and lasted until 1696. The war pitted colonial British forces and their native allies (primarily the Haudenosaunee) against French colonial forces and their native allies (primarily the Wendat-Huron and Algonquian) in northeastern North America. In 1696, the colonial French governor Louis de Baude de Frontenac led a large force through Central New York, driving many Onondagas and Oneidas out of their villages (Grumet, 1995). In Onondaga territory, Frontenac built a small log outpost at the southern end of Onondaga Lake to serve as a base for further campaigns (Clayton, 1878). Clayton (1878:22) states that this outpost was likely either at a spot on the east shore of the Lake called "Green Point" or at the former location of St. Marie du lac Gannentaha, both in present day Salina. The Onondaga, at this time living in a single village within the Limestone Creek Valley (probably the Jamesville Pen Site; Tuck, 1971:188), burned their village and escaped ahead of the French

army (Clayton, 1878). Although, some Onondagas returned to briefly occupy their villages within the Limestone Creek Valley following the Frontenac Raid, it appears that this event precipitated the shift to villages along Onondaga Creek and around Onondaga Lake during the eighteenth century (Connor, 2005; Grumet, 1995).

Following an increasingly violent and disruptive cycle of raiding and conflict between the Haudenosaunee and their neighbors, the Haudenosaunee signed joint treaties of neutrality with the French and the British in 1701 (Viola, 1990). If the Haudenosaunee spent much of the seventeenth century engaging in regional conflicts and raiding with their Native neighbors, and fighting for their sovereignty amongst the new colonial interlopers of France, Great Britain, and the Netherlands, they would spend the eighteenth century embroiled in global and regional wars between the European powers and, at the end of the century, the newly formed United States of America. Viola (1990:91) notes "between 1689 and 1763, four great wars of empire – King William's, Queen Anne's, King George's, and the French and Indian War" involved the European colonial powers and their North American colonies. Although they attempted to pursue a policy of neutrality, the Haudenosaunee inevitably ended up supporting various factions throughout these wars, which in turn drew retribution from other factions (Viola 1990). In the midst of this century of turmoil, the Tuscarora Nation joined the Haudenosaunee confederacy in 1722 (Richter, 2005).

Little is written about life among the Onondaga in the eighteenth century, prior to the American Revolutionary War (Tuck, 1971), although a historical account of a visit to the Onondaga in 1752, describes a somewhat metropolitan village with Europeans and members of the other Haudenosaunee nations coming and going frequently (Mack and Jordan, 1905). Tuck (1971:193) notes that during the seventeenth century, two villages – Upper and Lower Onondaga – were located along Onondaga Creek in the neighborhood currently referred to as the Valley, located on the south side of the City of Syracuse. He describes these sites as "practically unknown archaeologically" (Tuck, 1971:193), but notes that mid-eighteenth century artifacts had been occasionally recovered during construction in that area during the early to mid-twentieth century. Upper and Lower Onondaga were not fortified, nucleated longhouse villages in the traditional Haudenosaunee sense, but rather approximately 40 cabins scattered along the Creek for approximately 2 to 3 miles (Tuck, 1971). A mission was undertaken by members of the Moravian Church among the Onondaga in 1750 and lasted intermittently into the 1760s, although it does not appear that a church or any other religious edifice was ever constructed (Clayton, 1878:26). More often the Moravian Church presence consisted of a small number of missionaries staying with the Onondagas in order to better learn their language and instruct them (Mack and Jordon, 1905).

The Onondaga supported the British during the French and Indian War (1754-1763) along with the majority of the Haudenosaunee, and fought in engagements at the fort at Oswego, as well as along the St. Lawrence River in Canada (Clayton, 1878). However, just five years after the end of the French and Indian War, the British colonists were on the

brink of war again, this time with the Haudenosaunee over land rights. In 1768, they negotiated the Boundary Line Treaty of Fort Stanwix to prevent further conflict (Onondaga Nation, 2016).

As the Revolutionary War began, the Onondaga tried to remain neutral; however, this was ultimately impossible and the conflict proved to be divisive for the Haudenosaunee Confederacy. Many Tuscaroras and Oneidas and a small number of Onondagas sided with the American colonists while the remainder of the Confederacy sided with the British. The Council Fire kept by the Onondaga was extinguished in 1777 and each nation was left to make its own way through the conflict (Richter, 2005). In 1779, the American colonists launched the Clinton-Sullivan Campaign to destroy crops and villages throughout Haudenosaunee territory in retaliation for raids against the Americans conducted by Haudenosaunee factions loyal to Great Britain (Ft. Stanwix National Monument Staff, 2016a).

> "The war went on and in order to chastise the Iroquois in some measure for their many bloody atrocities against the patriots, an expedition was made against the Onondagas in the spring of 1779, under Colonels Van Schaick and Willett. With their troops they left Fort Schuyler on April 19, penetrated into the heart of the Onondaga country, surprised the Indians, destroyed their villages, burned their provisions, slaughtered their stock and wrought general desolation" (Bruce, 1896).

The Van Schaick and Willet campaign followed Onondaga Creek south, stopping the second night to camp between Liverpool and Salina, as estimated from the journals kept by American participants. The Van Shaick campaign killed Onondaga men, women, and children as well as burning crops and homes (Ft. Stanwix National Monument Staff, 2016b; Onondaga Nation, 2016). Those Onondaga who escaped the campaign fled, making their way west toward Fort Niagara or north to Canada. The revolutionaries continued to fight the Haudenosaunee during the Clinton-Sullivan Campaign (also in 1779) which focused largely on the Cayuga and Seneca Nations. In 1784, the second treaty of Fort Stanwix was convened between the newly formed United States of America and the Haudenosaunee. The United States asked for peace between the two groups (Onondaga Nation, 2016). Following the conclusion of the America Revolution, some Onondagas returned to their homes in Central New York, but others went to the Grand River Area in southern Ontario and the Buffalo Creek Seneca Reservation in western New York State (Richter, 2005). Additional discussion of European land claims and colonization both before and after the American Revolution is presented in the following Section (2.4.3).

2.4.3 Salt and the Early Settlement of Onondaga County (ca. 1750 to 1825)

As described above, at the time of European contact and colonization in the eighteenth century, the land comprising the City of Syracuse was located within the territory of the Onondaga Nation of the Iroquois Confederacy. From the first contact between the Onondaga Indians and French Jesuit priests in 1654 to the late eighteenth century, the region comprising Central New York State had a contentious history of ownership claims and battles for possession. During

this period, the French, British, Onondagas, and eventually Americans, struggled to claim the land that would become the City of Syracuse, and to the south, the Town of Onondaga.

Salt Springs and Early Land Claims, pre-1786

Salt production was crucial to the growth and development of the area that would become the City of Syracuse. The lands surrounding Onondaga Lake were known to be rich in salt springs as early as the seventeenth century, resulting from contact between French Jesuit priests and the Onondagas beginning in the 1650s (see Section 2.4.2). Several European travelers passed through the region in the early eighteenth century, and wrote about the salt springs surrounding the lake. Upon visiting in 1700, Colonel Romer, a British engineer looking for a suitable site to build a fort, referred to the salt lands around the lake as "the salt pan." Following a visit in April 1737, Conrad Weiser reported that salt springs were in such abundance that one could not drink freely from streams due to the salinity of the water (Beauchamp, 1908; Chase, 1924). Weiser returned in 1743 as a guide to John Bartram, a British trader, who published an account of Onondaga use of the salt springs in his journal:

> We hired a guide to go with us to the salt spring, 4 or 5 miles off, down the river, on the west side of its mouth; being most the way good land, and near the mouth very rich: from whence it runs westward near a quarter of a mile, a kind of sandy beach adjoining to the bank of the river, containing 3 or 4 acres. Here the Indians dig holes, about 2 foot deep, which soon filling with brine, they dip their kettles, and boil the contents, until the salt remains at the bottom (Bartram, 1751).

In an ongoing attempt to develop an alliance with the Iroquois while increasing their holdings, the French had proposed construction of a fort at Onondaga Lake ca. 1750. In a bid to prevent French claims to lands around the lake, Sir William Johnson, an Irishman working on behalf of the British crown, purchased two miles of land immediately surrounding Onondaga Lake, which amounted to between four and six thousand acres and included several salt springs, for approximately 350 British pounds. Johnson had established a working relationship with the Iroquois, specifically the Mohawk, after settling in the Albany region in the 1730s, later marrying a Mohawk woman. Johnson was considered instrumental in keeping the Six Nations neutral in conflicts between the British and French. Based on his successful dealings with the Iroquois, Johnson received a royal commission to become the Superintendent of Indian Affairs for the Northern District in 1756. Later that year, Johnson, had enabled the construction of a fort for the Onondagas, located on Onondaga Creek a few miles south of the lake (Hamilton, 1967; Munson, 1969; Venables, 2012).

Though he had used his own money to purchase the lands around Onondaga Lake, the British apparently had no interest in taking control of the land, and it passed to Johnson's heirs upon his untimely death in 1774. The Revolutionary War led to the abandonment or confiscation of British-held lands in the newly formed state of New York. Following the war, New York passed the Confiscation Act of 1779, which allowed for the seizure of property owned by

British loyalists. This included the lands previously purchased by Johnson, which were still within the territory of the Onondagas. During the Revolutionary War, the Onondagas were initially neutral, but ultimately fought with the British against the American colonists, hoping to prevent their land from being taken. This led to unfavorable treatment in subsequent treaty negotiations, as they were treated as a vanquished foe with minimal bargaining rights to the land they had occupied for centuries (Venables, 2012; LPL, 2014).

The First Permanent Euro-American Settlers

Following the Revolutionary War, many veterans and settlers relocated to the Six Nations Reserve in Canada, passing through upstate New York, including the area that would become Syracuse, lured by fur trading, as well as the wealth of salt springs, for which the region was already well known. On a visit to the region in 1774, New York State Senator Silas Bowker witnessed two African-American men (believed to be escaped slaves, though the provenance of this fact is unknown) boiling salt in brass kettles, presumably for sale or trade with the Onondagas. An attempt was made by a man named Peter Sim to "experiment" on the salt springs at what was referred to as "Salt Lake" in 1778, though he was reportedly chased away by the Onondagas (Werner, 1917; Chase, 1924; Sernett, 1995). A 1779 map (Figure 2.4.3-1) identifies the lake as the Salt Lake, and notes the presence of an Onondaga village (or "castle") to the south along Onondaga Creek, though no salt springs are depicted. The lake is also noted to be within "Six Nations Indians Country" as it was still part of the Iroquois Nation.

The earliest permanent white settler in the area surrounding Syracuse was Ephraim Webster, a hunter, trapper, scout and interpreter from Vermont. Webster served in the Revolutionary War prior to becoming a trader among the Iroquois, and developed a strong relationship with the Onondagas in the years following the war. He arrived in 1786 with Benjamin Neukirk (a fellow trader who died soon after), and established a camp on the east side of Onondaga Creek that became known as Webster's Landing, where he constructed a cabin. On a hunting trip in February 1788, Webster encouraged Comfort Tyler and General Asa Danforth to settle in Onondaga Hollow, a small settlement in what later became the Town of Onondaga. General Danforth came from the town of Mayfield in Montgomery County, inspired after a visit by Ephraim Webster and two Onondaga Indian guides, who stopped to rest at the Danforth farm. Danforth offered the travelers lodging in his home, where Webster described the beautiful wilderness from which they had traveled. Webster requested and received the consent of the Onondagas for Danforth and his family to relocate to their lands, and in May 1788 they relocated to the Onondaga country, with Comfort Tyler and Asa Danforth's son driving the stock ahead of the family wagon.

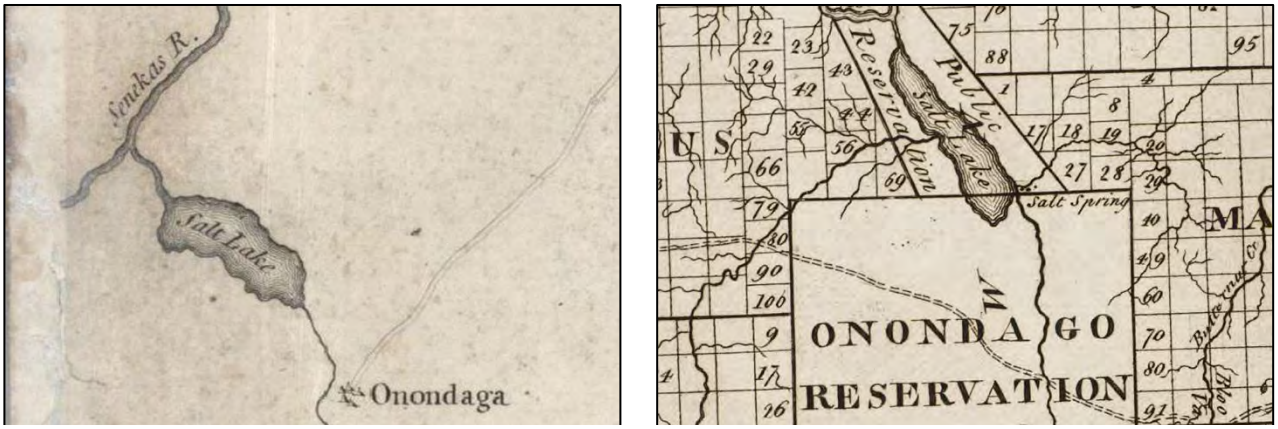


Figure 2.4.3-1. 1779 Sauthier *Chorographical Map of the Province of New York* (left).
Figure 2.4.3-2. 1793 *1st* ***Sheet of Dewitt's State Map of New York*** (right).
The 1779 Sauthier map (left) is significant for its detailed depiction of New York State as it is existed immediately following the Revolutionary War. Much of the land west of the Catskills and Adirondacks is shown as blank space, save for Indian villages (or "castles") and trails, and water features. This was due to the border established by the first Treaty of Fort Stanwix (1768), which preserved colonial land holdings in the east but had not affected much of the Iroquois Confederacy land, including the "Salt Lake" at Onondaga, depicted here. (Sauthier, 1779; collections of David Rumsey) The 1793 Dewitt map (right) was the first to depict the recently laid out New Military Tract, and also show the Indian Reservations created through the second Treaty of Fort Stanwix (1784) and Treaty of Fort Schuyler (1788). The public salt reservation surrounding the "Salt Lake" is also shown for the first time, as well as the location of the salt spring near Salt Point. This was the first sheet of a map of New York State that Dewitt would finally finish in 1802, which created a cartographic style that informed subsequent maps and atlases of the state and region (Dewitt, 1793; collections of David Rumsey).

Upon their arrival in Onondaga territory, the Danforths set up a camp and built a crude bark dwelling along Onondaga Creek, south of the lake, at a settlement that would become known as Onondaga Hollow. After being shown the salt springs around Onondaga Lake, Tyler and Danforth first boiled salt using a simple assembly comprised of forked sticks that suspended a kettle above a fire. The bushels of salt they boiled would be hauled back to Onondaga Hollow for personal use. Danforth and Tyler continued with the small-scale production of salt as they both worked toward developing the settlement at Onondaga Hollow: Danforth erected a saw mill and a gristmill, while Tyler built the first roads and bridges in the nascent village (Bruce, 1896; Beauchamp, 1908; Munson, 1969). While Danforth, Tyler and Webster worked toward establishing a viable community south of the lake, developments at the state level would soon lead to rapid settlement and production activity in the territory immediately surrounding Onondaga Lake.

Through the 1788 Treaty of Fort Schuyler, New York State acquired title to a vast swath of land held by the Onondaga Nation, including portions of what today comprises Cayuga, Cortland, Onondaga, and Seneca counties. The lands located at the southern end of Onondaga Lake that were known to be rich in salt springs were established for joint use of the state and the Onondagas in the production of salt, increasing the allure of the area immediately surrounding of the lake as a place for settlers (see Figure 2.4.3-2). In the fall of 1789, Nathaniel Loomis arrived at Onondaga Lake and began production of salt for resale. The following year, Colonel Jeremiah Gould, Hezekiah and Thomas Olcott, and Deacon Loomis arrived at the lake to engage in salt production. As a result of the increased activity and migration

to the lakefront due to salt production, a settlement adjacent to the salt marshes on the north side of the lake named Salt Point began to take shape in the early 1790s (Clark, 1849; Clayton, 1878; Munson, 1969).

Salt Point and Early Salt Production

Salt Point was initially comprised of a ramshackle collection of mud, log and frame buildings amid the marshes on the northeastern shore of Onondaga Lake:

> The settlement on the bluff was a shanty town of dwellings made of mud or slabs. These shanties had been set down anywhere their builders chose, with no view to orderly arrangement. No roads or lanes existed; ruts made by oxcarts criss-crossed the area between two clusters of buildings—one, close above the main spring; the other, farther out on the high ground…Except for its nearness to the swamp, the site was a fair place (Munson, 1969).

In spite of the rough conditions at Salt Point and the lack of defined property rights for squatters, the settlement continued to attract new people interested in producing salt. In 1792, the Van Vleck family arrived from Kinderhook, and almost immediately had a positive impact on the community. Isaac Van Vleck is credited for building the first arch for hanging a kettle to boil salt, as well as bringing the first grinding mill to the nascent settlement. The Van Vleck family would contribute significantly to the early history of the Syracuse area. Additional settlers, including Thomas Orman, Simeon Pharis, and Aaron Bellows, arrived in 1792. Orman is credited with bringing the first large boiling cauldron, increasing the amount of salt that could be produced at a time; and Bellows established the first cooper shop, which allowed for the salt to be stored in barrels. In these early days of salt production, the manufacturers relied on common springs rigged with pumps that expelled salt into a series of open troughs (and later wooden tubes) that carried it to their primitive log salt houses. By 1793, the population of Salt Point was approximately 63 people, although many had taken ill due to the surrounding conditions of the marsh (Clayton 1878; Bruce, 1896; Werner, 1917; Munson, 1969). The settlement grew slowly at first, but within a few years, legislative actions by the state government ultimately led to a dramatic change with regard to the use of the salt springs and the territory immediately surrounding Onondaga Lake (see Figure 2.4.3-3).

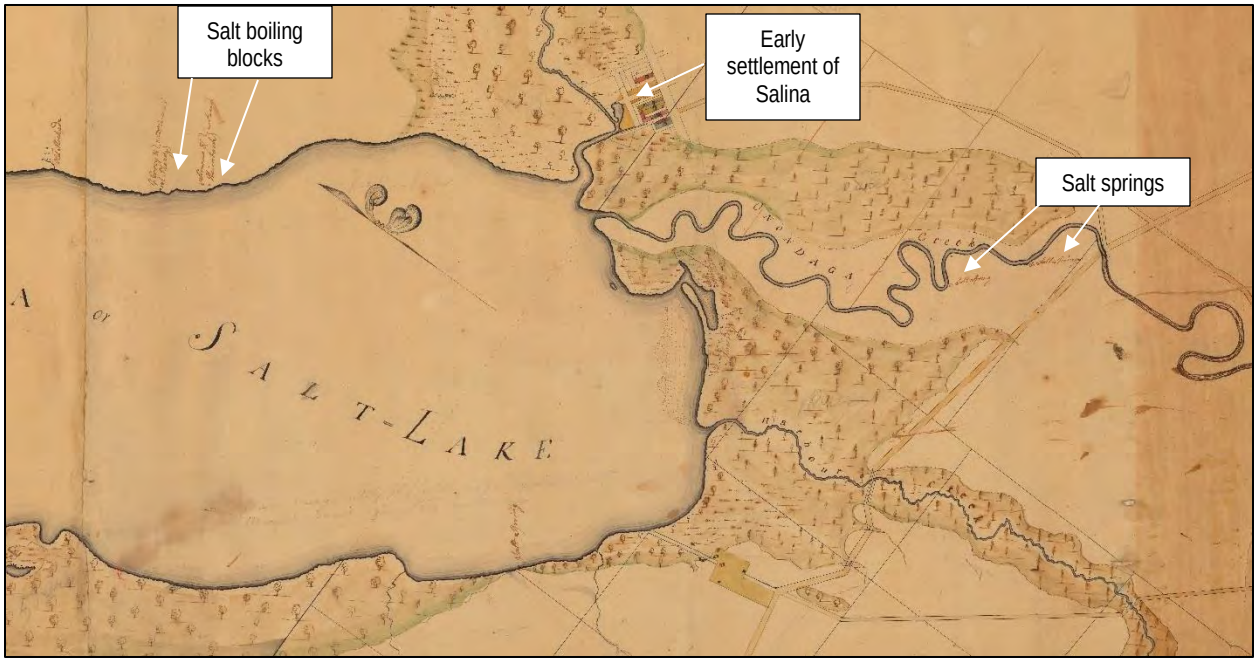


Figure 2.4.3-3. 1797 Map of Onondaga Salt Lake.
The 1797 Simeon Dewitt *Map of Onondaga Salt Lake* shows the lake and surrounding area prior to the establishment of the Onondaga Salt Springs Reservation, including the nascent settlement of Salina, as well as the relatively undeveloped condition of the land surrounding Onondaga Lake just prior to the establishment of the Onondaga Salt Springs Reservation in 1797. The location of salt springs, salt blocks, as well as meadows, and the original, meandering courses of Onondaga Creek and Harbor Brook that would soon be diverted with the construction of hundreds of salt sheds in the coming decades. (Dewitt, 1797; Image from the Digital Collections of the New York State Archives).

The New Military Tract and Onondaga Salt Springs Reservation

Concurrent with the early settlement of Salt Point was the establishment in 1790 of the New Military Tract, a 1.5 million-acre tract initially set aside by the state in 1782 for soldiers of the Revolutionary War, but not opened to settlers for almost a decade due to conflicts with the Iroquois. The New Military Tract encouraged surveying and subsequent migration by war veterans as well as Euro-American settlers in the land recently opened to white settlement by the Treaty of Fort Schuyler. The land was divided into 28 townships, each containing 100 lots of 600 acres arranged in a uniform grid pattern. Although the land was set aside for veterans, many of them either neglected to claim their land or sold their land to speculators and the area was settled primarily by migrants from New England, New Jersey, Pennsylvania and the Hudson Valley (Dieckmann, 1986; Schein, 1993, 2005).

Onondaga County was formed in 1794 from Herkimer and Tioga Counties, and named after the Onondaga Indians whose former territory comprised the lands of the newly-formed county. By 1795, the Onondagas had relinquished all title to the lands in return for an annuity and a yearly allowance of salt, and relocated to a reservation to the south. Though salt production had increased significantly in the preceding years, there was little formal regulation and considerable land squatting, leading the New York State Legislature to establish the Onondaga Salt Springs Reservation (OSSR) in 1797. The OSSR encompassed a 15,000-acre reservation subdivided into manufacturing lots

adjacent to the most productive salt springs, as well as pasture lots, and a large portion reserved for the massive amount of firewood using in the early boiling block process of salt-making. The reservation included portions of what would soon become the Village of Syracuse, Town of Salina, and Town of Geddes (Clayton, 1878; Rivette, 2005; Darlington, 2005). The Onondaga Salt Springs Reservation was the first government-regulated effort to harvest salt on a larger scale, and would lead to profound changes in the nearby environment and local economy in a matter of a few years.

The first superintendent of salt was William Stevens, who assumed the post in 1797. Through Stevens, the state would collect duties for use of the land and water (four cents per every bushel of salt produced), and also regulated the amount of salt to be produced per kettle (ten bushels per kettle used), as well as how it was sold. Salt was not to be sold directly after production, but needed to be weighed first, barreled, and kept at a public storehouse until time of sale. A military block house built of oak timbers built near Salt Point in 1794 was converted into a salt storehouse. Subsequent regulations were soon passed, dictating the dimensions, weight and type of wood to be used for salt barrels, and that salt was only to be shipped from the public wharf (Clark, 1849; Clayton, 1878; Bruce, 1896).

The increased regulation of the OSSR essentially brought an end to small-scale production by squatters and shifted salt manufacturing to commercial interests and legitimate leaseholders. The Federal Company was the first commercial organization dedicated to salt production on a larger scale in Onondaga County, established in 1798 by a group of seven Salt Point settlers (including Asa Danforth and Elisha Alvord). The company constructed a large building, or salt block, capable of holding thirty-two kettles in groups of four, for the purposes of boiling salt. Within two years, Elisha and Thomas Alvord had bought out the other partners in the company, and along with their brother Dioclesian would go on to great prosperity as salt manufacturers and merchants, later constructing the first brick building in the area in 1808 (Clayton, 1878; Bruce, 1896).

Within a few years, salt production had increased significantly to the point that the state relaxed or removed many of its restrictions in order to expedite the shipping of salt, but also due to difficulty of enforcement. The rapid growth of the salt industry at Onondaga Lake attracted the attention of outsiders, some of whom reported their findings. An 1801 publication of the Society for the Promotion of Agriculture, Arts and Manufactures Instituted in the State of New York included a speech entitled "A Memoir on the Onondaga Salt Springs and Salt Manufactories in the State of New York," delivered to the society by Dr. Benjamin Dewitt. Dewitt had visited the salt springs and conducted experiments related to temperature and salt content, remarked on a number of features of the salt springs, speculated on their origin, as well as describing the production of salt at Salt Point (known by then as Salina):

> The marsh from which the principal springs proceed is bounded…by a steep bank of clayey ground, about thirty or forty feet above the level of the lake, forming the upland on which the village of Salina

> stands…Immediately below the declivity, on the border of the marsh, and as near the springs as the ground will admit, are situated the buildings which are destined for the manufacturing of salt. They are constructed of wood, generally about twenty feet wide, and of various lengths, according to the number of furnaces they are intended to contain; in one of them there are forty evaporating pots. The furnaces are placed along one side of the building, with their mouths opening into it. The other side is generally made use of to deposit the salt for the purpose of draining off the brine, and allowing it to dry, immediately after it is emptied out of the evaporating vessels. The furnaces are built of stone, and two or three pots or kettles…containing each about eighty gallons, are usually placed, from which the water is drawn into the boilers as often as it is required. These troughs are kept continually filled with water by means of gutters, into which it is pumped out of the springs. The furnaces being supplied with fuel, and the pots filled with water, they are allowed to boil briskly, and after a little while the powder scratch (as it is called) consisting of calcareous earth, begins to precipitate to the bottom; this is taken out as fast as it is formed, by means of large iron ladles. By the time this has all fallen down, the salt begins to chrystalize (sic); the pots are then suffered to boil gently, till nearly all the water is dissipated. The salt is afterwards taken out and deposited in proper places to drain off the brine and suffer it to dry. Nothing now remains in the pot but a small quantity of bittern, which is thrown away, and the same process is repeated (Dewitt, 1801).

This was the earliest detailed description of the boiling method of salt production, which Dewitt also provided recommendations for improving, including the use of iron pans instead of kettles, and building partition walls to prevent ash from mixing with salt water (Dewitt, 1801; Clayton, 1878).

Boiling continued as the dominant method for several years, and as production increased, buildings grew larger to accommodate increasing numbers of kettles and furnaces. In 1797, the first year of the OSSR, 25,474 bushels of salt were made and inspected. By 1798 this number had more than doubled to 59,928 bushels, and by 1804 over 100,000 bushels were being produced at the salt springs near Onondaga Lake. Though the amount of salt produced did not always increase from year-to-year, production increased dramatically to 452,050 bushels in 1810 before leveling off again. In 1812, a law was passed that required the superintendent to assign two acres of land for the purpose of experimenting with manufacturing salt via solar evaporation. Although making salt through solar evaporation had been recorded in New York State as early as 1661, this was the first noted implementation for commercial production, and it would eventually prove so successful as to become the only method of manufacturing salt at Onondaga Lake (Beck, 1826; Clayton, 1878; Werner, 1917).

Solar salt evaporation differed significantly in production and infrastructure from boiling, as noted in an 1826 publication entitled “An Account of the Salt Springs at Salina”:

> The vats constructed for this manufacture are eighteen and a half feet square, and about a foot deep. Of these, there are two parallel rows, which communicate with each other; the one being on a level about a foot lower than the other…The brine is conducted by wooden pipes into the upper tier of vats, where it remains exposed to the sun until crystals of salt begin to shoot out onto the surface. By this time nearly all the lime and other impurities have subsided, and are to be found at the bottom of the vats in beautiful crystals, which are somewhat deliquescent. The brine, thus reduced to saturation, is drawn off into the lower tier of vats, where the formation of salt goes on. It is then taken out and dried, as before, by the heat of the sun; when it consists of large crystals, hard and dry, and of a beautiful white colour. It may be remarked that the evaporation of the water depends greatly upon the state of the atmosphere, and that the process is of course retarded when there

> is much humidity. But to prevent the embarrassment which would ensue from the access of rains, by the dilution of the brine, covers are constructed for the vats, which run upon rollers, and may be easily moved whenever occasion requires (Beck, 1826).

The salt produced by solar evaporation was coarse in nature, whereas salt produced by boiling was of a finer crystal. In 1821 lands were laid out specifically for the manufacture of coarse salt by solar evaporation. This was unpopular with the manufacturers who relied on boiling, and likely perceived a threat in the new method of production. Several hundred acres of OSSR lands had already been sold beginning in 1820, with proceeds going to the commissioners of the Erie Canal building fund. This money was in addition to a new tax of 12.5 cents per bushel enacted in 1816 for the purpose of increased the building fund for the Erie Canal, plans for which had been in motion for a number of years, spearheaded by local Judge Joshua Forman and aided by James Geddes, an early Salt Point settler who had surveyed the area that would become the Villages of Salina, Syracuse and Geddes (see Section 2.4.4 of this report) (Clark, 1849; Werner, 1917; Munson, 1969).

By 1825, the number of salt bushels produced had increased to 768,188. The OSSR contained a total of 150 salt manufactories with 2,275 kettles total between the villages of Salina, Syracuse, Liverpool and Geddes. Solar vats covered an enormous amount of the land, measuring a total of approximately 74,700 feet in length by eighteen feet wide, spread throughout the reservation (see Figure 2.4.3-4) (Clark, 1849; Werner, 1917). The rapid growth of the salt industry in the preceding decades had helped the once rough and dismal settlements around Onondaga Lake to thrive and become part of an economic center positioned at the middle of the state, whose continued success was facilitated for almost a century by the construction of the Erie and Oswego Canals.



Figure 2.4.3-4. 1827 Map of Part of the Onondaga Salt Springs Reservation.
The 1827 Ashbel Kellogg *Map of a Part of the Onondaga Salt Springs Reservation* depicted the parcels that had been established south of Onondaga Lake for the purposes of salt production. A number of companies, including Onondaga Salt Company and Syracuse Salt Company, had been established closer to the village of Syracuse, which along with the villages of Geddes and Salina are depicted on the outside of the vast lands used for salt production. The recently constructed (c. 1818-1825) routes of the Erie and Oswego Canals are also depicted, including the basin located at the juncture of the two canals in the village of Syracuse. (Kellogg, 1827; Digital collections of the New York State Archives)

2.4.4 The Erie Canal and the Birth of the City of Syracuse (ca.1825-1918)

The salt industry, as well as other commercial ventures and industries in Syracuse, would grow significantly in the early decades of the nineteenth century as a direct result of the opening of the Erie Canal. Completed in 1825, the Erie Canal linked the emergent village of Syracuse and its salt-based commerce to New York City and the Hudson River on the east, and to Buffalo and Lake Erie on the west. Positioned at the center of the state, Syracuse became a major shipping and transportation hub for salt barrels and other commodities bound for distant markets. In addition, the rise in trade and traffic led to increased settlement, new businesses, increased property values, and a more robust economy as the village became a city.

The Formation of the Village of Syracuse

James Geddes, an early settler at Salt Point, was also a surveyor involved in some of the influential early land development in Onondaga County. In 1804, Geddes sponsored a bill to sell 250 acres of land within the Onondaga Salt Springs Reservation to finance the construction of a road that would allow salt manufacturers to take their product to market. The surrounding swampland around the future Genesee Street was purchased by Abraham Walton of Utica for a price of $6,550. On this land, Walton laid out lots for a village, and constructed a gristmill known as the Old Red Mill, where Onondaga Creek met Genesee Street (Figure 2.4.4-1). Within a decade, the lots were sold and a church,

school, tavern and additional mills were constructed around the developing settlement alternately known as Bogardus Corners, Milan, Corinth, and finally Syracuse. The Walton tract was improved upon in the 1820s by Joshua Forman (often referred to as the "Father of Syracuse"), along with the Syracuse Company, owned by James McBride, Isaiah and John Townsend, and Moses DeWitt Burnet whose names were given to the village streets (Clark, 1849; Beauchamp, 1908; Hardin, 1993).

Burnet soon became the agent for the Syracuse Company, selling lots, also building stores and dwellings. The village of Syracuse was incorporated on April 13, 1825 and quickly established its dominance over the neighboring village of Salina, which was still heavily focused on salt production. By that time Syracuse boasted fifteen mercantile establishments, many of which operated in buildings owned by Burnet. Forman was also crucial in bringing the solar evaporation method of salt manufacture to Syracuse when Salt Point failed to take advantage of legislation that would transition it from the more expensive, inefficient boiling method which was also detrimental to the region's wood supply. The legislation provided not only twenty year leases on the land for the solar salt fields, but also the ability to carry surplus brine from Salina to supply solar works, and the use of surplus canal water to work the pumps. Forman established the Syracuse Coarse Salt Company (later to be taken over by the Syracuse Company who continued to develop the Walton Tract), the Syracuse Solar Salt Company, and the Onondaga Solar Coarse Salt Company (Cheney, 1857; Beauchamp, 1908; Munson, 1969).

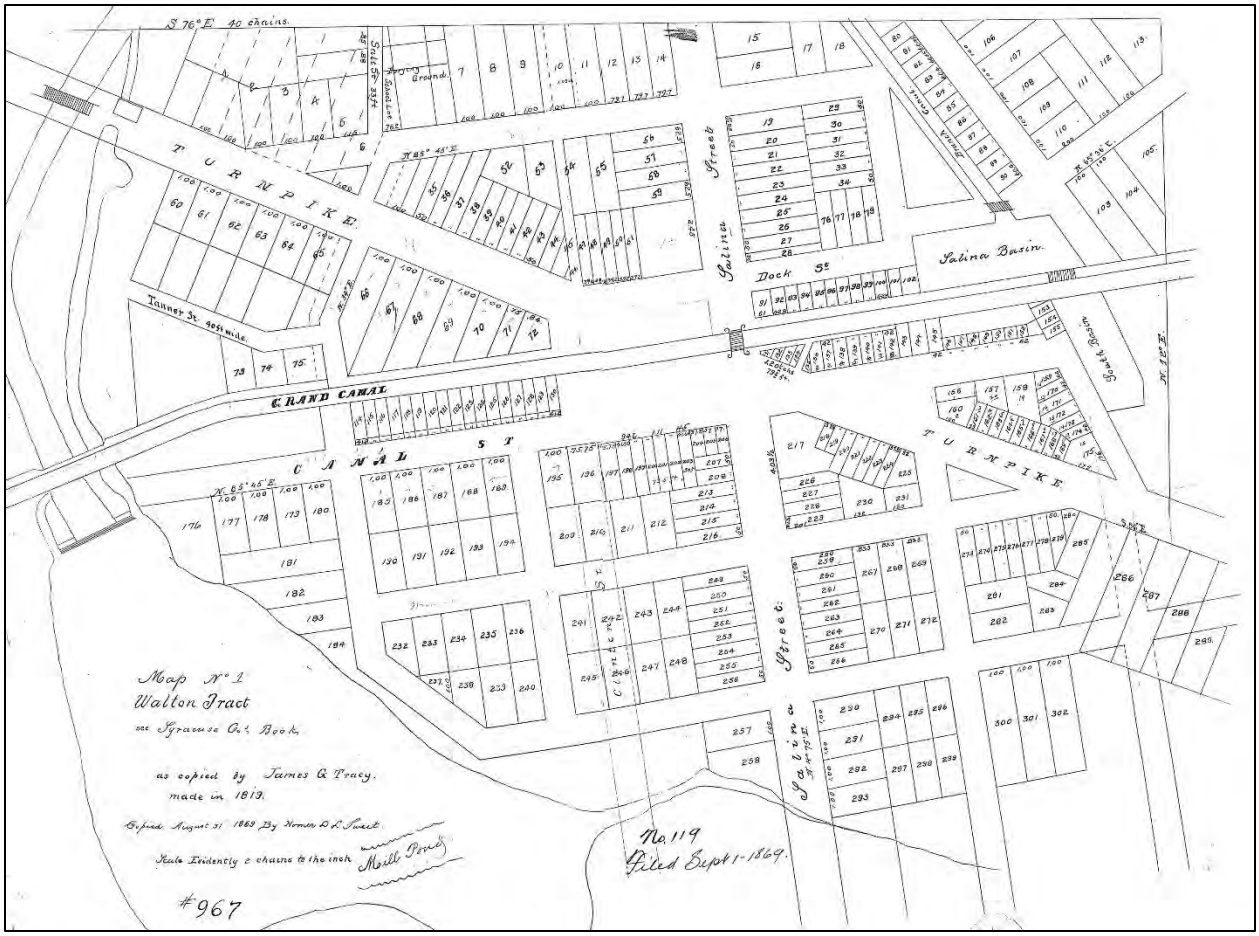


Figure 2.4.4-1. 1869 Map of Walton Tract boundaries c. 1819.
The Walton Tract originally included outlying 5-10-acre farm lots, which were divided by Abraham Walton into lots for development into a village, adjacent to a large mill pond (lower left). This map, when originally made in 1819, indicated the extent to which Walton expected the village to grow around the route of the Erie Canal, then recently completed through Syracuse, which was not yet determined an official village (Cheney, 1857).

The companies jointly owned land for a shared reservoir and pump works, which were located on the east side of Onondaga Creek north of the Erie Canal, west of Onondaga Creek on its north side, and west of the creek on the south side of the Erie Canal. By May of 1823 the vats were full of brine, ready for manufacturing to commence. Within decade, solar salt vats and sheds, along with the shanties for the Irish labor men dominated the landscape between Onondaga Lake and the newly constructed Erie Canal, which facilitated the growth of the nascent village of Syracuse into a regional center of population and commerce in a few short decades.

The Erie Canal

The concept for a canal across New York State dated to the late nineteenth century, but did not gain wider support as a serious and achievable goal until the early nineteenth century. In 1807, while involved with the Walton Tract, James Geddes and Joshua Forman began to advance the idea of an inland waterway connecting Syracuse to Lake Erie, after learning of the success of a small canal constructed from the middle to the eastern side of New York State. Following

an extensive land survey, differences of political opinion, and the War of 1812, Geddes and Forman were finally able to which provided five million dollars in funding for the construction of the Erie Canal (Clark, 1849; Munson, 1969).

Digging for the canal commenced on July 4, 1817 in Rome, New York, east of Syracuse. As the process of digging a canal was not common knowledge in the early nineteenth century, many local men involved in its construction received a primitive education in civil engineering on the job. The diggers were hired by farmers, merchants, and professionals who lived along the 363-mile route that was to connect Lake Erie to the Hudson River. Construction of the canal through Syracuse was made possible by lowering the level of Onondaga Lake by two feet in 1822. In its early days, the canal project struggled due to strong political doubt and public opposition, further complicated by the path of the canal through malaria-ridden swampland leading to sickness and death of many of the Syracuse workers over the eight years it took to construct. As a result, the canal project was often derisively referred to as "Clinton's Folly" or "Clinton's Big Ditch," mocking Governor Dewitt Clinton, who had long envisioned a canal connecting Syracuse to the Midwest, and served as the New York Canal Commissioner from 1810 until 1824 (Finch, 1925; Munson, 1969; Hardin, 1993).

Once the Erie Canal opened in 1825 (in a celebrated public ceremony with Dewitt Clinton performing a "wedding of the waters," as he poured water from Lake Erie into the Atlantic Ocean after traveling the length of the canal on the boat Seneca Chief), to the opposition's surprise, the Erie Canal was considered the country's largest triumph in early engineering, not only contributing to the success of Syracuse, but to the entire nation. In New York State, the effect was immediate and long-lasting:

> Settlers flocked westward, forests gave way to sawmills and hamlets and these in turn grew into villages. Prosperous towns were established on the Great Lakes and splendid chain of cities sprang up along the line of the Erie Canal. So marked was the success of the Erie Canal that a veritable frenzy for canal-building spread over the whole country, which manifested itself in New York state in the surveying of hundreds of miles of proposed routes and in the building of several lateral canals, six within the first decade after the Erie was completed, and four more within the next four years (Finch, 1925).

Lateral (or branch) canals also linked the newly Erie Canal with towns and regional waterways, helping to further expand the shipping and travel capabilities of the canal system throughout New York State. In Onondaga County this was realized in the Oswego Canal, a branch of the Erie which opened in 1828, connecting Syracuse to the Seneca River on the north side of Onondaga Lake, passing through the village of Salina and the expansive salt works. The intersecting north-south Oswego Canal and east-west Erie Canal routes influenced the physical and commercial development of the surrounding villages, as the area south of the lake and north of downtown became dominated by the salt industry, while commercial operations flourished adjacent to the canals, and residences were constructed beyond the bustle of the canal in all directions (Whitford, 1906; Finch, 1925; Schramm and Roseboom, 1979) (Figure 2.4.4-2).

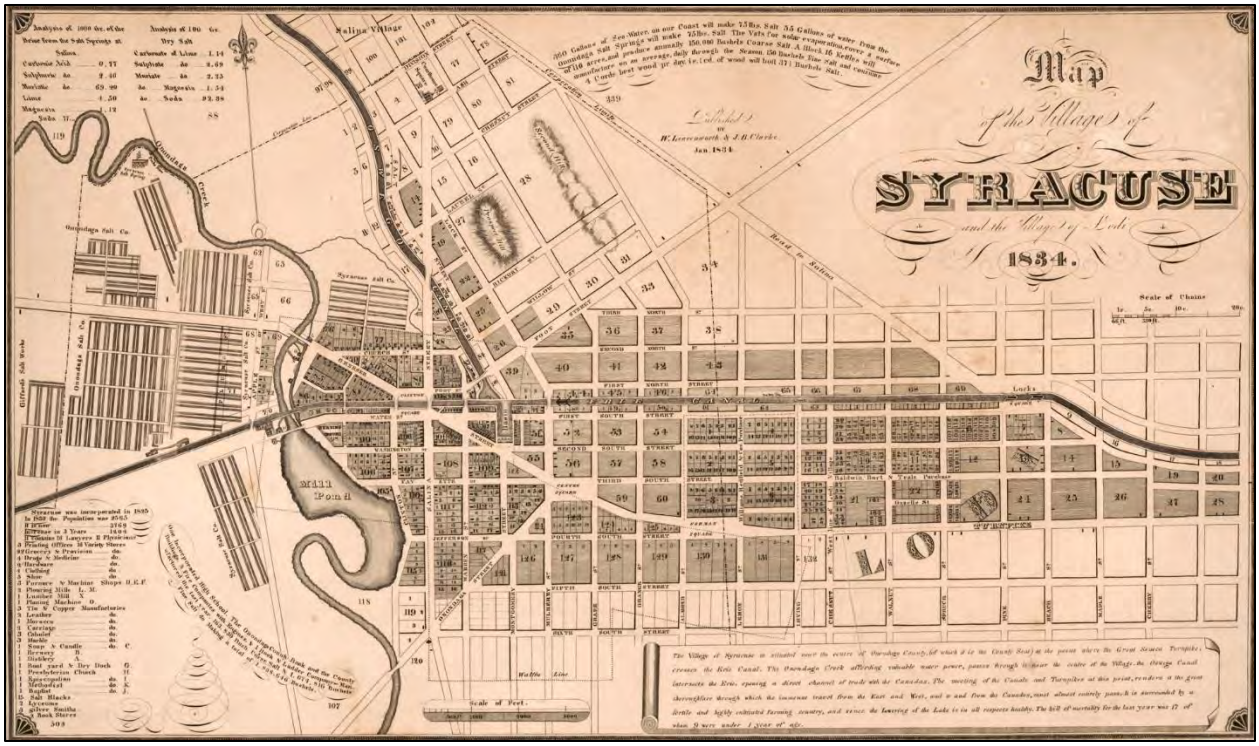


Figure 2.4.4-2. 1834 Map of the Village of Syracuse.
The 1834 Leavenworth and Clarke map depicts the extent to which the Village of Syracuse (formally established just nine years earlier) has developed on both sides of the Erie Canal, as well as the rapidly growing solar salt fields north of the canal and adjacent to Onondaga Creek. The caption across the top notes that "the vats for solar evaporation cover a surface of 110 acres and produce annually 150,000 bushels (of) coarse salt." (Leavenworth and Clarke, 1834)

By the 1830s, business was continuing apace along the Erie Canal, though agitation for its enlargement had already begun as a result of heavy traffic, the need to shorten the route and reduce the number of locks, and competition from railroads. The first enlargement of the Erie Canal began in 1836 and continued until 1862. The major physical change to the canal involved making it wider and deeper to accommodate increased canal traffic as well as larger canal boats. Clinton's Ditch was built to a depth of only four feet, and a maximum width of approximately 40 feet. The Enlarged Erie Canal was constructed at a depth of seven feet, and a width of 70 feet (Whitford, 1906; Finch, 1925).

The Birth of Syracuse

The opening of the Erie Canal in 1825 resulted in an economic growth spurt for the Syracuse, encouraging additional development south of Onondaga Lake, and adjacent to Onondaga Creek as well as the Erie and Oswego Canals. Its position near the middle of an almost 400-mile waterway meant that the village was well positioned to benefit from inexpensive and safe transportation of goods across the state, including those created locally. The salt industry, and well as local mills, inns, and taverns flourished as a result of the canal, and the village grew in population (nearly 7,000 in 1830) as new businesses and schools were established. Unfortunately, this prosperity did not make the village immune to the perils of humanity, as a cholera epidemic struck Syracuse in 1832 and 1834, resulting in hundreds of

deaths, and significant fires in 1834 and 1841 (the latter caused by a gunpowder explosion) leveled several blocks of wood-framed buildings adjacent to the Erie Canal in downtown Syracuse (Munson, 1969; Schramm and Roseboom, 1979).

After decades of commercial, industrial and political competition (and occasional physical altercations between loyal residents), the overwhelming benefits provided by the Erie Canal prompted the villages of Salina and Syracuse to merge and become the City of Syracuse in 1848. By the following year, it was reported that 250 Syracuse homes were under construction, with another 500 to be constructed by 1850. The population of Syracuse increased significantly, from 600 in 1820 to 2,565 by 1830, 11,014 in 1840, and 22,127 by 1850 (Cheney, 1857; Hand, 1894; Hardin, 1993).

The linkage of the Erie and Oswego Canals to distant waterways such as the Hudson River and Lake Erie was to thank for the continued success of the salt industry in Syracuse. In a symbiotic relationship, the canals allowed for inexpensive shipping while the duty collected on the salt funded the mid-century enlargement of the canals, allowing additional commerce on the connected waterways. The subsequent wealth brought into the city was used to establish banks, whose capital financed new industry. Syracuse's early arrangement as an upstart village tract was quickly transformed into that of a formidable city, replete with homes alongside hotels and taverns, and once-small commercial enterprises growing into large-scale manufacturing concerns, thereby enhancing the reputation of the city (see Figure 2.4.4-3).

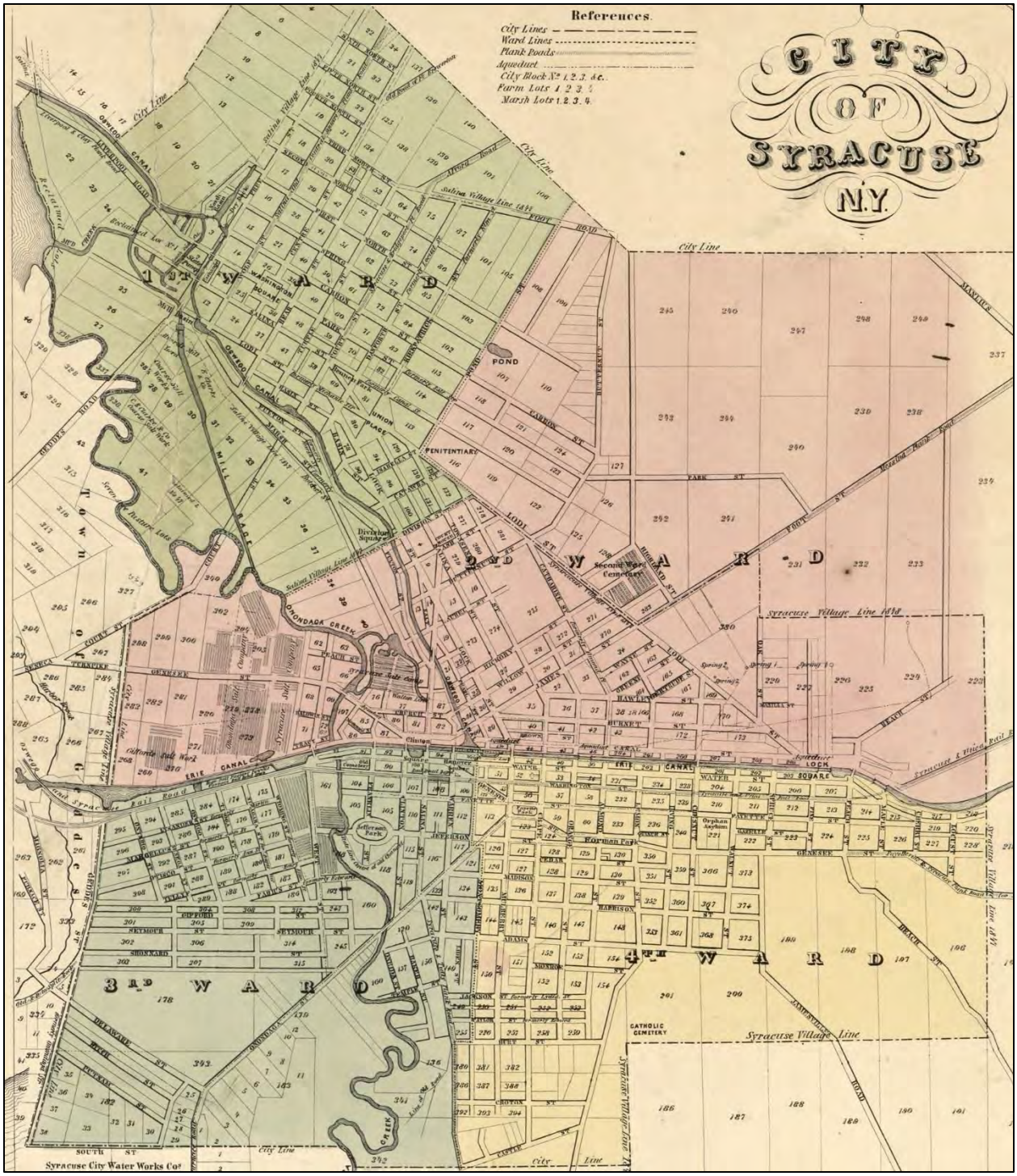


Figure 2.4.4-3. 1852 Map of the City of Syracuse.
The establishment of the City of Syracuse in 1848 subsumed the adjacent villages of Salina and Geddes, growing the boundaries of the cityt as well as its neighborhoods, commerce and industry (Fagan, 1852)

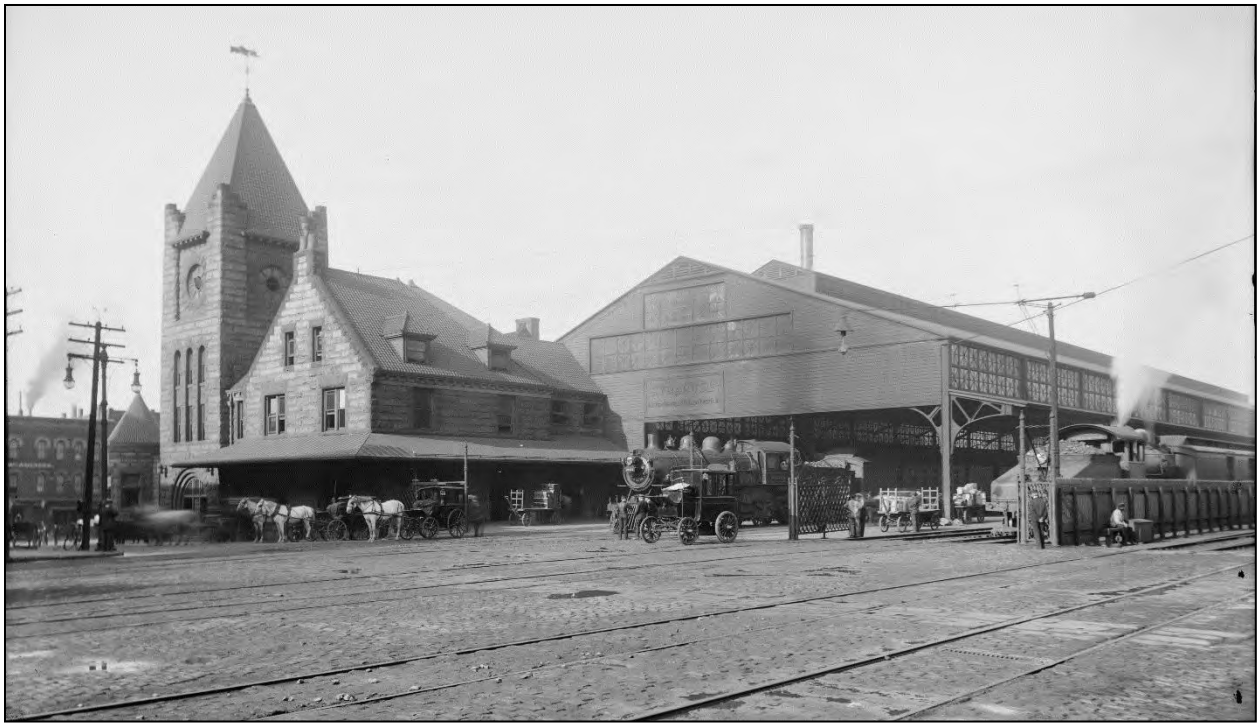


Figure 2.4.4-4. ca. 1900 view of the New York Central Railroad Depot.
The New York Central Railroad depot stood on the northwest corner of West Fayette and South Franklin Streets from 1895 until 1939. The shed extended west over Onondaga Creek, with tracks angling onto Washington Street (Detroit Publishing Company, 1900; digital collections of the Library of Congress).

The Establishment of Railroads

The Syracuse & Utica Railroad was chartered in 1836 and opened through Syracuse in 1839, in direct competition with the Erie Canal, the general route of which was paralleled by the railroad. The Syracuse & Utica Railroad was the first steam locomotive to operate in Syracuse, using a right-of-way along Washington Street, running through the center of the village, a unique feature among nineteenth century cities, for which it became known. Its location was selected for the easy ability to connect travelers with lodging, dining, and onwards to canal boats. The steam train line eventually combined with both eastern and western branches to form the New York Central Railroad, which connected Albany to Buffalo. A depot was constructed at Vanderbilt Square, located on Washington Street between Salina and Warren in 1838, which required the street to be paved and widened so that wagon and carriage traffic could pass. In the 1840s and 50s, additional lines extended north to Oswego and south to Binghamton, which would become part of the Delaware, Lackawanna & Western, that traveled on the west side of downtown. Together, these railroads brought diversity of people, business, education and culture to Syracuse (Munson, 1969; CNYCNRHS, 1986; Connors, 2006).

As the city grew, so did the need for internal transport. A series of local rails operated within Syracuse, linking Clinton and Washington Squares starting in 1860. Dubbed "omnibuses," the horse drawn streetcars were managed under eleven different privately owned companies by 1889. Nearly six million passengers used the omnibuses annually. The

Third Ward railway, connecting Syracuse to Solvay, was the first to be electrified in. 1888 Train lines forever altered the streetscape of Syracuse, as well as its image. A series of passenger stations were constructed throughout the nineteenth century, which stimulated the development of nearby hotels and businesses. City factories especially benefitted from the trains, who often were able to connect to the buildings via track sidings (Connors, 1996; 2005).

The Decline of the Salt Industry

The upward trend of the salt industry paralleled the growth of Syracuse. The building boom was not only limited to residences and businesses, but also was readily apparent in the industrial landscape. By 1836 there were already 133 salt blocks, mostly located in the village of Salina, easily recognizable by their distinctive long sheds and tall chimneys. By the 1860s, the salt works stretched from Liverpool, south for four miles alongside the Oswego Canal, and terminated within a few blocks of Clinton Square. The salt works also lined the Erie Canal westward through the villages of Geddes and Solvay (see Figure 2.4.4-5), totaling over 300 blocks by 1850 (Werner, 1917; Murphy, 1949; Connors, 2006).



Figure 2.4.4-5. ca. 1912 postcard depicting salt sheds north of the Enlarged Erie Canal
Although salt production had long been declining in the Syracuse area, the vast fields of salt sheds lingered in the landscape throughout the nineteenth and earlier twentieeth centuries. This ca. 1912 postcard image is taken from the Village of Solvay looking north to salt evaporating sheds north of the Enlarged Erie Canal and west of the City of Syracuse. The New York State Fairgrounds and Onondaga Lake are visible in the distance (Schuelke Collection, courtesy of the Liverpool Public Library).

Following the 1861-1862 Civil War, salt production returned to previously high levels. An increasing number of companies organized in order to expedite production while minimizing overall cost of equipment and the production process. While companies like the Onondaga Salt Company and the Salina Coarse Salt Company had been in operation for a few decades, a number of additional companies were established in the second half of the nineteenth century, including the Onondaga Coarse Salt Association (1872), the American Dairy Salt Company (1876), and the New York Salt Company (1881). In the 1880s, perhaps the height of salt production in Syracuse, the salt vats and covers occupied an area of approximately 709 acres south of Onondaga Lake, and produced between seven and eight million bushels of salt annually (EPC, 1883; Werner, 1917).

Extensive boring efforts began in the late nineteenth century to attempt to discover deeper and stronger sources of brine. New wells ranging in depth from 600 to almost 2000 feet were dug near Salina and Liverpool, but failed to discover satisfactory new sources for salt. Within a few decades, all of the aforementioned salt works companies would go out of business or expand into other areas of commerce, as salt production declined significantly with the discovery of superior sources of salt in more hospitable climates with cheaper fuel (primarily Saginaw, Michigan). Salt production in Syracuse continued to decrease, and in 1897, the State legislature declared all leases of salt lands voided by March 1, 1898, and also voted to cease production of salt brine at any expense to the state (although salt production by the state would continue for almost a decade). In 1908, pipelines, wells and reservoirs previously owned by the state as part of salt-making operations were sold to the Onondaga Pipeline Company, which operated until 1926, when the last of the salt-making concerns ceased production, and the salt industry in the Syracuse area same to an end (EPC, 1883; Bruce, 1891; Werner, 1917; Murphy, 1949).

Closure of the Enlarged Erie Canal

In an attempt to accommodate larger canal boats and further compete with railroads, additional enlargement of the Erie Canal in New York State occurred in the late 1890s. These enlargements, which did not affect the route of the canal through Syracuse, were ultimately not successful in ensuring the long-term viability of the Enlarged Erie Canal as a shipping or transportation route. A second enlargement of the Enlarged Erie Canal in the late-nineteenth century did not ensure the long-term longevity of the canal, and agitation for a new barge canal route including rivers and lakes began in 1903. After careful study, it was determined by the State of New York that a barge canal system was preferable to a ship canal system, due to the economic efficiencies in the transfer of cargo at the end of the canal, compared to the challenges of navigating ocean going vessels through a narrow channel of such great length, such as the Enlarged Erie Canal. With the opening of the New York State Barge Canal in 1918, many sections of the Erie Canal that were not included in the route of the Barge Canal were closed. Much of the Enlarged Erie Canal was filled in over the following decades, though some portions (none within the City of Syracuse) remained flooded (Whitford, 1906; Finch, 1925; Schramm and Roseboom, 1979)

The New York State Barge Canal in Syracuse opened in 1918 with a depth of nine feet. The Barge Canal in Syracuse utilized Onondaga Lake as well as the Seneca River portion of the Oswego Canal, which connected the city to Lake Ontario. Twenty-four miles of the Seneca and Oswego Rivers were canalized, using the lowest watercourses in the valley, rather than creating an artificial channel along higher ground. This was achieved by building dams, locks and dredging channels to provide uniformity in width and depth. It opened 1918 with a 9-foot depth, greatly improving inland waterway navigation. Efficient terminals for the barges were key to the success of the system, as they gave access to supply sources and connecting transportation routes such as highways. The Inner Harbor was constructed as a terminal for the New York State Barge Canal in Syracuse, receiving its first shipment in 1921, and offering a new life to the area adjacent to Onondaga Lake once dominated by the salt industry (Finch, 1925; Hay, 2014),

Rise of the Automobile

The Enlarged Erie and Oswego Canals were filled during the 1920s, with new roadways constructed atop the former waterways, and the automobile supplanting the canal boat and eventually the railcar as the dominant mode of transportation on Syracuse's streets. By 1926, the City was served by the New York Central, the Delaware, the Lackawanna and Western, and the West Shore Railroads. Branches of the Pennsylvania, Lehigh Valley and Ontario & Western connected within 50 miles to the lines running to Syracuse. The increased street traffic led to inevitable conflict, with dangerous and often fatal consequences. With stage coaches, horse-drawn carriages, trolleys, pedestrians, and later automobiles competing with steam trains for control of the streets, accidents became commonplace. Organized discussion of the solution to perilous grade crossings began in 1873 and continued for decades with no resolution. A Syracuse Grade Crossing Commission was formed in 1912, and grade crossing elimination was identified as a priority in the 1919 comprehensive plan, which noted that the solutions to several problems within the city were directly related to the issue of the dangerous circumstances caused by grade crossing (see Figure 2.4.4-6). One solution proposed running tracks atop the bed of the recently abandoned route of the Enlarged Erie Canal, while another suggested depressing the tracks or building a tunnel beneath downtown. However, a 1927 public referendum determined the appropriate course of action was to elevate the railroad, and construct a new passenger station, which was later decided to be moved to Burnet Avenue and the newly opened Erie Boulevard, constructed, atop the old route of the Erie Canal, while preserving its name as an ironic homage to the evolution of transportation in the City of Syracuse throughout the early twentieth century (CSCPC, 1919; Unknown, 1926; CNYCNRHS, 1986).

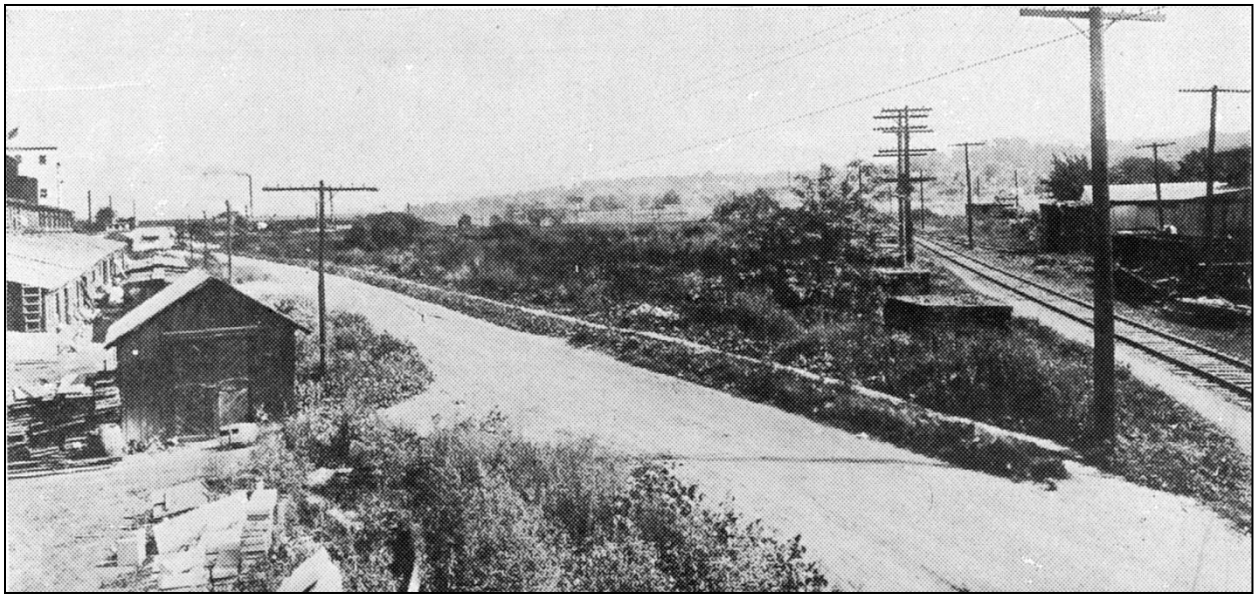


Figure 2.4.4-6. ca. 1919 view of street-level railroad crossing at Canal and Beech Streets.
This ca. 1919 view from Beech Street provides an example of a grade crossing near the APE for direct effects, and also depicts the disturbed condition north of Canal Street where Onondaga Litholite Company was located, as well as the relatively undisturbed condition south of Canal Street adjacent to the Chenango Branch of the West Shore Railroad, one of the many street-level lines that ran through the City of Syracuse before the 1930s (City of Syracuse, 1919).

2.4.5 Growth in the Post-Canal Era (ca. 1918-1938)

The closure of the routes of the Erie and Oswego Canals through Syracuse in 1918 were symbolic for the sea changes that occurred within the city and the surrounding area in the early decades of the twentieth century in areas of commerce and industry, as well as population growth like the city had previously experienced. Salt production, already on the wane for decades, would see its end along the shores of Onondaga Lake by 1926, its wooden infrastructure having long rotted in the sun or been replaced by oil and gas tanks to meet the demands of a society that no longer relied on horses and trains as much as they did on the horseless carriage. In an ultimate irony, the newly paved-over routes of the Erie and Oswego Canals would begin new lives as divided boulevards for the automobile, several models of which (including the Franklin and Moyer) were built in Syracuse (see Figure 2.4.5-1).



Figure 2.4.5-1. Public Market Built Atop the Oswego Canal, ca. 1920.
The public market, constructed atop the filled in Oswego Canal, was a major urban attraction in post-canal-era Syracuse. Open sheds allowed local and regional vendors and farmers to peddle their wares to an increasingly urban and mobile population, while the adjacent businesses adapted to the absence of the canals and the coming of the automobile age. Note the multi-story gas storage tank under construction along North Clinton Street in the left portion of the frame. (STAN, 2016)

New Industry in Syracuse

Manufacturing provided both jobs and wealth for civic improvement. Factories and mills were established along the Erie and Oswego Canals, competing with the salt works, and ultimately eclipsing salt as the dominant industry of Syracuse. Land that was once used for salt production became available for private commercial development when the state started selling their land holdings. The stability of Syracuse's new industrial economy was virtually assured because of the canal and railroad systems located right through the downtown core. The industrial corridor along the canals area grew to be a thriving section of the city.

Most manufacturing firms began as modest establishments, growing over time to become Syracuse mainstays with a strong physical presence within the built environment. The Franklin Motor Company touring car, Syracuse Arms Company shotguns, Willl & Baumer candles, Onondaga Pottery china, Stearns bicycles, Syracuse Stove Works stoves and Dietz oil lanterns are a few examples of Syracuse-based products which became known nationwide during the late nineteenth and early twentieth centuries. One of the more unlikely yet notable products that brought wealth and prominence to Syracuse was the typewriter. The 1890 organization of the Smith Premier Type Writer Company (later purchased by Remington), and subsequent founding of L.C. Smith & Brothers Typewriters in 1903 led the ascent of the typewriter as one of the most important products ever manufactured in Syracuse. By 1914, along with brewing,

typewriter manufacturing was considered to be the city's most valuable industry (Schramm and Roseboom, 1979; Connors, 2005; 2006).

Though small-scale breweries existed in Syracuse as early as 1804, the number of breweries increased significantly after the completion of the Erie Canal enabled the easier import of beer-making resources and the rapid export of finished product.

> Kellog and Morey operated next to the Erie Canal from 1824 until 1827. In 1845, there were seven breweries in the City of Syracuse. Haberle Brewery began production in 1855. Greenway Brewery, which was established in 1858, was the largest brewery in the city and was located adjacent to the Erie Canal on the site now occupied by the Niagara Mohawk Building. Their brewery, which was six stories in height and occupied an entire city block, was so successful that it exported its products to Europe, Asia and Australia, and became the largest brewery outside New York City by 1890. Brewing in Syracuse became a major industry by 1870, second only to the salt industry. (Carter, 2008)

Breweries in Syracuse flourished in part due to the abundance of hops grown in Central New York, which was the leading hops producing region in the nation in the early-to-mid nineteenth century, but also the ease of transport of the finished product through the city, state and region due to the proximity of breweries to the Erie and Oswego Canals, but also the numerous railroads located immediately adjacent to large brewing concerns such as Greenway's (see Figure 2.4.5-2 and Figure 2.4.5-3). However, by the 1920s, the vast and profitable brewing industry of Syracuse was all but eliminated when the passage of the eighteenth amendment and the resulting era of Prohibition made alcohol illegal, forcing most breweries to close. Those companies who survived Prohibition produced soft drinks until the law was repealed in 1933. With over a decade of potential production lost, the brewing industry in Syracuse never recovered, due in no small part to the onset of the Great Depression, which hobbled the economy of the city, state and nation (Connors, 2005; Carter, 2008; OHA, 2016).

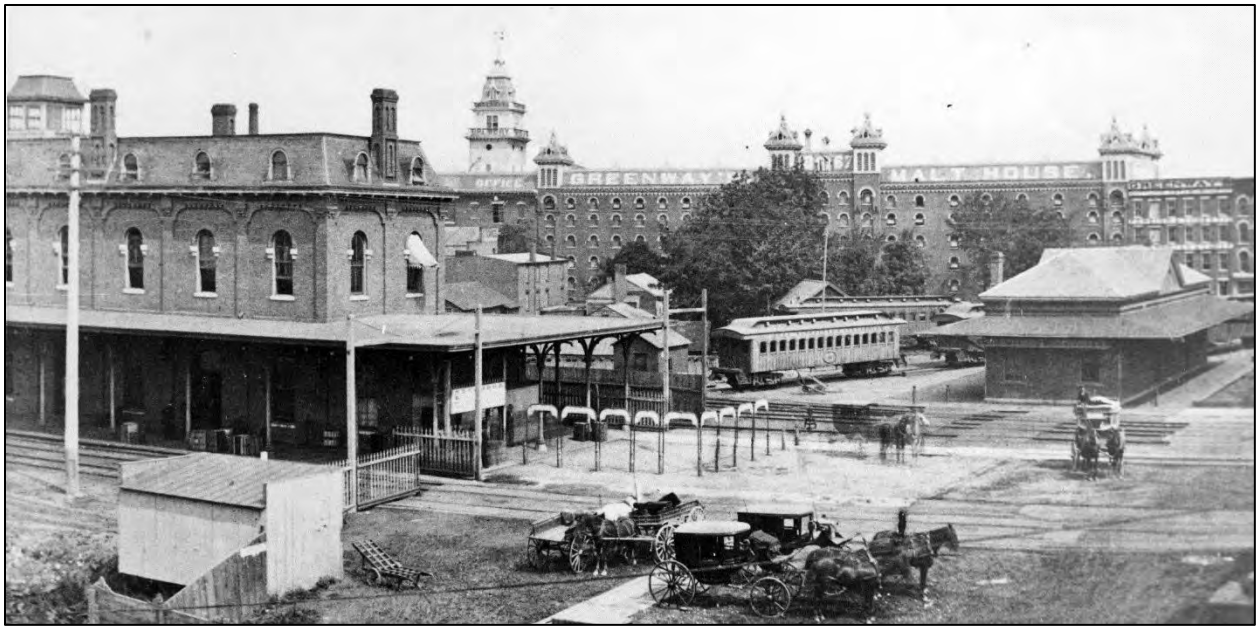


Figure 2.4.5-2. ca. 1890 view of Greenway Brewery and Washington Street Rail Station.
Breweries such as Greenway, located along an entire city block in downtown Syracuse, benefitted from the immediate proximity of the Erie Canal (not pictured) and numerous street level railroad lines, seen here between Water, Washington and Fayette Streets. (Schuelke Collection, courtesy of the Liverpool Public Library)



Figure 2.4.5-3. View of the Erie Canal west of Clinton Square ca. 1901.
Despite the decrease in canal traffic and eventual closure of the Erie Canal through Syracuse, the city had grown significantly in the late nineteenth century to include numerous industries and commercial operations, not all of which were dependent on the canal for their livelihood. Note the extent of Greenway Brewery, located near the top middle of the frame between the Erie Canal on the right and Water Street on the right. (Detroit Publishing Company, 1901; digital collections of the Library of Congress)

With the salt and brewing industry in decline, Syracusans turned their attention to the expansion of commerce in other areas, including new enterprises such as department stores and typewriter manufacturing. These advances had a direct effect on downtown which grew not only outwards from the former Erie Canal, but also upwards towards the sky, when high rises began to replace the two-to-four story buildings of the nineteenth century. Simultaneously, the consumer goods market skyrocketed, with 150,000 typewriters manufactured in Syracuse annually through the 1920s, and 150,000 Franklin Automobiles produced between 1902 and 1934. The local workforce was well-supported during the 1920s; fifty-eight percent of all factory jobs were involved with metals such as building materials and transportation equipment (SOPWPC, 1945; Stein, 2005; Connors, 2006).

A 1926 brochure promoting the city as a convention destination, boasting Syracuse as home of over 750 diversified manufacturing establishments with a total of over 42,500 employees," and a leader in the manufacturing of "tool steel, automobile gears, differentials and transmissions, soda ash and its by-products, fine wax candles, agricultural implements, high-class china ware, mincemeat and powdered milk, high-class shoes, typewriters, the automobile and its allied industries, electrical hardware, electrical washing machines, steam clothes pressing machines, cash-carrying and conveying equipment, foundry and machine shop products, boilers and radiators" (Unknown, 1926). With steady work came corresponding and steady residential growth. The city's population increased from 171,717 in 1920 (up over 25 percent from 1910), to over 209,000 by 1930, which brought about the benefit of improved new parks, an expanding public school system and more effective police and fire protection. The increase in automobile traffic and ownership necessitated even more change, with over 18,000 vehicles registered in Onondaga County by 1920, once the car become affordable to the masses. Syracuse catered to the growing legions of motorists via the proliferation of gas stations, service shops, auto dealerships, parking garages, and electric traffic signals (Connors, 2006; Carter, 2008).

The Great Depression and World War II

The city's growth temporarily halted during the Great Depression of the 1930s. It is estimated that the 1929 stock market crash resulted in the loss of fifty percent of Syracuse's industrial jobs, impacting near 13,000 workers. Large employers such as Franklin Manufacturing, Remington Rand, and Onondaga Pottery were forced to close their doors. Housing starts declined along with unemployment, and a housing shortage developed. Many large houses were converted into apartments, and congestion grew, which worsened when rural workers came to downtown to find jobs. Industry eventually returned to the city, at the site of the former salt yards south of Onondaga Lake. In the late 1930s, the first of what was to become a dense field of metal oil storage tanks was constructed. Given the nickname "Oil City," the sea of containers occupied much of the lakefront and land between downtown and the lake, trading in leisure parks and natural assets of the late nineteenth century lakefront for economic progress. As the country emerged from the Great Depression, its entrance into World War II provided a boost to the local economy, while drawing many of its

young men to the frontlines in Europe and Asia. Whereas Syracuse had struggled during the Great Depression due to too few jobs, with the onset of World War II, there were now too few workers. An estimated 40,000 Onondaga county men volunteered or were drafted into service at the same time that factories expanded to meet wartime needs for military products. Women left the home to join the workforce, and have been a large contributor to the Syracuse economy ever since. Onondaga Pottery developed a ceramic landmine, invisible to metal detectors; Remington Rand reopened its closed typewriter factory and produced pistols. The children of Syracuse were encouraged to aid the war effort by collecting metal and rubber for scrap drives. Rationing of food and staples of daily life as well as air raid drills altered the daily way of life in Syracuse during the war. When the servicemen returned to in 1944, they found a city quite different than when they left it (Schramm and Roseboom, 1979; Connors, 2005; 2006; Carter, 2008).

Ethnic Diversity in the Late-Nineteenth and Early-Twentieth Centuries

Although the 1918-1919 influenza pandemic that killed tens of thousands of Americans also claimed 3,243 Syracuse residents (and debilitated between five- and six- thousand more), the population of the city continued to grow and thrive tremendously in the early decades of the twentieth century owing to immigration (Lehr, 2005; University of Michigan, 2016). The 1840s brought a tremendous influx of Irish and German immigrants to the United States, the former escaping the potato famine and the latter fleeing political unrest. These were the largest group of foreign-born residents who had ever come to the city to date, totaling 8,000 by the Civil War. While Germans settled primarily north of downtown along North Salina Street, recently arrived Irish located westward in Liverpool and Geddes. In addition to working as laborers in the salt fields, many Germans earned a living using their carpentry skills working as coopers, supplying barrels and vats to the salt industry, while the Irish worked on the expansions of the Erie Canal, as well as various categories of hard labor. While many of Syracuse's well-known breweries, for example, were established by German immigrants, German craftsmen also redirected their skills into the production of domestic goods such as clocks and furniture. In 1875, Syracuse elected its first German-born Mayor, George Heir. Many of the modest brick buildings along North Salina Street and its side streets were constructed by German immigrants, where they would have had businesses on the first floor, and lived above. City directories indicate Germans also held jobs as tailors, shoemakers, cigar manufacturers, hardware shop owners and milliners. By 1891, there were nine German churches that served as both religious and social centers (Harwood, 1985; Connors, 2006).

In addition, many of the German immigrants of the 1840s were Jewish, and settled south of the Erie Canal in an area historically referred to as "Jew Town" for the high concentration of Jewish immigrants who began to settle in the area roughly bounded by State, Taylor, Almond and Jefferson Streets beginning in the mid-nineteenth century. Unlike their Christian counterparts, making a living proved more difficult for the German Jews. They initially worked as peddlers, and were unable to earn enough money to purchase real estate. Over time, persistence and led the Jewish Germans become merchants, grocers, and jewelers. In the 1850s, English, Polish and Dutch Jews emigrated into Syracuse and

due to the increase in Jewish residents, a second Synagogue was constructed. A second wave of Jewish immigrants between 1881 and 1914, arrived in Syracuse having left eastern Europe due to persecution. Following in their predecessors' footsteps, the new residents also entered the work force as street corner peddlers. Most spoke very little English and as a rule, the second-generation was stricter in terms of their religious beliefs and customs. This group established the first orthodox synagogue in the community, often running services in their home-country's language, often Polish or Russian. The Jewish community of Syracuse was dynamic, with six synagogues holding Sabbath services in "Jewtown" by 1899, and seldom did one congregation associate with the other, due to differences in languages and beliefs (Rudolph, 1970; Davis, 1986).

By the turn of the century, the commercial ventures of the Jewish population turned into proprietorship. Over two hundred Jewish-owned stores opened between 1850-1880. Well known, long-standing stores located within the boundaries of "Jewtown" included Thalheimers Grocery, Stein's Jewelers, Meyer's meat market, Lazarus & Company clothiers, Bronner Brothers' dry goods, and Israel Harrison's grocery store (see Figure 2.4.5-4). In addition, Syracuse's Jewish community began to operate in larger civic and governmental roles than ever before. The Young Mens Hebrew Association building and the Jewish Home for the Aged were opened in "Jewtown" in 1910, and 1912 respectively. During World War I, the Syracuse Jewish Welfare Federation supported the war efforts, having received over 2000 donations from the local population. The second and third generation of Syracuse's Jewish immigrants were more readily integrated into mainstream culture as compared to their parents. The children of the 1920s attended public school, and then private Hebrew schools afterwards. They went to college in the 1930s and became the city's professionals of the 1940s, bringing pride to the entire neighborhood. Unfortunately, this did not mean that the Jewish community of Syracuse was immune to the societal ills that had plagued its many families for a century, as poverty, illness and discrimination were still serious problems. The community banded together by establishing a local Jewish Welfare Fund to help European Jews during the Holocaust, helping to meet the needs of survivors and refugees by helping them to settle into their new lives in Syracuse (Rudolph, 1970; Davis, 1986).

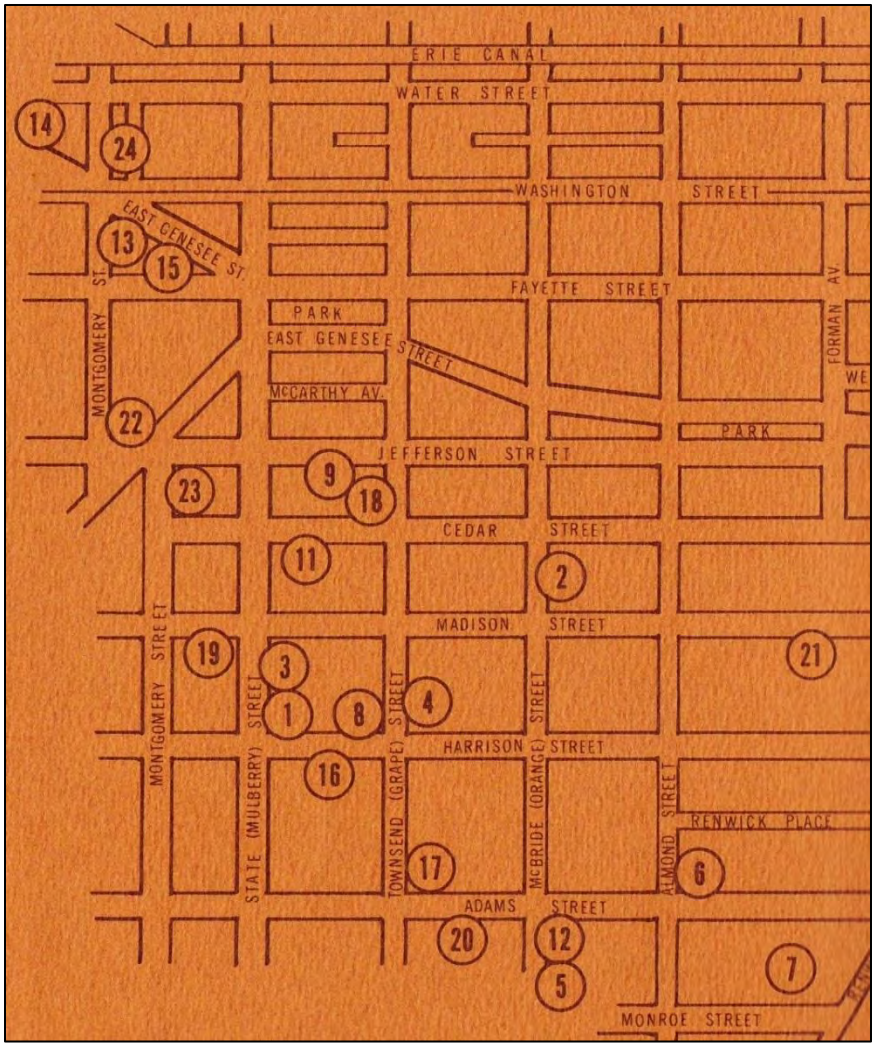


Figure 2.4.5-4. Map of Jewish-owned Establishments ca. 1900.
By the turn of the nineteenth into the twentieth century, the area of Syracuse known as "Jewtown" The numbers indicate community centers such as Jewish temples, social halls, and businesses. (Rudolph, 1970)

The influx of African-Americans into Syracuse also played a major in the growing ethnic diversity of the city. Two men, believed to be escaped slaves were witnessed making salt near Onondaga Lake (and therefore were among the first non-Native Americans to do so in what would become Onondaga County) as early as 1779. Accurate counts of the African-American population were not taken until 1810, by which time only seven African-Americans (gender unknown) were recorded. By the time Syracuse was incorporated as a village in 1825, one of its first laws was the abolition of slavery thanks to its large anti-abolitionist movement, and by 1827, all slaves in Syracuse had been freed as part of the decree to abolish slavery in New York State. Syracuse played a very important role in the Underground Railroad, assisting fugitive slaves travel in secret from slave-owning states into Canada, or helping them settle within the village. Recognized as a national center for abolition of slavery, this had a significant impact on the African-American population

in Syracuse, which grew by a large percentage between 1810 and 1840, but still only amounted to 234 residents (Davis, 1980; Rivette, 2005; Stamps and Stamps, 2008).).

In direct contrast to the burgeoning Jewish community, African-Americans in Syracuse represented only one percent of the population at the turn of the twentieth century. Living in Syracuse's ninth ward, employment and housing opportunities were limited primarily by discrimination. The two main African-American churches, African Methodist Episcopal (AME) Zion and Bethany Baptist, also served as community centers and were both located near Almond Street serving the city's African-American population, which reached 1,260 by 1920. In 1918, Jimmy LaGrin (an ex-convict-turned-barber,) created a recreational group for African-American youth so that they would not follow his path and get into trouble with the law. Acquiring financial backing from the Commonwealth Club, a philanthropy run by white women, LaGrin's fledgling organization became known as the Dunbar Center, and was initially run by Syracuse University students who led programs such as dancing, sports, chorus, scout troops and a drama club. Ironically, the University was otherwise not a great supporter of the African-American community, as evidenced by the scarcity of African-American students in the first half of the twentieth. The financial future of the Dunbar Center was secured when it was declared a community chest agency, hired permanent staff, and acquired a building on Townsend Street in the fifteenth ward of the city (see Figure 2.4.5-5) (Davis, 1980; Stamps and Stamps, 2008).



Figure 2.4.5-5. The Dunbar Center ca. 1930s.
The Dunbar Center's permanent home at 55 South Townsend Street was acquired in the 1930s, but later acquired through eminent domain and demolished as part of construction of Interstate 8.1 (Digital collections of the Onondaga County Public Library)

The Dunbar Center also provide social services to the African-American community, by acting as a liaison to the city's social welfare agencies. Dunbar Center caseworkers routinely helped children overcome problems in school, assisted with health education, and offered parenting groups. A branch of the Syracuse Public Library opened within the Dunbar Center, as did a nursery school, which served a variety of ethnic communities in the surrounding wards, aiding in integration efforts in the early twentieth century. Although the Dunbar Center contributed to a better employment outlook thanks to the Dunbar Center, racial and economic discrimination continued as a major problem for the African-American community. With only low income positions available to most African-Americans (when they were available at all outside their community), there was little hope for the future of young African Americans. Physical segregation soon followed and the African-American community was gathered together in the ninth ward, known as the Washington-Water strip, as well as the fifteenth ward (Davis, 1980; Stamps and Stamps, 2008). In spite of these drawbacks, the community banded together and started successful businesses and built a cohesive and thriving community (see Figure 2.4.5-6).



Figure 2.4.5-5. Parade along Almond Street in the Fifteenth Ward of Syracuse ca. 1960s.
Despite intense racial and economic segregation, the African-American community of Syracuse Fraternal Orders typically consisted of working-class men who were well established in the community (Digital collections of the Onondaga County Public Library)

The Progressive Herald, a weekly newspaper for African Americans, became the voice of the black community, and highlighted resident achievements, remaining in circulation for 30 years. In the 1930s and 40s, the Dunbar Center added to its recreational and social purposes the advocacy for progress in employment and housing for African Americans. It was the primary force behind improvements such as job training and job placement, particularly in terms of discrimination intervention. With their help, African Americans began working for the postal service, attending universities and starting small businesses (Davis, 1980; Stamps and Stamps, 2008).

The Jewish and African-American communities were far from the only minority communities in early twentieth century Syracuse. Most of Syracuse's ethnic neighborhoods were intentionally insulated, giving residents the ability to live their own way of life, perhaps as a facsimile of life in their respective countries of origin. Immigrant populations brought with them architectural detailing from the "old country," which evolved into distinctive neighborhoods throughout the city (often centered around their churches). Adjacent to the fifteenth ward and north of the elevated railroad right-of-way, was the Italian-American neighborhood of the Near Northside, with their homes and businesses that radiated north from Salina and State Streets. Many Italian immigrants came to Syracuse to work on the construction of the new West Shore railroad in the 1880s. Once settled, they constructed two churches (in 1895 and 1924) and grew to a size of 30,000 by the time Italian immigration had all but ended in the 1930s. The Italians were not the first to occupy these neighborhoods, having dislocated their German and Irish predecessors, who moved east. Many immigrants became United States citizens with the help of the Syracuse Americanization League (Schramm and Roseboom, 1979; SUNY Faculty of Landscape Architecture, 2003; Connors, 2006).

Post-War Planning and Change

Despite the growth and increased opportunities for the burgeoning immigrant and ethnic communities of the early twentieth century, national postwar planning and transportation policy would soon lead to significant changes through Syracuse and New York State. Planning for what is now known as the Dwight D. Eisenhower National System of Interstate and Defense Highways, commonly called "The Interstate System," began as early as the late 1930s. The Federal-Aid Highway Act of 1938 called on the Bureau of Public Roads (BPR), the predecessor of the Federal Highway Administration (FHWA), to study the feasibility of a toll-financed system of three east-west and three north-south superhighways. The BPR's report, *Toll Roads and Free Roads,* demonstrated that a toll network would not be self-supporting. Instead, the BPR's report advocated a 26,700-mile interregional highway network. In 1941, President Franklin D. Roosevelt appointed a National Interregional Highway Committee, headed by Commissioner of Public Roads Thomas H. MacDonald, to evaluate the need for a national expressway system. Following a pause for World War II, the committee's January 1944 report, *Interregional Highways,* supported a system of 33,900 miles, plus an additional 5,000 miles of auxiliary urban routes. In the Federal-Aid Highway Act of 1944, the Congress approved the committee's recommendations. However, funding, and therefore construction, did not happen until the 1950s, which

would radically and profoundly alter the built environment and social fabric of Syracuse for the next five decades (Weingroff, 1993; FHWA, 2016).

2.4.6 Slum Clearance, Post-War Planning and Urban Renewal (ca. 1938-1974)

After tremendous growth in industry and population throughout the nineteenth century, the closure of the Enlarged Erie Canal through the City of Syracuse removed a once-vital commercial and transportation artery through downtown, while the presence of grade-level railroad crossings created a public hazard to the densely populated city, resulting in the eventual elevation of the railroad above the city streets. The former route of the canal had been filled to provide a major route for automobile traffic through downtown, virtually all of the surrounding land had been built up, leaving little room for additional commercial, industrial or residential development within the core of the city. The increase in automobile ownership led city residents to seek housing in newly constructed subdivisions on the fringes of the city, and in neighboring towns more accessible by car. As a result, while the edges of the city began to grow and thrive amidst this expansion, the inner core of the city experienced disinvestment and creeping decay, exacerbated by the onset of the Great Depression. The policies of the New Deal enacted by President (and former New York Governor) Franklin Delano Roosevelt combined with America's involvement in World War II provided some economic relief for cities like Syracuse, but did not stop the flow of industry and residents out of the city. The challenge of thousands of soldiers returning from the war introduced added pressure to provide adequate housing within the city. The responses to these problems by city officials were common to the era, but also unique to Syracuse, and would radically alter the built environment and social fabric of the city for the next several decades.

The Roots of "Slum Clearance" in New York State

Dilapidated and overcrowded housing stock was a common problem in the majority of American cities in the early twentieth century, with no broadly applicable solution. The 1930 federal census revealed that 11 million homes comprising 36 percent of the total housing stock in the country was considered to be "substandard." Although select clearance of blocks of decaying tenements and other buildings for parks and playgrounds had been common around the turn of the century in larger cities such as New York and Chicago, an organized program related to slum clearance or the creation of more suitable housing had yet to be enacted. In the midst of the Great Depression, the Emergency Relief and Construction Act was passed at the federal level in July 1932, a portion of which allowed for the Reconstruction Finance Corporation (created under President Herbert Hoover) to make loans to private corporations for "reconstruction of slum areas" as well as providing housing for low-income families. Although intended as a work relief measure, concentrating the responsibility for slum clearance in the hands of private corporations was not as successful as intended. The National Industrial Recovery Act of 1933 attempted to shift some control to work relief agencies by including a provision for the Public Works Administration (PWA) to oversee slum clearance and low income

housing construction projects. However, construction was still left in the hands of private, limited-dividend corporations that were driven by generating profit as opposed to maximizing public benefit (CQ, 1932; Boyer, 1983; Vale, 2000).

The National Housing Act of 1934 was enacted on June 28, 1934 as part of New Deal legislation created in response to a lack of affordable housing during the Great Depression. This act was important for the creation of the Federal Housing Administration (FHA) as well as the United States Housing Authority, which provided low-interest long-term loans to cities and municipal agencies for purposes of slum clearance and erection of affordable housing. In addition, the Home Owners Loan Corporation (HOLC) had previously been established to protect lenders from a decrease in the values of mortgages. The Housing Act of 1937 helped codify the link between slum clearance and the subsequent creation of public housing in cities throughout the country. Building off of the 1934 act, the 1937 act directed federal loans and annual contributions to be paid to local public housing agencies to encourage improved living conditions for impoverished and low-income families through slum clearance (Plunz, 1990; Vale, 2000; Smith, 2008).

Although their missions were to advocate for improved housing conditions for lower income populations, the FHA and HOLC worked in tandem to reinforce racial and class divisions that had arisen as wealthier families had fled the inner cities in the early twentieth century. Through a series of onerous regulations including deed restrictions and restrictive covenants, the FHA sought to discourage neighborhood diversity through the "prevention of infiltration of inharmonious racial or nationality groups," noting in its underwriting manuals that properties within stable neighborhoods "shall continue to be occupied by the same social and racial classes" (Vale, 2000). The HOLC undertook comprehensive mapping of American cities with the help of local planning departments, dividing housing into classifications based on their condition and assumed viability for redevelopment. These areas coincided with not only areas where the most distressed building stock was found, but also where many of the African-American and non-white populations resided (Boyer, 1983; Hoffman, 2000).

Beginning in 1937, the HOLC created a series of residential security maps that rated neighborhoods within cities based on their perceived level of financial risk. The HOLC map was created for Syracuse by city engineer Sergei Grimm, and coded the most distressed (or "fourth grade") housing in red (see Figure 2.4.6-1), which was common to HOLC maps, and helped give birth to the concept of "redlining," where loans and mortgages were not issued within the areas colored red on residential security maps. In Syracuse, the red-lined areas fell immediately along the route of the railroads on either side of downtown Syracuse, as well as a large swath of the Fifteenth Ward immediately east of downtown, where many African-Americans and Jews resided. As described in Section 2.3.5, the area had long been nicknamed "Jewtown" for the abundance of Jewish residents, businesses, and high concentration of synagogues (Davis, 1980; Stamps and Stamps, 2008). This area of the City of Syracuse would be among those most profoundly affected by federal, state and local planning policy for the next several decades.

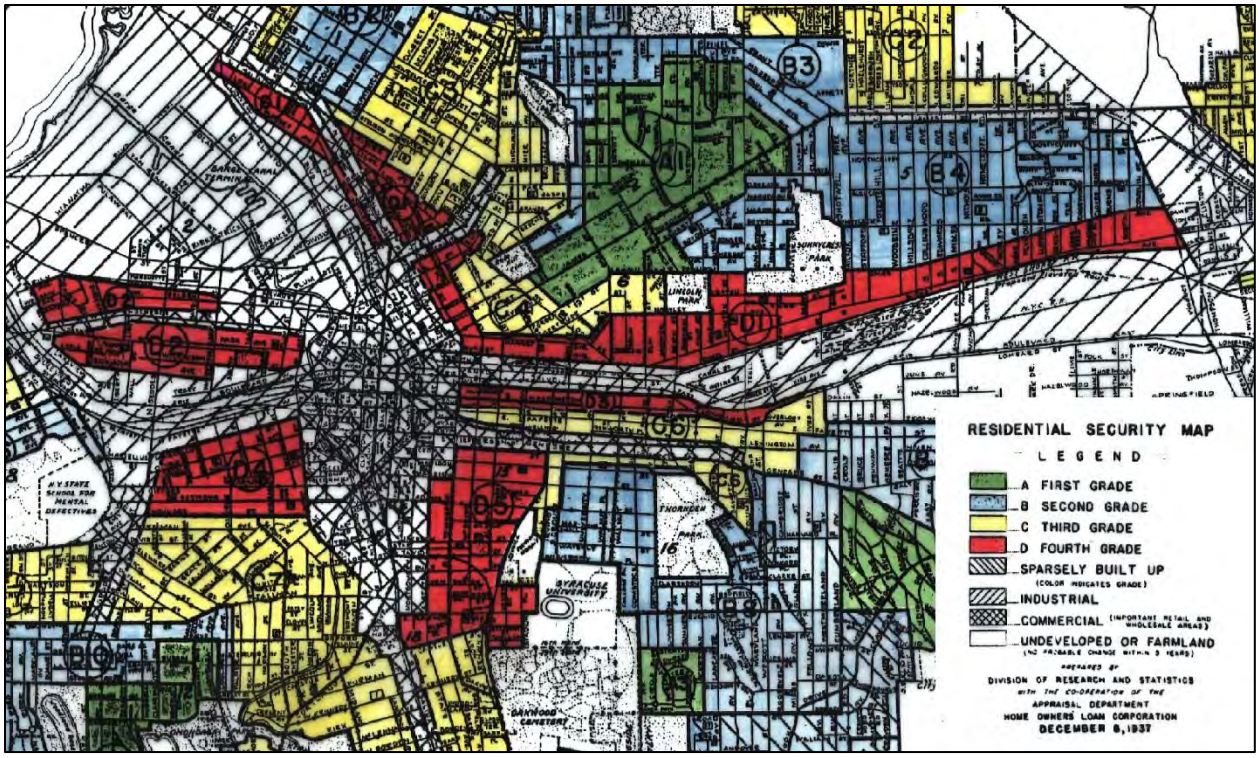


Figure 2.4.6-1. **1937 HOLC "**R**edlining"** Map of the City of Syracuse.
The color-coding of housing by the HOLC within cities such as Syracuse helped provide a guide for future redevelopment of "substandard" areas under urban renewal just two decades later. In Syracuse the areas that were red-lined included land within predominantly African-American and Jewish neighborhoods along existing transportation corridors, as well as areas of planned transportation corridors. (Grimm, 1937)

Early "Slum Clearance" in Syracuse

The Syracuse Housing Authority was established by the City of Syracuse Common Council in September 1935, to enact the initiatives of the Housing Act of 1934, including the creation of public housing, and slum clearance. Encouraged by New Deal legislation and local planning goals, slum clearance in Syracuse began as early as 1935 in the area known as the "Washington-Water strip," a narrow area of dense Erie Canal-era housing and commercial buildings roughly bordered by Washington Street on the south and Erie Boulevard on the north, extending west toward downtown. This early slum clearance occurred in an era that at the time was part of the Ninth Ward of the city, and immediately bordered downtown Syracuse to the west as well as the Fifteenth Ward to the south, which was home to the highest concentration of African-American and Jewish populations in the city (Stamps and Stamps, 2008; Ducre, 2012). Several blocks were also cleared north of the former route of the canal to construct the elevated right-of-way of the New York Central Railroad, a solution to the long-standing hazard created by grade-crossing of railroads through downtown Syracuse (City of Syracuse, 1919; CNYCNRHS, 1986; SHA, 2016) (see Figures 2.4.6-2 and 2.4.6-3).

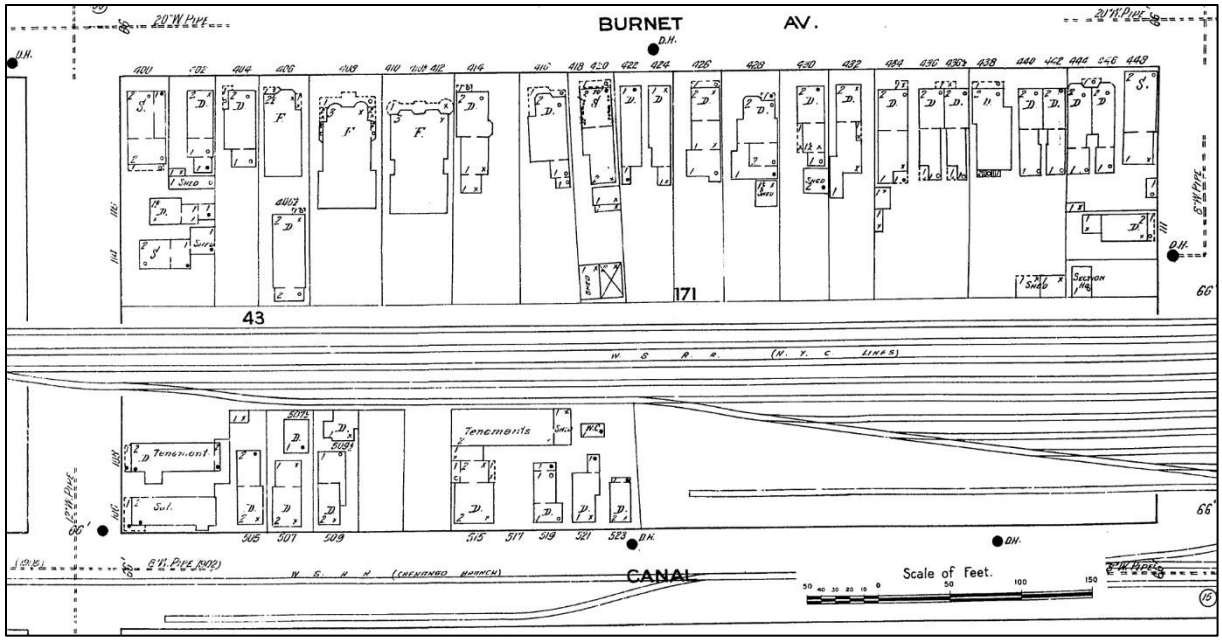


Figure 2.4.6-2. 1910 Sanborn Map Plate Depicting Early-Twentieth Century Housing Density.
This ca. 1910 Sanborn map plate depicts the area between Catherine and Howard Streets that would be demolished prior to construction of the elevated New York Central Railroad right-of-way. Note buildings along Canal Street identified as "tenement" structures (Sanborn, 1910).



Figure 2.4.6-3. ca. 1935 View of Construction of Elevated Railroad Right-of-Way.
This ca. mid-1930s view from McBride Avenue looking east depicts the construction of the elevated New York Central Railroad right-of-way between Burnet Avenue (depicted as a tree-lined street on the left of the frame) and Canal Street (on the right of the frame). Note the considerable ground disturbance as well as the houses that were later removed for construction of the railroad right-of-way, which was common within all parts of the elevated right-of-way that would later become Interstate 690 in the 1960s. (CNYCNRHS, 1986)

Following the passage of the Housing Act of 1937, the State of New York moved quickly in passing the 1938 state budget, which included amendments providing for the "creation of a state revolving fund for slum clearance and housing from which loans may be made to public corporations and public limited dividend housing companies, permitting the legislature to make loans to public corporations and public limited dividend housing companies for slum clearance,' and allowing cities to "loan up to two per cent of their assessed valuations, without regard to bonded indebtedness, for slum clearance and low cost housing" (O'Brien, 1938). Syracuse was among the first cities in the state outside of New York City to capitalize on the funds made available for slum clearance and the creation of public housing. Pioneer Homes, roughly bordered by East Adams, Renwick Avenue, Taylor and South Townsend Streets, was the first housing project authorized in the state following passage of the Housing Act of 1937, and one of the first five in the nation. Construction of Pioneer Homes began in 1938, with 678 units in two-story row houses and three-story walk-ups completed in 1940 (SHJ, 1965a; SHA, 2016).

The construction of Pioneer Homes required the clearance of several city blocks, comprised primarily of residences, but also multiple schools and businesses. These areas were categorized as "fourth grade" on the 1937 HOLC residential security map of Syracuse, which likely qualified them for slum clearance through the Housing Act of 1937. The housing created as part of Pioneer Homes was comprised of thirteen symmetrically arranged blocks of row houses and apartments oriented north and south, with the inner blocks arranged facing inward toward cul-de-sacs, and outer blocks facing the north-south streets on either side of the block (see Figures 2.4.6-4, 2.4.6-5 and 2.4.6-6).



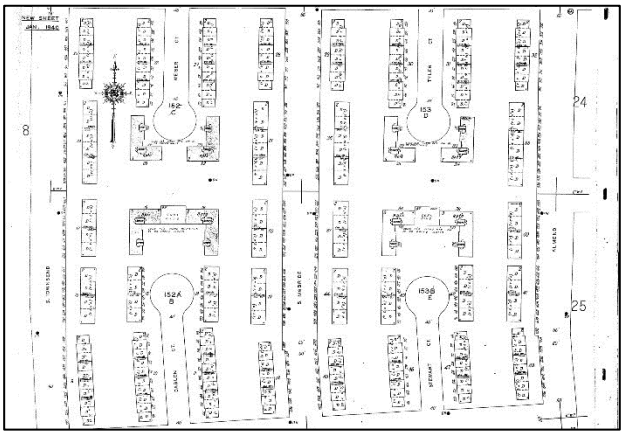


Figure 2.4.6-4. 1938 Aerial Photograph Showing the Location of Pioneer Homes Prior to Construction (left).
Figure 2.4.6-5. 1940 Sanborn Map Plate Depicting a Portion of Pioneer Homes (right).
The 1938 aerial photo (left) shows the area where Pioneer Homes was to be constructed as a densely settled, primarily residential neighborhood (USDA, 1938; Collections of the Cornell University Library). The 1940 Sanborn map plates depicting Pioneer Homes (right) show orderly rows of housing arranged almost symmetrically within the block, with inner rows of housing facing a cul-de-sac, and outer rows facing the outside of the block.



Figure 2.4.6-6. 1951 Photograph Showing Pioneer Homes before Construction of I-81.
By 1951 Pioneer Homes (outlined in red) had been in existence for over a decade, with tree-lined streets and yards surrounding regularly arranged housing. However, the path of Interstate 81 (outlined in black) would soon cut the development in half and create disunity, opposite to the goals of the federal planning that helped fund the construction of the housing in the first place (FAS, 1951; collections of the New York State Archives).

Although in line with local, state and federal goals regarding the creation of affordable public housing, the housing comprising Pioneer Homes was surrounded by the dense blocks of older housing located within the Fifteenth Ward, away from downtown (see Figure 2.4.6-7). A common belief in the early years of public housing was that these new developments would lead to an improvement of the surrounding neighborhood in terms of property values as well as the physical condition of the housing (Hoffman, 2000). Contrary to this notion, Pioneer Homes did not lead to a significant change in the surrounding built environment, and within two decades, conditions at Pioneer Homes were reported to have deteriorated. By the time the announcement of an elevated highway being constructed along Almond Street was made in 1958, residents were expressing a desire to move out, partially due to living conditions, but also due to racism related to the relocation of African-Americans into Pioneer Homes from adjacent housing that was planned for demolition as part of the highway project (Driver, 1958)

Between 1965 and 1967, five buildings (originally comprising 44 apartments were demolished at Pioneer Homes as part of the construction of Interstate 81 (see Figures 2.4.6-8 and 2.4.6-9). Two additional buildings were torn down following the completing of the highway due to serious damage caused by ice and snow thrown off of the highway by snow plows (SHJ, 1965a; SHA, 1965; Balbuena, 2015).





Figure 2.4.6-7. 1951 Aerial Photograph showing Pioneer Homes Fully Constructed (left).
Figure 2.4.6-8. 1966 Aerial Photograph showing Pioneer Homes Following Construction of I-81 (right).
The 1951 aerial photo (left) shows Pioneer Homes fully constructed. Note that the surrounding area is still densely built up and comprised of the same type of older residences and buildings that were demolished for Pioneer Homes. (USDA, 1951; Collections of the Cornell University Library) The 1966 aerial photo (right) shows the site during the construction of the I-81 viaduct. Note the extent to which the area surrounding Pioneer Homes has been cleared as part of ongoing urban renewal efforts on the near east side (USDA, 1966; Collections of the Cornell University Library.

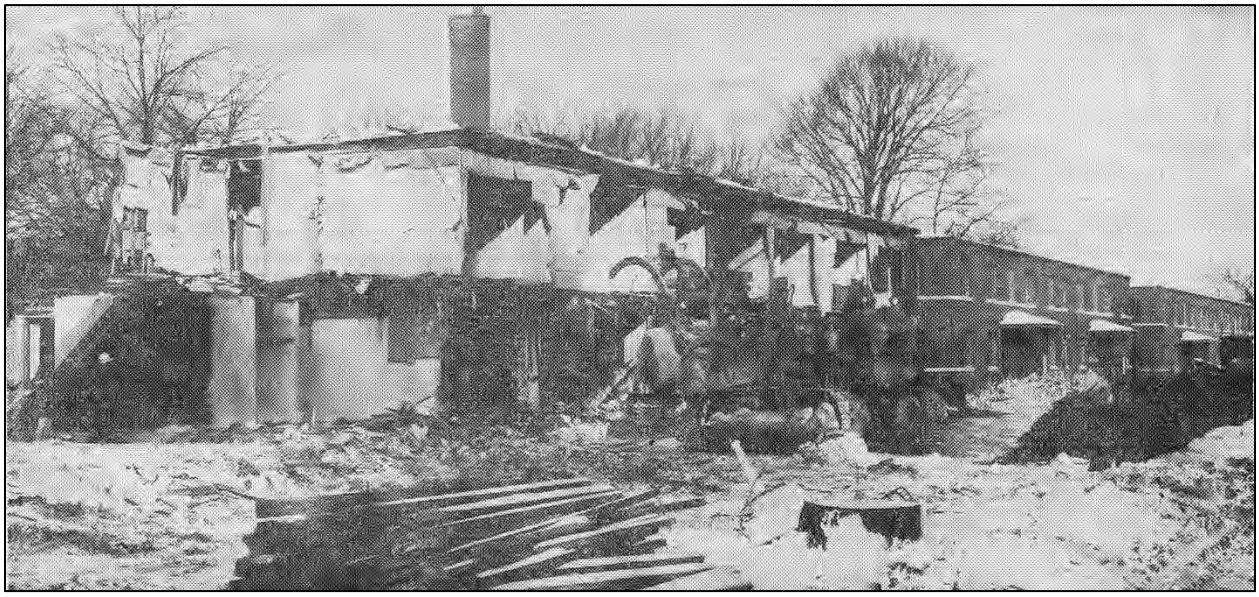


Figure 2.4.6-9. 1965 Photograph of the Demolition of a Portion of Pioneer Homes during I-81 Construction.
This 1965 newspaper photograph shows the portion of Pioneer Homes that was demolished during construction of Interstate 81, despite having only been constructed 25 years earlier. The highway permanently divided the housing project. (SHJ, 1965a; collections of the Onondaga Historical Association).

The construction of an elevated highway through downtown Syracuse, and directly through the path of a relatively recent federally-funded public housing project less than approximately two decades after it was constructed, illustrates the degree to which local planning related to public housing, urban renewal and interstate highways would often conflict to the detriment of Syracuse.

Syracuse-Onondaga Post-War Planning Council

Syracuse was unique in its post-World War II planning in two ways: it began well before the war ended, and received significant outside assistance. In 1942, *Fortune* magazine sought out a moderately sized city to provide "expert consultants" for the purposes for undertaking "a very thoroughly comprehensive planning job" (Greer, 1944). The City of Syracuse established a relationship with *Fortune*, and with additional assistance from *Architectural Forum* magazine, the Syracuse-Onondaga Post-War Planning Council was established by Mayor Thomas E. Kennedy on January 1, 1943. The involvement of *Fortune* was an attempt to make the planning process a replicable model for comparable cities throughout the country in the post-war era, and was prepared with the help of the American Society of Planning Officials, the Automotive Safety Foundation, American Bankers Association, National Housing Agency, and International Business Machines Association, as well as local governmental and institutional leaders (Greer, 1944; SOPWPC, 1945).

The *Report of the Syracuse-Onondaga Post-War Planning Council* (SOPWPC, 1945) was published in 1945 after two years of research, planning and analysis. Preparation of the report was overseen by the council, chaired by Syracuse University chancellor William P. Tolley, and comprised of four primary groups (Research and Planning, Ways and Means, Public Participation, and the Committee on Religion) and sixteen committees with 134 total members, dedicated to such areas agriculture, education, housing, land use, arts, traffic, and public works. Each committee created a standalone document that was aggregated in the final *Report*, which summarized existing conditions, provided several recommendations on how to proceed, and also included supporting maps, figures and photographs for each subsection (Martin, et al, 1968; Cohn, 1978).

The *Report of the Syracuse Onondaga Post-War Planning Council* summarized many positive aspects upon which future planning could capitalize, while also highlighting several areas in need of acute improvement. The built environment in particular received quite a bit of attention. The *Report* estimated that "at least 13,000 Syracuse-area families (were) living under sub-standard conditions" by 1945, and 2,500 dwellings were needed immediately, with over 10,000 more needed in the subsequent five years. The 1940 census recorded approximately 10,000 dwelling units in the City of Syracuse that were considered to be "substandard," either due to a deteriorated physical condition, lack of facilities such as running water or electricity, overcrowding of structures, and "improper occupancy," the overcrowding of persons within dwelling units. By 1943, it was estimated that the number of dwellings with more than two persons per bedroom was found to be over 5,800 (SOPWPC, 1945).

The *Report* repeatedly stressed the negative effects of "congestion" on various aspects of the city (see Figure 2.4.6-10). The section on land use noted that "the present use of land within the Syracuse urban area is marked by needless congestion in a number of sections, and by a mixture of uses that lessens the attractiveness of many parts of the city

as places in which to live, while lowering the value of other parts as suitable locations for business and industry," while the Central District section stressed that "no community problem is more urgently in need of solution that that of adequate parking in the Central District, taking cars off the streets so as to provide relief for traffic congestion." The sections of the report dealing with urban land use, housing, the "Central District" (i.e. downtown), and traffic, transit and transportation specifically recommended several measures calling for the demolition of blighted properties within and immediately surrounding downtown Syracuse for a variety of purposes including parking, open space, new dwelling units, and a series of newly constructed "thruways" for automobile traffic (SOPWPC, 1945).

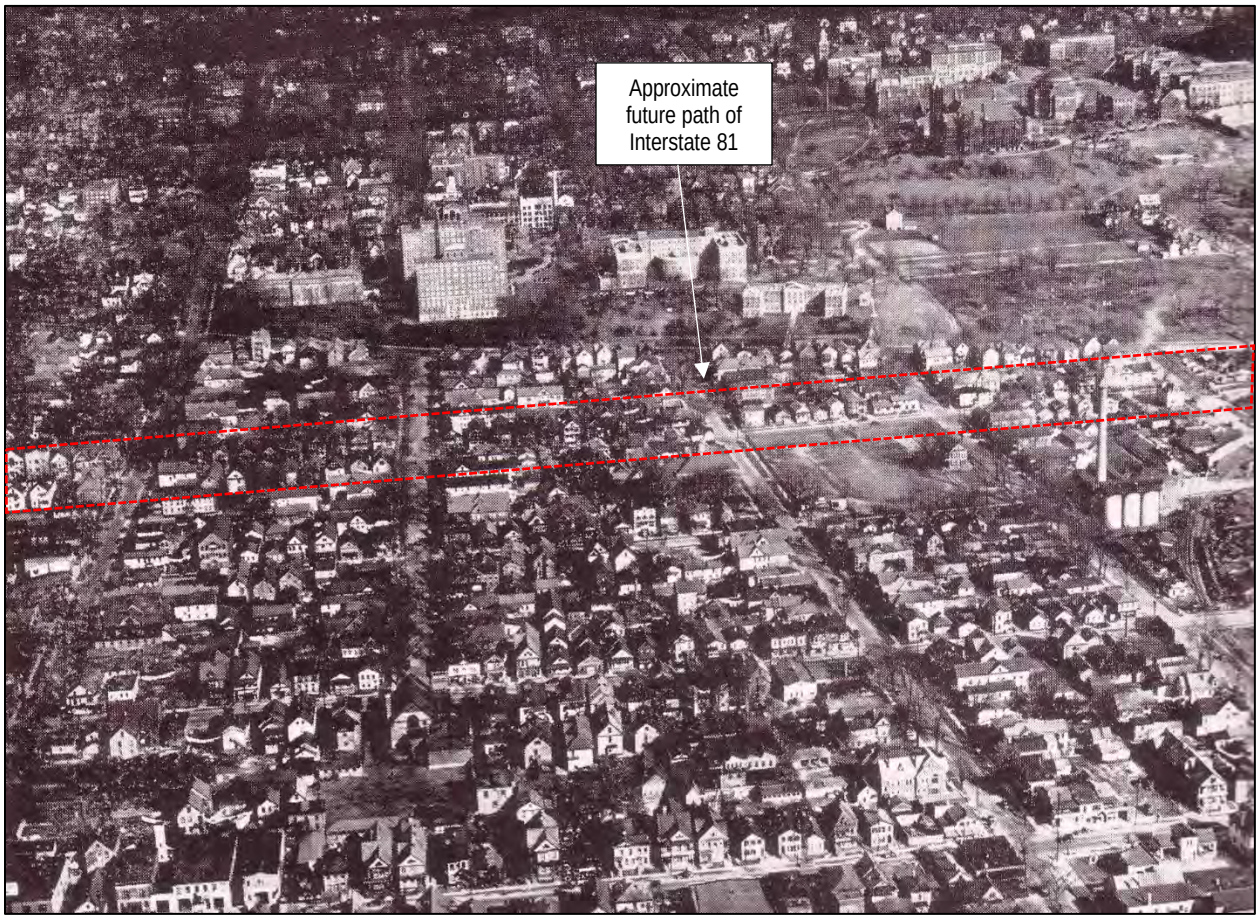


Figure 2.4.6-10. 1930s Photograph of the Fifteenth Ward, Prior to Urban Renewal.
This photograph, captioned "Congestion," was included in the 1945 SOPWPC report to illustrate the "lack of adequate open space" present in downtown Syracuse, with the report concluding that "people live so close to each other that quiet environment for peaceful living is destroyed." (SOPWPC, 1945)

The Housing section contained the most emphatic statements advocating for demolition of blighted housing, noting that "some existing housing is so poor as to menace the safety and health of the occupants, not to mention the people as a whole," and also identified potential mechanisms through which demolition might occur:

> The blighted areas, hardly worth renovation, should not be allowed to exist more than say, 15 years. Much of the land now occupied by poor housing is likely to be absorbed by general open spaces, modern traffic and parking facilities, etc. That portion which can be used for housing again should be cleared when feasible, thru use of police powers. The balance could be acquired thru use of Housing Authority powers, or whenever feasible, by private Urban Re-development Corporations. (SOPWPC, 1945: 88).

In addition to advocating for the conversion of several city streets into a network of linked parkways, the *Report* also provided recommendations for the construction of a traffic loop around the city:

> An alternate plan for future consideration for a traffic improvement in the Central District is the proposal for a gradual development of a complete loop around the Central District. This would carry the traffic on the fringe of the district and would connect it with the primary traffic arteries serving various sections of the city. Grade separations would be built at important intersections and eventually, if traffic should require, the entire length of the loop would be on a separate grade. Entrance to, and exit from, the loop would be limited to a relatively few points. (SOPWPC, 1945: 67).

Although an elevated highway was not depicted in the report, discussion of the loop being constructed "on a separated grade" allowed for the possibility of above and below grade roadways. The construction of an elevated right-of-way for the New York Central railroad throughout downtown Syracuse in 1935 had created a precedent for above-grade transportation routes, making the possibility of an elevated highway potentially more acceptable as an element of the built environment.

Despite the thorough planning and robust recommendations of the post-war plan, within two years none of the approximately $35 million worth of public projects had begun, and no successor organization dedicated to follow through with the recommendations of the plan had been created within the city, due in part to fiscal conservatism by successive Syracuse mayors. Meanwhile, suburban commercial, residential and industrial expansion continued, with General Electric establishing its electronics manufacturing headquarters just beyond the city borders beginning in 1945, and numerous shopping centers drawing commercial traffic away from the downtown shopping district and other smaller business districts (McGuinness, 1947; Cohn, 1978).

Although slum clearance and new construction of federally funded public housing essentially ceased with U.S. involvement in World War II, 25 state legislatures passed "urban redevelopment" acts between 1941 and 1948, though only two explicitly included subsidies for slum clearance. The combination of a lack of new urban housing and thousands of returning soldiers resulted in a housing shortage by 1945. A series of short-term and controversial housing acts were passed between 1945 and 1948, it was not until the Housing Act of 1949 that a wide-ranging federal strategy to combat the housing shortage was enacted. Although the goal of the Housing Act of 1949 was to create 810,000 units of public housing by 1954, a variety of factors including resistance from the real estate industry, Presidential administration changes and the onset of the Korean War meant that this goal was not met for almost two

decades. In the meantime, slum clearance continued in cities throughout the 1950s, encouraged by Title I of the Housing Act of 1949, which authorized $1 billion in loans to assist cities in acquiring properties determined to be blighted for the purposes of urban redevelopment (Cohn, 1978; Hoffman, 2000). This ongoing slum clearance was further enabled by concurrent developments in state and federal transportation policy, which combined with the effects of slum clearance would have a significant and lasting effect on the City of Syracuse.

Interstate 505 and the Oswego Boulevard Expressway

The state of New York began the planning process for what would become the New York State Thruway in 1942. As originally envisioned, the Thruway was not routed through any major cities, nor was it planned to be an interstate. However, the acceleration of highway planning following the end of World War II helped redefine the nature of the Thruway, as well as planning for an increasing number of connecting highways that would link the Thruway to major cities such as Syracuse.

Initial plans for what would become Interstate 81 were not controversial, as its design was not yet decided (so the extent of potential dislocation of residents and destruction of buildings was unclear), and it had the support of a dominant number of politicians, numerous city businesses, large institutions like Syracuse University, as well as the New York Central Railroad and New York State Department of Public Works (NYSDPW). Working with the city planning commission, the NYSDPW began working on a plan for a "modern arterial route system" that would link north-south and east-west expressways with the planned Ontario-Mohawk Thruway (what would become the New York State Thruway) and a series of arterial roads surrounding the central business district of Syracuse. In 1947, the state advanced a proposed highway plan for Syracuse, which, although it was approved by the city and county that year, was not acted upon for several years, even though highway construction was believed by many to be "the greatest single element in the cure of city ills" (Cohn, 1978; DiMento and Ellis, 2013).

By the early 1950s, the national movement in both highway construction and urban renewal dovetailed in Syracuse with the proposed north-south and east-west highways routed through neighborhoods that were perceived to be "blighted," the majority of which were located in the Fifteenth Ward adjacent to the downtown area. Based on proposals from state officials as well as a consortium of local builders, the city of Syracuse began to seek funding for combined slum clearance and highway development efforts. The proposed highway program was seen as having the added benefits allowing the city to acquire additional property for purposes of redevelopment while simultaneously raising the values of adjacent property, which would discourage the placement of public housing adjacent to the highway and redeveloped areas (Cohn, 1978; DiMento and Ellis, 2013).

Despite a longstanding and pervasive fiscal conservatism in local government, the city committed over $10 million towards the arterial highway program, which was supplemented by $40 million of federal and state monies, guaranteeing that massive swaths of land and buildings could be acquired for the twin purposes of highway construction and slum clearance. In order for New York state to receive ninety percent of its interstate funding from the National Highway Program of the National Interstate and Defense Highways Act of 1956, Syracuse's highways would become part of a nationwide interstate network. The north-south highway route through Syracuse was initially designated Interstate 505, and also referred to as the Penn-Can Highway and Empire Stateway, and finally renamed Interstate 81 in 1959 (Cohn, 1978; DiMento and Ellis, 2013).

The route of the highway that would become Interstate 505 was initially located along Townsend Street (corresponding to the 1947 plan for a highway through downtown) and passed through a portion of the Fifteenth Ward that was perceived by city officials to contain the worst housing in the city. However, to be designated an interstate (and receive a significant amount of funding) the north-south expressway would have to be constructed to federal highway standards, meaning a wider roadway that would likely need to be elevated. The route along Townsend Street had been planned as an at-grade roadway, which would allow for development of luxury high rise apartments and a proposed "cultural center" on the land to be cleared adjacent to the highway. This would not be possible with the north-south expressway as an interstate, leaving the need for a new route. City officials, not wanting to build an elevated highway, advocated for a depressed roadway along Almond Street (which had earlier been discarded as a potential route over concerns on impacts to Pioneer Homes and the medical complex adjacent to Syracuse University), however this was rejected by the state due to potential costs associated with alleviating drainage issues and the need to reroute sewers. On October 21, 1958, the city and state officials formally revealed the new elevated route of Interstate 505 along Almond Street, which would still allow for the city to pursue its urban renewal plan as well as the construction of an interstate through Syracuse (Ganley and Hoffman, 1958; SHJ, 1959a; Cohn, 1978).

Although construction on Interstate 505 along Almond Street would not begin for a few years, construction had begun in 1954 on a portion of highway linking downtown Syracuse to a newly constructed highway to Oneida Lake in Brewerton, over 14 miles to the north, as well as the new interstate system via the New York State Thruway just north of the city line. The construction of the Oswego Boulevard Expressway (as it became known) required the demolition of dozens of buildings in its path, including the popular Northside public market, located at the intersection of Oswego Boulevard and Butternut Street (see Figures 2.4.6-11 and 2.4.6-12) (SHJ, 1954; 1956).

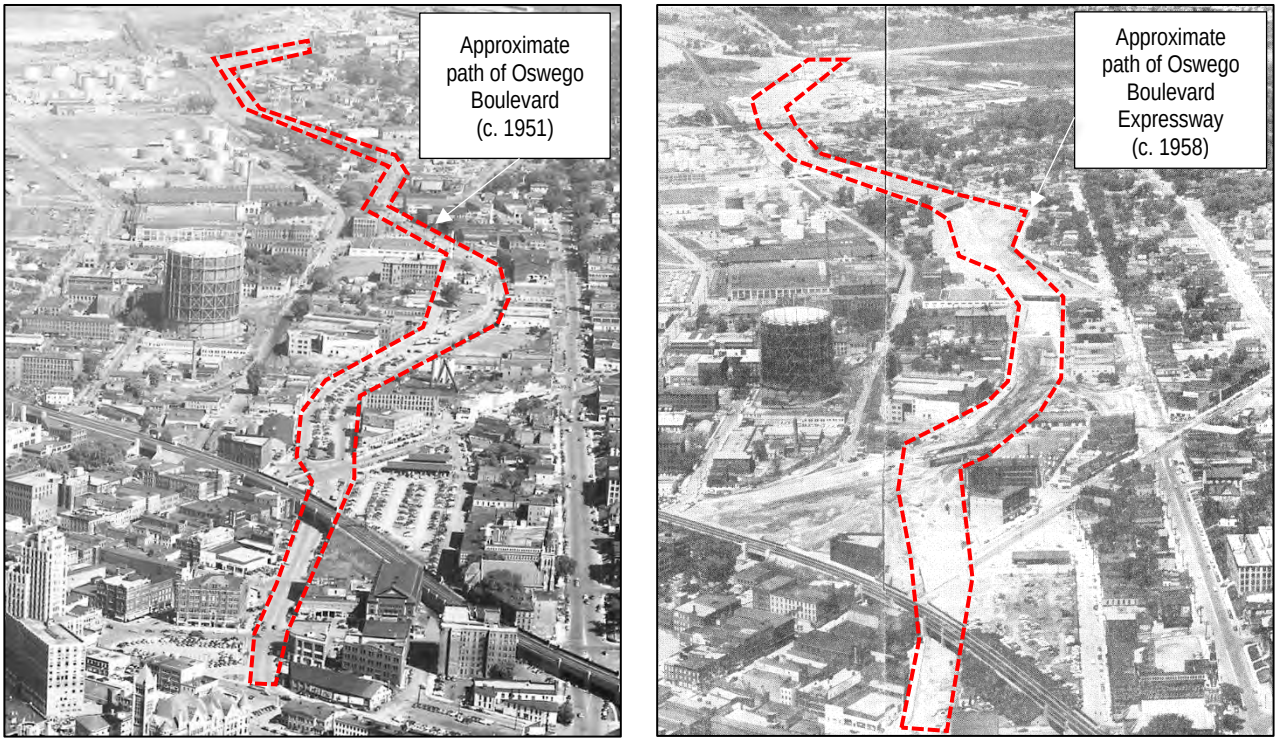


Figure 2.4.6-11. 1951 Aerial Photograph showing the Alignment of Oswego Boulevard (left).
Figure 2.4.6-12. 1958 Aerial Photograph showing the Construction of the Oswego Boulevard Expressway (right).
The 1951 aerial photo (left) shows Oswego Boulevard and the adjacent buildings prior to construction of the Oswego Boulevard Expressway, which began in 1954. Note that the surrounding area is still densely built up and predominantly commercial, though some surface parking is evident (FAS, 1951; Collections of the New York State Archives) The June, 13 1958 aerial photo (right) shows the expanded right-of-way during the construction of Oswego Boulevard Expressway. Note the extent to which the area surrounding the expressway has been disturbed, with numerous buildings demolished. (Hoffman, 1958a; Collections of the Onondaga Historical Association)

Although the Oswego Boulevard had originally been constructed atop the filled in Oswego Canal beginning in 1923, considerable earthen embankments had to be constructed north of the city to carry the new expressway (see Figure 2.4.6-13). The expressway opened on October 27, 1959 with ceremonies heralding a "new era" for the city of Syracuse led by a 150-car motorcade (SHJ, 1959a). The construction of the Oswego Boulevard Expressway was the first step in linking downtown Syracuse to the nascent interstate network in the United States, and also a harbinger of the greater destruction that would occur with the construction of the elevated viaduct portion of Interstate 81.



Figure 2.4.6-13. 1958 Aerial Photograph during Construction of the Oswego Boulevard Expressway.
Linking the Oswego Boulevard Expressway with Interstate 81 north of the city required significant earth disturbance and construction of earthen berms to navigate the landscape and poor soils closer to Onondaga Lake (Hoffman, 1958b; collections of the Onondaga Historical Association)

Interstate 81 and Urban Renewal

Combined with urban renewal programs such as the 101-acre Near East Side Urban Renewal Area and Downtown One, the routing of an elevated highway through downtown caused the most radical change to the built environment since the construction of the Erie Canal, as largely residential blocks with small, independent commercial strips were destroyed in favor of larger civic and office buildings, and parking lots. The Near East Side Urban Renewal Area (hereafter "NESURA") was the largest and most ambitious of the urban renewal projects undertaken by the City of Syracuse. The NESURA totaled over 101 acres bounded roughly by East Genesee Street on the north, Adams and Taylor Streets on the south, Interstate 81 and Townsend Streets on the east, and State and Montgomery Streets on the west. The NESURA included plans for low-density office buildings, medium-to-high density residential towers, and the Community Plaza, a grandiose civic and cultural district that would include an art museum as well as a new city hall (see Figure 2.4.6-14 and 2.4.6-15) (SPS, 1962a; SURA, 1965).

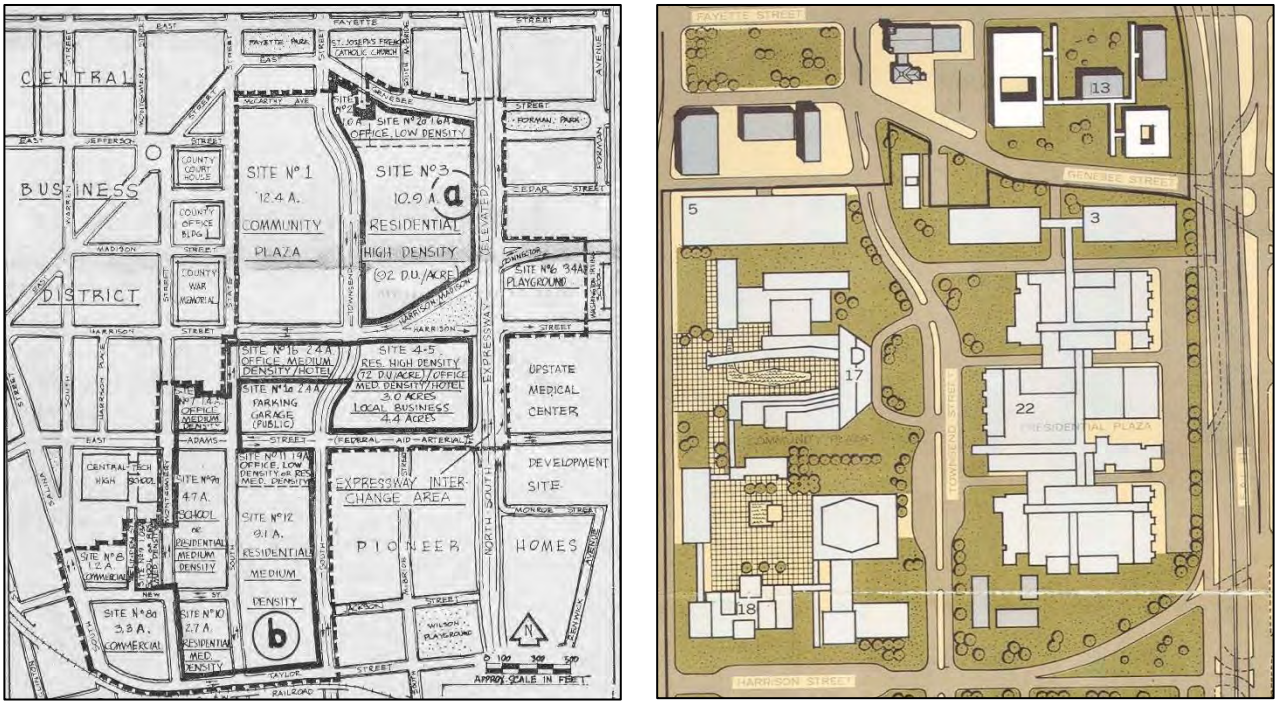


Figure 2.4.6-14. 1962 Map of Proposed Near East Side Urban Renewal Area (NESURA) Redevelopment (left).
Figure 2.4.6-15. 1965 Syracuse Urban Renewal Agency Map of Proposed NESURA Redevelopment (right).
The NESURA, as envisioned in 1962 (left) was to involve a variety of uses including residential, civic and offices within a 101-acre area. (SPS, 1962a, Collections of the Onondaga Historical Association) The 1965 "Central Syracuse 1980 Illustrative Plan" (right) depicted the anticipated outcomes of various urban renewal projects, including the NESURA, by 1980. Formerly dense blocks of residences would be replaced by sprawling plazas with high-rise residential towers and city government offices (SURA, 1965; Collections of the Onondaga Historical Association)

A fifteen-month planning process for the NESURA began in 1958, when neighborhood residents were surveyed by the City of Syracuse Office of Urban Renewal regarding housing needs. Housing in general in the Urban Renewal Area was found to be substandard and overcrowded, with one phase of the survey finding 550 families living in 160 dwellings. Following the survey process, in 1960 the Office of Urban Renewal, issued letters to property owners and tenants in the Near East Side Urban Renewal Area indicating that property acquisition would be occurring over the next two years, no families would have to relocate until "decent, safe and sanitary quarters elsewhere" had been found for them, and that some families and businesses would be able to remain in their buildings even after acquisition, depending on where they were located (SHA, 1958; CSOUR, 1960).

Initial property acquisition in the Near East Side Urban Renewal Area began in 1961 with the purchase of 25 properties at cost of almost one million dollars. Most of the properties were acquired at three times their appraised value. Early estimates of costs for building acquisition significantly exceeded the appraised value of buildings, sometimes by as much as 500 percent, leading to public criticism of the costs of urban renewal projects (Hancock, 1958; Ganley, 1961). Demolition of buildings within the NESURA, as well as the proposed path of Interstate 81 began in 1962, and continued until 1966. Buildings were demolished in eight groups based on locations specified in contracts labeled D-1 through

D-8 (the “D” indicating “demolition”). The demolition contracts required that basements and cellars would be filled, and the property cleared and graded. Where demolition contracts for Interstate 81 and the NESURA involved the removal of streets such as Cedar Street and Jackson Street, manholes and catch basins were also filled in, and curbing was removed (SPS, 1964a; Lee, 1965). Appendix B of this report includes geo-referenced copies of the NYSDOT demolition plans overlain on current aerial photographs, which illustrates the scale of the transformation to this neighborhood that resulted from the widespread demolition of structures within the NESURA.

Demolition for the NESURA alone included 633 structures on 450 parcels. One newspaper article regarding the demolition contracts noted that the NESURA would be made a “vast desert”. A total of 838 families and 304 businesses were displaced within the NESURA. A total of fifty-seven businesses went out of business rather than relocate (Lee, 1963; SPS, 1963a). By spring 1964, 565 buildings had been demolished under seven contracts within the NESURA; by August 1965, only one building remained to be demolished (SPS, 1964b and 1965a). Demolition of buildings within the path of Interstate 81 had already progressed considerably along its right-of-way through the city, with foundations and pilings portending the highway to come (see Figure 2.4.6-16), while on the south side of the city the interstate was beginning to take shape in the form of bridge footings and earthen embankments (see Figure 2.4.6-17) (SHJ, 1964 and 1965b).



Figure 2.4.6-16. 1965 Photograph of I-81 Construction.
This 1965 newspaper photograph shows extent of the Interstate 81 right-of-way adjacent to Almond Street, just south of the Presidential Plaza medical building on East Genesee Street. No evidence of the previous residences, businesses or religious buildings remained where concrete pilings and foundations stood (SHJ, 1965b; Collections of the Onondaga Historical Association).

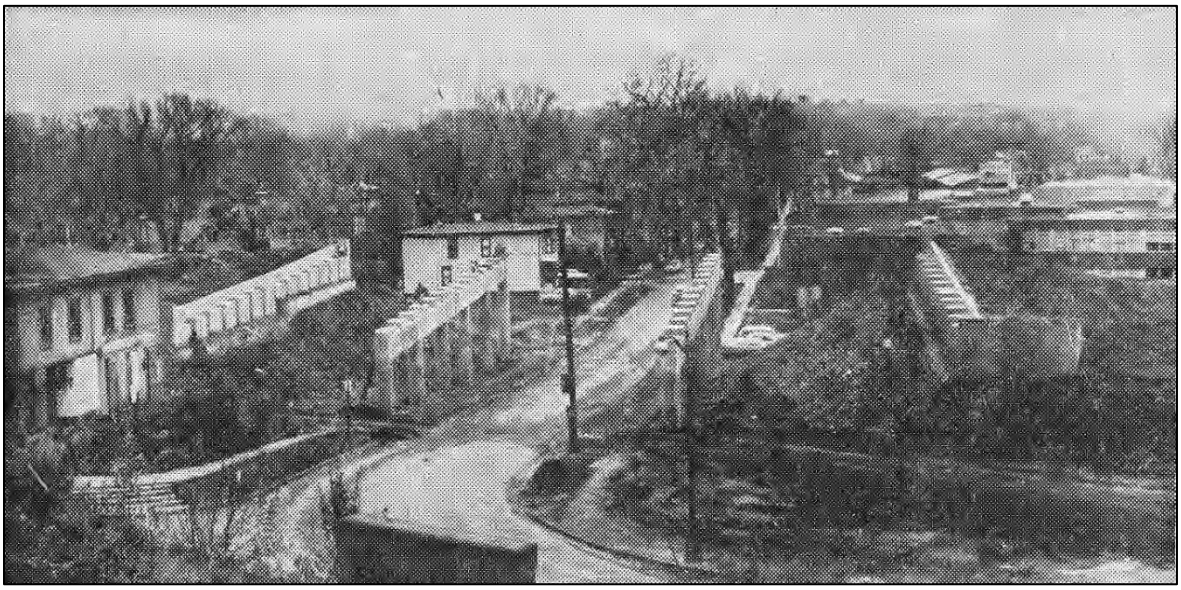


Figure 2.4.6-17. 1964 Photograph during Construction of I-81 at East Castle Street.
Construction of Interstate 81 through Syracuse involved the construction of earthen embankments, driving concrete pilings, and additional engineering at certain intersections such as East Castle Street (SHJ, 1964; Collections of the Onondaga Historical Association).

In addition to the designated civic and cultural areas, two portions of the NESURA totaling approximately 44 acres were earmarked for redevelopment by private developers. Over sixty developers attended a meeting at the invitation of then Mayor William Walsh in summer 1962 from as far away as Michigan and Missouri in an attempt by the city to promote the construction of low density office buildings and multi-story apartment buildings within these properties (SPS, 1962a). With the NESURA well advanced by 1963, Mayor William Walsh announced the Downtown One urban renewal project, which encompassed 15 blocks and approximately 61 acres directly west of the NESURA and bordered by East Jefferson Street on the north, Adams Street on the south, Clinton Street on the west, and State Street on the east. The main focus of the Downtown One project would be the construction of a business plaza and tower for Mutual of New York (MONY), as well as associated commercial and civic buildings in an area that included the county courthouse as well as the Onondaga War Memorial (SPS, 1963b). Downtown One and the NESURA were both included within the 262-acre "Downtown General Neighborhood Renewal Plan Area" (also known as the Central Syracuse General Renewal Plan Area) (see Figure 2.4.6-18), and were part of a long-range vision for Syracuse expected to be completed by 1980, intending to "make Syracuse the major center of business life and cultural opportunity in Upstate New York" (SDUI, 1965; SURA, 1965).

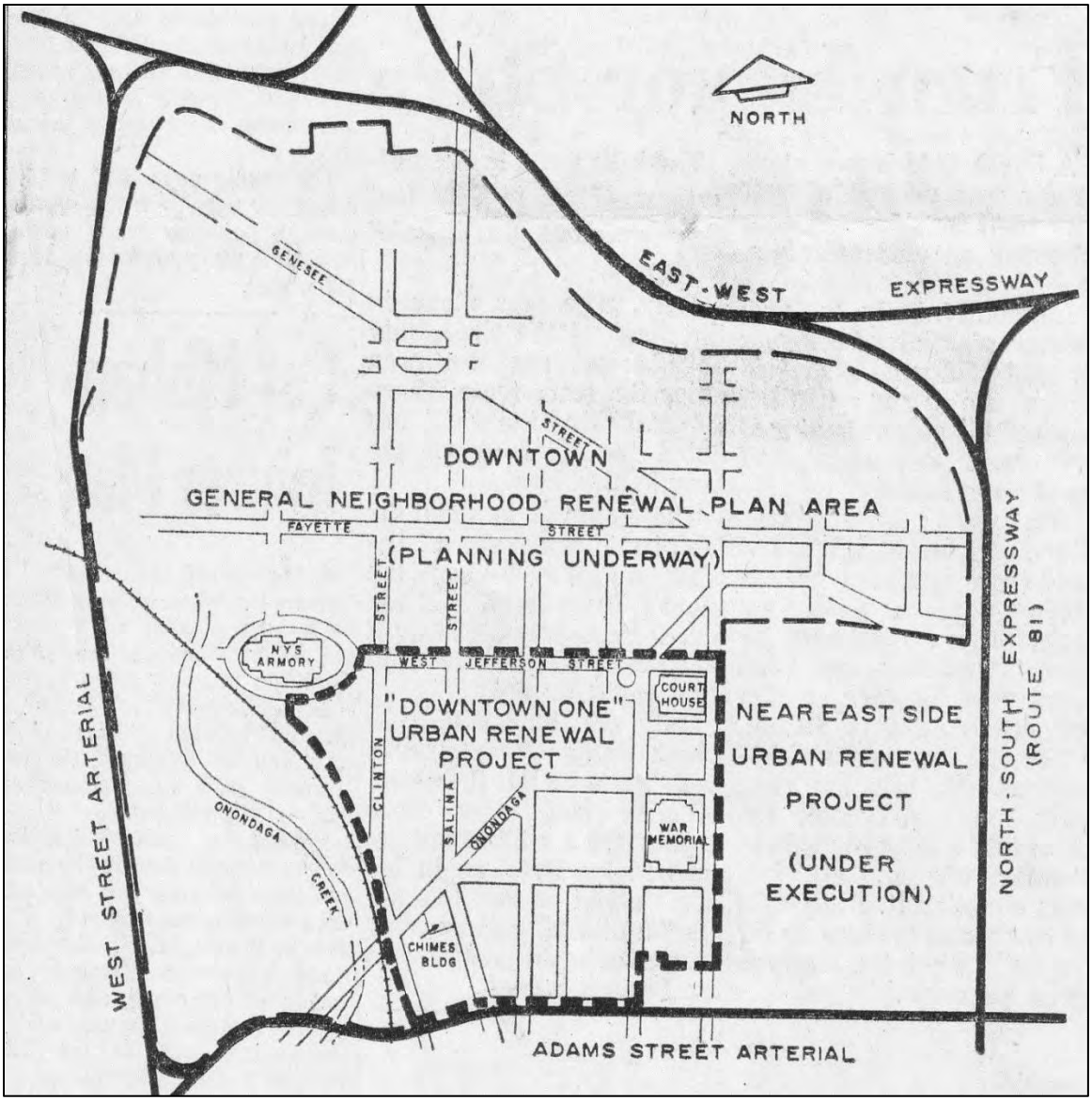


Figure 2.4.6-18. 1963 Map of Proposed Urban Renewal Projects in Downtown Syracuse.
By November 1963, planning was underway for several ambitious urban renewal projects to be undertaken within the network of proposed roadways surrounding downtown Syracuse, including the construction of Interstate 81. Although none of these projects would ever be fully constructed as originally envisioned, they led to the demolition of hundreds of residences and commercial buildings and a permanent change to the character and built environment of the city. (SPS, 1963b; collections of the Onondaga Historical Association)

The comparatively smaller Downtown One project (intended to the first of five "Downtown" projects, and the only one for which any construction occurred) is most noteworthy for adding the MONY towers to the downtown skyline. The original 20-story MONY Center opened in 1967, with the second tower constructed in the early-to-mid-1970s. Downtown One was intended to connect the Central Business District with the Community Plaza constructed within the NESURA, and ultimately resulted in less widespread demolition, perhaps in response to the backlash from the destruction of the Fifteenth Ward, but also as a result in changes in leadership in city urban renewal agencies, as well as a decreasing amount of federal funding. The 1975 construction of the John H. Mulroy Civic Center, a combined

performing arts and office complex adjacent to the Onondaga County Courthouse and Columbus Circle, was the last major building constructed within the Downtown One project area, and signaled the conclusion of three decades of urban renewal in downtown Syracuse (Knight, 2007; Stamps and Stamps, 2008).

Displacement of Fifteenth Ward Residents

The populations most directly impacted by the construction of Interstate 81, urban renewal projects, and the resulting building demolitions were overwhelmingly African-American and Jewish, and located in the Fifteenth Ward of Syracuse. The Fifteenth Ward was historically referred to as "Jew Town" for the high concentration of Jewish immigrants who began to settle in the area roughly bounded by State, Taylor, Almond and Jefferson Streets beginning in the mid-nineteenth century. The first congregations in Syracuse, Society of Concord (1850) and Beth Israel (1854), constructed temples located one block apart on Harrison Street in the heart of the Fifteenth Ward (see Figure 2.4.6-19). A significant influx of additional Jewish immigrants in Syracuse occurred in the late-nineteenth and early-twentieth centuries as a result of ethic persecution in Eastern Europe, leading to the establishment of several new synagogues and businesses in the Fifteenth Ward. The Jewish population in Syracuse was estimated to have reach a height of between 12,000 and 14,000 by the 1940s, the majority of whom resided in the Fifteenth Ward. This was due in part to anti-Semitism, which limited the places that Jews could live and work throughout the city. As a result, they were limited in terms of economic mobility, and subject to the deteriorating conditions of housing within the Fifteenth Ward (Davis, 1980; 1986)

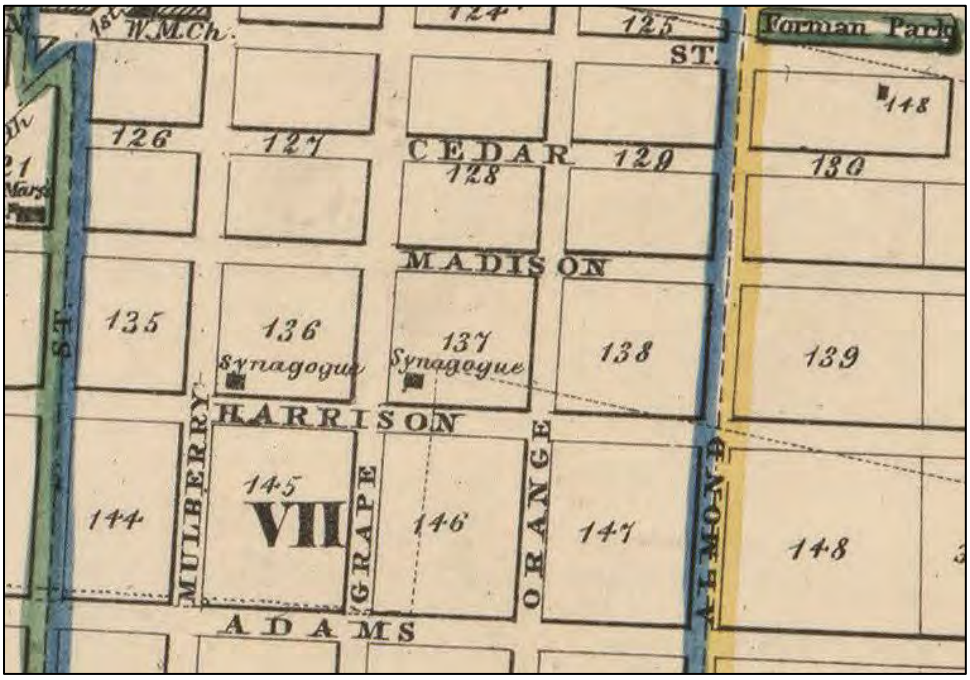


Figure 2.4.6-19. 1859 Clarke Map of Syracuse Showing Synagogues in the Fifteenth Ward.
By 1859, a Jewish population had begun to coalesce in the neighborhood between Mulberry and Almond Streets, where two congregations, Society of Concord and Beth Israel, had constructed synagogues in what was then the seventh ward of Syracuse, and would later be located within the heart of the Fifteenth Ward (Clarke, 1859).

The Jewish enclave in downtown Syracuse was essentially obliterated by the construction of Interstate 81 and the corresponding demolition of the Fifteenth Ward. Many families chose move outside the city or to leave Syracuse entirely, drawn by new congregations in eastern suburbs such as Dewitt. The Jewish community in Syracuse had shrank to approximately 9,000 by the early 1980s (Davis, 1986; Davis and Rabin, 2011). Although a few congregations were still located within the city limits, the critical mass of synagogues and businesses that existed in the Fifteenth Ward for a century did not coalesce elsewhere following forced relocation under urban renewal policies, leaving minimal trace of the once flourishing "Jewtown" in the shadow of Interstate 81 (see Figure 2.4.6-20 and Appendix B), or its flourishing Jewish and African-American communities and businesses, the latter of which had grown significantly in the decades just prior to the construction of the highway.

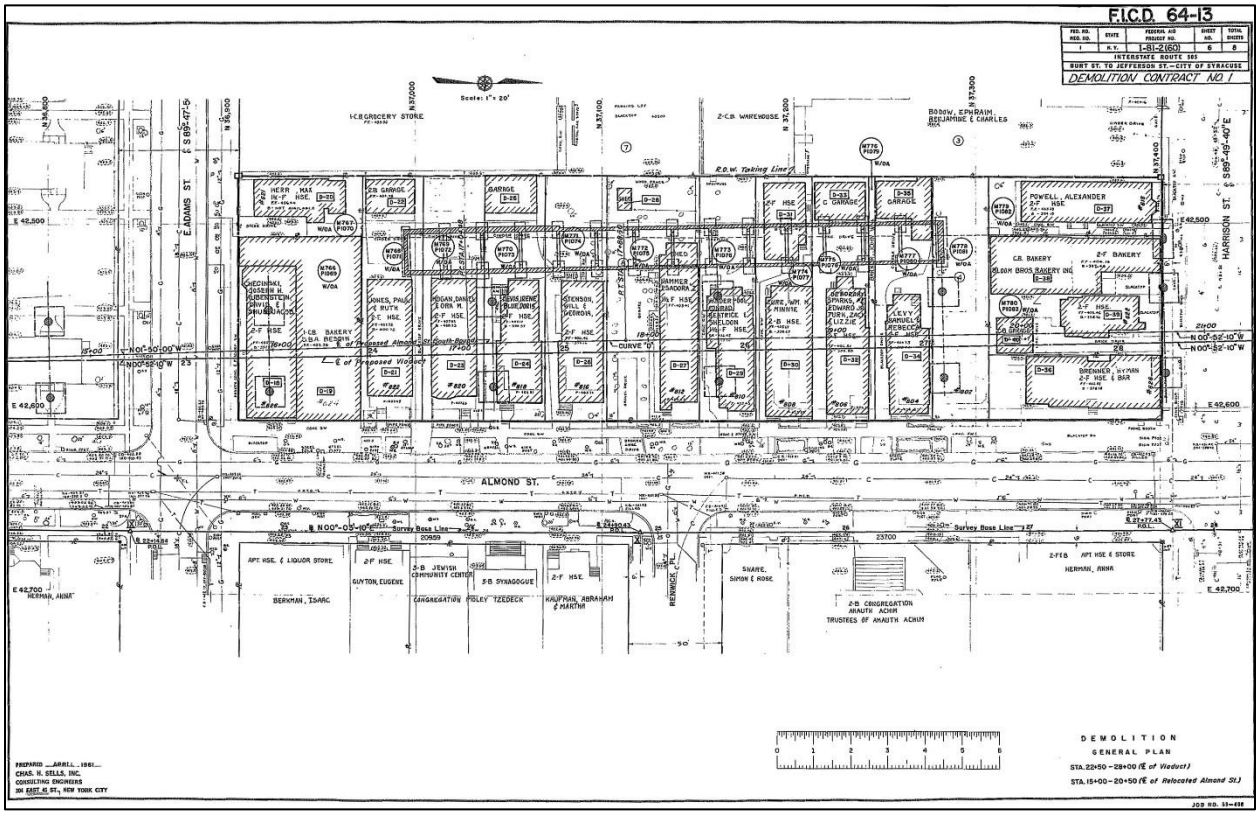


Figure 2.4.6-20. 1961 NYSDOT Demolition Plan of a Portion of Almond Street.
The demolition plans prepared by NYSDOT for the Interstate 81 (originally named Interstate 505) project identified the owners of structures within the path of the highway as well number of stories and building materials. This particular sheet (64-13, Sheet 6 of 8) depicts the block between Adams and Harrison Streets slated for demolition, as well as noting adjacent structures on the east side of Almond Street, most notably two synagogues (Congregation Pioley Tzedeck and Congregation Ahauth Achim) and a Jewish Community Center, that would be demolished as part of the NESURA project (NYSDOT, 1961).

Although Syracuse had a significant African-American population at the time of the construction of Interstate 81, this was not historically the case. In 1810, only 7 African-Americans were recorded as living in Syracuse (two of which were counted as slaves); however, by the time all slaves were freed in New York in 1827, the number of African-Americans had grown to 176. Following the Civil War, the African-American population in Syracuse grew slowly, but stayed relatively static in terms of proportion to the overall population. Between 1870 and 1940, African-Americans comprised approximately one percent of the entire population of the City of Syracuse, although the total number grew by almost 400 percent (from 435 in 1870 to 2,082 by 1940). Between 1940 and 1960, the African-American population grew over 100 percent each decade, from 5,058 by 1950, to 11,210 by 1960. Throughout this period of growth and despite significant increases in population, African-Americans were geographically limited to older and often deteriorated housing south of the Erie Canal in the sixth, seventh, eighth and ninth wards of Syracuse, eventually expanding south into the Fifteenth Ward by the 1920s (Davis, 1980; Stamps and Stamps, 2008).

By 1957, it was estimated that a total of 3,337 families would be displaced by urban renewal and highway construction in Syracuse by 1960, though only 718 units of potential state and federally-funded housing were available to accommodate these families, many of whom were African-American (SPS, 1957). Variations in relocation policies and compensation of displaced tenants caused some controversy, leading to accusations of discrimination and segregation in the relocation of African-Americans from the Fifteenth Ward into inferior housing. Families located within the NESURA received moving expenses, while businesses were also reimbursed property losses up to $3,000. By contrast, families displaced by Interstate 81 were not given any money (Carroll, 1961). Homeowners in one area at the southern end of the proposed Interstate 81 right-of-way formed the South Side Property Owners Association claimed that appraisals on their homes were "ridiculously low," and even sought to have emergency legislation passed by the state that would provide reimbursement for moving costs and legal expenses associated with property acquisitions, though they were not successful. Attempts to meet with Governor Nelson Rockefeller to discuss the issue were also stymied (SHJ, 1962; SPS, 1962b; Stevens, 1962).

The Syracuse Committee on Racial Equality (CORE) were among the vocal protestors of what they deemed to be the "segregated relocation of families due to urban renewal," and advocated for "direct intervention…into the urban renewal area to halt the urban renewal program." The city government, led by Mayor William Walsh, warned the protestors that their ultimatum was a "threat to the processes of city government." A September 1963 protest resulted in the arrest of twelve CORE members by city police. Numerous demonstrations followed as demolitions progressed for the NESURA and Interstate 81 (SPS, 1963c and 1963d). Anti-demolition protests even resulted in one wrecking company hired by the city filing a claim against the city due to delays caused by CORE demonstrations (SPS, 1964c).

It is estimated 800-900 families were displaced by multiple urban renewal programs as well as the construction of highways in the Fifteenth Ward, with a total of 2,200 families displaced by urban renewal and highway construction. By 1968, 103 acres of land in four contiguous census tracts that were predominantly African-American and poor, had been demolished, with hundreds of residences, dozens of Jewish and African-American-owned businesses, and nearly all of the African-American churches in the city had been permanently destroyed (Knight, 2007; Stamps and Stamps, 2008; DiMento and Ellis, 2013).

End of Urban Renewal

Despite the wide application of urban renewal programs in American cities throughout the 1950s and 1960s, the programs were often criticized for taking over a decade to complete, or projects never coming to fruition after extensive demolition had occurred, sometimes leaving massive vacant lots and dozens if not hundreds of displaced residents. A 1966 survey of projects found that of almost 1,200 urban renewal projects completed nationwide, approximately 67 percent were residential in nature before urban renewal, and only 43 percent were residential when completed. In addition, when new housing was built to replace older housing, the new residences were often too expensive for the former residents, leading to subsequent displacement, as well as overcrowding and creation of slum-like conditions elsewhere in cities. Throughout the 1960s and 1970s, subsequent urban renewal projects in several American cities were embroiled in scandals involving corruption, crime, foreclosures and other financial problems, and earlier urban renewal public housing projects were already beginning to be demolished (Cohn, 1978; Hoffman, 2000).

As early as 1958, Syracuse officials, including then-mayor Anthony Henninger, acknowledged the potential drawbacks of constructing an elevated highway through downtown Syracuse, noting similar highway projects had already done more harm than good in other cities (SPS, 1958a). However, by the time the full-length of Interstate 81 opened through Syracuse just a decade later, a suite of urban renewal initiatives had done just as much, if not more significant damage to the built environment of the City of Syracuse than a single highway project, which often shoulders the blame for decades of urban planning missteps that are to blame for the irreversible destruction of hundreds of buildings, concurrent dislocation of thousands of residents and eradication of communities, and the flight of business and economic downturn of downtown Syracuse in the mid-to-late twentieth century (Cohn, 1978; DiMento and Ellis, 2008).

2.4.7 Suburban Expansion in Onondaga County (ca. 1965-2016)

In addition to the forced relocation of several hundreds of residents and the destruction of numerous buildings throughout downtown Syracuse, the urban renewal era had the unintended consequence of reducing the vitality of the central business district and city as a whole. Newly constructed elevated freeways carried traffic to growing suburbs, encouraging more rapid development and relocation of commercial and industrial opportunities outside the city center, drawing jobs as well as consumers away from the once vibrant downtown area. Although it continued to attract workers

from the suburbs in the burgeoning fields of education and health care throughout the late twentieth century, the City of Syracuse continued to shrink in population as well as prominence as a center of industry, a role it had occupied for 150 years.

Construction of I-481 and Changes to Interstate 81

The plans for Interstate 81 also included the construction of a belt-loop expressway that would connect Interstate 81 at North Syracuse on the north and Brighton Avenue on the south to the New York State Thruway, originally designated Interstate 281. The proposed route of this expressway passed through predominantly undeveloped land adjacent to fairly recent suburban development; although property would need to be acquired as part of the highway construction, the number of buildings that needed to be demolished would be far less than the number demolished as part of the construction of Interstate 81. Initial construction on the first portion of the outer loop expressway between Jamesville Road and Route 5 in the Town of Dewitt began in 1962 and opened by 1965. Interstate 281 was officially renumbered as Interstate 481 in 1970, with subsequent portions between Route 5, Interstate 690 and the New York State Thruway opened by the mid-1970s (SHJ, 1962b; NYSDOT, 1970; USGS, 1973a). While construction of the southern portion of Interstate 481 connecting Brighton Avenue to the existing route of Interstate 481 at Jamesville Road was completed by 1979, construction of the final, five-mile portion of Interstate 481 between the New York State Thruway in the Town of Dewitt to Interstate 81 in the Town of Cicero did not begin until 1982 (SHA, 1978; Faber, 1982). The complete route of Interstate 481 opened in 1990, almost 50 years after initial proposal for a network of highways was proposed within Syracuse and the surrounding area.

However, after less than a decade, numerous problems had arisen with Interstate 81, owing to a higher number of cars causing unanticipated congestion, which was exacerbated by design deficiencies, that also led to a number of serious accidents. The increase in use of the highway also necessitated frequent repairs, as well as closures of some on and off-ramps. The entrance from Hiawatha Boulevard to Interstate 81 north was closed in the early 1970s due to safety concerns, prompting a significant redesign of the highway and that included additional lanes between Hiawatha Boulevard and Mattydale, and reconstruction of four interchanges. Work was initially proposed in 1977, and but stalled for several years as alternatives were studied by the New York State Department of Transportation (NYSDOT) (SPS, 1977a and 1977b; Cohn, 1978).

By 1980, designs were in place for a $70 million project that included widening of the highway along four miles, construction of a “super viaduct” at the Liverpool interchange, as well as realignment of a portion of the highway at Park Street, which would include the acquisition and demolition of 13 residences as well as several businesses. Work began in late 1981, with the construction of a temporary roadway and embankment to handle traffic flow during the construction of the new road alignment and interchange (Padovano, 1980 and 1982a). The increase in traffic through

the adjacent north side neighborhood caused significant dismay, and similar to the construction of Interstate 81 through downtown Syracuse, demolition of businesses and residences acquired through eminent domain procedures resulted in lawsuits claiming that property owners were not being adequately compensated (Shelly, 1982; Padovano, 1982b). Nonetheless, work continued on the project, but was delayed by several factors, including poor soil, weather, and unanticipated alterations to the design of certain project elements, leading the timeline for completion of all highway improvements to extend years past the original expected date of completion. By October 1985, the project was determined to be 75 percent complete, though significant demolition had yet to occur on old bridges and interchange structures (see Figure 2.4.7-1), and work was finally completed in 1987 (SHJ, 1982; Kramer, 1983; SHJ, 1985; Adams, 1987).

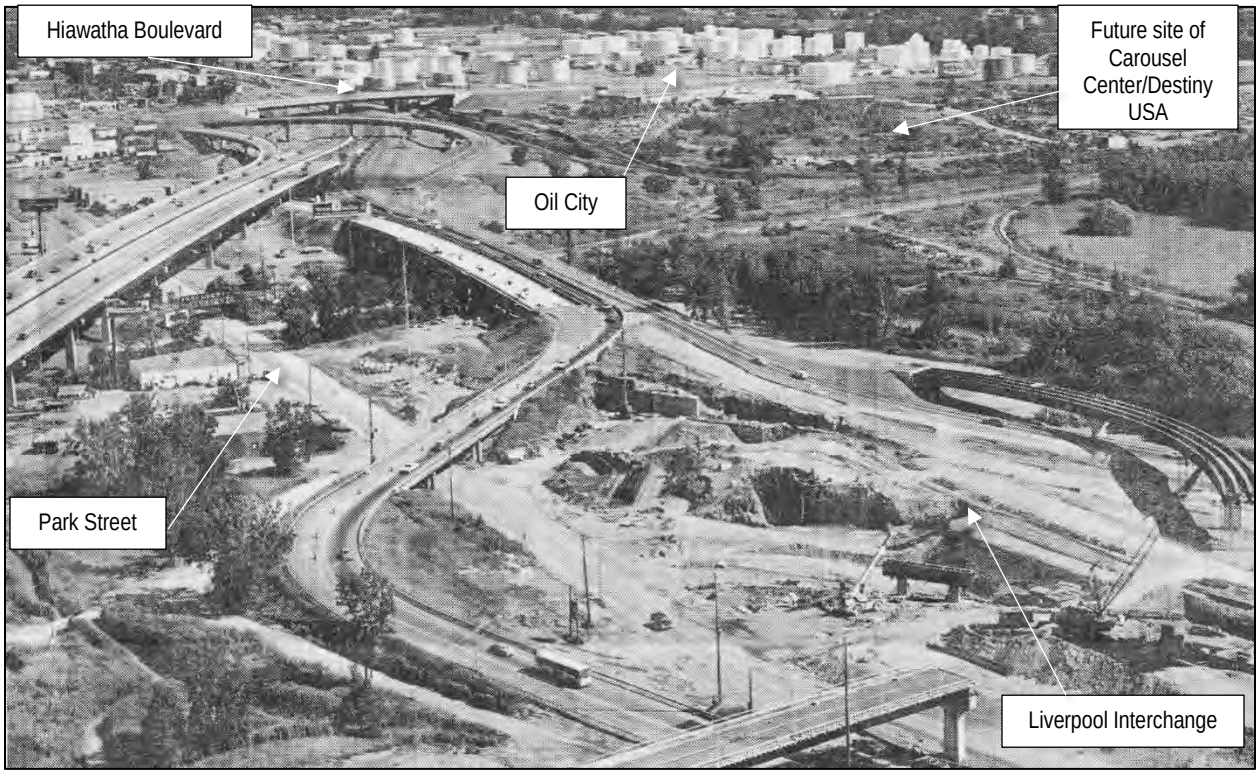


Figure 2.4.7-1 1985 Photograph of the Reconstruction of I-81 at the Liverpool Interchange.
The reconstruction of Interstate 81 north of Hiawatha Boulevard at the Liverpool Interchange in the early 1980s involved significant ground disturbance associated with the realignment of the construction of a new viaduct over Park Street as well as a new interchange. (SHJ, 1985; collections of the Onondaga Historical Association)

Changes in Urban Population and Built Environment

While Interstates 81, 481 and 690 helped facilitate the flight of residents and businesses outside of the city, highway development was not the sole contributor to the mid-to-late twentieth century loss of population and industry in the City of Syracuse. Between the late 1940s and early 1980s, several large manufacturing plants, some of which had origins in the City of Syracuse, established much larger facilities outside the city, in some cases just beyond the city borders.

The neighboring Towns of Salina, Camillus and Onondaga experienced population growth between 100 and 400 percent between 1950 and 1970. A number of large, centralized shopping malls were constructed to service these growing populations with a concentration of shops and restaurants in one place, further diminishing the need to travel into the city for commerce. In addition, the establishment of a county executive in 1962 and a county legislature in 1968 centralized control of many functions that were formerly the responsibility of a Board of Supervisors that represented the nineteen towns of Onondaga County and the nineteen wards of the City of Syracuse, and gave more power to the outlying towns within the county to develop independently of the city (Cohn, 1978; Schramm and Roseboom, 1979; Connors, 2005; Rivette, 2005). The flight of commerce and industry from downtown Syracuse left several empty buildings that would ultimately collapse or be demolished in subsequent decades.

After peaking at approximately 221,000 residents in 1950, the population of the City of Syracuse experienced a steady decline throughout the 1960s and 1970s. While the city accounted for approximately 72 percent of the population of the county in 1930, by 1980 that number had dropped to just 37 percent. In addition, employment within the city suffered, with the loss of over 8,000 jobs throughout the 1960s, and approximately 8,300 jobs in the 1970s. The majority of job losses occurred outside the central business district, which had experienced more significant loss of industry beginning in the 1940s, though it recovered somewhat in the late twentieth century. In contrast to these overall losses, the African-American population of Syracuse grew steadily and significantly during this same period, from approximately 2082 people in 1930 to 30,117 people in 1980. This included tremendous growth in the era of urban renewal, when the African-American population grew more than 120 percent from 1940 to 1950, and more than 144 percent from 1950 to 1960. Conversely, by 1960, under 33 percent of the African-American population of Syracuse reported that they were living in the same residence as just five years earlier, indicating a high degree of geographical instability. This instability was also illustrated by the degree to which the African-American population of Syracuse was predominantly located within the poorest census tracts in the city, which increased in number significantly following the forced relocation of many African-Americans during the urban renewal era (Sacks and Sacks, 1987; Stamps and Stamps, 2008).

In the early 1970s, it had become apparent that many of the goals of urban renewal to prevent further urban blight as well as job and population loss had ultimately failed. The character of many U.S. cities had been drastically altered through demolition of housing and commercial buildings for surface parking and diminished residential use, as well as the construction of large, often elevated highways and arterials that divided neighborhoods and added a perilous condition for pedestrians attempting to navigate an automobile-dominated landscape. Urban renewal was officially terminated at the federal level in 1973. The Housing and Community Development Act of 1974 included some of the functions of urban renewal in the Community Development Block Grant (CDBG), but focused on housing rehabilitation rather than outright demolition and clearances, and also advocated for historic preservation (Hoffman, 2000). Although

these would be significant developments for cities still reeling from the effects of urban renewal, the damage had already been done to cities like Syracuse, who had continued to lose population, jobs, and businesses since the 1950s.

While the suburbs seemed to grow at an exponential pace, a significant development in public housing occurred in Syracuse in the late twentieth century with the construction of the Kennedy Square apartment complex, just east of Interstate 81 and south of Interstate 690. The property on which these apartments were located was just north of the parts of the Fifteenth Ward that were demolished as part of the Near East Side Urban Renewal Area and Interstate 81. In early 1968 it was announced that an $11 million new post office and mail-handling facility was proposed on a 15-acre site on four city blocks roughly bounded by East Water Street, South Crouse Avenue, Forman Avenue and East Fayette Street (with an additional block bounded on the south by Wellington Avenue). The blocks contained approximately 125 buildings, including commercial and industrial buildings as well as private residences (see Figure 2.4.7-2) (Long, 1968). Negotiations for acquisition of these properties began in August of 1968, and continued throughout the next two years (Schreiber, 1968 and 1969).

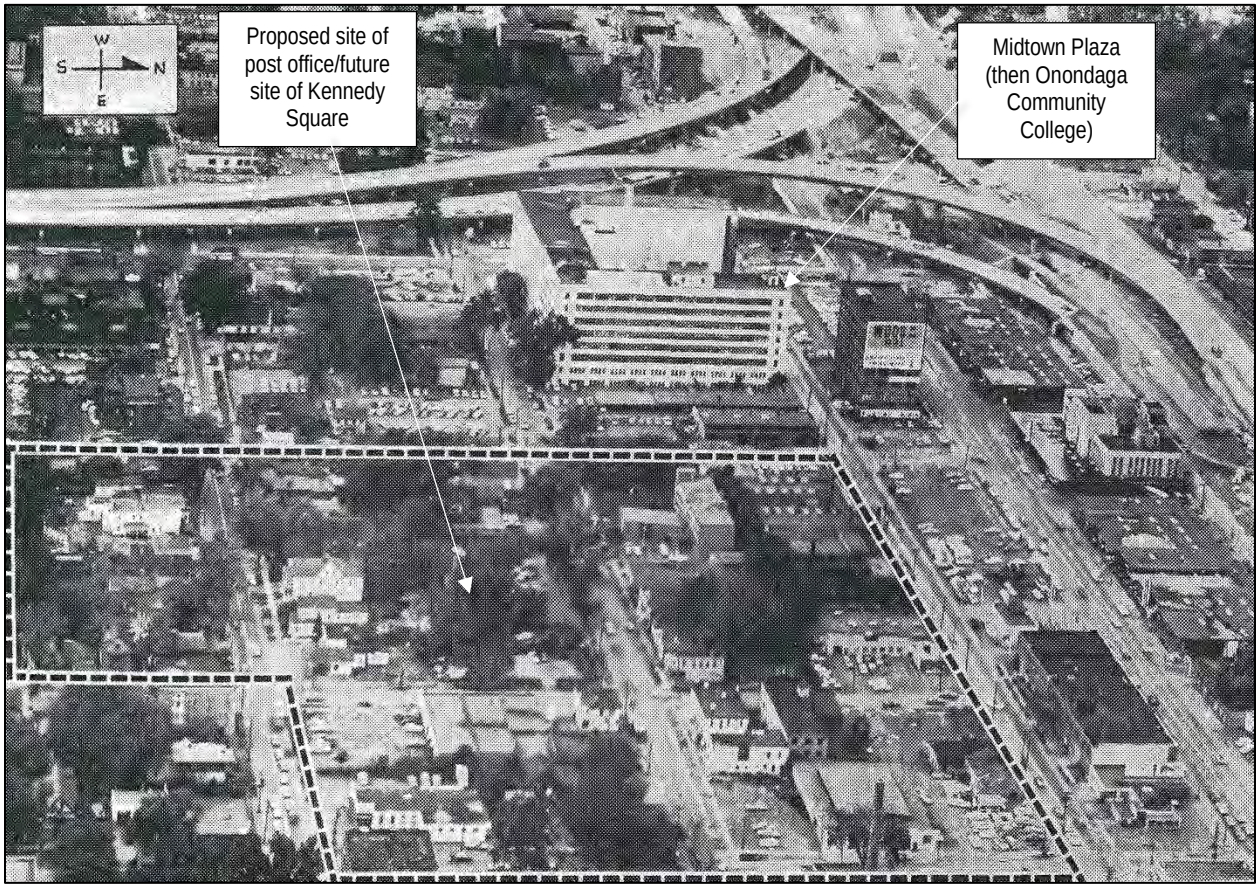


Figure 2.4.7-2. 1968 Photograph of the Proposed Site for a New Post Office near I-81.
Urban renewal continued in the shadow of Interstate 81 with the proposed demolition of five blocks of housing and commercial buildings for a proposed post office and sorting facility. The plan would progress and over 125 properties would be acquired by the federal government (SHJ, 1968; collections of the Onondaga Historical Association)

However, the project stalled in 1970, and by 1971 the federal government had opted to build the new postal facility on a 25-acre parcel to the east, and immediately adjacent to on-and-off-ramps for Interstate 690 at Teall Avenue. The government traded the land it had acquired for the original post facility to the Syracuse Urban Renewal Agency (SURA), so that a low- and middle-income housing facility could be constructed to capitalize on significant federal funding. The new housing complex would be named Kennedy Square in honor of former President John F. Kennedy and his brother, former Senator Robert F. Kennedy, as the first federal subsidy programs for moderate income families and elderly persons had been enacted during the Kennedy presidency, and had been advanced at the state level by Senator Kennedy prior to his assassination in 1968. The federal funding available stipulated that 70 percent of the units would be made available to moderate income families and senior citizens, 20 percent for low income-families, and ten percent for low-income elderly residents (SPS, 1971; SHJ, 1972). Demolitions had begun under federal ownership of the land in 1971, and the site was cleared by 1972 when SURA took ownership and began the planning process for Kennedy Square (see Figure 2.4.7-3).



Figure 2.4.7-3. 1972 Photograph Showing Clearing of the Kennedy Square Site near I-81.
Clearing of the Kennedy Square site began in 1972 following the acquisition of all the properties by the federal government for a new post office and sorting facility, relocated to Teall Avenue in a land swap with the Syracuse Urban Renewal Agency in 1972. (SPS, 1972; collections of the Onondaga Historical Association)

However, the complex was plagued with multiple construction delays, and although it was slated to open in 1973, by summer 1975 no tenants had moved in (SPS, 1972; Brieaddy, 1975). The complex was completed in late 1975, with total of 409 apartments constructed in fifteen buildings ranging in height from two-to-eight stories tall, but was only 40 percent full in September 1976 when complaints related to quality of life began to surface, and criticisms were leveled at the poor construction of the buildings, as well as earthen berms constructed by the city along Erie Boulevard, which were alleged by critics to be for "hiding" the housing complex from the public (Brieaddy, 1975; SPS, 1975 and 1976).

Throughout its three decades of operation, Kennedy Square was beset by controversy. Plagued by crime, missed mortgage payments, high vacancy and increasingly deteriorating conditions, the complex was seized by the Empire State Development Corporation in 2000, and finally closed in October 2007. Approximately 75-80 tenants remained in the largely vacant complex, and were given 90 days to find new housing (Nolan, 2007). The property was transferred to the Upstate Medical Center in 2009, and demolition began on the fifteen apartment buildings comprising Kennedy Square, but was not completed until 2012. A $21 million Central New York Biotechnology Research Center was constructed and completed in 2014 along Washington Street, with plans for an accompanying mixed use neighborhood never materializing, and the majority of the site remaining vacant to the present day (see Figure 2.4.7-4) (Mulder, 2001 and 2013; Moriarty, 2014).



Figure 2.4.7-4. 2016 Photograph of former Kennedy Square Apartments Site.
The former site of Kennedy Square has remained vacant undeveloped since its demolition, with the exception of the Central New York Biotechnology Research Center and associated parking lots, located along East Washington Street (View to the southwest from East Water Street; Photograph by EDR, 2016)

Located just west of the Kennedy Square site and immediately adjacent to Interstates 81 and 690 is another block that underwent significant changes in the late twentieth century. The corner of East Washington and Almond Streets was originally the home of the L.C. Smith & Brothers Typewriter Company, one of the most important area manufactories of the early twentieth century. The company merged with Corona Typewriter Company of Groton, New York in 1926 to form Smith-Corona, which was among the leading manufacturers of typewriters in the United States throughout the subsequent decades. As the company grew, the building expanded to an imposing, eight-story, horseshoe-shaped complex facing Erie Boulevard (visible in Figure 2.4.7-2). Although the company vacated the complex in 1960 to move its operations south to Cortland County, the building did not stay vacant for long. The Onondaga Community College (OCC) opened its doors to 500 students in 1962 in the former Smith-Corona complex. After over a decade of continual growth, OCC relocated to a 280-acre site south of the city, once again leaving Midtown Plaza vacant (Knauss, 2000; OCC, 2016).

Following the departure of OCC, the building housed a variety of businesses, but fell into disrepair and was vacant by the late 1980s. Perceived as an eyesore and a barrier to development of the property, Midtown Plaza was demolished in 1999 (see Figure 2.4.7-5). The Midtown Plaza site lay dormant for several years, until former Governor George Pataki proposed the construction of the Syracuse Center of Excellence in Environmental and Energy Systems, which was decided to be located at the corner of East Washington and Almond Streets in 2002. The designation of the land as a brownfield resulted in significant clean-up and abatement of the site, leading to a lengthy construction process. Ground was broken in 2004, and the building was completed in 2010 (see Figure 2.4.7-6) (Kim and Wright, 1999; Knauss, 2000; Morelli, 2010).

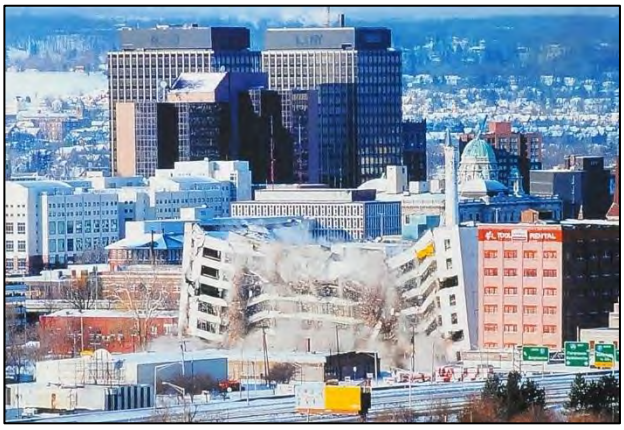




Figure 2.4.7-5. 1999 Photograph Showing the Demolition of Midtown Plaza (left).
Figure 2.4.7-6. 2016 Photograph of the Center of Excellence at the former Midtown Plaza site (right).
By 1999, Midtown Plaza had been vacant for over a decade, and was demolished in a highly-publicized ceremony (*The Post-Standard,* 1999)
By 2016, the area to the south of the Center of Excellence (opened in 2010) had undergone significant environmental remediation and under development for onsite parking and other amenities. (Photograph by EDR, 2016)

Perhaps the most significant development in the City of Syracuse in the late twentieth century was the construction of the Carousel Center (later renamed Destiny USA) between Onondaga Lake and the property known as Oil City, north of downtown Syracuse and immediately west of Interstate 81. The property had long served as a scrapyard and like much of the surrounding lakefront, was significantly polluted by years of industrial use (see Figure 2.4.7-7). In 1987, Pyramid Companies announced its intention to build a shopping mall over one-and-a-half million square feet in size, originally scheduled to open in 1989. However, the proximity to the lake and previous industrial uses of the property led to very poor soil conditions that delayed the project as a solution was developed to allow the project to move forward. Carousel Center finally opened on October 15, 1990, and soon became one of the biggest draws to the Syracuse area (DUSA, 2010; Tampone, 2015).

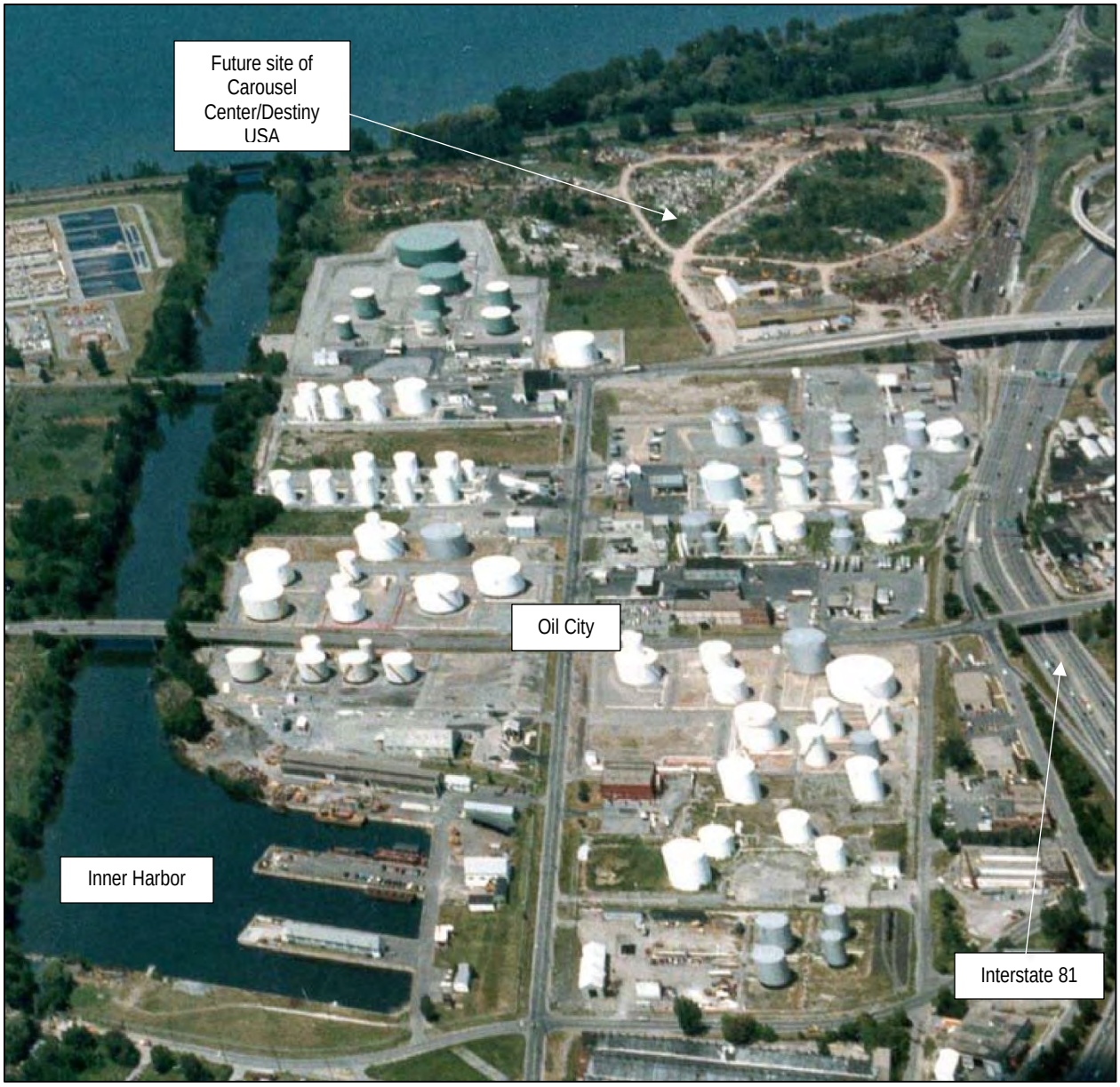


Figure 2.4.7-7. 1987 Photograph of Oil City and Industrial Area west of I-81.
Prior to the construction of Carousel Center, the area located between Onondaga Lake, the Inner Harbor, downtown Syracuse, and Interstate 81 was entirely industrial in nature. The former Onondaga Salt Springs Reservation land had been converted to use as oil storage for companies such as Sunoco and Hess, with numerous other industrial facilities located in the nearby vicinity (DUSA, 2010)

After over five years of construction that began in 2007, an approximately 1.3-million-square-foot expansion was completed, and the mall known as Carousel Center was officially re-branded as Destiny USA in August 2012. Although initial plans included a more significant expansion and additional development, the 2012 expansion of the mall has been announced to be its last (Niedt, 2012; Tampone, 2015). Additional work performed as part of the expansion included clearing of the former Oil City property, which is adjacent to the ongoing efforts to reclaim and redevelop the Inner Harbor as a recreational and commercial destination (see Figure 2.4.7-8).



Figure 2.4.7-8. ca. 2010 Photograph of Carousel Center, the Inner Harbor, and former location of Oil City.
By 2010, the former site of Oil City had been almost completely replaced by parking as part of the ongoing Destiny USA expansion, and the mall had undergone a significant expansion (to be completed in 2012). Redevelopment at the Inner Harbor had begun, as part of an ongoing effort to reclaim the industrial past of the lakefront area for commercial and recreational purposes. (DUSA, 2010)

Prior to its removal, Oil City extended across an approximately 80-acre area with 67 oil tanks owned by nine oil companies. The last of the large aboveground oil tanks at Oil City were removed in 2001, and the final remaining vestige of the gas and oil industry in Oil City (an office building for Chevron) was torn down in 2013 (Foderaro, 1990; CNYRPDB, 2010; Tampone, 2013).

Syracuse in the 21st Century

A late 1970s history of the City of Syracuse dispassionately encapsulated the effects of the urban renewal era on the downtown area in language that was common to the era, avoiding nostalgia and relegating the widespread destruction to just part of the life cycle of the city:

> A block of uninteresting buildings was cleared to make way for MONY Center. The old Cedar Street jail and morgue went down as plans progressed for the County Office Building. On the west side of Salina Street, the old City Bank structure, the E.W. Edwards store and its annex on South Clinton Street, the Wieting garage, and the Lincoln Bank building succumbed to the wreckers' ball. Theaters—the Strand, the Empire, Keith's, and the Paramount—were demolished further south on Salina Street. Sibley's department store was built on the site. On Clinton Square the Jerry Rescue building came down, as did the 110-year-old County Courthouse at North Clinton and West Genesee streets… The eleven-story Onondaga Hotel, the Marine Midland Building on South Warren Street, and the old French Church at Townsend and East Genesee streets were removed from the scene (Schramm and Roseboom, 1979).

Despite such significant changes to the built environment, the City of Syracuse in the twenty-first century has been experiencing a resurgence of commercial and residential development and activity not uncommon to mid-sized cities. Numerous outdoor festivals and an increase in businesses in formerly vacant buildings has restored street life that had been absent for some time. Also suburban housing and commercial growth has continued residential occupancy in downtown Syracuse hovers consistently around 99 percent, with new housing units being added on a regular basis, drawing a largely young and professional population to downtown living (Tampone, 2014; DCOS, 2013).

Conversely, Syracuse also holds the distinction of the highest concentrated poverty among African-American and Hispanic populations in the nation. Between 2000 and 2010, the number of neighborhoods categorized as having "extreme poverty" (where 40 percent of residents live in poverty) increased from nine to nineteen, and the number of high-poverty census tracts increased from twelve to 30. Approximately 65 percent of African-Americans and 62 percent of Hispanics in Syracuse live in high-poverty neighborhoods. Although the city government and numerous health and educational institutions continue to combat these issues, much of the blame for the poverty is often heaped upon the dislocation, segregation and discrimination that occurred during the construction of Interstate 81 and the urban renewal era, and a lack of infrastructure to deal with a burgeoning population of new immigrants that is forced to settle in historically poor neighborhoods already ill-equipped to handle the needs of their residents (Semuels, 2015; Weiner, 2015).

2.5 Existing Conditions

Existing conditions within the APE for Direct Effects were observed and photographed during multiple site visits conducted by EDR cultural resources staff between 2014 and 2016. Existing conditions within the APE for Direct Effects are depicted in Appendix A: Maps 1 and 10, as well as in photographs included in Appendix C.

In general, existing conditions within the APE for Direct Effects represent the extent to which the Viaduct Priority Area, the I-81/I-481 Southern Interchange, the I-81/I-481 Northern Interchange, and the I-481 Eastern Improvements have been significantly shaped by ground disturbance associated with the construction of Interstates 81 and 481, as well as historic ground disturbance associated with commercial, industrial and residential development throughout the eighteenth, nineteenth and twentieth centuries. Observations of existing conditions within the four priority areas of the APE for Direct Effects include the following:

Viaduct Priority Area

- The Viaduct Priority Area is comprised of the elevated portion of Interstate 81 located between Oakwood Cemetery on the south, and extending to the NYS Route 370/Liverpool Interchange on the northwest, and including portions of Interstate 690 between and Beech Streets on the east, as well as portions of West, Genesee, Adams, Harrison Streets, Erie Boulevard, and other connected surface streets throughout downtown Syracuse.
- In general, the Viaduct Priority Area is characterized by fairly dense urban development within and immediately adjacent to the APE for Direct Effects, with several buildings from the nineteenth and twentieth centuries located in close proximity to the Interstate 81 and Interstate 690 viaducts, interspersed with young street trees, large surface parking lots and multi-story parking garages (Appendix C, Photographs 1-2).
- The portion of the Viaduct Priority Area northwest of downtown Syracuse includes six lanes of divided highway constructed at or below grade, with cut-and-fill embankments and concrete walls, surrounded by urban development (Appendix C, Photographs 3-4). Any soils present have been highly disturbed due to highway construction and repair over the past several decades.
- The portion of the APE for Direct Effects through downtown Syracuse passes through highly urban corridors bordered by numerous single and multi-story buildings, four-lane local streets, paved sidewalks, and various above- and below-ground utilities (Appendix C, Photographs 5-6).
- The western portion of the APE for Direct Effects within the Viaduct Priority Area includes a portion of West Street, which begins below Erie Boulevard West (within the APE) and rises as it continues north where it is carried over West Genesee Street by a man-made concrete wall, surrounded by surface streets, commercial development and numerous utilities (Appendix C, Photograph 7).
- The eastern portion of the APE for Direct Effects within the Viaduct Priority Area extends along Interstate 690, which is built above grade, and characterized by man-made earthen embankments and concrete wall segments (Appendix C, Photograph 8).
- Portions of the APE for Direct Effects within the Viaduct Priority Area radiate outward along surface streets such as Adams Street, which includes a mix of land use including commercial, multi-family residential, and surface and above-ground parking, as well as numerous utilities (Appendix C, Photograph 9).

- The APE for Direct Effects within the Viaduct Priority Area terminates at the southern end immediately adjacent to Oakwood Cemetery and the former Delaware Lackawanna (currently CSX) Railroad right-of-way, which runs along the east side of Interstate 81 before turning west and proceeding south of the Viaduct Priority and downtown Syracuse (Appendix C, Photograph 10).

I-81/I-481 Southern Interchange

- The APE for Direct Effects I-81/I-481 Southern Interchange includes the area immediately adjacent to the interchange as well as the Interstate 81 right-of-way extending south past NYS Route 173, and a portion of the Interstate 481 right-of-way extending east. No buildings are located within the APE for Direct Effects for the I-81/I-481 Southern Interchange.
- The topography of the I-81/I-481 Southern Interchange slopes down considerably from south to north (Appendix C, Photograph 11). Land within and immediately adjacent to most portions of the APE for Direct Effects is highly disturbed, comprised of cut-and-fill highway and embankment areas with steep slopes (Appendix C, Photographs 12-13). Limited areas within the APE for Direct Effects along the margins of the existing highway corridor may include intact soils.
- The area immediately south and west of the I-81/I-481 Southern Interchange is mixed in character, with a large senior citizen housing facilities located immediately adjacent to Interstate 81, and single family homes located farther to the west outside of the APE for Direct Effects (Appendix C, Photographs 14-15), while areas to the north and east of the I-81/I-481 Southern Interchange are predominantly commercial and industrial in nature (Appendix C, Photographs 16-17).
- The APE for Direct Effects includes a portion of Rock Cut Road, which is cut into an earthen embankment south of Interstate 481 (Appendix C, Photograph 18).

I-81/I-481 Northern Interchange

- The APE for Direct Effects located within and adjacent to the I-81/I-481 Northern Interchange includes portions of multiple on-and-off-ramps as well as the interstate right-of-way extending to Pine Grove Road on the north and Northern Boulevard on the east. No buildings are located within the APE for Direct Effects I-81/I-481 Northern Interchange.
- The I-81/I-481 Northern Interchange and highway rights-of-way are comprised primarily of cut-and-fill highway and embankment areas (Appendix C, Photographs 19-20). The entirety of the existing interchange shows visible evidence for having been previously disturbed as part of highway construction.
- The areas adjacent to the highway rights-of-way are a mix of mid-to-late twentieth century residential development, and successional and wetland vegetation (Appendix C, Photographs 21-23).

- A large, commercial development currently used as an automobile dealership is located on the northwest side of the APE for Direct Effects (Appendix C, Photograph 24).

I-481 Eastern Improvements

- The I-481 Eastern Improvements are comprised of two discontinuous sections located within and immediately adjacent to the Interstate 481 right-of-way, on the north and south sides of the Kirkville Road interchange, extending roughly to the New York State Thruway on the north and NYS Route 290 on the south. No buildings are located within the APE for Direct Effects for the I-481 Eastern Improvements.
- The northern and southern sections of the APE for Direct Effects are comprised of primarily cut-and-fill highway and embankment areas (Appendix C, Photographs 25-26).
- Much of the area immediately adjacent to the APE for Direct Effects is comprised of successional and wetland vegetation (Appendix C, Photograph 27).
- A large commercial office park is located west of the northern portion of the APE for Direct Effects for the I-481 Eastern Improvements (Appendix C, Photograph 28).
- The southern portion of the APE for Direct Effects for the I-481 Eastern Improvements is comprised of an elevated viaduct over a large railroad yard and wetland, and crosses NYS Route 290 at its southern extent (Appendix C, Photograph 29). Land use in the vicinity of NYS Route 290 and the APE for Direct Effects is largely commercial in nature (Appendix C, Photograph 30).

2.6 Previous Ground Disturbance within the APE for Direct Effects

In general, areas characterized by significant previous ground disturbance can be excluded from further consideration regarding potential impacts to archeological resources. The APE for Direct Effects is (for the most part) within a very developed urban area with a complicated history of prior ground disturbance. In some instances, previous excavation/construction episodes and landfilling will likely have resulted in disturbance or destruction of archaeological resources. However, in other instances, landfilling can serve to bury and preserve archaeological resources from earlier periods:

> One of the most important lessons that excavations in [filled/disturbed urban contexts] have taught archaeologists is that the landfill can serve as a blanket, protecting and preserving an older ground surface buried beneath it from the ravages of later development. Thus, by examining the ground under the landfill, we can... retrieve artifacts that had been dropped (either accidentally or intentionally) … and even discover earlier archaeological sites located beneath the old ground surface (Canwell & Wall, 2001: 239).

Significant sources of previous ground disturbance within the APE for Direct Effects include: landfilling activities associated with nineteenth-century urban development in the City of Syracuse; demolition and construction associated with mid-twentieth century highway construction; disturbance associated with construction, expansion, and/or modification of buildings; areas of cut and fill associated with other road and highway construction; and the installation of underground utilities. This section of the report provides a review of available data regarding previous disturbance within the APE for Direct Effects.

2.6.1 Nineteenth and Twentieth-Century Landfilling and Urban Development

As described in Section 2.1.2 of this report, the first Euro-American settlers in the area encountered a vast wetland broken only by steeply sloped dikes of the many creeks that radiated from Onondaga Lake, and by forested hills at the south end of present-day Syracuse, the southwestern corner of Onondaga Lake, and northeast of present-day Salina. In the early 1800s, the landscape of present-day Syracuse was changed drastically. Swamps were drained, waterways were filled or made into sewers, and hills were razed to build roads and provide fill for poorly drained residential and commercial lots. Secondary sources provide general descriptions of early cutting and filling activities that shaped the landscape around the early settlements of Salina and Bogardus Corners:

> Midway [between the Walton Tract and Salina], in an eastward direction, rose a great ridge known today as Prospect Hill (not now so high as then, its crown having been shorn to fill low spots in the village). South of the [Boagrdus] tavern site [i.e., northwest of the present intersection of Salina and West Genesee Streets], the ground rose sharply in the knoll through which Yellow Brook flowed. (In the early years of the village, this knoll was leveled as much as twelve feet from Jefferson Street northward, and the low ground in the vicinity of today's Onondaga County Savings Bank [i.e., 101 South Salina Street] was filled as much as three feet to make the present level street (Munson, 1969: 105).

> There was quite a deep ravine in Salina street where Yellow brook crossed it, and there were other considerable depressions. Mr. Cheney says that in 1824, "Salina street was fully six feet higher than at the present day, and very irregular, passing over a series of mounds or hillocks the whole distance, making a bad road to travel with a loaded team." These were all leveled when the street was subsequently graded by Moses D. Burnet (Bruce, 1891:121).

A knoll called "Prospect Hill" is shown on early maps (see Figure 2.6.1-1) at the south end of the western edge of Onondaga Lake, part of a complex of forested uplands extending southwest from the Lake. A second knoll, also called "Prospect Hill" or "Foot Street Hill" is shown at the northeast corner of the present day intersection of Townsend and James Streets (see Figure 2.6.1-1) and was removed as residential lot fill by the public in 1828 (Bruce, 1891: 130). Uplands are also shown east of Onondaga Creek, at the south end of present-day Syracuse. Though some of these rolling hills at the south end of Syracuse are preserved today, many of them were graded in the creation of roads, including the South end of Salina Street and Onondaga Street in the southwest portion of the city (Bruce 1891).

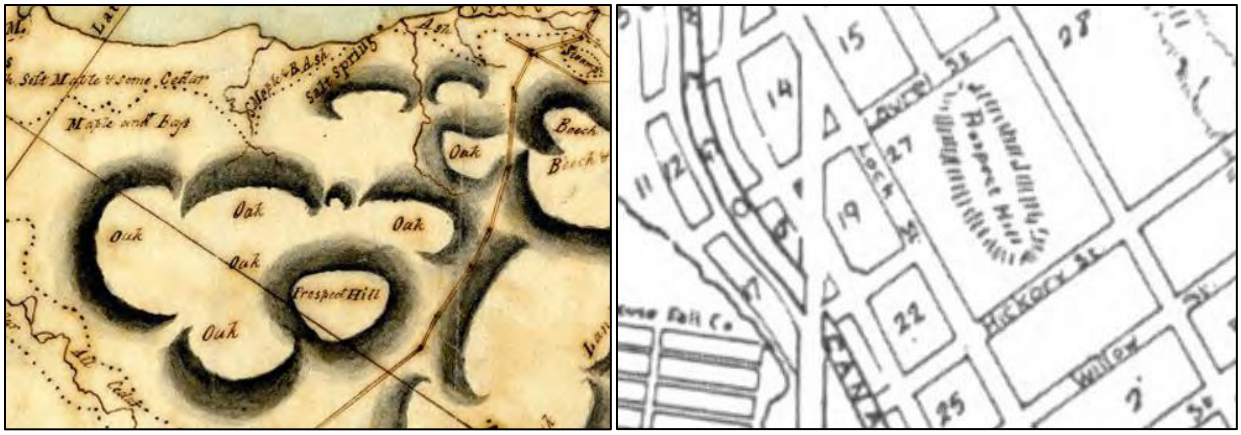


Figure 2.6.1-1. Early-Nineteenth Century Maps Showing the Pre-Development Landscape of Syracuse.
The ca. 1800 *Map of Part of Onondaga Lake and its Vicinity* (left; Unknown, N.D.) shows "Prospect Hill" located generally west of the southern end of Onondaga Lake. The ca. 1834 *Map of the Village of Syracuse and the Village of Lodi* (right) included in the *Early Landmarks of Syracuse* (Strong, 1894) shows "Prospect Hill" located northeast of the present-day intersection of Townsend and James Streets (Note: "Loch St." on the map is the location of present-day Townsend Street). Both maps show elevated landforms that were later graded and removed to fill low-lying and wetland areas.

Land that was graded at the south end of Salina Street was used to fill the same street further north (Bruce, 1891: 157). Soil graded from East Fayette Street was used to fill the Chestnut Street Bridge (Bruce, 1891: 178). Burnet and Hawley Streets and portions of Franklin Street were filled in 1854 (Bruce, 1891:178). City lots in lowlands, swamps, and natural drainages, including Yellow Brook, were filled, sometimes with soil removed during grading activities of other areas, and sometimes with debris or trash:

> The garbage wagon of the present time has been the instrument to complete the task of filling the old channel of the creek and every pool in its vicinity (Hand, 1889).

In an 1890 address at the Businessmen's Association of Syracuse, physician Dr. John VanDuyn described the extent of earth disturbance associated with the construction of the city up to that point:

> "The town is mostly level except those portions of it which are on the surrounding hills. Its boundaries you all well know. But what is not so apparent to-day [sic] is the elevation which some points at that time attained over others and the distribution of true swamps…Salina Street was so low in front of the Syracuse House that in the subsequent grading, five feet of rise was necessary…On the south side of the brook [presumably Yellow Brook] the land rose rapidly, so that a little north of Onondaga street from six to eight feet of earth was removed in the grading." (SS, 1890).

Other early changes to the landscape of Syracuse included efforts to straighten Onondaga Creek, which was once described as winding "its wonderfully devious way from south to north" (Bruce, 1891:94). The channelization of Onondaga Creek began in the early-nineteenth century as an attempt to harness the waterpower of the creek for milling

purposes, and continued in the mid-nineteenth century as a response to flooding, which resulted in part from deforestation in the upper watershed, and stagnant waters due to accumulated sewage within Syracuse. An 1856 "Act for Straightening Onondaga Creek" was the first legislation to plan formal changes and straighten the creek (Bruce, 1891:180).

The route of Onondaga Creek was significantly altered and channelized between throughout the nineteenth and twentieth centuries (see Figure 2.6.1-2; Onondaga Environmental Institute [OEI], 2008). In 1867, the section of the creek located immediately south of Onondaga Lake was straightened and a channel constructed extending 100 feet into the lake to discharge creek flow into deeper water and reclaim shallow lakefront land (Bruce 1891: 204). By the end of the nineteenth century, significant channelization had occurred between Temple Street and Midland Avenue, allowing for increased settlement and development in the neighborhoods surrounding Onondaga Creek (USGS, 1898). Channelization was completed to West Colvin Street by 1920 (OEI, 2008; 2009). The full length of Onondaga Creek was estimated at approximately 34 miles in 1927, whereas current estimates place the full length at approximately 27 miles. Although the non-channelized portions of the creek are dynamic and may shorten the overall length by cutting oxbows and similar processes, the majority of this historic reduction in length is attributed to channelization of the creek, primarily within the lower watershed during the twentieth century (OEI, 2009). By the mid-twentieth century, the creek had been re-engineered to its present course (USGS, 1958).

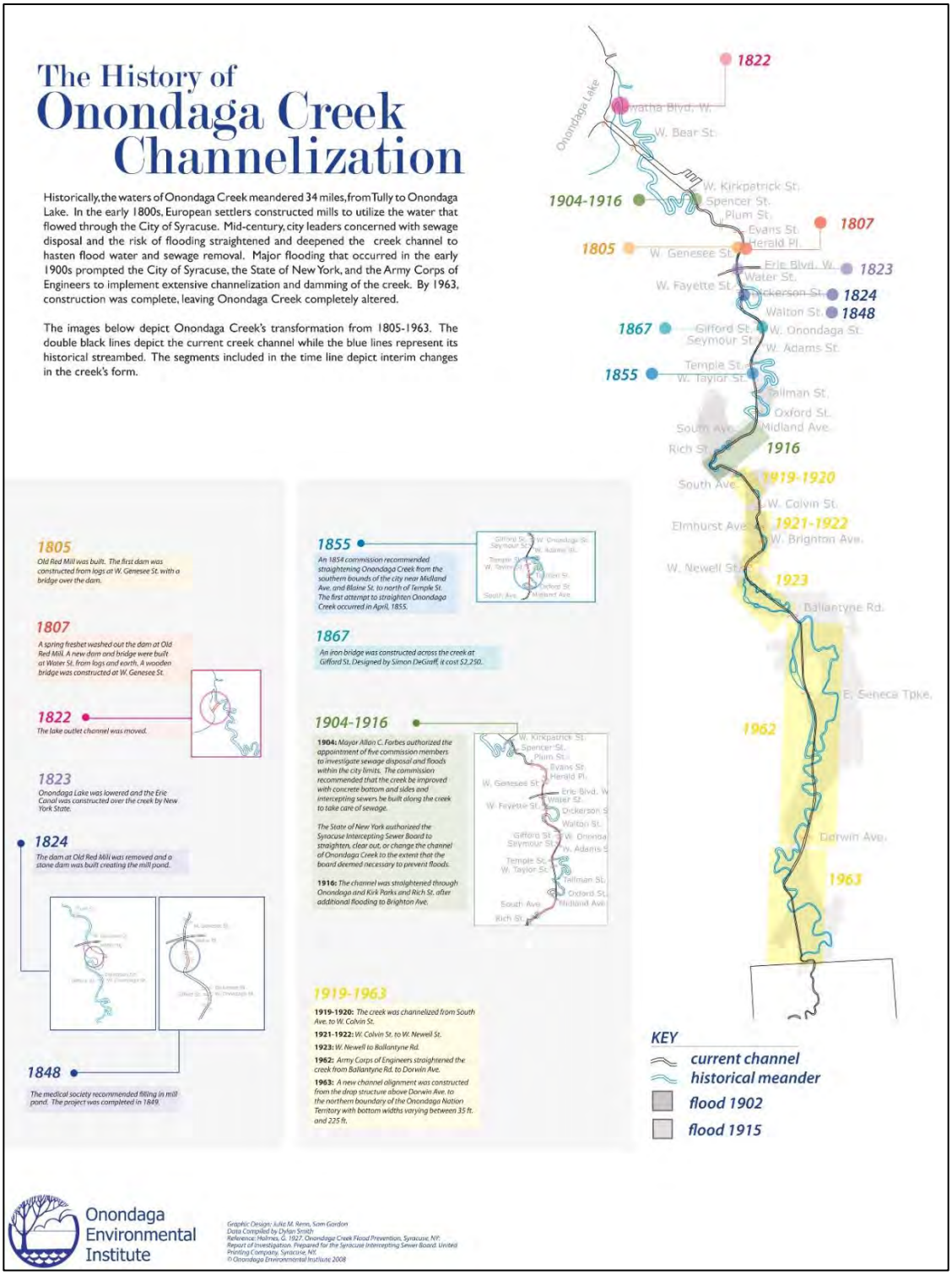


Figure 2.6.1-2. The History of Onondaga Creek Channelization.
This illustrative map poster summarizes the different phases and locations of the channelization of Onondaga Creek since the early-nineteenth century (Onondaga Environmental Institute, 2008; courtesy of Onondaga Environmental Institute).

In addition, areas of the Onondaga Lake shoreline have been variously dredged and filled throughout the nineteenth and twentieth centuries. The Onondaga Lake outlet into the Seneca river was first dredged in 1822 (Connors, 2005). The initial dredging lowered the lake level and exposed former lakeside wetlands, some of which were drained and filled to later become the northwest portion of downtown Syracuse. The lake level was lowered again in 1882 when the outlet into the Seneca River was dredged again or enlarged (OCC, 2016). Lowering the lake level allowed additional low-lying lakeside wetlands to be drained and filled. Modification of the Onondaga Lake shoreline to accommodate industrial uses was an ongoing process throughout the late-nineteenth and early-twentieth centuries (OCC, 2016; see Appendix A: Maps 5 and 7-9).

2.6.2 Mid-Twentieth-Century Highway Construction

As described in Section 2.4.6 of this report, the construction of elevated interstate highways through Syracuse between 1954 and 1966 dramatically transformed the landscape of the city, both socially and physically. Construction began in 1954 on the Oswego Boulevard Expressway (as it became known), which required the demolition of dozens of buildings and significant earth disturbance (see Figures 2.4.6-11 and 2.4.6-12) (SHJ, 1954; 1956). Although the Oswego Boulevard had originally been constructed atop the filled in Oswego Canal beginning in 1923, considerable earthen embankments had to be constructed north of the city to carry the new expressway (see Figure 2.4.6-13). The construction of the Oswego Boulevard Expressway was the first step in linking downtown Syracuse to the nascent interstate network in the United States, and also a harbinger of the greater destruction that would occur with the construction of the elevated viaduct portion of Interstate 81.

Combined with urban renewal programs, the routing of an elevated highway through downtown Syracuse caused the most radical change to the built environment since the construction of the Erie Canal. Demolition of buildings within the proposed path of Interstate 81 was ongoing between 1962 and 1966. The demolition contracts required that basements and cellars would be filled, and the property cleared and graded. Where demolition contracts involved the removal of streets (such as Cedar Street and Jackson Street), manholes and catch basins were also filled in, and curbing was removed (SPS, 1964a; Lee, 1965). As noted previously, Appendix B of this report includes geo-referenced copies of the NYSDOT demolition plans overlain on current aerial photographs, which illustrates the scale of the transformation to this neighborhood. Photographs from newspaper articles at the time of highway construction illustrate the extent of earth disturbance associated with highway construction (see Figures 2.4.6-11, 2.4.6-12, 2.4.6-14, 2.4.6-16, and 2.4.6-17 included in Section 2.4.6 of this report). NYSDOT construction drawings provide significant detail regarding the extent of disturbance associated with highway construction (see Figures 2.6.2-1 through 2.6.2.4)[9]:

[9] EDR reviewed hundreds of NYSDOT record drawings as part of the research for the Phase 1A archaeological assessment. The four examples of record plan drawings included here provide a representative sample of the information available in those plans.

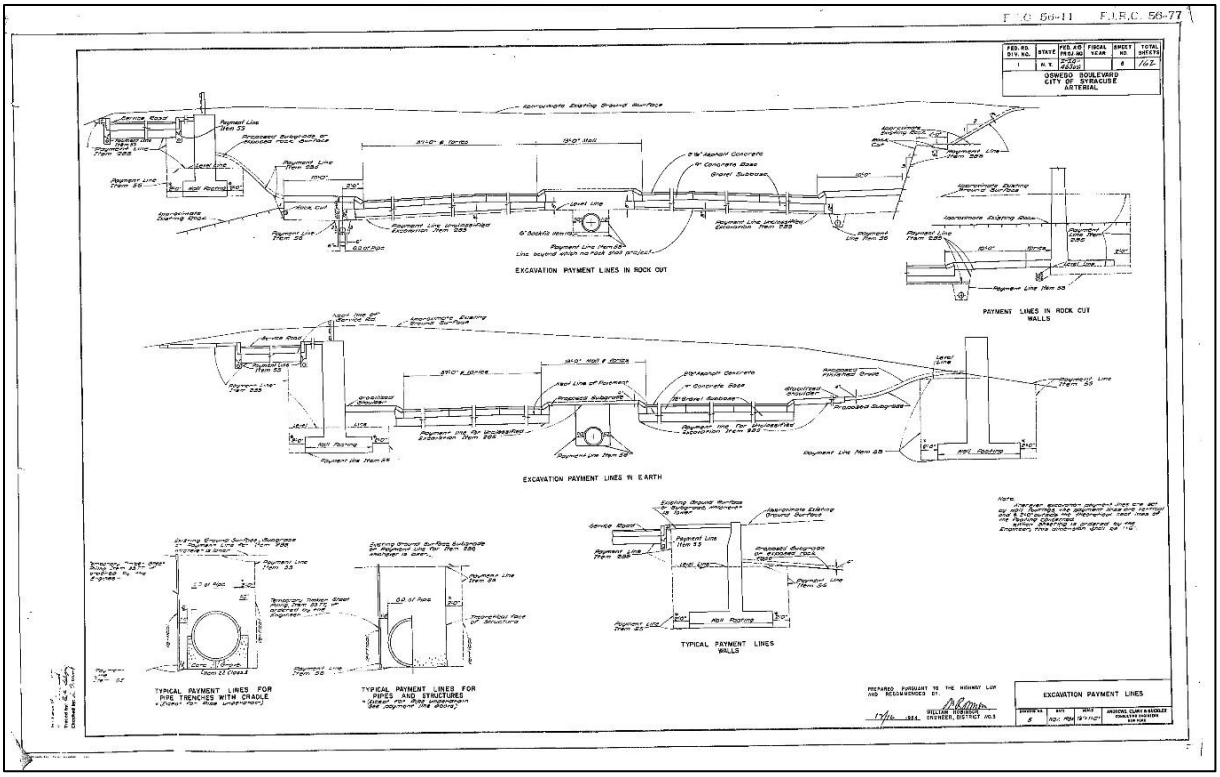


Figure 2.6.2-1. Detail from NYSDOT Construction Plans C56-01 (Oswego Boulevard Expressway).
Construction drawing illustrating typical depth of excavation for the depressed portions of the Oswego Boulevard Expressway (NYSDOT, 1956).

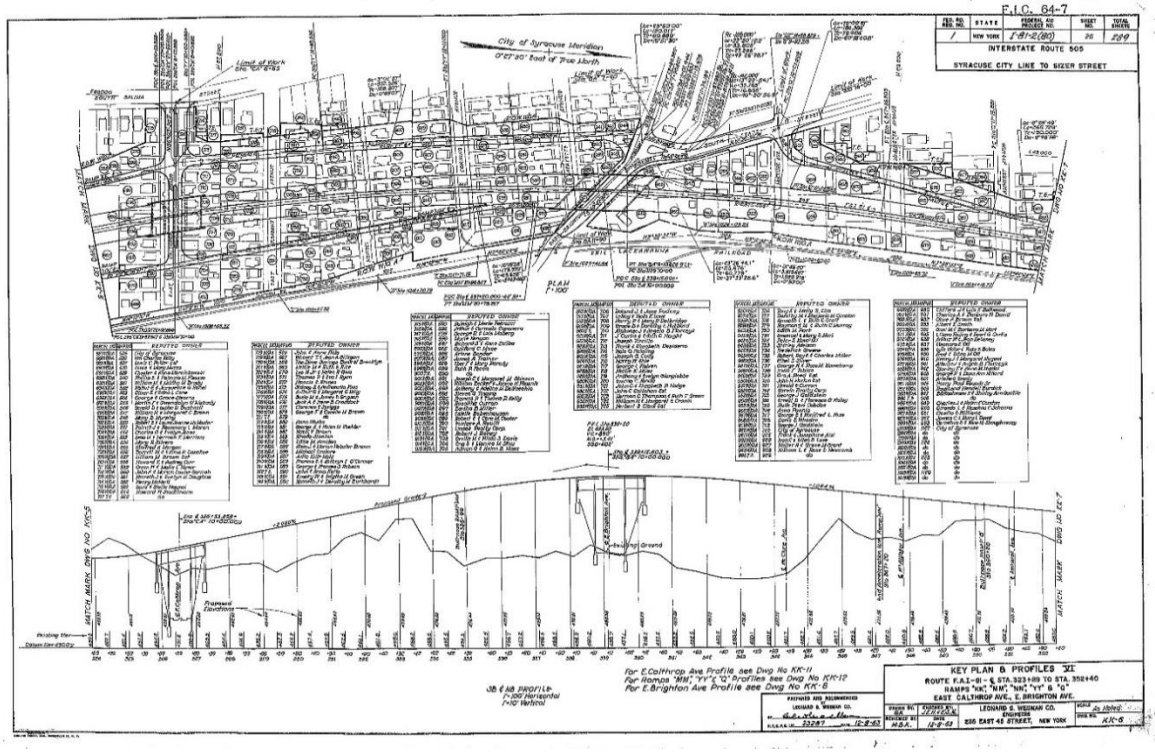


Figure 2.6.2-2. Detail from NYSDOT Construction Plans C64-07 (I-81, Syracuse City Line to Sizer Street).
Construction drawing illustrating extent of cut and fill and building removals for I-81 in the City of Syracuse (NYSDOT, 1964).

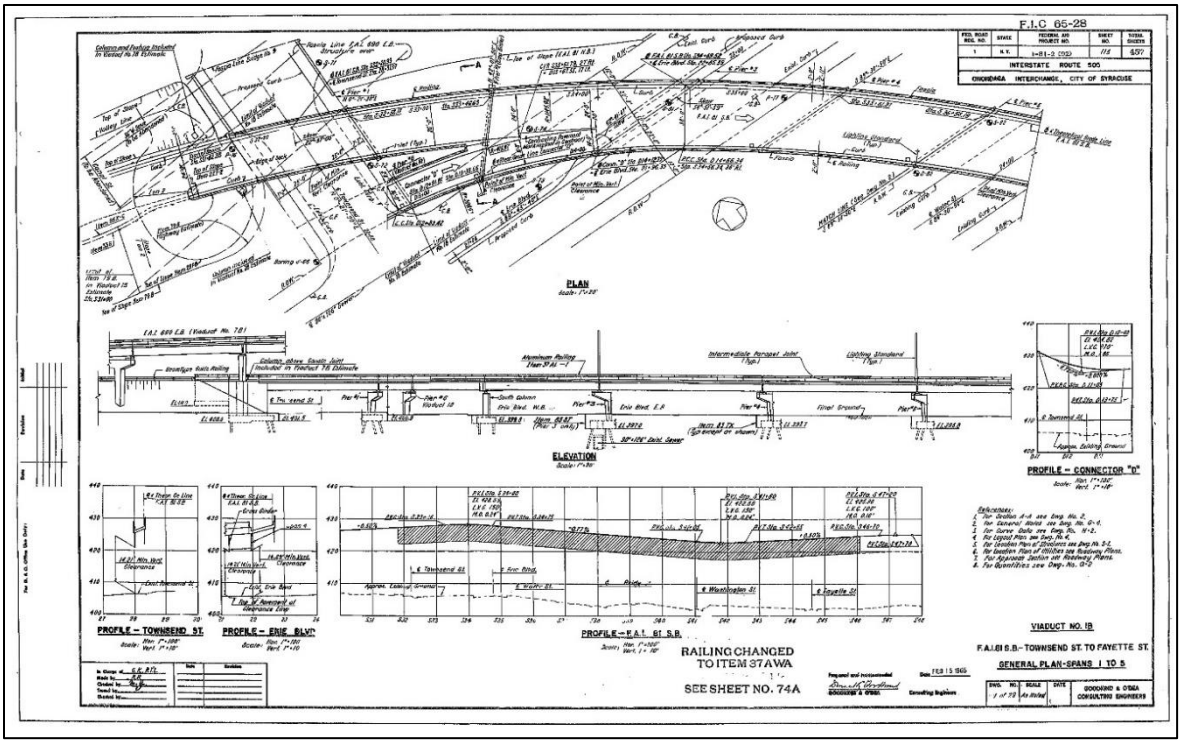


Figure 2.6.2-3. Detail from NYSDOT Construction Plans C65-28 (I-690/I-81 Interchanges).
Plan and profile drawings showing arrangement of piers for elevated viaduct (NYSDOT, 1965).

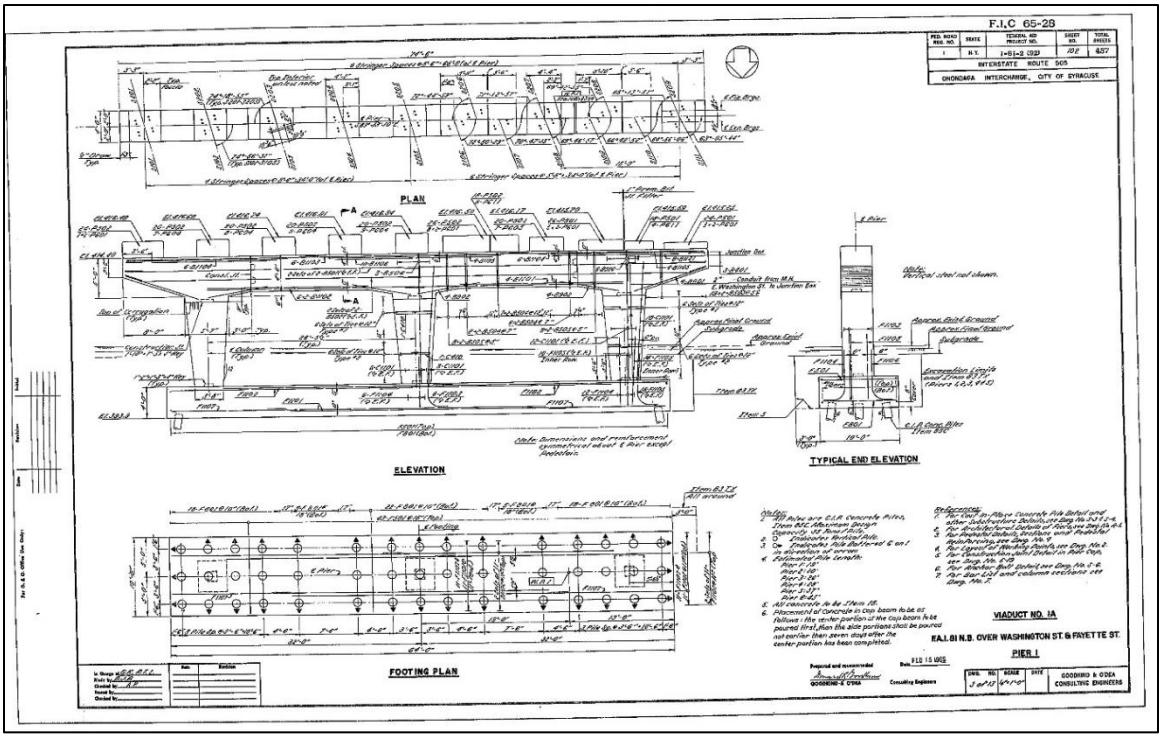


Figure 2.6.2-4. Detail from NYSDOT Construction Plans C65-28 (I-690/I-81 Interchanges).
Detail of piers for elevated viaduct, showing arrangement of footings and piles for elevated piers; the length (or depth) of piles for the piers is noted to be between 19 and 45 feet (NYSDOT, 1965).

2.6.3 Prior Ground Disturbance Analysis

EDR conducted a detailed analysis of prior ground disturbance within the APE for Direct Effects. Given the rich history of the Project vicinity and the results of the archaeological sensitivity assessment described herein, this analysis is essential to understanding the potential for intact and potentially significant archaeological resources to be located with the APE for Direct Effects. The prior ground disturbance analysis included historical research, review of NYSDOT record demolition and construction plans, aerial photography (including historical imagery), field observations, and GIS data analysis. The analysis includes the following categories of previous soil disturbance:

- Mapped Soil Units
- Buried Utilities
- Demolished Structures
- Depth of Fill
- Cut-and-Fill Highway and Embankment Areas

The sources and interpretation of these data are summarized below and illustrated in Appendix A: Map 10.

Mapped Soil Units

Review of publicly available mapped soils data provided a basis for the ground disturbance analysis (see Table 2.1.3-1 and Appendix A: Map 2; Esri and Natural Resources Conservation Service [NRCS], 2016; NRCS, 2016). As described in Section 2.1 of this report, approximately 67.7% (or 311.3 acres) of soils within the APE for Direct Effects are indicative of moderate to severe disturbance (Cut and Fill Land, Made Land, and Urban Land). As described in Section 2.1 of this report, these soil units are variable in their characteristics but all are man-made through various processes including excavation, filling with non-native soils, filling with other materials (i.e., demolished structural remains), paving, and mixing soil horizons and units through grading and contouring. Urban Land occurs primarily within the Viaduct Priority Area in downtown Syracuse, Cut-and-Fill Land occurs along Interstate, Railroad, and major Highway rights-of-way in all four areas of the APE for Direct Effects, and Made Land, consisting of an open quarry, occurs only within the I-81/I-481 Southern Interchange.

Areas characterized by the Cut and Fill Land, Made Land, and Urban Land soil map units are identified in Appendix A: Map 10 as “Mapped Soil Units”. It is assumed that the level of disturbance in these areas would preclude the presence of near-surface archaeological resources, including pre-contact Native American archaeological resources. However, it is anticipated that historic-period archaeological resources associated with nineteenth and twentieth-century development of the city may be located in these areas.

Buried Utilities

Buried utilities are located throughout the APE for Direct Effects, primarily within public roadways and/or adjacent rights-of-way. Mapping of buried utilities was provided by Popli Design Group, who collected this data as part of existing site condition surveys for the I-81 Viaduct Project. The mapping includes the observed and assumed locations of all utility poles and underground lines associated with electric, fiber optic, water, sewer, telephone, steam, cable television, oil, and unidentified infrastructure. For the most part, buried utilities included in this mapping are located in existing roadways. All buried utilities shown in Appendix A: Map 10 have an assumed width of disturbance of four feet, which is a conservative assumption. It is worth noting that the mapping of buried utilities within the APE for Direct Effects was based on review of available record plans and field observations, and therefore represents an interpretation of the available data. It is assumed that additional buried utilities that were not identified in the existing site conditions surveys are located within the APE for Direct Effects (Phillips, 2016).

In addition, the locations of existing elevated highway piers and bridge support structures are included in this mapping – although these are not utilities, they were included as part of the same digital mapping provided by Popli so are shown together on the map. As depicted in Figure 2.6.2-4, the depth of disturbance for piles driven beneath footings of these support structures extended in some locations up to between 19 and 45 feet.

Demolished Structures

As described above in Section 3.2.3, the locations of 952 demolished structures (see Appendix A: Map 10) were digitized from the ca. 1953-1966 NYSDOT record plans for the I-81/Interstate 505 construction, Oswego Boulevard Arterial Project, and the I-690 Viaduct Project (see also Appendix B). This construction involved the demolition of a large number of residential and commercial buildings as well as a small number of other structures such as above-ground oil tanks. During demolition, structures were demolished, basements and cellars were filled, and the properties were cleared and graded (NYSDOT, 1963; SPS, 1964). The depth of disturbance associated with the original construction of residential and commercial buildings would have extended 8-10 ft (2.5 to 3.1 m) below the ground surface for a typical foundation/basement. Following demolition, the open foundations were filled with on-site material such as the demolished foundation and other portions of the demolished structure.

As described in Section 3.2.4 of this report, the foundations of these demolished structures are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. In addition, the extent of prior disturbance associated with the construction and demolition of these structures is assumed to preclude the possibility that other (earlier) archaeological resources are present in these locations. However, potential artifact deposits and shaft features, which include privies, wells, and

cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures.

Depth of Fill

As described in Section 2.1 of this report, the NYSDOT has an extensive archive of geotechnical borings documenting subsurface stratigraphy in and around the APE for Direct Effects. EDR interpreted and summarized depth of fill based on review of NYSDOT's large dataset of boring logs, which covers much of the City of Syracuse and the surrounding vicinity. The geotechnical borings included in the NYSDOT dataset date to between 1945 and 2005. For the current analysis, EDR clipped the soil boring data to a 500-ft (152-m) buffer around the APE for Direct Effects which resulted in a dataset of 995 individual borings. The location of each geotechnical bore hole was digitized as a point. Based on review of the corresponding boring log, a depth of fill was assigned (or attributed) to each point.

Depth of fill is measured in feet and tenths of feet (not inches) in the NYSDOT boring logs. Fill was defined as any stratum explicitly defined in the boring log as "fill" or any stratum containing any of the following materials which were interpreted to be indicative of disturbed soils and historic and/or modern fill: "brick," "canal bottom," "cinder," "coal," "concrete," "debris," "morter" [mortar], "pavement," "rubble," "solvay sludge," "sludge," "waste," or "wood chips." In instances where sediment was described as "Fill?" or similar ambiguity and/or uncertainty was indicated, the stratum in question was not considered to be fill. Wood, wood fiber, and traces of wood were not considered to be indicative of artificial fill due to the fact that the APE for Direct Effects was historically forest and forested wetland. Therefore, wood derived from tree roots and stumps would not necessarily be indicative of previous disturbance.

In four instances, asphalt was encountered on the ground surface, underlain by a 3-ft (0.9-m) deep void, in two instances asphalt was underlain by a 4-ft (1.2-m) deep void, and in two instances asphalt was underlain by a 5-ft (1.5-m) deep void. In all these cases, depth of fill was considered to be the depth of the void. Although these voids are not technically fill, for the purposes of this analysis it can be stated with confidence that they do not contain buried archaeological resources.

The depths of fill documented by the boring logs is presented as an interpolated surface in Appendix A: Map 10. Of the 995 boring logs reviewed for the Project, 478 boring logs document depths of fill between 0.5 and 36.5 feet throughout various portions of the APE for Direct Effects. The artificial fill documented by these boring logs is deepest in the vicinity of Hiawatha Boulevard and the DestiNY USA shopping mall in the northwestern portion of the Viaduct Priority Area and the I-81/I-690 Interchange, near the center of the Viaduct Priority Area (see Appendix A: Map 10). These findings are consistent with NYSDOT record plans and historical accounts (and images) regarding the extent of ground disturbance associated the construction of the interstate system (see Sections 2.4.6 and 2.6.2 of this report). Deep

deposits of artificial fill are also documented in the I-481 Eastern Improvement Area in the vicinity of the CSX Railroad ROW (Appendix A: Map 10). No data were available for the Southern and Northern I-81/I-481 Interchanges.

The remaining 517 boring logs did not indicate the presence of fill deposits. Many of these records pre-dated construction of the existing highway, and therefore may reflect a past condition that is no longer accurate. Other areas may contain fill in the form of imported gravel and/or loam, but the fill was not clearly identified per the criteria outlined above. Therefore, many portions of the APE for Direct Effects are identified as having no fill or no data is available, which is an intentionally conservative analysis. It is anticipated that many areas shown as having no fill (or no data) may actually have significant soil disturbance. However, the existing data cannot confirm that assumption.

Cut-and-Fill Highway and Embankment Areas

Cut-and-Fill Highway and Embankment Areas (see Appendix A: Map 10) include areas within and adjacent to the APE for Direct effects in which substantial cutting and filling of sediment has occurred related to Interstate and or highway construction. These include areas where the Interstate is elevated above the surrounding terrain on an earthen berm, areas where the Interstate has been excavated below the natural ground surface, areas where exit and entrance ramps are supported by concrete retaining walls or earthen berms, and other similar circumstances (see Figure 2.4.6-13, for an example). The extent of cut-and-fill that occurred during highway construction is illustrated in NYSDOT record plans (e.g., see Figures 2.6.2-1 and 2.6.2-2) and historical photographs (see Figures 2.4.6-11, 2.4.6-12, 2.4.6-14, 2.4.6-16, and 2.4.6-17). The depth of disturbance in some of these areas is also confirmed by the depth of fill analysis described above (see Appendix A: Figure 10).



Figure 2.6.3-1. Representative Photographs of Cut-and-Fill Highway and Embankment Areas.
These photographs are representative of the "Cut-and-Fill Highway and Embankment Areas" identified within the APE for Direct Effects and include the I81/I690 interchange area (left; looking northeast from Erie Boulevard near Townsend Street) and the northern portion of I-81 (formerly the Oswego Boulevard Expressway; right). These areas are considered to be severely disturbed to such an extent that there is no potential for intact archaeological resources to be present in these areas

EDR identified Cut-and-Fill Highway and Embankment Areas based on multiple sources, including NYSDOT demolition and construction plans, aerial imagery (including oblique views and historical imagery), and field reconnaissance/confirmation (see Section 2.5 of this report and Figure 2.6.3-1). Areas of cut-and-fill were defined conservatively. If there was any question as to whether or not an area had been disturbed by highway ROW construction, EDR assumed to be intact and it was not mapped as "Cut-and-Fill Highway and Embankment Areas" for the purpose of this analysis.

The areas identified as "Cut-and-Fill Highway and Embankment Areas" in Appendix A: Maps 10 and 11 are considered to be severely disturbed to such an extent that there is no potential for intact archaeological resources to be present in these areas.

3.0 ARCHAEOLOGICAL SENSITIVITY ASSESSMENT

The potential for archaeological sites to be located within the APE for Direct Effects is based on analysis of the background data presented in Chapter 2 of this report, including the environmental setting and geology of the area (Section 2.1), the locations of previously reported archaeological sites (Section 2.2), results of previous archaeological surveys (Section 2.3), the history of human settlement and historical development in the Project vicinity (Section 2.4), assessment of existing land use (Section 2.5), and analysis of previous ground disturbance with in the APE for Direct Effects (Section 2.6). The potential for different types of archaeological resources to be located within the APE for Direct Effects is presented in this section as follows:

- Pre-Contact Native American Archaeological Sensitivity (Section 3.1)
- Historic Period Archaeological Sensitivity (Section 3.2)
- Potential for Human Remains and Cemeteries (Section 3.3)

As described in detail Section 2.6 of this report and illustrated in Appendix A: Map 10, the APE for Direct Effects is (for the most part) within a very developed urban area with a complicated history of prior ground disturbance. In areas where there is a potential for archaeological resources to be present, the extent of previous ground disturbance is an important factor that will affect the integrity of potential archaeological deposits, which is a critical factor in evaluating the potential significance of archaeological sites. The locations of areas where there is a potential for the various types of archaeological resources described in Sections 3.1 through 3.3 are illustrated in Appendix A: Map 11.

Potential NRHP-Eligibility of Archaeological Resources

Archaeological resources are determined to be historically significant (i.e., eligible for listing on the National Register of Historic Places [NRHP]) if they meet one of the following criteria (National Park Service [NPS], 2002 [non-paginated]):

> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
> B. That are associated with the lives of significant persons in our past; or
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> D. That have yielded or may be likely to yield, information important in history or prehistory.

In general, an archaeological site potentially eligible under Criterion A will be evaluated in terms of the strength of the site's association with significant events. This will rely on the physical integrity of the site and its ability to convey this

association. A site potentially eligible under Criterion B would be evaluated in terms of the strength of the site's association with the significant individual. A site potentially eligible under Criterion C will be evaluated in terms of the site's ability to convey the "distinctive characteristics of a type, period, or method of construction" (NPS, 2002). This will depend on the physical integrity of the site and the presence of certain distinctive archaeological features (e.g., post molds indicative of structures or formal human burials). Sites containing archaeological features or other materials that provide exceptional examples of significant architectural or design elements could be eligible for listing on the NRHP under Criterion C. By far, the majority of archaeological sites found to be eligible for listing on the NRHP are found to be eligible under Criterion D. A site potentially eligible under Criterion D will be evaluated in terms of the site's ability to provide significant data pertinent to answering research questions related to local, regional, or national prehistory or history. This will be contingent on the physical integrity of the site, but also the density and diversity of archaeological artifacts and features it contains.

These criteria provide a basis for evaluating the significance of potential archaeological resources that could be located within the APE for Direct Effects.

3.1 Pre-Contact Native-American Archaeological Sensitivity Assessment

As described in Section 2.2 of this report, most major prehistoric Native American settlements occurred on major rivers and lake outlets. Settlement during the Paleoindian and Early and Middle Archaic Periods consisted of small short-term campsites consisting primarily of stone tools and lithic debitage. These sites are relatively rare in Onondaga County, and none are known from within the APE for Direct Effects or the immediate vicinity. During the Late Archaic, Early Woodland, and Middle Woodland Periods, Native Americans settled in larger, longer-term residential campsites or villages. These large sites were typically located along major rivers, often near the outlets of Lakes, such as Oneida Lake and Onondaga Lake in Onondaga County. In addition to the large lowland camps or villages, small logistical resource acquisition sites were typically located in the uplands surrounding major valley systems. Late Archaic and Woodland Period sites are far more common than Paleoindian or Early and Middle Archaic sites. However, no Late Archaic, Early or Middle Woodland Sites are known from the APE for Direct Effects or the immediate vicinity. During the Late Woodland Period, Native American settlement further consolidated into large, often palisaded, longhouse villages of up to 2,500 residents. These villages were located along major alluvial valleys and sometimes in close proximity to lakes such as Onondaga Lake and Cazenovia Lake. These village sites are large and highly visible in the archaeological record. Small logistical campsites and outlying single-family farms were also located in the uplands and floodplains surrounding the major villages during the Late Woodland.

One Late Woodland Village ("Kaneenda"; NYSM 4235) is reported to have been located within the APE for Direct Effects on the southeast shore of Onondaga Lake (Parker, 1922:646). Additionally, Parker (1922:646-647; Plate 196)

identifies four additional archaeological site areas in close proximity to the current APE for Direct Effects: NYSM 4239, described as "relics of an early character"; NYSM 4240, described as a "camp or hamlet"; NYSM 7367, described as "a small early site"; and NYSM 7368, described as "traces of occupation." NYSM Sites 4235 and 7368 overlap with the APE for Direct Effects and these areas are considered to be of elevated archaeological sensitivity for prehistoric Native American archaeological resources.

The Onondaga Nation states that all areas of the lake and shoreline were used by pre-contact and historic-period Native American populations and the areas adjacent to the lake should be considered highly sensitive for archaeological resources (Onondaga Nation, 2011). As previously discussed, Parker (1922) also describes several areas of elevated archaeological sensitivity around Onondaga Lake; however, very little of the APE for Direct Effects occupies the lakeshore itself. The majority of the APE for Direct Effects occurs in wetland or upland areas between approximately 0.5 and 6.0 miles (0.8 and 9.7 km) from the modern shoreline of Onondaga Lake. Therefore, the high archaeological sensitivity of the lakeshore does not apply to the APE for Direct Effects for the current Project, with the exception of a small area at the northwest end of the Viaduct Priority Area where improvements are proposed to the Park Street/Old Liverpool Road/Onondaga Lake Parkway Interchange.

Potential for Native American Archaeological Sites within the APE for Direct Effects

Based on the known prehistoric archaeology of the vicinity and an analysis of landscape features (e.g., elevation and proximity to water), and not considering previous disturbance or modern development, the Viaduct Priority Area and I-81/I-481 Southern Interchange are considered to be of moderate to high sensitivity for prehistoric archaeological resources. This is based on the proximity of these areas to Onondaga Lake and Onondaga Creek. However, that assertion should be tempered with the consideration that, as discussed in Section 2.1 of this report, much of the Viaduct Priority Area would have been low-lying wetland during the prehistoric period and therefore not suitable for long-term habitation. Additionally, very little of the Viaduct Priority Area occurs along the actual shore of Onondaga Lake, where major settlement might be expected to have occurred (e.g., Onondaga Nation, 2011; Parker, 1922). Furthermore, although the I-81/I-481 Southern Interchange is in close proximity to Onondaga Creek, it is approximately 4 miles (6.4 km) southeast of the outlet of the creek into Onondaga Lake.

As previously noted, major prehistoric settlements tend to occur along large rivers (such as the Seneca and Oneida Rivers in Onondaga County) as well as lake inlets and outlets. Therefore, the I-81/I-481 Southern Interchange is unlikely to contain major sites of prehistoric habitation. However, the area may contain smaller resource acquisition sites, as the north/south-trending Onondaga Trough would have provided access to diverse upland and lowland resources as well as presenting a logical transportation corridor between the Erie/Ontario Lake Plain to the north and the Allegheny Plateau to the south. Historically documented Contact-era settlement along Onondaga Creek and its

relevance to the archaeological sensitivity of the I-81/I-481 Southern Interchange (as well as the rest of the APE for Direct Effects) will be discussed in the following Section 3.2.1 of this report.

The remaining portions of the Project APE (the I-81/I-481 Northern Interchange and the I-481 Eastern Improvements) are considered to be of moderate prehistoric archaeological sensitivity. The I-81/I-481 Northern Interchange is located on uplands overlooking Cicero Swamp to the east, a known area of prehistoric habitation and resource acquisition (e.g., Parker, 1922). The I-481 Eastern Improvements span both banks of Butternut Creek and are somewhat proximate to the confluence of Butternut Creek and Limestone Creek which is approximately 3 miles (4.8 km) to the northeast. Like Onondaga Creek, Limestone and Butternut Creeks would have been attractive areas for prehistoric resource acquisition and short term camps. The Onondaga occupied the Limestone and Butternut Creek drainages during the Late Woodland and Contact Periods and would have used the surrounding areas for resource acquisition (Tuck, 1971; Jones, 2006; 2010).

Therefore, prehistoric Native American site types that could be expected to occur within the APE for Direct Effects include:

- Small campsites dating to the Paleoindian, Early Archaic, and/or Middle Archaic Periods. These sites could be expected to contain primarily chipped stone tools and debitage with potentially some bone or ivory tools. Features could include hearths and post-molds.
- Large residential campsites dating to the Late Archaic, Early Woodland, and/or Middle Woodland Periods. These sites could be expected to include large quantities of chipped stone tools and debitage, ground stone tools and net weights, bone tools, ceramic vessels and vessel fragments, steatite vessels and vessel fragments, ceramic and bone decorative items, and exotic goods such as marine shells and copper. Features could include hearths, post-molds, middens, and human burials.
- Large nucleated villages dating to the Late Woodland Period. These sites could be expected to include large quantities of chipped stone tools and debitage, ground stone tools, bone tools, ceramic vessels and vessel fragments, ceramic and bone decorative items, and exotic goods such as marine shells and copper. Features could include hearths, storage pits, post molds associated with both longhouses and palisade walls, extensive middens, and human burials.
- Small resource acquisition campsites dating to the Late Archaic, Early Woodland, Middle Woodland, and/or Late Woodland Periods. These sites could be expected to include small quantities of chipped stone tools, ground stone tools and net weights, bone tools, ceramic vessels and vessel fragments, and/or steatite vessels and vessel fragments. Features would likely be restricted to small hearths at these locations.

- Isolated artifacts such as projectile points, other tools, ceramic fragments, or lithic debitage with no associated features.
- Burial sites – the potential for Pre-Contact Native American human remains and/or burial sites to be located within the APE for Direct Effects is discussed in Section 3.31 of this report.

Potential Significance of Pre-Contact Native American Archaeological Resources

Given their nature, Pre-Contact Native American archaeological sites are most often found to be eligible under Criterion D; however, they may be determined eligible under other Criteria in certain circumstances. For instance, Late Woodland sites associated with the formation of the classic Haudenosaunee settlement pattern and lifeway might be considered eligible under Criterion A. Furthermore, a Late Woodland village site which exhibited a particularly good example of palisade and/or longhouse construction or layout might be considered eligible under Criterion C. A site from any period containing formal human burials might be considered eligible under Criterion A due to its association with prehistoric Native American funerary practices and religion. It is typically not possible to identify specific individuals in prehistory and, therefore, it is not anticipated that any prehistoric archaeological sites identified within the current APE for Direct Effects could be found eligible under Criterion B.

A site potentially eligible under Criterion A will be evaluated in terms of the strength of the site's association with significant events. This will rely on the physical integrity of the site and its ability to convey this association. Strong physical integrity could mean intact features capable of producing radiocarbon dates that could associate the site with a specific time period, diagnostic artifacts indicative of cultural or temporal affiliation, or intact features or artifacts clearly indicative of a specific activity or suite of activities that occurred at the site. Native American archaeological sites eligible under Criterion A may also be evaluated as Traditional Cultural Properties, which are properties significant for their "association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (NPS, 1998).

A site potentially eligible under Criterion B would be evaluated in terms of the strength of the site's association with the significant individual. As previously noted, it is extremely difficult to associate prehistoric archaeological sites with specific individuals. It is not anticipated that any prehistoric Native American archaeological sites eligible for listing on the NRHP under Criterion B will be identified within the APE for Direct Effects.

A site potentially eligible under Criterion C will be evaluated in terms of the site's ability to convey the "distinctive characteristics of a type, period, or method of construction" (NPS, 2002). This will depend on the physical integrity of the site and the presence of certain distinctive archaeological features (e.g., post molds indicative of structures or formal human burials). Sites containing archaeological features or other materials that provide exceptional examples

of significant architectural or design elements such as the longhouse would be eligible for listing on the NRHP under Criterion C.

By far, the majority of archaeological sites found to be eligible for listing on the NRHP are found to be eligible under Criterion D. A site potentially eligible under Criterion D will be evaluated in terms of the site's ability to provide significant data pertinent to answering research questions related to local, regional, or national prehistory. This will be contingent on the physical integrity of the site, but also the density and diversity of archaeological artifacts and features it contains. In order to be considered eligible under Criterion D, the site will typically contain a large number of archaeological features and/or artifacts within undisturbed stratified deposits that can be dated through radiocarbon dating or thermoluminescence dating.

Summary: As described in Section 2.6 of this report, much the APE for Direct Effects has been previously disturbed by historic and modern development. In the absence of documented earth disturbance, the Viaduct Priority Area and the I-81/I-481 Southern Interchange are considered to be of moderate to high sensitivity for prehistoric archaeology and the I-81/I-481 Northern Interchange and the I-481 Eastern Improvements are considered to be of moderate sensitivity for prehistoric archaeology. Sites from this period would necessarily pre-date the significant filling and engineering of the landscape that took place as part of the development of the City of Syracuse throughout the nineteenth century (see Section 2.6 of this report). Therefore, potential Native American archaeological sites are only anticipated to be located in areas with undisturbed soils. Based on the analysis presented in Section 2.6, of the approximately 459 acres included within the APE for Direct Effects, only approximately 19 acres appear to be characterized by (potentially) undisturbed soils. The locations of portions of the APE for Direct Effects where the extent of previous ground disturbance is not documented or cannot be determined, and where there is therefore a potential for Pre-Contact Native American archaeological resources to be present, are depicted in Appendix A: Map 11.

3.2 Historic Period Archaeological Sensitivity Assessment

As described in Section 2.4 of this report, the Project's APE for Direct Effects has undergone multiple episodes of historical development, including the demolition of large areas of urban residential and commercial structures. This section synthesizes data relevant to evaluating the likelihood that potentially significant historic-period archaeological sites are located in the APE for Direct Effects. Because the Project is located in a heavily developed urban area, there is a very high likelihood that foundations, structural remains, and other historic-period archaeological features are located within the APE for Direct Effects. Therefore, this section will propose and define specific historic-period archaeological resource types that warrant further archaeological investigation and specify the criteria that would be used to evaluate NRHP eligibility (see Section 3.0 of this report). The goal is to identify areas where there is a potential for *significant* archaeological resources to be located, and exclude other areas from further consideration.

3.2.1 Contact and Colonial Period Native American Archaeological Sensitivity

Onondaga Settlement Patterns during the Contact and Colonial Periods

Regarding the locations of Contact era Onondaga villages, Connors (2005:1517) notes: "during the seventeenth-century Contact period, Onondaga villages were generally located on hills 10-12 miles (16-19 km) southeast [overlooking the Limestone Creek Valley], but in the eighteenth century they were concentrated in the Onondaga Creek valley immediately south of the present city." The eighteenth-century settlements along Onondaga Creek were in the form of scattered cabins rather than longhouse villages (Tuck, 1971:182). In his analysis of Onondaga population trends between A.D. 1500 and 1700, Jones (2010) documents rising population from approximately 500 individuals in 1500 to approximately 2,700 individuals in 1650, then falling to approximately 1,000 individuals in 1655, but rising again to approximately 2,000 individuals in 1700. Jones's (2006: Figure 2) summary of sixteenth- and seventeenth-century Onondaga Villages places all known villages except for one (the McNab site on Cazenovia Lake) within or adjacent to the Limestone Creek and West Branch, Limestone Creek valleys southeast of Syracuse (see also Bradley, 1987). Limestone Creek flows roughly north from its source in the uplands on the fringe of the northern Allegheny Plateau for approximately 25 miles (40 km) to its confluence with Chittenango Creek which in turn flows north into Oneida Lake.

A village on Onondaga Lake attacked by Champlain in 1615 (see discussion in Section 2.4.2) is not included in Jones's (2006) analysis, likely because the site was never archaeologically excavated and has been completely destroyed by modern development. This village corresponds to that described by Parker (1922:646-647) as Kaneenda (i.e., NYSM Site 4235; see Section 2.2 of this report); however, Clayton (1878:29) notes:

> "Robert Livingston and others, as commissioners, in their report in April, 1700, 'recommend the building of a fort at Kaneenda, *a fishing place* of the Onondagas eight miles from their Castle [probably the Jamesville Pen site on the West Branch of Limestone Creek, per Tuck, 1971], their landing place when they came from hunting from Lake Ontario'" (emphasis added).

This suggests, at least at this time (A.D. 1700), Kaneenda was not in fact a village but some sort of outpost or hunting and fishing camp. However, Champlain's 1615 attack was unambiguously on a fortified village (see full discussion in Section 2.4.2). This makes sense, given Onondaga villages were typically occupied for a generation (20-30 years). Therefore, the Kaneenda Village attacked by Champlain in 1615 would have been long abandoned by 1700, but the inlet of Onondaga Creek into Onondaga Lake presents a logical place for a fishing camp accessible to villages to the southeast. The location of Kaneenda is currently believed to occur under the modern-day site of the DestiNY USA shopping mall.

With its presence documented by Champlain in 1615, the village at Kaneenda may be the earliest Onondaga Village located so far north and west, as the shift in settlement to the Onondaga Creek Valley that Connors (2005:1517) and Jones (2006; 2010) describe does not occur until the eighteenth century. The overall trend of Contact-era Onondaga settlement therefore appears to be villages in the Limestone Creek Valley during the sixteenth and seventeenth centuries and cabins in the Onondaga Creek Valley and on Onondaga Lake during the eighteenth century, with a few outliers (Bradley, 1987; Connors, 2005; Jones, 2006; 2010; Tuck, 1971). As discussed in more detail in Section 2.4.2, following the virtual destruction of the Haudenosaunee homeland by American troops in 1779, some Onondaga returned to Central New York but they typically lived in Euroamerican style cabins or houses rather than the traditional longhouse villages of the past.

Permanent European settlement prior to the American Revolutionary War was rare, although French Jesuits established the mission St. Marie du lac Gannentaha on the shores of Onondaga Lake in 1656 (abandoned in 1658), and a second Jesuit mission was established near the modern day village of Jamesville in 1667 (closing ca. 1670). Additionally, the colonial governor of New France, Louis de Baude de Frontenac, established a temporary war-time fort on Onondaga Lake in 1696. In 1751, William Johnson, a British agent, purchased several thousand acres of land along the shore of Onondaga Lake, but he and his heirs never settled on the parcel and it was confiscated by the State of New York following the American Revolutionary War. The American military raided in the area in 1779 during the vicious Van Schaick and Willet campaign, although they established no permanent outposts. Other European traders and missionaries passed through the area during the seventeenth and eighteenth centuries, but no permanent European settlements were established in the vicinity of the APE for Direct Effects prior to the American Revolutionary War.

Contact/Colonial Era Archaeological Sensitivity Assessment

The Onondaga Nation states that all areas of the lake and shoreline were used by pre-contact and historic-period Native American populations and the areas adjacent to the lake should be considered highly sensitive for archaeological resources (Onondaga Nation, 2011). During the Contact and Colonial Periods, Native American settlement in the vicinity of the Project occurred along Limestone and Butternut Creeks south and southeast of the APE for Direct Effects, on the shore of Onondaga Lake potentially within or adjacent to the APE for Direct Effects, and along Onondaga Creek south of the lake, also potentially within or adjacent to the APE for Direct Effects. Therefore, the Viaduct Priority Area and the I-81/I-481 Southern Interchange are considered to be of moderate to high sensitivity for Contact/Colonial Era archaeological materials. However, as discussed in the previous section (Section 3.1), it should be kept in mind that much of the Viaduct Priority Area would have been uninhabitable wetlands during this period. Furthermore, very little of the Viaduct Priority Area occurs along the actual shore of Onondaga Lake where Native

American and European settlements are documented during this period. The remaining portions of the APE for Direct Effects (the I-81/I-481 Northern Interchange and the I-481 Eastern Improvements) are considered to be of low sensitivity for Contact/Colonial Era archaeological resources.

The types of archaeological sites which could potentially be encountered within the APE for Direct Effects include: Contact Era Onondaga sites, French Jesuit sites, French military sites, and American Military sites. Each site type is discussed in more detail below:

- Contact Era Onondaga sites might consist of palisaded villages dating to the sixteenth or seventeenth centuries, cabins and houses dating to the eighteenth century, resource acquisition sites from the entire period, and funerary sites from the entire period.
    - Palisaded villages dating to the sixteenth and seventeenth centuries are known to have occurred along Limestone and Butternut Creeks, well outside the APE for Direct Effects and on the southeast shore of Onondaga Lake (the Kaneenda Site), possibly within or adjacent to the APE for Direct Effects (Viaduct Priority Area). This type of site could be expected to contain a large assemblage of trade goods such as metal tools and pots, firearms, gun flints, and glass beads, as well as possibly stone and bone tools, stone debitage, ceramic vessels and vessel fragments, and bone and ceramic decorative items. Features could include hearths, storage pits, post molds associated with both longhouses and palisade walls, extensive middens, and human burials.
    - Onondaga Cabins dating to the eighteenth century are known to have occurred along Onondaga Creek in the area that would become the south side of the City of Syracuse, in the general vicinity of the APE for Direct Effects. These sites could be expected to contain European trade goods such as metal tools and pots, firearms, gun flints, and glass beads, as well as features such as post molds, cabin living floors, large middens, and human burials. A small portion of the APE for Direct Effects (along Genesee Street) crosses Onondaga Creek within the Viaduct Priority Area.
    - Onondaga resource acquisition sites could occur anywhere within the APE for Direct Effects. These sites could be expected to contain some European trade goods such as metal tools, firearms, and gun flints, as well as possibly stone and bone tools, as well as ceramic vessels and vessel fragments. Features would consist primarily of hearths.
    - Onondaga funerary sites would likely be in somewhat close proximity to large residential sites (i.e., palisaded villages or cabins) and, therefore, are most likely to occur within the Viaduct Priority Area and the I-81/I-481 Southern Interchange portions of the APE for Direct Effects. As described in more detail in Section 3.3.1 of this report, Native American skeletal remains believed to date to the Contact/Colonial Era have been identified historically along Onondaga Creek within or adjacent to

the APE for Direct Effects. These sites could be expected to consist of multiple formal burials, likely containing grave goods such as metal tools, firearms, glass beads, and possibly stone and bone tools. The potential for Native American human remains and/or burial sites to be located within the APE for Direct Effects is discussed in Section 3.3.1 of this report.

- French Jesuit sites are not expected to be encountered within the APE for Direct Effects. The two known seventeenth-century Jesuit missions among the Onondaga were located on Onondaga Lake at St. Marie du lac Gannentaha and at the Jamesville Pen Site on Butternut Creek, both well outside the APE for Direct Effects. However, these sites might be expected to contain a high density of European goods, including Jesuit Rings, metal pots, and firearms (a small group of French soldiers accompanied the Jesuit missionaries). Features might include post molds indicative of rectilinear structures.
- French Military sites could be related to either Samuel de Champlain's 1615 attack on the Onondaga or Frontenac's 1696 raid on the Onondaga during which he constructed a fort on Onondaga Lake. Champlain's raid is believed to have been on the village of Kaneenda which was located adjacent to the APE for Direct Effects (Viaduct Priority Area). Evidence of this raid, if it still exists, is expected to be sparse and could include musket balls, cannon balls, gun flints, and possibly brass buttons. Frontenac's 1696 fort is believed to have been located on the shore of Onondaga Lake, possibly at the location of St. Marie du lac Gannentaha, well outside the APE. However, if encountered, a site related to Frontenac's raid could be expected to contain entirely European goods, including firearms, gunflints, and brass buttons.
- American Military sites related to the Van Schaick and Willet campaign of 1779 could potentially be encountered within the APE for Direct Effects. If present, this type of site would likely occur within the I-81/I-481 Southern Interchange because this area was closest to the Onondaga Settlements that were burned during the campaign. Similar to French Military sites, American Military sites could be expected to contain entirely American/European goods, including firearms, gunflints, and brass buttons.

Potential Significance of Contact Period Native American Archaeological Resources

As previously discussed in Section 3.0 of this report, archaeological properties are found to be eligible for listing on the NRHP if they meet one of four criteria: A, B, C, or D (NPS, 2002). Given their nature, archaeological sites are most often found to be eligible under Criterion D but they may be found to be eligible under other Criteria in certain circumstances. For instance, sites associated with Jesuit Missionaries, French colonial military raids, or American Revolutionary military raids would all be potentially eligible for listing on the NRHP based on their association with significant historic events (Criterion A). Likewise, Contact/Colonial Era Onondaga sites containing evidence of trade with Europeans or adoption of European practices and/or technology would also be potentially eligible for listing on the NRHP under Criterion A due to their association with the colonization and enculturation process among the Haudenosaunee.

A site potentially eligible under Criterion A will be evaluated in terms of the strength of the site's association with significant events. This will rely on the physical integrity of the site and its ability to convey this association. Strong physical integrity could mean intact features capable of producing radiocarbon dates that could associate the site with a specific time period, diagnostic artifacts indicative of cultural or temporal affiliation, or intact features or artifacts clearly indicative of a specific activity or suite of activities that occurred at the site. Native American archaeological sites eligible under Criterion A may also be considered for designation as Traditional Cultural Properties, which are properties significant for their "association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (NPS, 1998).

A site potentially eligible under Criterion B will be evaluated in terms of the strength of the site's association with the significant individual. In the case of the Contact/Colonial Era, significant individuals could include Samuel de Champlain, Father Simon Lemoyne, Louis de Baude de Frontenac, or William Johnson. In this case, eligibility under Criterion B would rely on establishing a strong connection between the archaeological site and the prominent individual. This would likely be achieved through a combination of archaeological data and historic accounts/documentation tied together by logical inference.

A site potentially eligible under Criterion C will be evaluated in terms of the site's ability to convey the "distinctive characteristics of a type, period, or method of construction" (NPS, 2002). This will depend on the physical integrity of the site and the presence of certain distinctive archaeological features (e.g., post molds indicative of domestic structures or formal human burials). Sites containing archaeological features or other materials that provide exceptional examples of significant architectural or design elements would be eligible for listing on the NRHP under Criterion C.

By far, the majority of archaeological sites found to be eligible for listing on the NRHP are found to be eligible under Criterion D. A site potentially eligible under Criterion D will evaluated in terms of the site's ability to provide significant data pertinent to answering research questions related to local, regional, or national history. This will be contingent on the physical integrity of the site, but also the density and diversity of archaeological artifacts and features it contains. In order to be considered eligible under Criterion D, the site will typically contain a large number of archaeological features and/or artifacts within undisturbed stratified deposits that can be dated through diagnostic artifacts, superposition, or other means.

Summary: In the absence of documented earth disturbance, the Viaduct Priority Area and the I-81/I-481 Southern Interchange are considered to be of moderate to high sensitivity for Contact/Colonial Era archaeology and the I-81/I-481 Northern Interchange and the I-481 Eastern Improvements are considered to be of low sensitivity for

Contact/Colonial Era archaeology. Sites from this period pre-date the significant filling and engineering of the landscape that took place as part of the development of the City of Syracuse throughout the nineteenth century (see Section 2.6 of this report). Therefore, potential Contact/Colonial-Period sites are only anticipated to be located in areas with undisturbed soils. The locations of portions of the APE for Direct Effects where the extent of previous ground disturbance is not documented or cannot be determined, and where there is therefore a potential for Native American archaeological resources to be present, are depicted in Appendix A: Map 11.

3.2.2 Erie and Oswego Canal-Related Archaeological Sensitivity

As described in Section 2.4.4 of this report, portions of the Erie and Oswego Canals were formerly located within the APE for Direct Effects. The history of construction and demolition/filling of these features is well documented in historical sources and the former locations of canal-related features within the APE are shown on historical maps and photographs of Syracuse (e.g., see Appendix A; Map 4). In addition, a previous assessment of the potential for intact archaeological remains associated with the Erie Canal entitled *Rediscovering the Venice of Central New York: Preliminary Survey of Archaeological Sites Along the Erie Canal Corridor in Syracuse, New York* (Cochran, 2004) provides a comprehensive inventory of potential Erie Canal-related archaeological resources in the City of Syracuse, and evaluates the likelihood for intact (undisturbed) archaeological remains of these resources to be present. These sources are reviewed and summarized below to evaluate the likelihood that intact archaeological remains associated with the Erie and/or Oswego Canals are located within the APE for Direct Effects.

The "Original" Erie Canal, or Clinton's *Big Ditch (c. 1817-1836)*

As described in Section 2.4.4 of this report, Governor Dewitt Clinton's dream of building a canal that would connect across New York State was ridiculed by his political opponents. Despite the derision, legislation was eventually passed which funded a survey of possible canal routes. Construction of a short middle section of the Erie Canal was approved in 1808, connecting the Seneca and Mohawk Rivers. Construction of the shallow waterway, sarcastically nicknamed "Clintons Big Ditch," began on July 4, 1817, delayed due to the War of 1812 (Finch, 1925).

As a result of technological improvements in demolition and construction that were developed during Canal construction, the entire route from Rome to Salina was completed by 1820, and deemed a success. An additional boost to efficiency was engineer Canvass White's discovery of local rock deposits along the Erie Canal route, from which hydraulic cement could be made in large amounts (Hardin, 1993; Cement Association of Canada, 2016). The ease with which the cement could set underneath water allowed for expansion towards the east and west sides of the state to proceed without delay. Eight years in the making, the full route of the Erie Canal opened on October 26, 1825. The trapezoidal canal prism was 40 feet wide, tapering to 28 feet at the bottom of the channel, and carried four feet of water (see Figure 3.2.2-1). The Erie Canal cut through fields, forests, rocky cliffs, swamps and crossed rivers on aqueducts.

The 363-mile long engineering marvel connected Albany to Lake Erie, traversing 680 feet of elevation changes through 83 locks (Cochran, 2004). The challenges encountered during the construction of the canal are described as follows:

> The project engineers and contractors had little experience building canals, so this massive project served as the nation's first practical school of civil engineering. For eight years of wet, heat, and cold, they felled trees and excavated, mostly by hand and animal power, mile after mile. They devised equipment to uproot trees and pull stumps and developed hydraulic cement that hardened under water. With hand drills and black powder they blasted rocks. Their ingenuity and labor made the Erie Canal the engineering and construction triumph of its day. (Erie Canalway National Heritage Corridor, 2016).

The Enlarged Erie Canal (ca. 1836-1918)

Construction of the Erie Canal resulted in rapid growth and economic benefits in New York state, which drove a a surge in New York state exports and real estate values, which in turn encouraged legislators to consider enlarging the canal system. Hundreds of miles of proposed routes were surveyed, and ten lateral canals were constructed within 15 years of the completion of the original Erie Canal (Finch, 1925). The first enlargement of the main canal was completed in stages between August 1836 and September 1862 and included a rebuild of the original canal along its path, providing larger lock chambers and deeper channels on the main branches of the system (Cochran, 2004).

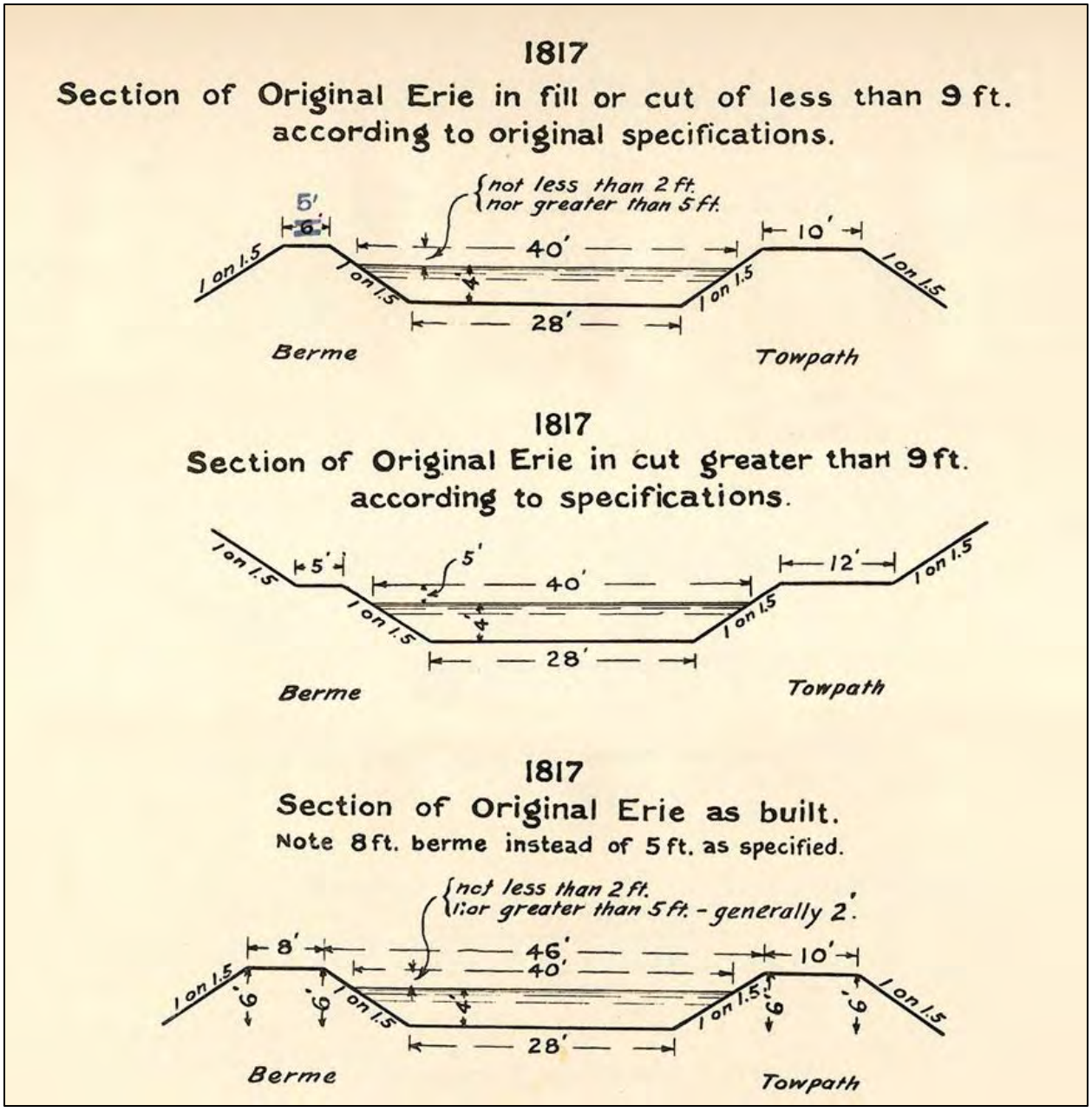


Figure 3.2.2-1. 1817 Section Drawings of the Original Erie Canal.
The early lock walls were constructed using plant-and-timber foundations on piles or bedrock. Between 1826 and 1833, the prism banks were reinforced with stone and wood (Cochran, 2004; illustration from Whitford's, 1906 *History of the Canal System of the State of New York*).

At the end of enlargement, the new prism was at least seventy feet wide on the surface by 52-56 feet wide on the bottom, and seven feet deep (see Figure 3.2.2-2). Its locks, measuring 110 feet long by 18 feet wide allowed for the passing of 240-ton vessels (Finch, 1925; Cochran, 2004). A second enlargement occurred in the 1890s with the goal of increasing the depth to nine feet (Cochran, 2004). A third enlargement occurred in the early-twentieth century as a part of the Barge Canal project, which is not within the APE for Direct Effects.

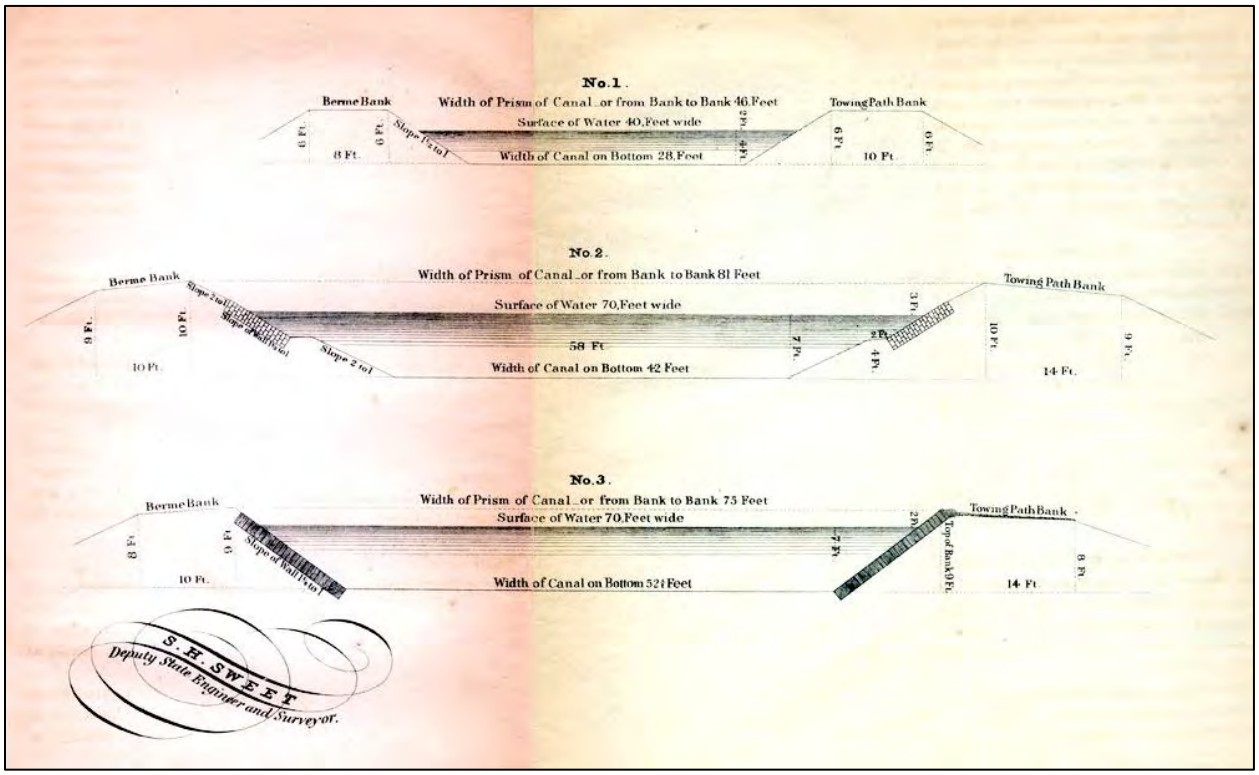


Figure 3.2.2-2. 1862 Section Drawings of the Enlarged Erie Canal.
Section No. 1, the Original Erie Canal, is juxtaposed against the 1862 Enlargements and bank improvements (Section Nos. 2 and 3). Illustration from the *Annual Report of the State Engineer and Surveyor, on the Canals of New York, for the Year 1862* (Sweet, 1863)

The Oswego Canal (1825-1918)

Though the original Erie Canal initially bypassed Lake Ontario, it was quickly realized that the Oswego River could serve as a connection from Syracuse to the Lake, which would boost trade with northern New York and Canada. In 1825, a portion of the Oswego River was canalized, and after four years, in the spring of 1829, the Oswego Canal was open for navigation (see Figures 3.2.2-3 and 3.2.2-4). The canal consisted of 15 locks and was 38 miles in length. The Oswego Canal was enlarged, then re-opened to traffic in 1917 with three additional locks, a depth that ranged from between 12 and 14 feet, and a bottom width of 200 feet (Finch, 1925). The method of making a river into a canal involved:

….obtaining the proper depth by the combined process of building dams and locks, and dredging channels. The dredging provides uniformity in the width and depth of the channels; the dams maintain the surface of the water at a fixed elevation above the beds of the streams, making the rivers into a serious of pools, or lakes; and the locks provide for passage from one level to the next (Finch, 1925).

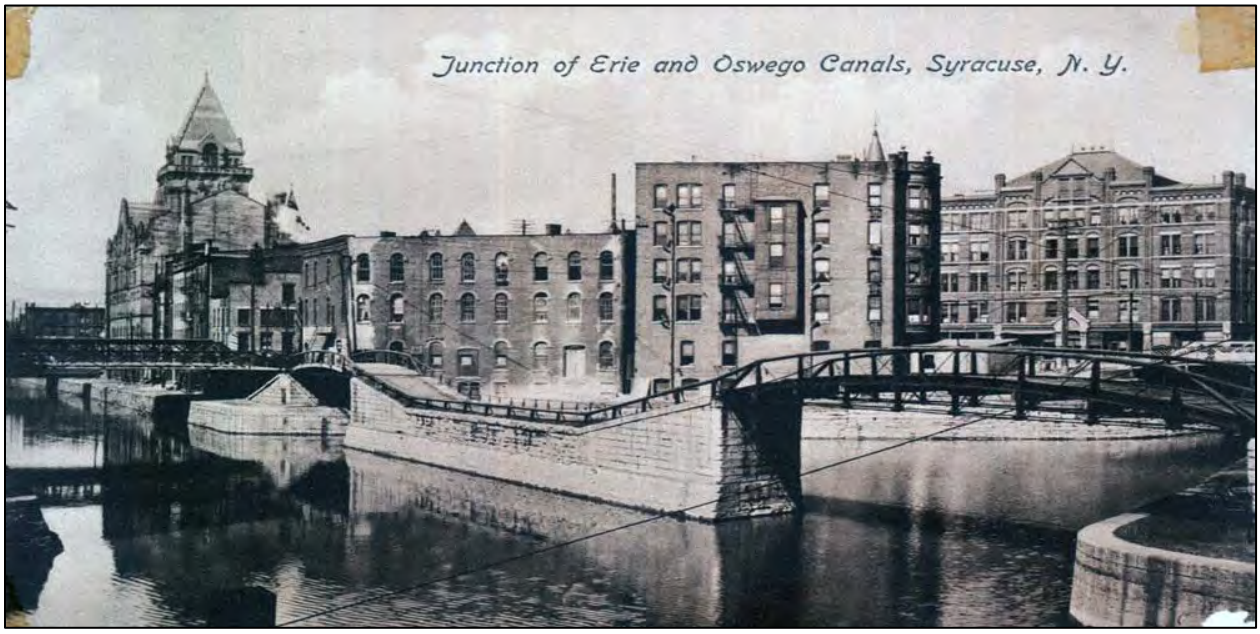


Figure 3.2.2-3. Undated Photograph of the Junction of the Erie and Oswego Canals, downtown Syracuse.
Based on review of Sanborn Maps, this photograph likely dates from c.1893-1909. The Salina Basin and entrance to the Oswego Canal are at the right side of the image. The Erie Canal continues westward at the left side of the image, passing beneath the Warren Street Bridge. At the forefront, a double span bridge connected the tow path road that ran along the north side of the Erie canal. View to the northwest (Image from Queens College, Waterways of New York Collection).

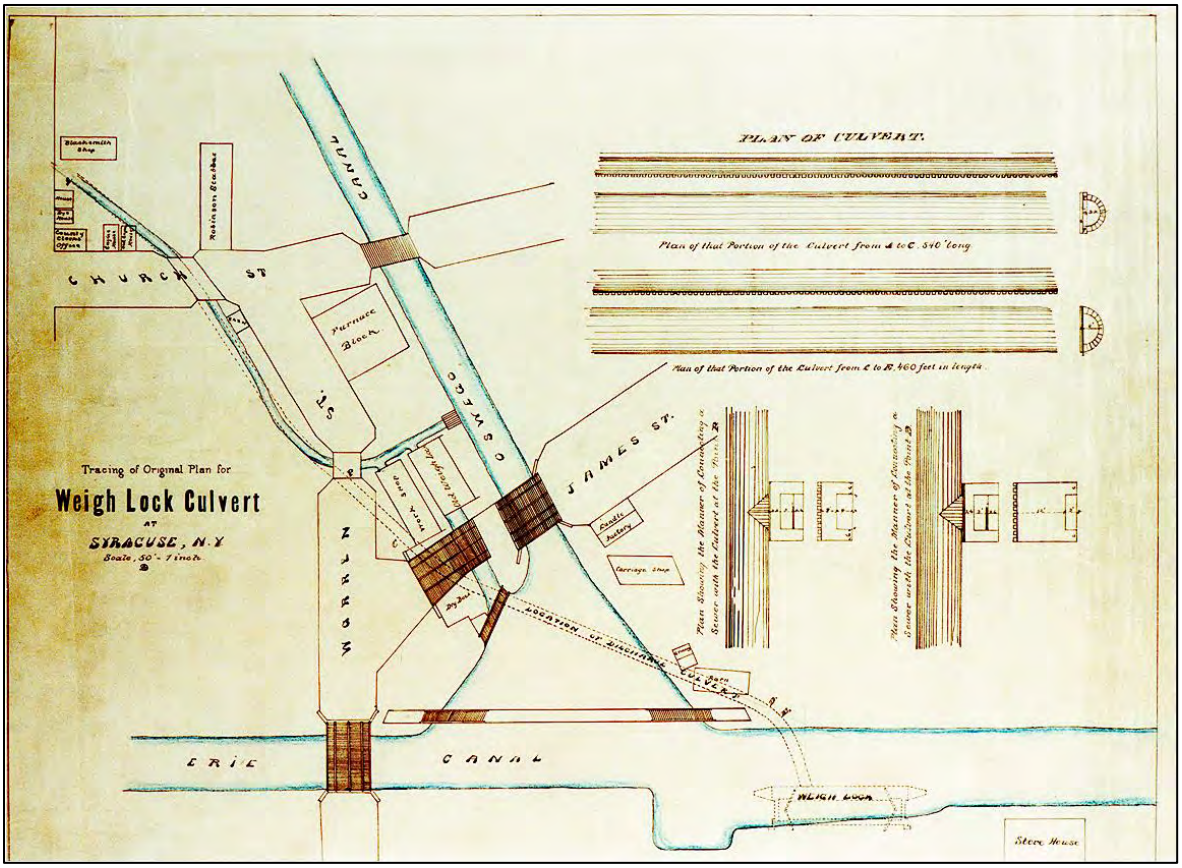


Figure 3.2.2-4. 1922 Tracing of the Original Plan for the Weigh Lock Culvert at Syracuse, NY.
Unknown author, potentially associated with the September 28, 1849 "Proposition for a Weigh Lock House." The triangular Salina Basin is featured at the center, joining the Erie and Oswego Canals. The proposed culvert was designed to carry the Onondaga Creek flow underneath the canal to avoid accumulation and degradation of the prism. Additional details included on this drawing are the culvert plans and sections (Image from the Collections of the Erie Canal Museum).

The Filling of the Erie and Oswego Canals (1918-1923)

In 1918, the New York State Barge Canal replaced most of the Enlarged Erie Canal and most portions of the former route of the Enlarged Canal fell out of use and were infilled, with the exception of the except for the section between Dewitt (east of Syracuse) and Rome. In 1923 the portion of the canal through downtown Syracuse was officially closed to navigation, and infilling commenced (see Figure 3.2.2-5). The effort was met with great eagerness by residents who long lamented the state of the canal.

> The Erie Canal between Salina and Clinton streets appears to be a favorite gathering place for scum and refuse. The wind sweeps papers, boxes, pieces of wood and other rubbish into this cove and leaves it there. The wind tends to clear the main channel of the canal of such rubbish, but does not affect such secluded places. Weeds from the bottom of the canal have grown to the surface and add to the general unsightly collection. They gather the other refuse and aid in giving the canal the general appearance of a dumping place. Tuesday morning there was such a heap of rubbish just east of the Salina Street bridge that the railing was crowded with spectators. The refuse remains—a menace to public health (*Syracuse Herald*, July 13, 1921, cited in Syracuse B-4, 2011).



Figure 3.2.2-5. ca. 1920s Photograph of the Filling of the Erie Canal in Downtown Syracuse.
View looking west towards the Weighlock Building (Image from the Collection of the Erie Canal Museum)

In 1923 the city purchased the canal lands running through the city for $800,000, filled it in with soda ash and hard landfill, and constructed Erie Boulevard (Conlin, 1974). The Oswego Canal was filled at the same time, paved over, and designated Oswego Boulevard. The filling of the canals was seen as an opportunity for the city to eliminate bridges and replace unsightly commercial and canal structures with new buildings, though at first Erie Boulevard was only used as a parking lot (see Figures 3.2.2-6; Hay, 2014). On June 23, 1923, the first handful of dirt was thrown into the canal, an event well documented in the local news:

> A few pounds of earth, shoveled into the historical canal basin at Clinton Square by Dr. Frederick W. Betts, representing the South Side, and John Gang, representing the North Side, served to mark the high spot in the crowded afternoon's program. It symbolized, as Mayor John H. Walrath pointed out, "the erasure of a line that has divided the community and hindered its progress almost from the beginning."
>
> "This," he said, "is an historic moment. The city has at last secured the possession of the old Erie Canal which has split the city in two so harmfully. We are today erasing a dividing line, imaginary as though it may be, which has impeded and obstructed the growth and cooperation of the community for many, many years. Today, on our municipal holiday, we hold it fitting to call upon a representative of the South Side and of the North Side to begin the work of blotting out this line. They are beginning an improvement which I promise you will progress as rapidly as is humanly possible" (*Syracuse Herald*, June 24, 1923, cited in Syracuse B-4, 2011).



Figure 3.2.2-6. ca. 1925 Photograph of the infilled Erie Canal at Clinton Square.
After 1923, the former route of the enlarged Erie Canal was known as Erie Boulevard. In the 1930s the parking lot was landscaped and remained divided by Erie Boulevard until a 2001 renovation created the current Clinton Square downtown park (Image from Liverpool Public Library Collection, Schuelke Collection, from the New York Heritage Digital Collections).

Work continued through the summer of 1923 and in August of that year, the City of Syracuse let contracts for the razing of the old bridges over the Erie Canal and subsequent infill at their locations (Fayetteville Bulletin, 1923). In October of 1924, Salina Street, the major north-south thoroughfare through Syracuse, was re-opened to traffic following the removal of its bridge over the Erie Canal, its infill, and the paving of the road surface (Syracuse B-4, 2011; see Figure 3.2.2-7).



Figure 3.2.2-7**. "Junking of Salina Street Bridge Over Erie Ditch Goes Rapidly Forward Without Apparent Hitch."**
The final step towards city unification came when Salina Street reopened. The historic occasion merited a mayoral proclamation and weeklong celebration by the North Salina Street merchants (*Syracuse Herald*, May 11, 1924; image from and cited in Syracuse B-4, 2011)

Potential Canal-Related Archaeological Features within the APE for Direct Effects

Potential intact canal-related archaeological features within the APE for Direct Effects would be from the Enlarged Erie and Oswego Canal Era. EDR conducted a review of historic maps (e.g., Appendix A: Map 4) to identify map-documented canal-related features that were formerly located within the APE for Direct Effects. Cochran (2004) has created a typology (or classification) of canal-related features and structures that includes prisms, basins, lift locks, guard locks, weigh locks, aqueducts, feeder ditches, feeder receivers, feed dams, reservoirs, culverts, waste weirs, spillways, and bridges, which provides a basis for the analysis presented herein. It should be noted that, as previously discussed, all bridges associated with the canals within the City of Syracuse were demolished in the 1920s following the closure and filling of the canals. Therefore, no intact components of canal-related bridges, other than footings or other support structures along the canal prism walls, are anticipated to occur within the APE for Direct Effects. In addition, it is assumed that the widening and deepening of the Original Erie Canal to create the Enlarged Erie Canal eliminated any trace of the earlier and smaller canal and towpath. Potential canal-related archaeological features within the APE for Direct Effects are listed in Table 3.2.2-1. Areas within the APE for Direct Effects where canal-related features were formerly located (and where there is potential for canal-related archaeological resources to be located) are shown on Appendix A: Maps 4 and 11.

Table 3.2.2-1. Potential Canal-Related Archaeological Features within the APE for Direct Effects

Feature Type	Name	Former Location	Potential Intact Remains	Potential Disturbed Remains
Prism	Erie and Oswego Canal Prism	Entire Length of Erie and Oswego Canals	X	
Tow Path	Erie and Oswego Canal Tow Paths	Entire Length of Erie and Oswego Canals		X
Basin	Clinton Square Basin	Clinton Square at Erie Canal	X	
Basin	Salina Basin	Erie Canal/Oswego Canal Juncture	X	
Bridge	Erie Canal Tow Path Bridge	Connecting the north tow path of the Erie Canal over the Salina Basin		X
Lift Lock	Lift Lock 49	Erie Canal between Orange (McBride) & Almond Streets		X
Weigh Lock	Syracuse Weigh Lock	At the Weighlock Building, between Montgomery and Mulberry (State) Streets along the Erie Canal	X	
Culvert	Onondaga Creek Culvert	Between the Erie Canal and Onondaga Creek, at Salina Basin	X	
Bridge	Franklin Street Bridge	Franklin Street over the Erie Canal		X
Bridge	Clinton Street Bridge	Clinton Street over the Erie Canal		X
Bridge	Salina Street Bridge	Salina Street over the Erie Canal		X
Bridge	Warren Street Bridge	Warren Street over the Erie Canal		X
Bridge	Mulberry Street Bridge	Mulberry (State) Street over the Erie Canal		X
Bridge	Grape Street Bridge	Grape (Townsend) Street over the Erie Canal		X
Bridge	Orange Street Bridge	Orange (McBride0 Street over the Erie Canal		X
Bridge	Almond Street Bridge	Almond Street over the Erie Canal		X
Bridge	James Street Bridge	James Street over the Oswego Canal		X
Bridge	East Willow Street Bridge	East Willow Street over the Oswego Canal		X
Bridge	NYWS& B Railroad, Iron Lift Bridge	Spanning the Oswego Canal, between Willow & Belden Streets, extant until 1936		X
Bridge	NY West Shore Railroad, Elevated Steel Bridge	Spanning the Oswego Canal, between Willow and Belden Streets, built in 1936 at location of previous iron lift bridge		X
Bridge	Footbridge	Spanning the Oswego Canal, between Salina Street (west) and Belden Street (east)		X
Bridge	North Salina Street Bridge	North Salina Street over the Oswego Canal		X
Bridge	Butternut Street Bridge	Spanning the Oswego Canal, between Fulton Street (west) and Butternut Street (east)		X

Feature Type	Name	Former Location	Potential Intact Remains	Potential Disturbed Remains
Bridge	Division Street Bridge	Spanning the Oswego Canal, connecting East and West Division Streets		X
Bridge	Bear Street Bridge	Bear Street over the Oswego Canal		X

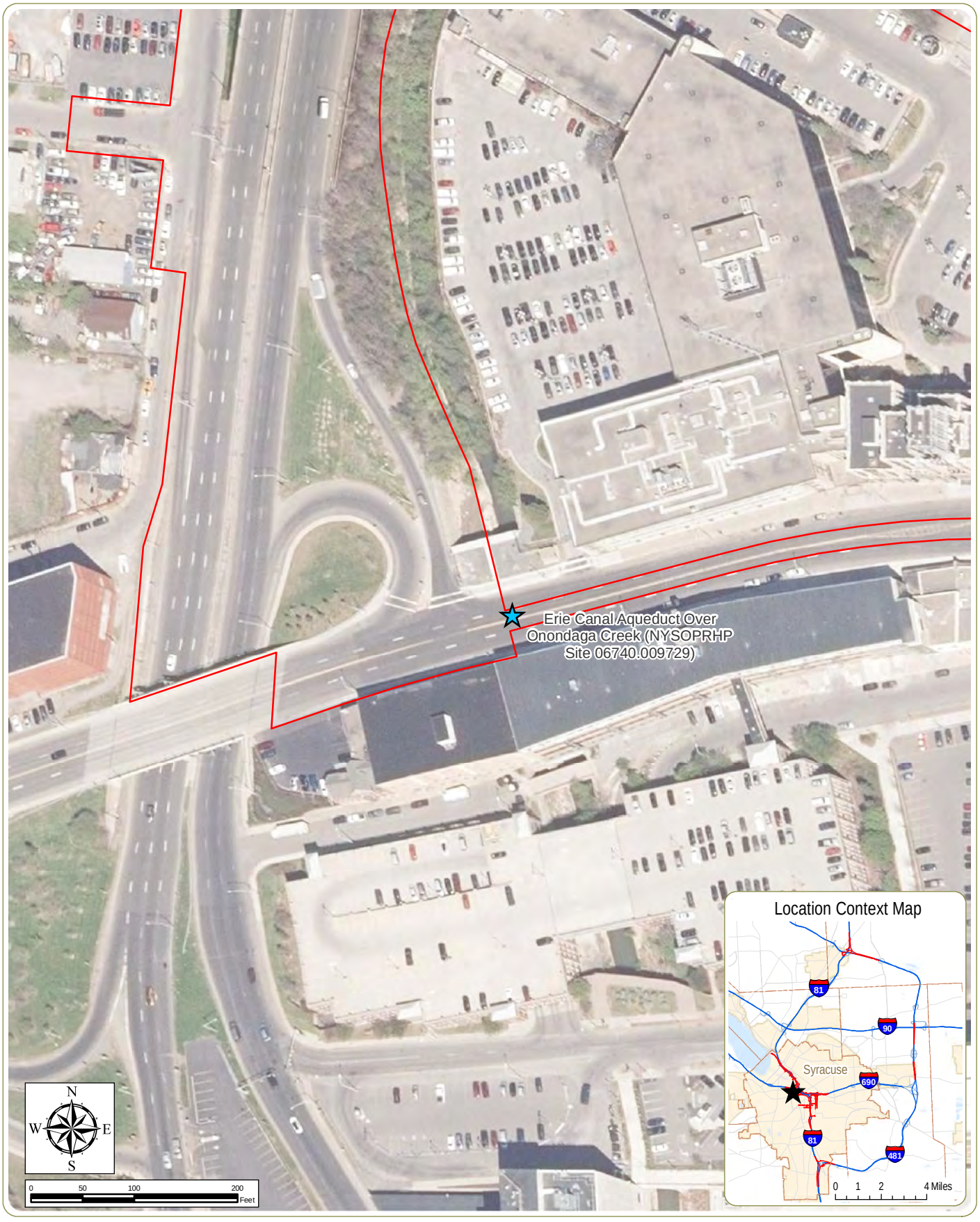
In addition, an intact limestone aqueduct is located within the APE for Direct Effects, where Erie Boulevard crosses Onondaga Creek (see Figure 3.2.2-8). The aqueduct has previously been determined eligible for listing on the NRHP under Criterion C (NYSOPRHP Site 06740.009729) and is formally considered a historic-architectural resources as opposed to an archaeological site (in terms of NYSORHP's resource inventory). NYSOPRHP's "Resource Evaluation" form for the property includes the following description:

> The history of the triple stone arch beneath Erie Boulevard at Onondaga Creek is clear from the published records of the New York State Canal Commissioners. Constructed as a culvert carrying the Erie Canal over the creek, the structure was completed in 1838 as part of the initial efforts at enlarging the Erie Canal. The earlier 1820's aqueduct over the creek had failed in the summer of 1834 and the crossing was temporarily repaired until the new aqueduct was put into service in the spring of 1839. One of the arches suffered a major failure in 1907 and was extensively repaired at that time, yet much of the 1838 structure remains intact. The three arches of this culvert make it one of the largest surviving structures of that type from the 1835-1862 enlargement period. It is also associated with what was one of the most notable engineering disasters that occurred in the history of the Erie Canal, the failure of the structure in 1907 (Opalka, 2008).

In 2014, the City of Syracuse undertook a project to repair and restore this historic resource (Kirst, 2004). The aqueduct arches are located underneath Erie Boulevard and are presently not accessible to the public. Photographs of the aqueduct and arches are included as Figure 3.2.2-9.



Figure 3.2.2-9. Photographs of the Erie Canal Aqueduct over Onondaga Creek.
View to the south under the Washington Street overpass of the Erie Canal Aqueduct arches (left; Photo Credit: Grant Johnson, 2016); the Erie Canal Aqueduct arches under Erie Boulevard (right; Photo Credit: Bruce G. Harvey, 2014, previously shared on Preservation Association of Central New York list-serve).



I-81 Viaduct Project

Onondaga County, New York

Figure 3.2.2-8: Erie Canal Aqueduct Over Onondaga Creek

November 2016

NRHP-Eligible Erie Canal Feature

APE for Direct Effects

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation Federal Highway Administration

Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Previous Archaeological Investigations of Canal-Related Features and Sites

Four previously conducted archaeological studies within or immediately adjacent to the APE for Direct Effects have identified archaeological features associated with the Enlarged Erie Canal. No archaeological studies have been conducted involving the Oswego Canal within or near the APE for Direct Effects. The projects are summarized in Table 3.2.2-2 and have been discussed in detail in Section 2.3 of this report. The previous projects identified intact portions of the canal prism (Hartgen, 2001a; Pratt & Pratt, 1981), the Clinton Square Boat Basin (PCI, 2001), and the Onondaga Creek Culvert (PAF, 2008).

Table 3.2.2-2. Previously Archaeological Studies of Canal-Related Features within the APE for Direct Effects.

Survey/Project No.	Survey/Project Name	Type	Distance from APE for Direct Effects	Findings	Reference
AR0004499_26 (no CRIS survey number)	Stage 1B Cultural Resource Survey for the Proposed Best Management Practices Program of the Combined Sewer Overflow (CSO) Facilities System in the City of Syracuse, New York	Phase 1B	0 ft (overlaps APE for Direct Effects)	Fifteen shovel tests and 29 soil borings identified fill and low density 20th century debris throughout majority of project area. Identified remnants of the Enlarged Erie Canal at three locations (recommended avoidance or Phase II investigations) and remnants of the Fay Foundry/Ironworks at one location (recommended for Phase II investigations which were never accomplished).	Pratt & Pratt, 1981
00SR5205	Phase 1B: Clinton Square Project	Phase 1B	0 ft (overlaps APE for Direct Effects)	Identified two sites: USN 6740.004364-Clinton Square Boat Basin (NRHP-eligible) and USN 6740.005256-historic structural foundations (NRHP-undetermined). Mitigation recommended.	PCI, 2000
01SR51627	Phase 1B Archaeological Field Investigation, EBSS Gate Chamber No. 4, Storm and Sanitary Sewer Modification.	Phase 1B	100 ft (31 m)	Identified dry-laid fieldstone walls of enlarged Erie Canal; recommended project modifications to avoid canal.	Hartgen, 2001a
08SR58239	Phase 1: Erie Blvd. over Onondaga Creek Project	Phase 1	0 ft (overlaps APE for Direct Effects)	Identified historic culvert associated with Erie Canal. No further work recommended.	PAF, 2008

Archaeologists have documented disturbance to portions of the canal prism walls underneath associated with the installation of the Erie Boulevard Storm Sewer, which is located within the former prism of the enlarged canal:

> The Erie Boulevard Storm Sewer is laid within the enlarged Erie Canal. Therefore, the installation of lateral sewers necessitated the breeching of the canal walls. In addition, other utilities such as water, gas and electric have crossed the canal at depths varying from 2 to 7 feet [0.6 to 2.1 m] below the surface. In instances where the cap and wall stones of the canal were in situ, most, if not all of these utilities disturbed the original canal structure (Pratt and Pratt, 1981:3).

Therefore, although extended portions of the Erie Canal prism may remain somewhat intact where it crosses the APE for Direct Effects in downtown Syracuse, the canal prism walls have been damaged to an unknown extent by the installation of buried utilities throughout the twentieth and early-twenty-first centuries. Pratt and Pratt (1981) also noted that the Erie Boulevard Sanitary Sewer cut through the northern wall of canal in two locations between Beech and Cherry Streets; however, these locations are outside the APE for Direct Effects.

Hartgen 2001a encountered a portion of the canal wall near the corner of University Avenue and Erie Boulevard (see Figure 3.2.2-10). The prism at this location was partially intact but had been damaged by the installation of a subsurface storm sewer gate chamber (Gate Chamber 4). Hartgen (2001a) encountered the remains of the canal wall approximately 2 ft (0.6 m) below the modern ground surface.

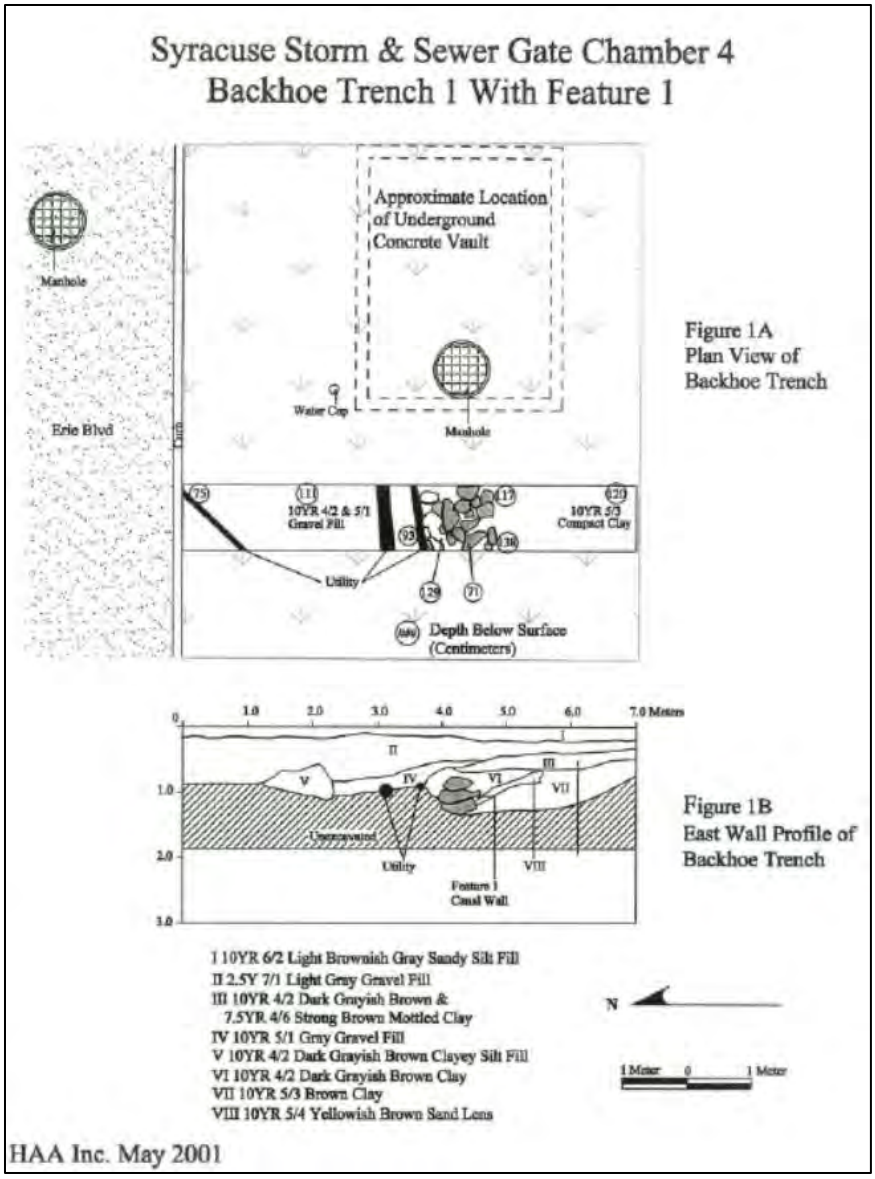


Figure 3.2.2-10. Erie Canal-Related Archaeological Features.
Schematic drawing showing the stone wall of the Enlarged Erie Canal (Image from Hartgen 2001a: Figures 1A and 1B).

PCI (2001) excavated test pits via backhoe and hand excavation at five locations within Clinton Square Park in order to assess the presence of intact Erie Canal-related features. Three excavated trenches identified intact portions of the Enlarged Erie Canal prism wall and two trenches identified portions of the Clinton Square Docking/Turning Basin wall. PCI (2001:20) noted "the portions of the Erie Canal and basin walls exposed…likely continue beneath the fill of the modern day urban setting." At four of the five locations examined, the canal or basin wall exposed was intact; however, at one location the canal wall had been damaged by the installation of concrete steps on top of the wall (see Figure 3.2.2-11).

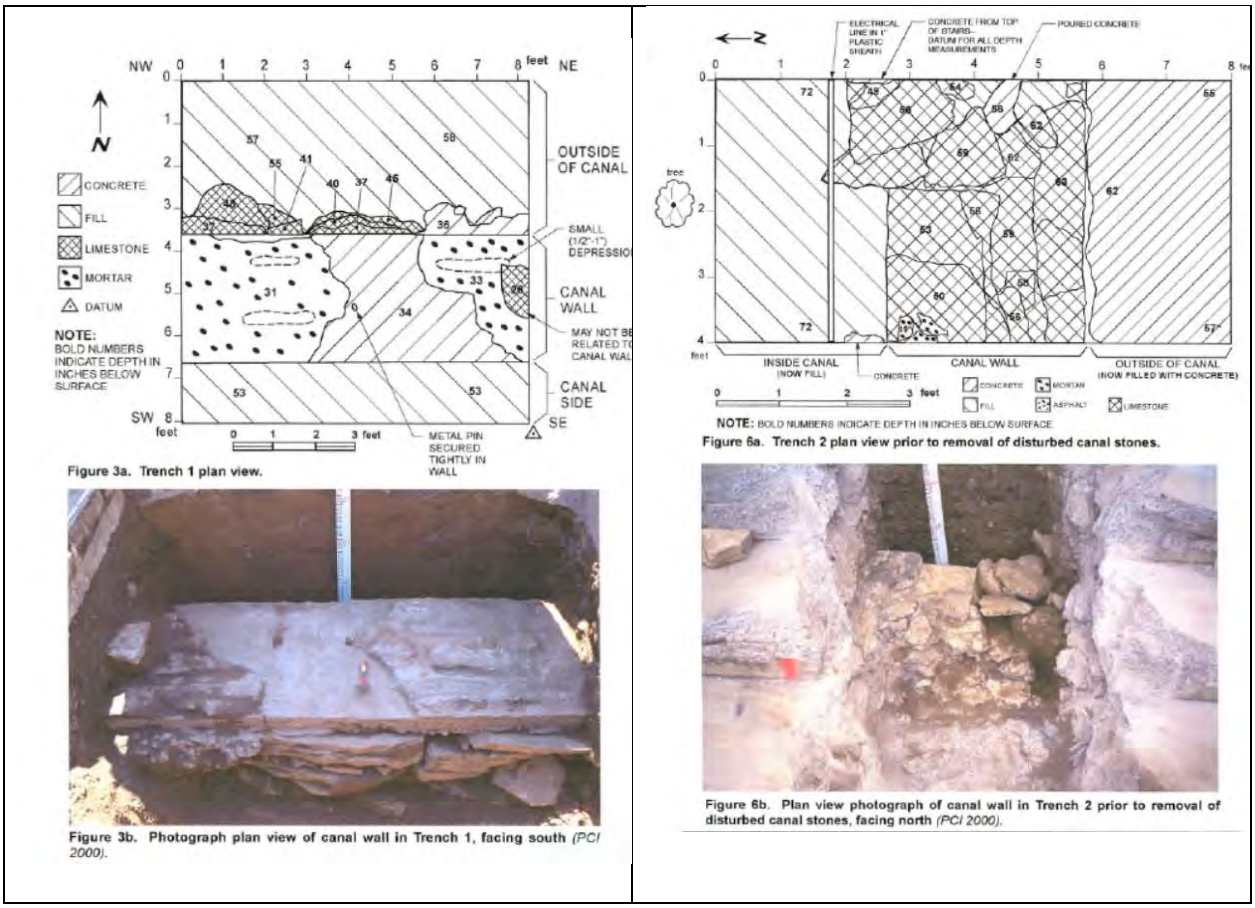


Figure 3.2.2-11. Archaeological Remains of Enlarged Erie Canal Prism in Clinton Square.
Schematic drawings and photographs of intact portions of the Enlarged Erie Canal prism wall identified in Clinton Square (Figures 3a and 3b from PCI [2001]) (left) and damaged portions of the Enlarged Erie Canal prism wall identified in Clinton Square (Figures 6a and 6b from PCI [2001]) (right).

PAF (2008) conducted a series of hand excavations and auger borings as part of a Phase 1B survey for the rehabilitation of the bridge conveying Erie Boulevard over Onondaga Creek. The excavations and borings identified the concrete and mortar base of the Erie Canal prism below the street level and the intact limestone culverts dating back to 1838 (with repairs made in 1907) which carried the creek under the canal. PAF (2008) also identified portions of the intact timber pilings that formed the culverts' foundation. The three limestone culverts remain intact under Erie Boulevard.

Potential Significance of Canal-Related Archaeological Sites

As described above and in Section 2.4 of this report, construction and enlargement of the Erie and Oswego Canals was the most important contributing factor in the economic and industrial development of the City of Syracuse and surrounding region in the nineteenth century. Given that both canals were filled in the 1920s and their remaining features have experienced various episodes of physical disturbance (e.g., the installation of municipal infrastructure

utilities), the physical integrity of canal-related archaeological features within the APE for Direct Effect is anticipated to be variable. Intact archaeological features associated with either canal, depending on their physical integrity, could potentially be eligible for listing on the NRHP under Criterion A, C, or D. Canal-related features could be eligible under Criterion A for their association with the significant role that the canals played in the historical development of Syracuse and New York State. Depending on their function and integrity, canal-related features could also be eligible under Criterion C as examples of historically significant engineering structures. Similarly, canal-related features could be eligible under Criterion D in terms of their ability to provide significant data pertinent to answering research questions related to local, regional, or national history. In the case of canal-related features, these sites would need to contribute significant information to our understanding of the construction or operation of the canals sufficient to broaden our understanding of this important aspect of local and regional history.

Summary: Portions of the Erie and Oswego Canals were formerly located within the APE for Direct Effects. Potential intact canal-related archaeological features within the APE for Direct Effects would be from the Enlarged Erie and Oswego Canal Era. It is assumed that the widening and deepening of the Original Erie Canal to create the Enlarged Erie Canal eliminated any trace of the earlier and smaller canal and towpath. The following is a summary of potential for canal-related archaeological resources within the APE for Direct Effects:

- Prism: Based on the results of previous investigations (Hartgen, 2001a; PAF, 2008; PCI, 2001; Pratt & Pratt, 1981), there is a moderate likelihood that intact portions of the Erie and Oswego Canal prisms remain intact under modern streets and sidewalks within the APE for Direct Effects. The Enlarged Erie Canal prism may remain largely intact under the entire portion of Erie Boulevard that passes through the APE for Direct Effects and the Oswego Canal prism may remain largely intact under the entire portion of Oswego Boulevard that passes through the APE for Direct Effects. However, the majority of the historic route of the Oswego Canal within the APE for Direct Effects occurs under the current route of I-81 in an area identified entirely as Cut-and-Fill Highway Area. Given the extent of previous disturbance associated with the construction of Oswego Boulevard in the 1920s and the Oswego Boulevard Expressway (later, I-81) in the 1950s there is a very low likelihood of intact portions of the Oswego Canal remaining in the portion of the APE for Direct Effects located within the current route of I-81.
- Towpath: The canal towpaths may remain intact in places; however, in many places they have likely been disturbed by the installation of buried utilities as well as the construction of streets and sidewalks. Whereas the canal prism existed below-grade, allowing it to be filled and therefore preserved, the towpaths typically existed at- or above-grade and thus would have been more easily damaged or destroyed following the closure of the canals. The likelihood of encountering intact portions of the original towpath from either canal within the APE for Direct Effects is considered to be low.

- Bridges: Although several former bridges over the canals occurred within the APE for Direct Effects, they were demolished shortly after the canals were filled in. There is some chance that subsurface bridge abutments could remain intact but the overall likelihood of encountering intact canal-related bridge features within the APE for Direct Effects is considered to be low.
- Basins: The APE for Direct Effects overlaps with the Clinton and Salina Basins, both of which may retain intact walls beneath modern day streets and parks (Hartgen, 2001a). The likelihood for encountering these features is considered to be high.
- Locks: Lift Lock 49 historically occurred within the APE for Direct Effects between Orange (now McBride) and Almond Streets. The cut stone from abandoned locks was often scavenged for other purposes prior to the canal being filled. There is a moderate to high potential that portions of Lift Lock 49 remain intact under Erie Boulevard within the APE for Direct Effects. The Syracuse Weigh Lock remains largely intact and occurs immediately adjacent to the APE for Direct Effects. The feature is currently preserved as part of the Erie Canal Museum.
- Culverts: The Onondaga Creek Culvert is intact approximately 4-5 meters (13-16 ft) below the modern street surface. The likelihood for encountering this feature is high if Project-related disturbance extends this deep in this area.
- Aqueduct: An intact limestone aqueduct is located within the APE for Direct Effects, where Erie Boulevard crosses Onondaga Creek (see Figure 3.2.2-8). The aqueduct has previously been determined eligible for listing on the NRHP under Criterion C (NYSOPRHP Site 06740.009729) and is formally considered a historic-architectural resources as opposed to an archaeological site (in terms of NYSORHP's resource inventory).

In summary, there is a high potential for archaeological resources related to the Erie and Oswego canals to be present within the APE for Direct Effects. Recommendations regarding these potential resources are provided in Section 4.2 of this report.

3.2.3 Potential for Large-Scale Commercial, Industrial, and Institutional Archaeological Sites

As described in Section 2.4 of this report, downtown Syracuse was the hub of industrial, commercial and institutional activity for central New York in the ninetieth and twentieth centuries. Infrastructure associated with the once burgeoning salt industry (which gave Syracuse its nickname of "the salt city"), as well as numerous other commercial enterprises, was formerly located within the APE for Direct Effects. The history of construction and replacement of these features is well documented in historical sources and the former locations of industrial, commercial, and institutional-related features within the APE are shown on historical maps and photographs of Syracuse. In addition, several previous cultural resources surveys conducted within one mile of the Project (see Section 2.3) note the potential for intact

archaeological remains associated with the salt industry and other industries, and evaluated the likelihood for intact (undisturbed) archaeological remains of these resources to be present (e.g., AAS, 2016; CCRG, 2001b). These sources are reviewed and summarized below to identify potential industrial, commercial and institutional sites within the APE for Direct Effects.

The Salt Industry Prior to the Erie and Oswego Canals (c. 1790-1825)

Salt production was crucial to the growth and development of the area that would become the City of Syracuse. The lands surrounding Onondaga Lake were known to be rich in salt springs as early as the seventeenth century, resulting from contact between French Jesuit priests and the Onondagas beginning in the 1650s. Several European travelers passed through the region in the early-eighteenth century, and wrote about the salt springs surrounding the lake. Following the Revolutionary War, many veterans and settlers relocated to the Six Nations Reserve in Canada, passing through upstate New York, including the area that would become Syracuse, lured by fur trading, as well as the wealth of salt springs, for which the region was already well known (Werner, 1917; Chase, 1924; Sernett, 1995).

Through the 1788 Treaty of Fort Schuyler, New York State acquired title to a vast swath of land held by the Onondaga Nation, including portions of what today comprises Cayuga, Cortland, Onondaga, and Seneca counties. The lands located at the southern end of Onondaga Lake that were known to be rich in salt springs were established for joint use of the state and the Onondagas in the production of salt, increasing the allure of the area immediately surrounding of the lake as a place for settlers. In the fall of 1789, Nathaniel Loomis arrived at Onondaga Lake and began production of salt for resale. The following year, Colonel Jeremiah Gould, Hezekiah and Thomas Olcott, and Deacon Loomis arrived at the lake to engage in salt production. As a result of the increased activity and migration to the lakefront due to salt production, a settlement adjacent to the salt marshes on the north side of the lake named Salt Point began to take shape in the early 1790s (Clark, 1849; Clayton, 1878; Munson, 1969).



Figure 3.2.3-1. Detail of the 1797 Dewitt *Map of Onondaga Salt Lake*.
The 1797 Simeon Dewitt *Map of Onondaga Salt Lake* shows the nascent settlement of Salina, as well as the relatively undeveloped condition of the land surrounding Onondaga Lake just prior to the establishment of the Onondaga Salt Springs Reservation in 1797. The location of salt springs, salt blocks, as well as meadows, and the original, meandering courses of Onondaga Creek and Harbor Brook that would soon be diverted with the construction of hundreds of salt sheds in the coming decades. (Dewitt, 1797; Digital collections of the New York State Archives)

Onondaga County was formed in 1794 from Herkimer and Tioga Counties, and named after the Onondaga Indians whose former territory comprised the lands of the newly-formed county. By 1795, the Onondagas had relinquished all title to the lands in return for an annuity and a yearly allowance of salt, and relocated to a reservation to the south. Though salt production had increased significantly in the preceding years, there was little formal regulation and considerable land squatting, leading the New York State Legislature to establish the Onondaga Salt Springs Reservation (OSSR) in 1797. The OSSR encompassed a 15,000-acre reservation subdivided into manufacturing lots adjacent to the most productive salt springs, as well as pasture lots, and a large portion reserved for the massive amount of firewood used in the early boiling block process of salt-making. The reservation included portions of what would soon become the Village of Syracuse, Town of Salina, and Town of Geddes (Clayton, 1878; Rivette, 2005; Darlington, 2005). The Onondaga Salt Springs Reservation was the first government-regulated effort to harvest salt on a larger scale, and would lead to profound changes in the nearby environment and local economy in a matter of a few years.

Boiling was the dominant method of salt production for several years, and as production increased, buildings grew larger to accommodate increasing numbers of kettles and furnaces. In 1797, the first year of the OSSR, 25,474 bushels of salt were made and inspected. By 1798 this number had more than doubled to 59,928 bushels, and by 1804 over 100,000 bushels were being produced at the salt springs near Onondaga Lake. Though the amount of salt produced

did not always increase from year-to-year, production increased dramatically to 452,050 bushels in 1810 before leveling off again. In 1812, a law was passed that required the superintendent to assign two acres of land for the purpose of experimenting with manufacturing salt via solar evaporation. Although making salt through solar evaporation had been recorded in New York State as early as 1661, this was the first noted implementation for commercial production, and it would eventually prove so successful as to become the only method of manufacturing salt at Onondaga Lake (Beck, 1826; Clayton, 1878; Werner, 1917).

The salt produced by solar evaporation was coarse in nature, whereas salt produced by boiling was of a finer crystal. In 1821 lands were laid out specifically for the manufacture of coarse salt by solar evaporation. This was unpopular with the manufacturers who relied on boiling, and likely perceived a threat in the new method of production. Several hundred acres of OSSR lands had already been sold beginning in 1820, with proceeds going to the commissioners of the Erie Canal building fund. This money was in addition to a new tax of 12.5 cents per bushel enacted in 1816 for the purpose of increased the building fund for the Erie Canal, plans for which had been in motion for a number of years, spearheaded by local Judge Joshua Forman and aided by James Geddes, an early Salt Point settler who had surveyed the area that would become the Villages of Salina, Syracuse and Geddes (Clark, 1849; Werner, 1917; Munson, 1969).



Figure 3.2.3-2. Detail of the 1827 Kellogg *Map of a Part of the Onondaga Salt Springs Reservation*.
The 1827 Ashbel Kellogg *Map of a Part of the Onondaga Salt Springs Reservation* depicted the parcels that had been established south of Onondaga Lake for the purposes of salt production. A number of companies, including Onondaga Salt Company and Syracuse Salt Company, had been established closer to the village of Syracuse, which along with the villages of Geddes and Salina are depicted on the outside of the vast lands used for salt production. The recently constructed (c. 1818-1825) routes of the Erie and Oswego Canals are also depicted, including the basin located at the juncture of the two canals in the village of Syracuse. (Kellogg, 1827; Digital collections of the New York State Archives)

The Height of the Salt Industry (c. 1825-1888)

By 1825, the number of salt bushels produced had increased to 768,188. The OSSR contained a total of 150 salt manufactories with 2,275 kettles total between the villages of Salina, Syracuse, Liverpool and Geddes. Solar vats covered an enormous amount of the land, measuring a total of approximately 74,700 feet in length by eighteen feet wide, spread throughout the reservation (Clark, 1849; Werner, 1917). The rapid growth of the salt industry in the preceding decades had helped the once rough and dismal settlements around Onondaga Lake to thrive and become part of an economic center positioned at the middle of the state, whose continued success was facilitated for almost a century by the construction of the Erie and Oswego Canals, which allowed the shipment of salt to distant markets.

Prior to 1860, individual proprietors primarily undertook salt production, at first boiling salt in crude wooden blocks, and later in expansive solar salt vats. However, following the Civil War, an increasing number of companies organized in order to expedite production while minimizing overall cost of equipment and the production process. While companies like the Onondaga Salt Company and the Salina Coarse Salt Company had been in operation for a few decades, a number of additional companies were established in the second half of the nineteenth century, including the Onondaga Coarse Salt Association (1872), the American Dairy Salt Company (1876), and the New York Salt Company (1881). In the 1880s, perhaps the height of salt production in Syracuse, the salt vats and covers occupied an area of approximately 709 acres south of Onondaga Lake (see Figure 3.2.3-3), and produced between seven and eight million bushels of salt annually (EPC, 1883; Werner, 1917).



Figure 3.2.3-3. ca. 1897 Photograph of Solar Salt Works south of Onondaga Lake.
Although the salt industry had begun to wane by the 1890s, the vast infrastructure associated with solar salt production still dominated the landscape between downtown Syracuse and Onondaga Lake. The former village of Salina and Oswego Canal are located on the right side of the photograph (Unknown, 1897; Digital collections of the Liverpool Public Library)

The Decline of the Salt Industry (c. 1888-1926)

Within a few decades, all of the aforementioned salt works companies would go out of business or expand into other areas of commerce, as salt production declined significantly with the discovery of superior sources of salt in more hospitable climates with cheaper fuel (primarily Saginaw, Michigan). Salt production in Syracuse continued to decrease, and in 1897, the State legislature declared all leases of salt lands voided by March 1, 1898, and also voted to cease production of salt brine at any expense to the state (although salt production by the state would continue for almost a decade). In 1908, pipelines, wells and reservoirs previously owned by the state as part of salt-making operations were sold to the Onondaga Pipeline Company, which operated until 1926, when the last of the salt-making concerns ceased production, and the salt industry in the Syracuse area same to an end (see Figures 3.2.3-3, 3.2.3-4 and 3.2.3-5) (EPC, 1883; Werner, 1917; Murphy, 1949).

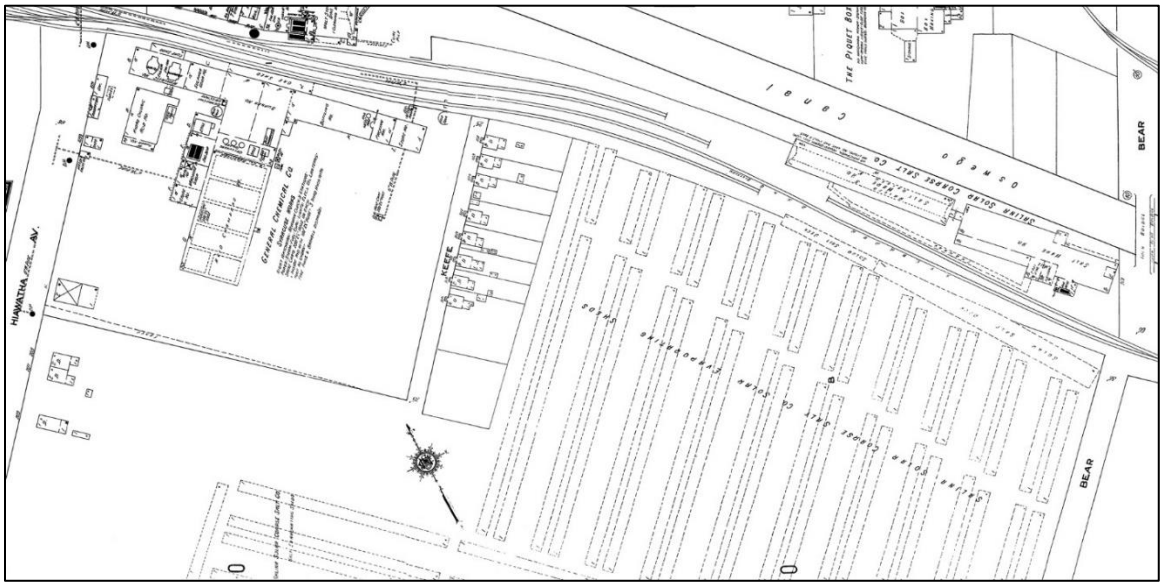


Figure 3.2.3-3. 1911 Sanborn Map (Plates 319 and 327) depicting Salt Works and the former Oswego Canal.
Although the salt industry would soon cease to exist in Syracuse, a significant number of salt vats were still noted adjacent to the Oswego Canal on the 1911 Sanborn map. Within a decade the canal would be closed and filled in, and all aboveground traces of the salt industry would be removed from the landscape (Sanborn, 1911).



Figure 3.2.3-4. ca. 1918 Photograph of the Empire Solar Salt Company.
By the time of the closure of the Erie and Oswego Canals through Syracuse in 1918, the majority of the wooden solar salt infrastructure had begun to rot due to exposure to the elements, and would soon be removed as the gas and oil industries came to dominate the land south of Onondaga Lake. This view is taken from within the former lands of the Empire Solar Salt Company, looking northwest toward the Town of Geddes (Unknown, 1918; Digital collections of the Liverpool Public Library)

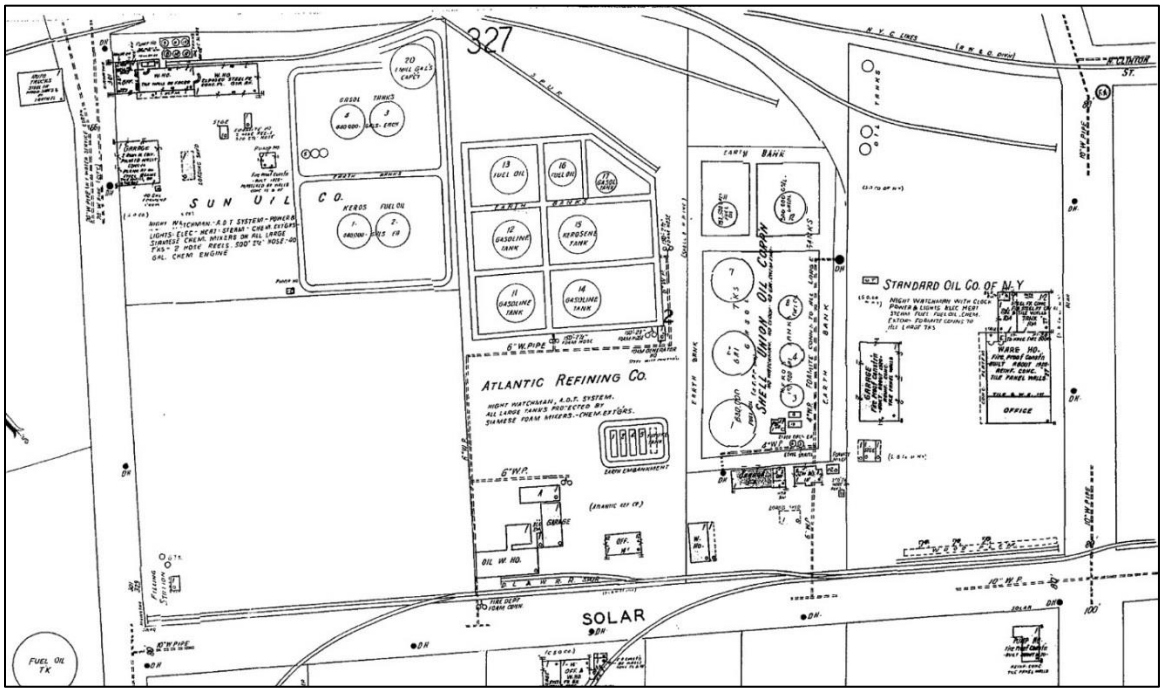


Figure 3.2.3-5. 1930 Sanborn Map (Plate 319) Depicting former Salt Works and the Oswego Canal.
By 1930, all remnants of the salt industry west of the Oswego Canal were eradicated in favor of gas and oil infrastructure. This map plate depicts the area between Hiawatha Boulevard and Bear Street, where earthen berms have been constructed around clusters of oil tanks, with new railroad lines built to service the oil yards. Solar Street has been extended north of downtown Syracuse between 1918 (Sanborn, 1930).

In addition, as described in Section 2.4 of this report, other important industries in Syracuse during the nineteenth and early-twentieth centuries included breweries, automobile manufacturing, and a variety of other manufacturing endeavors.

Potential for Industry and Commercial-Related Archaeological Resources within the APE for Direct Effects

A historic map analysis was conducted to identify to evaluate the likelihood that intact archaeological remains associated with significant industrial, commercial and institutional sites are located within the APE for Direct Effects. Maps that were include in the analysis include the following:

- the 1892 Sanborn-Perris Map Company (Sanborn) *Insurance Maps of Syracuse* (Appendix A: Map 4);
- the 1924 Hopkins *Map of the City of Syracuse* (not included in Appendix A);
- the 1938 Hopkins *Map of the City of Syracuse* (Appendix A: Map 6); and,
- the ca. 1956-1968 NYSDOT demolition plans associated with the original construction of I-81 (Appendix B).

It is worth noting that numerous other maps show the locations of former structures within the City of Syracuse. The historic map analysis is based on only a subset of the historic maps that are available for the APE, which were selected based on the level of detail included on the maps regarding the locations, ownership, use, and arrangement of buildings, as well as representing a range of different time periods. For instance, the structures depicted on the 1898-1900, 1938-1943, 1955-1958, and 1973-1977 USGS maps (see Appendix A: Maps 5 and 7-9) are not included in the map analysis because these maps do not identify individual structure by name, owner, or purposed (and these maps overlap with the time-period of the maps listed above). Similarly, earlier maps of Syracuse typically lack the detail regarding the location, use, ownership, and dimension of structures sufficient to provide comparable data as the maps that were included in the analysis.

The 1892 Sanborn, 1938 Hopkins, and 1956-1968 NYSDOT demolition plans were geo-referenced and overlain on aerial photographs of the Project vicinity. These maps were reviewed to identify noteworthy and/or potentially significant industrial, commercial and institutional sites located within the APE for Direct Effects. Included in this investigation are the medium- and large- scaled enterprises of Syracuse which contributed to the success of the early city. Industrial sites are associated with manufacturing, while the commercial ventures sold the goods involved with the production process. Institutional buildings include religious and educational facilities that served as community centers. Excluded from this inventory are coal yards, lumber sheds, gas stations and automotive garages, for which dozens were identified on the historic maps within the APE for Direct Effects. Also excluded from the survey are mixed use buildings with first level storefronts and apartments above. These small scale commercial/residential structures

proliferated throughout historic Syracuse, with many still standing today. Blocks of these small-scale mixed-use buildings were located on North Salina Street, which was the main commercial center in Syracuse. For example, in 1892 on North Salina, between East Willow and the Oswego Canal, businesses included a grocery, furniture/upholstery, laundry and tailor. Near the intersection of North Salina and Noxon Streets were other commercial enterprises such as hotels and banks. As shown in the 1956-1968 NYSDOT demolition plans (see Appendix B), the areas along Almond Street, south of Erie Boulevard, was primarily residential, with mixed-use commercial enterprises on the first-floor of many buildings. These local businesses included restaurants, laundromats, bars, dry cleaning shops, bakeries, liquor stores, and gift shops, and were omitted from the analysis presented below due to their scale and frequency; however, the archaeological potential associated with these sites is addressed in Section 3.2.4 of this report. In addition, the analysis includes only larger industrial, commercial and institutional sites located within Viaduct Priority Area. The locations of MDS within Northern and Southern Interchanges at I-81/I-481 and the I-481 Eastern Improvements areas of the APE for Direct Effects are depicted on the USGS maps from 1898, 1938 and 1955 (see Appendix A: Maps 5 and 7-9). However, these areas are not included in the analysis presented herein.

The sites identified as potentially significant were assigned a Map Documented Structure (MDS) identifier (number), which are listed in Table 3.3.2-1. The locations of these larger industrial, commercial, and institutional sites are depicted in Appendix A: Maps 4, 6, and 11 and Appendix B.

Table 3.2.3-1. Mapped Industrial, Commercial, and Institutional Structures within the APE for Direct Effects.

MDS # [10]	1892 Sanborn (Appendix A, Map 4)	1924 Hopkins (not included in Appendix)	1938 Hopkins (Appendix A, Map 6)	1955-56 NYSDOT Demolition Plans (Appendix B)
1	Salina Salt District	-	-	-
2	Eureka Chemical Company	-	-	-
3	Excelsior Mill of the American Dairy Salt Co.	-	-	-
3a		Syracuse Surplus Co.	-	-
4	Syracuse Lumber Co.	-	-	-
4a		Syracuse Wall Plaster Co.	-	-
5	W.H. Lynn Planing Mill & Heading Factory	-	-	-
5a		Smith-Cafferty & Co.	-	-
6	Salina Course Salt Co.	-		
7	Salina Salt District	-	-	-
7a	-	Homac Corp.		-
7b	-	Burlingame Manufacturing Co.	-	-

[10] The map studies revealed that some industrial and commercial buildings remained extant on their site for many decades, but in other cases, buildings were constructed and demolished within a short period of time. To discern between these conditions, the MDS numbers were given a suffix for the latter scenario. For example, MDS 101 identifies the original building on the site as located on the 1892 Sanborn Map, while MDS 101a would represent a replacement building on the same site on a later map.

MDS # [10]	1892 Sanborn (Appendix A, Map 4)	1924 Hopkins (not included in Appendix)	1938 Hopkins (Appendix A, Map 6)	1955-56 NYSDOT Demolition Plans (Appendix B)
8	Star Mill of New York Salt Co.	-	-	-
8a	-	Geo. Zett's Brewery	-	-
9	Salt Springs Course Salt Co.	-	-	-
10	Louis Burkhard Cooper Shop	-	-	-
10a	-	Sheet Lathing Co.	-	-
11	Chas. Schug & Sons Cooper Shop	-	-	-
12	The Eureka Company Wall Plaster Works	-	-	-
12a		Dickson Asphalt Plant	-	-
13	Empire Course Salt Company	-	-	-
13a	-	Hews & Co. Pottery Warehouse	-	-
14	Lime and Plaster Mill	-	-	-
15	Solar Salt Vats	-	-	-
15a	-	Oak Knitting Co.	-	-
16	C. Listman Ice House	-	-	-
16a	-	People's Ice Co.	-	-
17	National Brewing Company	Hester & Co. Warehouse	-	-
18	Syracuse Solar Salt Co.	-	-	-
18a	-	C.C. Bradley & Sons Machine Works	-	-
19	Thompson-Houston Electric Light Co.	-	-	-
19a		Syracuse Lighting Co.		
20	Syracuse Packing and Provision Co.	Kingan Provision Co.	-	-
21	Hoffman Bros. & Drescher Pork Packers	-	-	-
22	Rome, Watertown & Ogdensburg RR Freight House	Freight Station	-	-
23	RR Passenger Station	-	-	-
24	West Shore RR Gas House	-	-	-
	To Western End of APE	-	-	-
25	Syracuse Dash Works	-	-	-
26	Unnamed High School	-	-	-
26a	-	Engine Company No. 12	-	-
27	Germania Brewing Co.	Bartels Brewery	-	-
28	Alhambra Skating Rink and Hall	-	Alhambra Hall	-
29	Geo H. McChesney Lumber Yard	-		-
29a	-	-	Pierce and Butler Radiator Corps.	-
30	Syracuse Heat and Power Co	-	-	-
31	Mowry & Barnes Meat Packing	-	-	-

MDS # [10]	1892 Sanborn (Appendix A, Map 4)	1924 Hopkins (not included in Appendix)	1938 Hopkins (Appendix A, Map 6)	1955-56 NYSDOT Demolition Plans (Appendix B)
32	-	-	Caldwell & Ward Brass Co.	-
33	N.Y.W.S. & B RR Freight Station	N.Y.W.S. & B RR Freight Station	-	-
34	-	-	NY Central Passenger Station	-
	South side of Erie Canal			
35	Erie Canal Weigh Lock and Building	-	Erie Canal Weighlock Building	-
36	H. Fill & Son Soap and Candle	-	C. A. Reeve Paint Co.	-
37	Dixon & Deland Boiler & Sheet Iron Works	-	-	-
37a	-	-	W.A. Smith Machinery Co.	-
38	Phoenix Foundry & Machine Co.	-	-	-
38a	-	-	Syracuse Safe Co.	-
39	Duguid Saddlery Co.	-	-	-
40	Merriam Planing Mill	-	-	-
40a	-	-	Market Mfg. Co.	-
41	-	-	Bethany Baptist Church	Bethany Baptist Church
	South along Almond Street			
42	-	-	-	Huntington Foundation

Based on review of historic maps and the reports cited above, the APE for Direct Effects does not overlap with the most intense area of nineteenth-century salt industry development around the southwest end of Onondaga Lake (see Appendix A: Map 5). However, numerous salt-industry related sites were formerly located within and/or adjacent to the APE for Direct Effects, including the sites identified as MDS 1, 6, 7, 8, 9, 13, 15, and 18 in Table 3.2.3-1 and Appendix A: Maps 4, 6, and 11. The decline of the salt industry is evidenced in this inventory by the lack of extant salt-related resources by 1938, as compared to the 1892 and 1924 historic maps. As described below, the salt manufacturing process was based on a very specific technological system that require unique structures and features. Repurposing these industrial features was inherently difficult, resulting in their widespread demolition. Other industrial structures more readily lent themselves to reuse, such as breweries, many of which closed during Prohibition, but reopened after its repeal. For instance, the Germania Brewing Company (MDS 27) was later operated as the Bartels Brewery. The large presence of the railroad in downtown Syracuse not only meant tracks and trolleys along the streets, but also support buildings such as passenger stations, freight stations and gas houses (MDS 22, 23, and 24). Once the railroad was elevated, many of these buildings were demolished. Similarly, canal-related resources were mostly buried or demolished upon its closure. The Weighlock Building (MDS 35) remains in situ and now is open as the Erie Canal Museum, though its lock is no longer extant. Entertainment venues were also located within the APE for Direct Effects. The Alhambra Hall (MDS 28), was originally built as a roller skating rink and auditorium, later used for sporting events

as well. The Huntington Foundation (MDS 42) owned one of the few institutional buildings along Almond Street, and provided family leisure activities to the disadvantaged Ninth Ward neighborhood that would eventually be demolished for Interstate 81.

Potential for Salt-Industry Related Archaeological Resources within the APE for Direct Effects

The salt industry occupies an elevated level of importance in the history of Syracuse. Salt production included a variety of wood and metal structures and systems. Salt wells were comprised of iron tubes sunk to depths of 250 to 300 feet, connected to lift pumps that poured salt water into a cistern beneath a pump house, then to a distributing reservoir via steam pumps. The salt water was then fed by gravity through wooden logs and flumes to salt blocks and vats. While solar salt was manufactured using primarily wooden equipment, salt produced in boiling blocks required iron kettles and cylinders (EPC, 1883; Werner, 1917; Murphy, 1949).

One description of solar salt vats noted that "the structures for the manufacture of solar salt consisted of long parallel rows of shallow wooden vats, sixteen or eighteen feet wide and from eight to twelve inches deep, supported on wooden posts and provided with hip-roof covers on rollers, which are drawn over them in bad weather" (EPC, 1883). The locations of solar vats are depicted on late-nineteenth-century historic maps (see Appendix A: Maps 4 and 5) within and the areas adjacent to the APE for Direct Effects.

Previous cultural resources investigations (Hartgen, 2000b; CCRG, 2001b; Hartgen, 2001a; AAS, 2016; see Appendix A: Map 3) conducted within the area west of Interstate 81 have identified structural remains (including wooden pipes and troughs, and foundations of pump houses) associated with the salt industry between 4 and 8 feet beneath the surface. Geotechnical boring logs associated with one previous survey (CCRG, 2001b) indicated that the modern ground surface is approximately 12 feet (4 meters) above the historic ground surface in the vicinity of the former salt works along Solar Street. The area had contained salt sheds during the nineteenth century and CCRG (2001b) noted that recent surveys by Hartgen (2000b; 2001a) had identified structural remains associated with the historic salt industry in the area. In addition, a 2016 cultural resources survey (AAS, 2016) noted the presence of somewhat intact limestone foundations on the ground surface associated with the previously recorded Pump House and Salt Manufacturing Site (USN 06740.001211) eligible for listing on the S/NRHP.[11]

As previously noted, four previous archaeological surveys have addressed the potential for archaeological remains related to the salt industry, and nineteenth-century industrial development more generally, to occur within the Project

[11] This site is located approximately 1,700 feet southwest of the APE for Direct Effects.

APE (the locations of these surveys are shown in Appendix A: Map 3). The relevant findings of the surveys are discussed below:

- Hartgen (2000b) reports the identification of buried wood (potentially the remains of salt works-related structures) in one bore hole on the west side of the existing Kirkpatrick Street Pump Station (at 12.5 ft below surface), in two bore holes on the West side Van Rensselaer St. south of the intersection with Geddes St (at 10.3 ft and 15.5 ft below surface), and in one bore hole immediately north of Bear St. on the east side of Van Rensselaer St. (at 12.5 ft below surface). Four bore holes on Van Rensselaer St. between Hiawatha Blvd and Bear St. identified find sandy silt containing shells which was interpreted by Hartgen (2000b) as representing undisturbed soil. Therefore, the area bounded by Kirkpatrick St., Geddes Street, Bear St. and the Syracuse Inner Harbor is considered to be highly sensitive to contain intact archaeological materials related to the historic salt industry. This sensitivity also extends along Van Rensselaer St. to approximately mid-way between Bear St. and Hiawatha Boulevard. Hartgen's (2000b) project area is in close proximity to but does not overlap with the current APE for Direct Effects.
- CCRG (2001b) examined a project area on Solar Street between Bear and Plum and extending approximately 1 block east and west from Solar Street along the cross streets (Bear, Kirkpatrick, Court [actually extending two blocks east along Court], Spencer, Division, and Plum). They noted that remains of archaeological features related to the historic salt industry had been identified at depths of approximately 4 ft (1.2 m) below the modern ground surface and lower. Therefore, this entire area is considered to be highly sensitive to contain archaeological features related to the historic salt industry, except where significant previous ground disturbance can be documented. CCRG's (2001b) project area partially overlaps with the current APE for Direct Effects.
- Hartgen (2001a) examined six discrete project areas in the vicinity of Jefferson Street and Onondaga Creek southwest of the current APE for Direct Effects. They found all of the areas examined to be highly sensitive for archaeological materials related to the nineteenth-century industrial development of the City of Syracuse.
- AAS (2016), examined a project area on the northwestern half of the oblong block formed by Spencer Street to the north, Maltbie Street to the east, Evans Street to the south, and Leavenworth Ave. to the west. They assigned the area a high level of sensitivity to contain archaeological remains related to the nineteenth-century salt industry. This area is immediately adjacent to the current APE for Direct Effects.

In addition to these archaeological investigations that focused on the salt industry, three previous cultural resources investigations (Hartgen, 2003a; Hartgen, 2009b; Hunter, 2009) conducted adjacent to the APE for Direct Effects have identified below-ground structural remains of other industrial and commercial buildings dating to the late 19th century. All three projects were located at the Clinton Station Site which was part of the Clinton Street CSO Abatement Project

between Onondaga Creek to the west and the New York, Susquehanna, and Western Railroad right-of-way to the east, north of Dickerson Street and south of Walton Street. This area is approximately 350 feet (107 m) west of the APE for Direct Effects for the current Project. The methods and findings of the studies are summarized below:

- Hartgen (2003b) excavated nine backhoe trenches throughout the project area for the Clinton Street CSO Abatement Project at the Clinton Station Site. The backhoe trenches identified two historic archaeological sites: the Railroad Machine Shop Site (USN 06740.008692) and the Dickerson Street Historic Site (USN 06740.008691). The S/NRHP eligibilities of both sites were left undetermined at the conclusion of the Phase 1B survey. Hartgen (2003b) recommended avoidance or Phase II investigations for the Railroad Machine Shop and avoidance or Phase II/III investigations for the Dickerson Street Historic Site.

  In 2007, Hartgen (2009a) conducted Phase II and III investigations at the Dickerson Street Historic Site (USN 06740.008691). The site was mechanically stripped of between 2.2 and 6.6 feet of fill to expose features and foundations associated with historic structures. Seven excavation units were then placed across the site to explore potential features and foundation walls. Hartgen (2009a) identified foundations and fill deposits dating to between ca. 1870 and 1930. The site consists of primarily commercial structures associated with the historic railyard adjacent to the site; however, a minor residential component which included the childhood home of noted children's author Howard Garis was also present. Hartgen (2009a) identified 12 historic features and a moderately sized historic debris deposit at the site. Much of the site was excavated during the Phase II/III investigations in 2007 and the remainder of the site may have been destroyed by the construction of the CSO facility. Currently, the vicinity of the site is covered by asphalt parking lots and one building.

- Hunter (2009) completed Phase III data recovery investigations for the Railroad Machine Shop Site (USN 06740.008692). An approximately 7,000-square-foot area was mechanically stripped of between 2 and 6 feet of fill to expose features and foundations of the machine shop. Nine 5 x 5 ft (1.5 x 1.5 m) and 2.5 x 10 ft (0.8 x 3.0 m) excavation units were placed throughout the remains of the shop and the excavations exposed extensive post-demolition fill deposits throughout the site. No remains of the original machine shop, which was destroyed during an 1869 fire, were identified due to the extensive disturbance by fill and foundation construction for the second machine shop (which was constructed at the location following the 1869 fire). However, Hunter (2009) determined that significant data were recovered from the site excavations pertaining to the late 19th century history of the Delaware, Lackawanna, and Western Railroad, and the site was recommended eligible for listing on the S/NRHP under criteria C and D. Hunter (2009) recommended that the finding of adverse effect for the site had been resolved by the Phase III data recovery and historic context development and recommended no further archaeological work for the site.

As described in Section 2.6 of this report and shown in Appendix A: Map 10, most of the APE for Direct Effects includes significant fill deposits. As described above, previous archaeological investigations have identified or determined the potential for archaeological resources associated with industry-related structures and features to be located beneath fill deposits in areas adjacent to the APE for Direct Effects. The locations of the map-documented industrial structures within the APE for Direct Effects, where there is a high potential for industry related archaeological resources to be present, are illustrated in Appendix A: Map 11.

Potential Significance of Salt Industry and other Commercial-Industrial Archaeological Sites

As described above and in Section 2.4 of this report, industry, commerce and institutions (including the salt industry) played a critical role in the historical development and economy of the City of Syracuse and surrounding region. Archaeological sites associated with the salt industry (or other industries) located within the APE for Direct Effects could potentially be eligible for listing on the NRHP under Criterion D. A site potentially eligible under Criterion D will evaluated in terms of the site's ability to provide significant data pertinent to answering research questions related to local, regional, or national history. This will be contingent on the physical integrity of the site, but also the density and diversity of archaeological artifacts and features it contains. In order to be considered eligible under Criterion D, the site will typically contain a large number of archaeological features and/or artifacts within undisturbed stratified deposits that can be dated through diagnostic artifacts, superposition, or other means In the case of industry/commerce/institution-related features, these sites would need to contribute significant information to our understanding of historic manufacturing and production technology and/or economic practices, sufficient to broaden our understanding of this important aspect of local and regional history.

However, the locations, ownership, use, and physical arrangement of the various industrial and commercial sites throughout the APE for Direct Effects are very well documented on historic maps of Syracuse (e.g., Appendix A: Maps 4 and 6 and Appendix B). In addition, historical sources provide considerable detail regarding the history of many of the larger industries and commercial enterprises in Syracuse (e.g., see Carter, 2008). It is assumed that foundations and other structural remains associated with many of these larger commercial buildings are located throughout the APE for Direct Effects. In most cases, the foundations or structural remains unto themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. Therefore, although these sites are potentially ubiquitous throughout the APE for Direct Effects, archaeological investigation would only be warranted in those instances where archaeological data has the potential to contribute significant, meaningful new information.

Summary: Based on review of historic maps (e.g., Appendix A: Maps 4 and 6 and Appendix B), structures associated with the early salt industry, as well as numerous other industrial, commercial, and institutional sites, were located within and adjacent to the APE for Direct Effects (see Table 3.2.3-1). The history of construction and replacement of these buildings are well documented on historical maps and in photographs of Syracuse. As described in Section 2.6 of this report and shown in Appendix A: Map 10, most portions of the APE include significant fill deposits. Previous archaeological investigations have identified or determined the potential for archaeological resources associated with industry-related structures and features to be located beneath fill deposits in areas adjacent to the APE for Direct Effects. The locations of the map-documented industrial structures within the APE for Direct Effects, where there is a high potential for industry related archaeological resources to be present, are illustrated in Appendix A: Maps 4, 6, and 11. Archaeological sites associated with the salt industry (or other industries) located within the APE for Direct Effects could potentially be eligible for listing on the NRHP under Criterion D if these sites contribute significant information to our understanding of historic manufacturing and production technology and/or economic practices, sufficient to broaden our understanding of this important aspect of local and regional history. It is assumed that foundations and other structural remains associated with many of these larger commercial buildings are located throughout the APE for Direct Effects. In most cases, the foundations or structural remains unto themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. Therefore, although these sites are potentially ubiquitous throughout the APE for Direct Effects, archaeological investigation would only be warranted in those instances where archaeological data has the potential to contribute significant, meaningful new information.

3.2.4 Potential for Residential and Small-Scale Commercial Archaeological Sites

As described in Section 2.4.6 of this report, the construction of Interstates 81 and 690 through Syracuse required demolition of large portions of city neighborhoods including much of the Fifteenth Ward, which was home to the highest concentration of African-American and Jewish populations in the city (Stamps and Stamps, 2008; Ducre, 2012). It is estimated 800-900 families were displaced by the construction of highways in the Fifteenth Ward (Knight, 2007). Areas that were demolished included 103 acres of land in four contiguous census tracts that were predominately African-American and poor. Many residences, dozens of African-American-owned businesses, and nearly all of the African-American churches in the city were destroyed (Stamps and Stamps, 2008). Combined with the Near East Side Urban Renewal Area, the routing of an elevated highway through downtown caused the most radical change to the built environment since the construction of the Erie Canal. It is anticipated that archaeological features and deposits associated with these residential and commercial properties, as well as archaeological features and artifacts associated with earlier nineteenth and twentieth-century occupants, are located throughout the APE for Direct Effects.

Historic Map Analysis

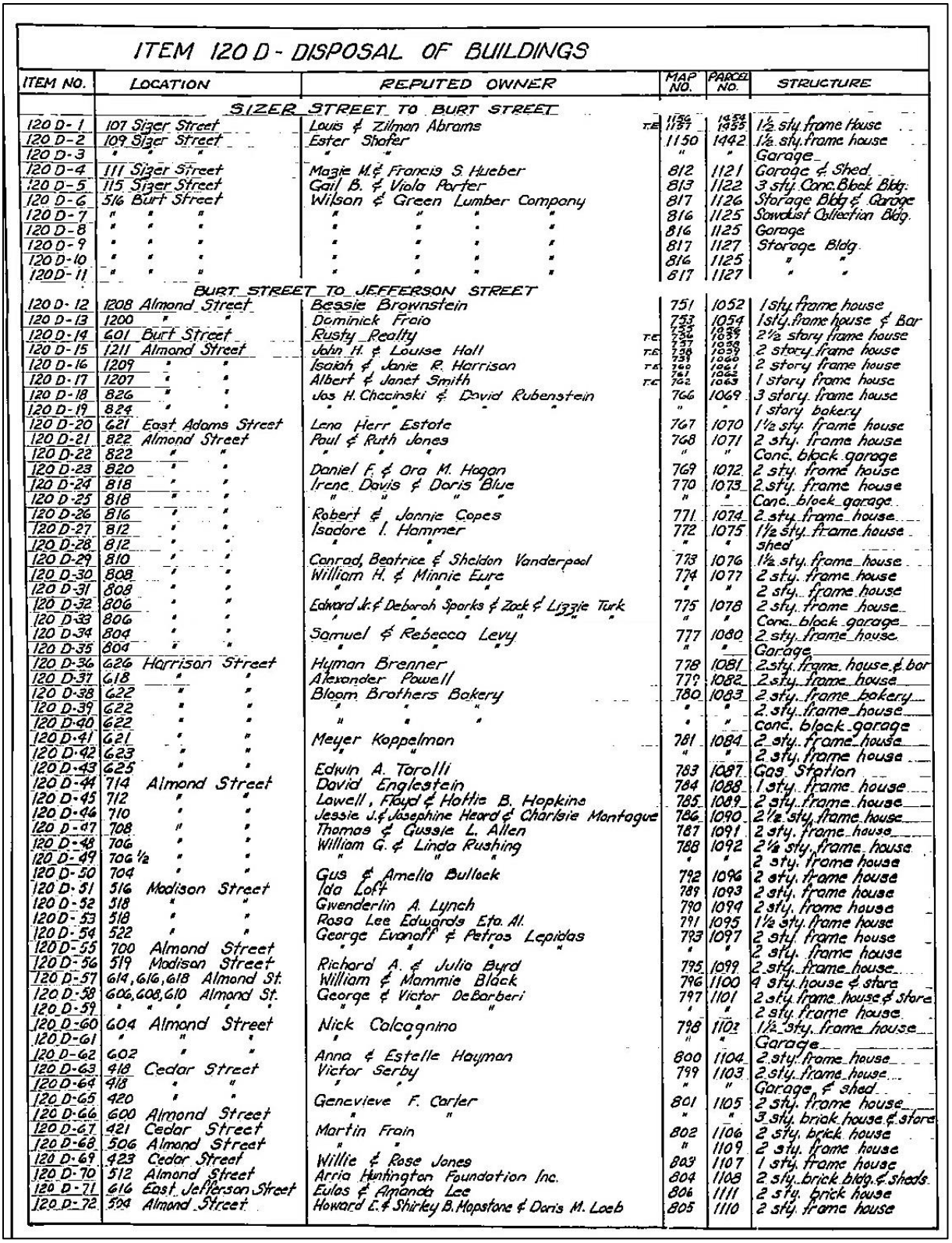
Hundreds of former residential and small-scale commercial structures are depicted on historic maps within the APE for Direct Effects (see Appendix A: Maps 4-9 and Appendix B). When reviewing these maps, the scale of the transformation of the City of Syracuse wrought by urban renewal and the construction of highways is profound (see Section 2.4.6 of this report). The 1892 Sanborn atlas, 1938 Hopkins Map, and 1955-1966 NYSDOT demolition plans (Appendix A; Maps 4 and 6 and Appendix B, respectively) provide significant detail regarding the location, dimensions, and in some instances ownership or use of buildings that were formerly located within the APE for Direct Effects.

As illustrated in Appendix B, NYSDOT record plans provide considerable detail regarding the extent and nature of disturbance associated with demolition and construction contracts for I-81 and I-690 (NYSDOT, 1955-1983). Section 2.4.6 of this report discusses the demolition of buildings under the Near East Side Urban Renewal Area (NESURA) plan (including the proposed path of Interstate 81), which began in 1962 and continued until 1966. Under the NESURA plan, 633 structures were demolished on 450 parcels, which resulted in the displacement of a total of 838 families and 304 businesses. Buildings were demolished in eight groups based on locations specified in contracts labeled D-1 through D-8 (the "D" indicating "demolition"). Appendix B of this report includes a sample of geo-referenced copies of the NYSDOT demolition plans overlain on current aerial photographs (along Almond Street).

EDR digitized the locations of structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects, which resulted in the mapping of 952 former (demolished) structure locations (see Appendix A: Maps 10 and 11). These data include only those structures that were standing at the time that the NESURA demolition activities were undertaken (and include those areas where demolition plans were available). Therefore, the locations of earlier structures which may have been located within the APE for Direct Effects, but had been demolished prior to the 1950s, are not included in this analysis. However, most of the structures included in the demolition plans are depicted on the earlier maps (e.g., the 1892 Sanborn atlas) for which comparable data is available and can be assumed to represent structures that were built throughout the nineteenth as well as early-twentieth centuries. The digitized locations of the structures demolished during NESURA are indicative of the density of development (and demolition) that occurred within these portions of the city and provide a robust data set for assessing the potential for historic period archaeological sites to be present within the APE for Direct Effects.

Each set of record plans is identified by a contract number, most of which consist of a letter (or combination of letters) followed by a two-digit numeral, a hyphen, and another two-digit numeral (e.g., C54-16). In this naming system, the first two-digit numeral refers to the fiscal year that the contract was let and the second numeral specifies the sequence of contracts within that year (i.e., C54-16 is the sixteenth contract in the year 1954). The record plans for each demolition contract typically include a schedule (or list) of the buildings to be demolished. These are presented in a

table that lists: ”Item No.”, “Location” (street address), “Reputed Owner”, “Map No.”, “Parcel No.”, and “Structure” (a description of the primary structure or structures on the site to be demolished). An example of one of these demolition lists is included as Figure 3.2.4-1. In addition, each record plan includes detailed mapping that identifies the buildings to be demolished under that contract (see Figure 3.2.4-2 and Appendix B for examples).



ITEM 120 D - DISPOSAL OF BUILDINGS

ITEM NO.	LOCATION	REPUTED OWNER		MAP NO.	PARCEL NO.	STRUCTURE
	SIZER STREET TO BURT STREET					
120 D-1	107 Sizer Street	Louis & Zilman Abrams	T.E.	1154 1151	1454 1455	1½ sty. frame house
120 D-2	109 Sizer Street	Ester Shafer		1150	1442	1½ sty. frame house
120 D-3	" " "	" "		"	"	Garage
120 D-4	111 Sizer Street	Mazie M. & Francis S. Hueber		812	1121	Garage & Shed
120 D-5	115 Sizer Street	Gail B. & Viola Porter		813	1122	3 sty. Conc. Block Bldg.
120 D-6	516 Burt Street	Wilson & Green Lumber Company		817	1126	Storage Bldg & Garage
120 D-7	" " "	" " " "		816	1125	Sawdust Collection Bldg.
120 D-8	" " "	" " " "		816	1125	Garage
120 D-9	" " "	" " " "		817	1127	Storage Bldg.
120 D-10	" " "	" " " "		816	1125	" "
120 D-11	" " "	" " " "		817	1127	" "
	BURT STREET TO JEFFERSON STREET					
120 D-12	1208 Almond Street	Bessie Brownstein		751	1052	1 sty. frame house
120 D-13	1200 " "	Dominick Fraio		753	1054	1 sty. frame house & Bar
120 D-14	601 Burt Street	Rusty Realty	T.E.	752 737	1053 1038	2½ story frame house
120 D-15	1211 Almond Street	John H. & Louise Hall	T.E.	737 736	1038 1037	2 story frame house
120 D-16	1209 " "	Isaiah & Janie R. Harrison	T.E.	739 740	1040 1041	2 story frame house
120 D-17	1207 " "	Albert & Janet Smith	T.E.	741 742	1042 1043	1 story frame house
120 D-18	826 " "	Jos. H. Chacinski & David Rubenstein		766	1069	3 story frame house
120 D-19	824 " "	" " " "		"	"	1 story bakery
120 D-20	621 East Adams Street	Lena Herr Estate		767	1070	1½ sty. frame house
120 D-21	822 Almond Street	Paul & Ruth Jones		768	1071	2 sty. frame house
120 D-22	822 " "	" " "		"	"	Conc. block garage
120 D-23	820 " "	Daniel F. & Ora M. Hagan		769	1072	2 sty. frame house
120 D-24	818 " "	Irene Davis & Doris Blue		770	1073	2 sty. frame house
120 D-25	818 " "	" " " "		"	"	Conc. block garage
120 D-26	816 " "	Robert & Jonnie Copes		771	1074	2 sty. frame house
120 D-27	812 " "	Isadore I. Hammer		772	1075	1½ sty. frame house
120 D-28	812 " "	" "		"	"	shed
120 D-29	810 " "	Conrad, Beatrice & Sheldon Vanderpool		773	1076	1½ sty. frame house
120 D-30	808 " "	William H. & Minnie Eure		774	1077	2 sty. frame house
120 D-31	808 " "	" " "		"	"	2 sty. frame house
120 D-32	806 " "	Edward Jr. & Deborah Sparks & Zack & Lizzie Turk		775	1078	2 sty. frame house
120 D-33	806 " "	" " " "		"	"	Conc. block garage
120 D-34	804 " "	Samuel & Rebecca Levy		777	1080	2 sty. frame house
120 D-35	804 " "	" " "		"	"	Garage
120 D-36	626 Harrison Street	Hyman Brenner		778	1081	2 sty. frame house & bar
120 D-37	618 " "	Alexander Powell		779	1082	2 sty. frame house
120 D-38	622 " "	Bloom Brothers Bakery		780	1083	2 sty. frame bakery
120 D-39	622 " "	" " "		"	"	2 sty. frame house
120 D-40	622 " "	" " "		"	"	Conc. block garage
120 D-41	621 " "	Meyer Koppelman		781	1084	2 sty. frame house
120 D-42	623 " "	" "		"	"	2 sty. frame house
120 D-43	625 " "	Edwin A. Torolli		783	1087	Gas Station
120 D-44	714 Almond Street	David Englestein		784	1088	1 sty. frame house
120 D-45	712 " "	Lowell, Floyd & Hattie B. Hopkins		785	1089	2 sty. frame house
120 D-46	710 " "	Jessie J. & Josephine Heard & Charlsie Montague		786	1090	2½ sty. frame house
120 D-47	708 " "	Thomas & Gussie L. Allen		787	1091	2 sty. frame house
120 D-48	706 " "	William G. & Linda Rushing		788	1092	2½ sty. frame house
120 D-49	706½ " "	" " "		"	"	2 sty. frame house
120 D-50	704 " "	Gus & Amelia Bullock		792	1096	2 sty. frame house
120 D-51	516 Madison Street	Ida Loft		789	1093	2 sty. frame house
120 D-52	518 " "	Gwenderlin A. Lynch		790	1094	2 sty. frame house
120 D-53	518 " "	Rosa Lee Edwards Etc. Al.		791	1095	1½ sty. frame house
120 D-54	522 " "	George Evanoff & Petros Lepidas		793	1097	2 sty. frame house
120 D-55	700 Almond Street	" " "		"	"	2 sty. frame house
120 D-56	519 Madison Street	Richard A. & Julia Byrd		795	1099	2 sty. frame house
120 D-57	614, 616, 618 Almond St.	William & Mammie Black		796	1100	4 sty. house & store
120 D-58	606, 608, 610 Almond St.	George & Victor DeBarberi		797	1101	2 sty. frame house & store
120 D-59	" " " "	" " "		"	"	2 sty. frame house
120 D-60	604 Almond Street	Nick Calcagnino		798	1102	1½ sty. frame house
120 D-61	" " "	" "		"	"	Garage
120 D-62	602 " "	Anna & Estelle Hayman		800	1104	2 sty. frame house
120 D-63	418 Cedar Street	Victor Serby		799	1103	2 sty. frame house
120 D-64	418 " "	" "		"	"	Garage & shed
120 D-65	420 " "	Genevieve F. Carter		801	1105	2 sty. frame house
120 D-66	600 Almond Street	" "		"	"	3 sty. brick house & store
120 D-67	421 Cedar Street	Martin Frain		802	1106	2 sty. brick house
120 D-68	506 Almond Street	" "		"	1109	2 sty. frame house
120 D-69	423 Cedar Street	Willie & Rose Jones		803	1107	1 sty. frame house
120 D-70	512 Almond Street	Arria Huntington Foundation Inc.		804	1108	2 sty. brick bldg. & sheds
120 D-71	616 East Jefferson Street	Eulos & Amanda Lee		806	1111	2 sty. brick house
120 D-72	504 Almond Street	Howard C. & Shirley B. Mapstone & Doris M. Loeb		805	1110	2 sty. frame house

Figure 3.2.4-1. Example of Building Demolition List from NYSDOT Record Plans.
This list of buildings to be demolished was included in the drawings for contract C64-13, "Interstate 505 Sizer Street to Burt Street, Burt Street to Jefferson Street, Demolition Contract No. 1" (NYSDOT, 1964).

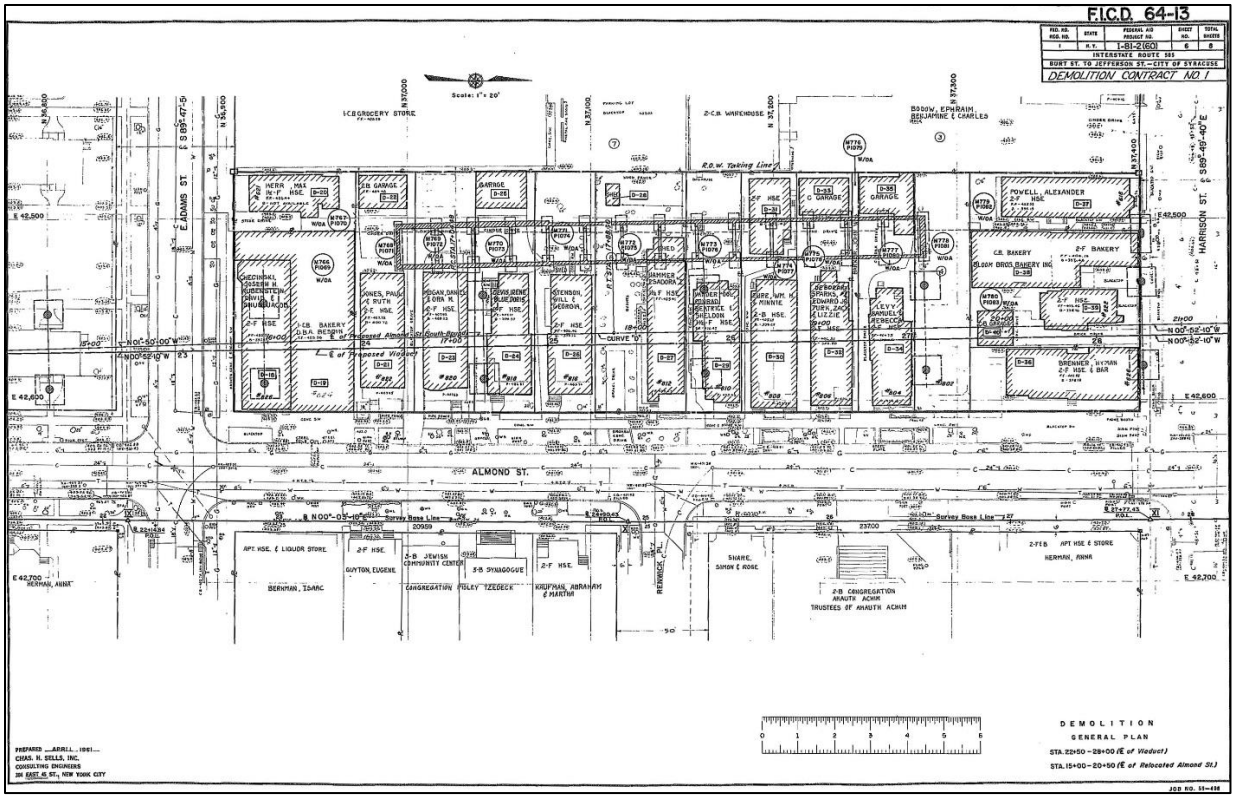


Figure 3.2.4-2. Example of Building Demolition Plan Map from NYSDOT record plans.
This map of buildings to be demolished was included in the drawings for contract C64-13, "Interstate 505 Sizer Street to Burt Street, Burt Street to Jefferson Street, Demolition Contract No. 1" (NYSDOT, 1964) and is representative of maps included in demolition contract plans. Hatching indicates buildings to be demolished. Some plans make use of shading instead of hatching to indicate proposed removals. See also Appendix B of this report.

Potential Archaeological Features on Urban Domestic and Small-Scale Commercial Sites

As noted above, hundreds of former residential and small-scale commercial structures are depicted on historic maps within the APE for Direct Effects (see Appendix A: Maps 4-9 and Appendix B) and locations of all structures shown on ca. 1955-1968 NYSDOT demolition plans within the APE for Direct Effects are shown in Appendix A: Maps 10 and 11. Typical demolition plans for I-81 include the following notation regarding the disposition of buildings following demolition:

> Grading of Site: After the basement floors have been broken up, the basements shall be filled or graded off by breaking in the walls and using the material available at the site. The area shall be left in a condition that is safe and acceptable to the Engineer. No combustible material shall be buried (NYSDOT, 1963).

The demolition contracts required that basements and cellars would be filled, and the property cleared and graded. Therefore, it is anticipated that cellars and/or foundation remains associated with all (or most) of the 952 demolished structures shown in Appendix A: Maps 10 and 11 may be present within the APE for Direct Effects at varying depths below the current ground surface (depending on local conditions). The foundations or structural remains unto

themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. Therefore, although these structural (foundation) remains are potentially ubiquitous throughout the APE for Direct Effects, it is assumed that archaeological investigation of these features is unlikely to contribute significant, meaningful new information.

However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures. In addition to their primary functions, these features were used as disposal pits for household refuse both during and at the end of their use life (Wheeler, 2000b). These features are in general robustly constructed with wood, brick, and stone, and because they are underground they are likely to remain behind when the domestic or commercial structure they served is demolished or otherwise destroyed (Roberts and Barrett, 1984; Heck and Balicki, 1998; Stottman, 2000). Unlike open trash heaps which are subject to disturbance from plowing, demolition, and other actions, shaft features were sealed at the end of the feature's useful life, preventing later disturbances to the artifacts dumped inside. This enables tighter dating of sites through the glass and ceramics that are frequently recovered from them.

From an archaeological perspective, privies are perhaps the best studied shaft features. Privy pits were used before the adoption of centralized sewer and water systems, and supported allied economies through the removal of "night soil" and its subsequent processing and sale for fertilizer (Geismar, 1993). More generally, privy studies reveal how changes in sanitation laws were manifested in privy construction, the adoption of indoor toilets, and the installation of sewers, practices which may be site-specific (Geismar, 1993; Wheeler, 2000a,b). Indeed, the very location of the privy in relation to property lines, prevailing winds, lines-of-sight, etc., as well as the architecture of the vault itself, reflect practical and cultural considerations of waste management practices through time (Carnes-McNaughton and Harper, 2000; McCarthy and Ward, 2000; Stottman, 2000; Wheeler, 2000b).

The current site of the City of Syracuse was a vast system of wetlands and natural drainage systems surrounding Onondaga Lake. In 1821, the first law was passed to authorize planned drainage of these wetlands to alleviate the threat of malaria, improve sanitation, and reclaim wetlands as usable land (SS, 1890). Despite this concern for sanitation, the dumping of sewage and waste in natural waterways, including Yellow Brook, Harbor Brook, North Side Brook, and Onondaga Creek, as well as the Erie and Oswego Canals, was a common practice and public health concern during the nineteenth-century (Smith, 1904; Hardin, 1993). An 1890 address by Dr. John VanDuyn illustrated the link between healthfulness and sanitation sewers with the Erie Canal:

> Later where the City Hall now stands there was a basin designed for anchoring boats by the Erie canal. Around this were many houses of low character, and on the east side Howlett's slaughterhouse from which was thrown all its offal into the basin. This was a very sickly quarter for a long time (SS, 1890).

Mortality rates soared throughout the nineteenth century, a variety of fevers gripping the inhabitants of the region, who attributed their poor health to a variety of causes, including their affinity for whiskey, the damp conditions of their food storage cellars, and the proximity of stagnant wetlands (SS, 1890). In 1831, a cholera epidemic swept through Syracuse, causing the loss of approximately 100 lives and spurring the creation of the first Board of Health (Hand, 1889). By 1834, the first sewer was built, connecting Mill Pond (the current site of Clinton Square) to Yellow Brook (at Harrison Street between Salina and Warren Streets). A second, longer sewer, was installed only four years later, from Lemon Street to Onondaga Creek along Washington Street (STD, 1890). On April 9, 1839, public ordinances were created to prevent depositing of trash in the streets, prevent cattle from roaming in the city, and create a defined streetscape with poured gravel, street signs, and limits on placement of buildings near the street (Bruce, 1891:144).

In 1847, South Salina Street inhabitants destroyed the dam that had created Mill Pond, attributing its high water to a rash of fevers. The destruction of this dam allowed drainage of not only the site of Mill Pond, but of the surrounding region, assisted by the construction of several additional sanitary sewers. The large swamp that had spanned from Burnet Street at the north edge to Montgomery Street at the west edge and southeast past the limits of residential development was drained into Onondaga Creek via a sewer that ran along Jefferson Street between Yellow Brook and Onondaga Creek. A sewer was also installed north of the Erie Canal, along Canal Street between the weigh lock and Catherine Street, with a north branch along McBride Street to Hawley Avenue (SS, 1890).

According to historical sources, most households and businesses that were located along a waterway (i.e., the Erie Canal, Harbor Creek, Onondaga Creek, and Yellow Brook) were using the waterway as their primary disposal area for waste. The first sewers were built to alleviate sanitation problems caused by the overuse of waterways for biological waste. Improvements to the sewer and drainage systems of the older section of the city continued throughout the nineteenth century, but residential expansion occurred faster than sewer systems could be designed and implemented, and the canals and natural waterways continued to be used for refuse disposal. Newspaper reporters described the Erie Canal in Syracuse as containing "quantities of drift wood, dead dogs, hogs, chickens", and human bodies (Williams, 1983):

> As there was no current in the water that was in the [Erie Canal] basin, the place became a miserable, nasty hole; and it was the dread of all inhabitants, because it tainted and infected the whole atmosphere with disease (Strong, 1894, cited by Williams, 1983).

> This leads me to the much hackneyed question of the open sewers- Onondaga creek and Harbor brook… Into these the filth of the city in ever increasing quantities pours itself. Elsewhere confined and concealed, here it

> comes to light in the midst of thronging people, attaches itself to the bank and obstructions of its shallow carrier, ferments and renders the neighborhood offensive by its unsavory odors (SS, 1890).

During early settlement of the region that would become the City of Syracuse, people obtained drinking water at first from upland natural springs, then later from dug private property wells. The first public water well was located at the intersection of Washington, Warren and East Genesee Streets. It was not until 1843 that the first formal water system was implemented. The first reservoir in Onondaga County, Lodi Springs, was located at James Street hill, bounded by Hawley Avenue, Fountain Street and Henderson Street. It was a stone-lined, six-by-eight feet wide well reinforced by cement and water lime, with a system of pump logs that extended along Fayette and Almond Streets and associated underground cisterns.

In 1849, two years after Syracuse was incorporated into a city, the Syracuse City Water Works Company was formed. A Mayor-appointed Board of Water Commissioners engineered the 1894 water system that is still in use today, a water pipeline from Skaneateles Lake to the City of Syracuse (Unknown, c. 1929). The first conduit laid was 30-inch diameter cast iron, with a 1908 expansion to include both 30-inch and 42-inch diameter pipe. By 1922, approximately 240 miles of cast iron pipes ranging from 4-36 inches in diameter were used to provide water to the City of Syracuse (Starbird, 1922).

It is likely that the sanitation and waste disposal practices were highly variable at domestic and commercial sites in Syracuse, and that these practices changed both over time and were likely dependent on the wealth, social class, and/or ethnicity of a given site's occupants. Therefore, the presence and contents of privies and other shaft features on various sites is also anticipated to be variable. In addition to assemblages of broken or disposed domestic goods such as household ceramics and glass vessels, shaft features often include botanical and faunal remains that provide information about what people in different social classes and ethnic groups ate, and how these may have changed over time (Brown and Bowen, 1998; Cummings, 1994). More in-depth studies have examined parasite eggs and cysts associated with whipworms and tapeworms to determine general health as well as variation in incidences of these infections across social and economic lines (Faulkner et al., 2000; Fisher et al., 2007). Archaeological evidence recovered from privies may also serve as reminders of the harsh realities faced by people in the past, offering glimpses into private behaviors that were considered illegal, if not immoral (Mann, et al. 2000; Crist, 2005; Warner and Genheimer, 2008).

The analysis of artifacts recovered from shaft features can provide much information on activities in the past, highlight social dynamics and cultural attitudes towards sanitation, health, and the quality of daily life that cannot be gained from historical documents alone (Peña and Denmon, 2000).

Potential Significance of Residential and Small-Scale Historic-Period Archaeological Sites

Archaeological features, such as privies, cisterns, and wells, associated with former residential and small-scale commercial properties, depending on their physical integrity, could potentially be eligible for listing on the NRHP under Criterion D. Archaeological studies of urban life in the nineteenth and twentieth centuries include investigations of individual urban sites as well as scholarly examinations of cities themselves (Staski, 2008). Archaeological research in large urban areas such as New York City, Washington, D.C., and elsewhere have produced significant research that has transformed current understandings of urban life in the past (e.g., Wall, 2005; Yamin, 2005). For instance, many archaeological studies of urban sites have focused on the formation and maintenance of social identity by examining how material artifacts were used to delineate class, ethnic, and gender boundaries (identities which influence and are influenced by each other). Research focusing on ethnic identity in urban areas has primarily focused on the experiences of Irish immigrants and African American individuals, and several important studies from tenements in New York City's Five Points neighborhood have demonstrated the importance of archaeology in understanding urban and ethnic community history (Griggs, 1999; Brighton, 2008; Wall et al., 2008). Examinations of social class look at patterns of household selection of consumer goods and other forms of acquisition to understand how low-, middle- and upper-class individuals used their purchases to present themselves to others (Wall, 1999; Yamin, 2001). Examinations of gender and gendered roles have demonstrated, for example, how urban housewives used teawares to project notions of gentility and respectability, while excavations at former brothels reveal how some female prostitutes used their labor to maintain their economic freedom (Seifert, 2005; Yamin, 2005). Numerous researchers have focused on the relationship between urban cores and rural hinterlands. Cities are reliant on the labor and goods from the farms and neighborhoods that surrounded them, which in turn are reliant on the goods and services found in cities. Transportation networks enabled urban and rural people to interact in areas and ways they may not have otherwise, as well as enabling the circulation of agricultural produce and finished goods from farm to city and back again (Somerville and Barton, 2012).

Archaeological studies of American cities are rich and complex, and have demonstrated that the rapid growth of American cities in the nineteenth and twentieth centuries have their own histories that shaped them, underscoring the importance of understanding local contexts and how the experiences of disparate groups of people have helped create the nation (Mrozowski, 2008; Mullins and Warner, 2008). Small-scale, urban, domestic and commercial sites located within the APE for Direct Effects could be eligible under Criterion D in terms of their ability to provide significant data pertinent to answering research questions related to local, regional, or national history In the case of archaeological features associated with domestic and small-scale commercial sites, these features would need to contribute significant information to our understanding of important aspects of local and/or regional history.

Potential for Residential Archaeological Resources within the APE for Direct Effects

Six previous cultural resources investigations (Hartgen, 2003b; 2009a; 2009b; PAF, 2003c; 2012; PCI, 2000; see Appendix A: Map 3) conducted within and adjacent to the APE for Direct Effects (specifically within the Viaduct Priority Area) have either identified residential archaeological sites or assessed the likelihood of identifying such sites. Residential archaeological materials have been identified or anticipated both within downtown Syracuse (e.g., Clinton Square) as well as in more peripheral settings (e.g., University Avenue). Based on the previous archaeological studies, these types of sites can be expected to occur under 1 to 6 feet of fill and to date to the mid-19th through mid-20th centuries. When encountered, residential archaeological sites have consisted primarily of stone foundations and debris scatters/sheet middens. To date, no intact shaft features have been identified within or adjacent to the APE for Direct Effects. The previously conducted archaeological studies that identified or otherwise discussed historic residential archaeological sites are summarized below:

- PCI (2000) conducted a Phase 1B archaeological investigation at the Clinton Square project location, at the site of the current Clinton Square Park at the corner of North Salina and Water streets in downtown Syracuse. The Phase 1B investigation consisted of combination of mechanized backhoe and hand excavations at five locations identified as having a high potential to contain intact components of the Enlarged Erie Canal. As discussed in Section 2.2 of this report, PCI (2000) identified two sites: USN 6740.004364, Clinton Square Boat Basin, which was determined eligible for listing on the NRHP; and USN 6740.005256, historic residential or commercial structural foundations, the NRHP eligibility of which is currently undetermined. The Clinton Square project area overlaps with the current APE for Direct Effects.

- During the Phase 1B survey for the Syracuse Armory House Project, PAF (2003c) excavated eight shovel tests and 12 backhoe trenches. The subsurface testing identified the Syracuse Block 205 Historic Site (USN 06740.006101) which consists of four loci of foundations and artifacts, corresponding to three map-documented residences and one map-documented commercial shop. The site contained intact stratigraphy underneath approximately 14 to 54 inches (37 to 137 cm) of clay fill. The S/NRHP eligibility of the site is currently undetermined. PAF (2003c) recommended either site avoidance or Phase II investigation if the site could not be avoided. Currently, the site is located underneath a sports field and, to date, no Phase II investigations have occurred at the site. The Syracuse Armory House project area occurs approximately 330 feet (101 meters) south of the APE for Direct Effects.

- As previously discussed in Section 3.2.3, Hartgen (2003b) excavated nine backhoe trenches throughout Clinton Street CSO Abatement Project area on the west side of downtown Syracuse. The backhoe trenches identified two historic archaeological sites: the Railroad Machine Shop Site (USN 06740.008692), an industrial

site, and the Dickerson Street Historic Site (USN 06740.008691), a combined commercial/residential site. The S/NRHP eligibilities of both sites were left undetermined at the conclusion of the Phase 1B survey. Hartgen (2003b) recommended avoidance or Phase II investigations for the Railroad Machine Shop Site and avoidance or Phase II/III investigations for the Dickerson Street Historic Site. The Clinton Station CSO project area occurs approximately 350 feet (107 meters) west of the current APE for Direct Effects.

- In association with the Onondaga County CSO Lake Improvement Project, Hartgen (2009a) conducted Phase II and III investigations at the Dickerson Street Historic Site (USN 06740.008691) on the southwest side of downtown Syracuse. As noted in Sections 2.2 and 3.2.3 of this report, the Dickerson Street Historic Site dates to between approximately 1870-1930. Hartgen (2003b) initially identified the site through the excavation of backhoe trenches in the vicinity of the Dickerson Street Bridge over Onondaga Creek. One of the trenches exposed the corner of a stone foundation and a wooden-lined shaft feature which was interpreted at the time to represent a privy. Hartgen (2003b) estimated that both features dated to ca. 1900. They recommended Phase II/III investigation occur at the site if it could not be avoided by the proposed project (Hartgen, 2003b).

  Phase II/III data recovery was conducted at the site in 2007. The site was mechanically stripped of between 2.2 and 6.6 feet of fill to expose features and foundations associated with historical structures. Seven excavation units were placed across the site to explore potential features and foundation walls. Hartgen (2009a) identified foundations and fill deposits dating to between ca. 1870 and 1930. The site consists of primarily commercial structures associated with the railyard, with a minor residential component which included the childhood home of noted children's author Howard Garis. Hartgen (2009a) identified 12 historic features (including a sealed, stratified basement fill deposit) and a moderately sized historic debris scatter associated with both businesses and residences. The possible shaft feature identified during the Phase 1B survey was determined to be an ash deposit used to build up a retaining wall, rather than a privy or well. Hartgen (2009a) excavated much of the site in 2007. Currently, the vicinity of the site is covered by an asphalt parking lot. The Dickerson Street Historic Site occurs approximately 350 feet (107 m) west of the current APE for Direct Effects.

- Hartgen (2009b) conducted a Phase 1A cultural resources survey for the proposed Syracuse Connective Corridor Project along Fayette Street, East Genesee Street, and University Avenue. Hartgen (2009b) found mapped soils within the project area to consist largely of Urban Land, the exception being the portion of the proposed project along University Avenue which is mapped as native soil. Hartgen (2009b) noted that while much of the project route had been heavily disturbed by twentieth-century improvements to streets and sidewalks, Fayette Park and Forman Park, as well as some residential lawns along East Genesee Street and

University Avenue potentially remained undisturbed. Regarding historic archaeological sensitivity, Hartgen (2009b) concluded that the entire area was highly sensitive for residential sites, but that "potential archaeological significance begins at a depth of approximately one foot (0.3 m) below sidewalks, at 2.5 feet (0.8 m) below curbs, and at 1.5 feet (0.5 m) below road surfaces" (Hartgen, 2009b:18). The Connective Corridor project area overlaps with the current APE for Direct Effects.

- PAF's (2012) monitoring and data recovery plan for the East Genesee Street Reconstruction Project covers the portion of East Genesee Street between Forman Street and University Avenue, including Forman Park, east of downtown Syracuse. PAF (2012) summarized the conclusions of Hartgen's (2009b) Phase 1A report for the project, which had recommended limiting project disturbance in archaeologically sensitive areas as well as final review of the project design by an archaeologist prior to construction, based on the moderate sensitivity to encounter nineteenth- and twentieth-century historic archaeological remains (which would be primarily residential in this area). The East Genesee Street Reconstruction Project overlaps with the current APE for Direct Effects.

Summary: Hundreds of former residential and small-scale commercial structures are depicted on historic maps within the APE for Direct Effects. EDR digitized the locations of structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects, which resulted in the mapping of 952 former (demolished) structure locations (see Appendix A: Maps 10 and 11). The digitized locations of the demolished structures are indicative of the density of development (and demolition) that occurred within these portions of the city and provide a robust data set for assessing the potential for historic period archaeological sites to be present within the APE for Direct Effects. The foundations of these demolished structures unto themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures. Archaeological features, such as privies, cisterns, and wells, associated with former residential and small-scale commercial properties, depending on their physical integrity, could potentially be eligible for listing on the NRHP under Criterion D. Archaeological studies of American cities are rich and complex, and have demonstrated that the rapid growth of American cities in the nineteenth and twentieth centuries have their own histories that shaped them, underscoring the importance of understanding local contexts and how the experiences of disparate groups of people have helped create the nation. Numerous small-scale, urban, domestic and commercial sites are anticipated to be located within the APE for Direct Effects and these sites could be

eligible under Criterion D in terms of their ability to provide significant data pertinent to answering research questions related to local, regional, or national history.

Six previously conducted archaeological studies have identified or assessed the potential for residential and/or commercial archaeological sites within or adjacent to the APE for Direct Effects. All six studies occurred within or adjacent to the Viaduct Priority Area. Potential residential and small-scale commercial sites (and associated archaeological features) could be located anywhere within the APE for Direct Effects where map-documented structures are depicted and where the extent of previous disturbance does not extend below the potential ca. 1950s (buried) ground surface. As described in Section 2.6 of this report, portions of the APE for Direct Effects are currently characterized by massive cut-and-fill embankments, retaining walls, or other large-scale earth disturbance associated with highway construction. No historic period archaeological resources are anticipated to be in these areas. However, archaeological features associated with domestic and small-scale commercial sites could be found in all other portions of the APE for Direct Effects (within the Viaduct Priority Area) where map-documented structures are shown.

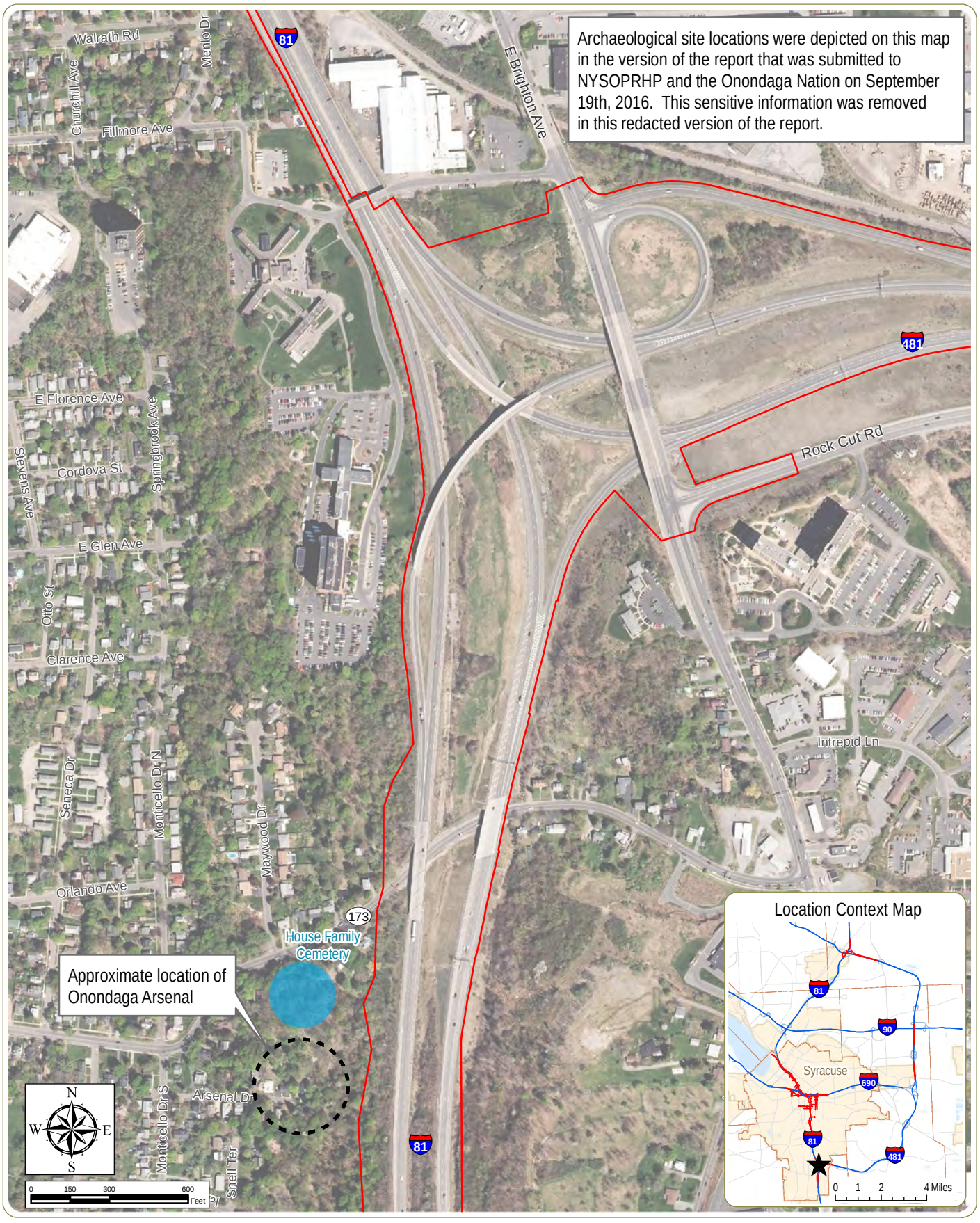
3.2.5 Military Sites Archaeological Sensitivity

As described in Section 2.4, historically there was not significant military activity in the vicinity of the Project APE. The Onondaga Arsenal Site (NYSOPRHP Site 6740.000389) is the only known historic military site in the vicinity of the APE for Direct Effects. A summary history of this site is presented below, followed by an assessment of the potential for archaeological remains associated with the Onondaga Arsenal Site to be located within the APE for Direct Effects.

Onondaga Arsenal Site (ca. 1810)

As described in Section 2.2 of this report, the Onondaga Arsenal Site is recorded in CRIS as NYSOPRHP Site 6740.000389, located approximately 350 feet from the limits of the APE for Direct Effects (see Figure 3.2.5-1[12]). The Onondaga Arsenal Site is the former location of an arsenal erected by the State of New York in 1810 to store munitions and act as a frontier fort during the War of 1812. At the beginning of the nineteenth century, Onondaga Hollow (now Onondaga Valley) was located on America's frontier. The first decades of the nineteenth-century were a period of heightened tension between the United States and the United Kingdom, and the vicinity of the salt springs at Onondaga Lake was recognized as an area of strategic importance. An act passed by the New York State Legislature in 1808 gave the authority to build an arsenal at Onondaga Hollow for "such quantities of ammunition and military stores… as would be necessary, in case of an invasion" for the federal government at the expense of the state (Clark, 1849).

[12] Archaeological site locations were depicted on this map in the version of the report that was submitted to NYSOPRHP and the Onondaga Nation on September 19th, 2016. This sensitive information was removed in this redacted version of the report.



I-81 Viaduct Project

Onondaga County, New York

Figure 3.2.5-1: Onondaga Arsenal Site

November 2016

Cemeteries and Areas with Potential for Human Burials

APE for Direct Effects

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation Federal Highway Administration

Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

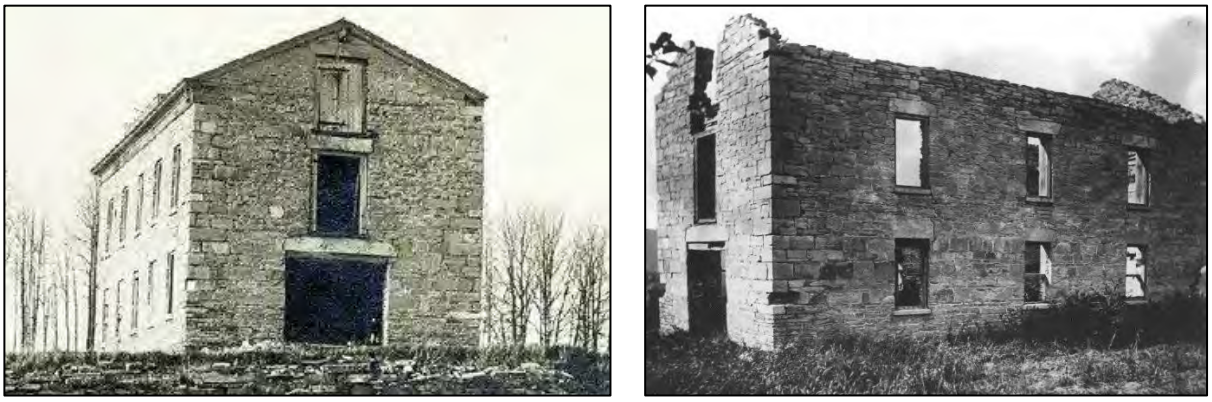


Figure 3.2.5-2. ca. 1880 (left) and 1900 (right) Photographs of the Onondaga Arsenal Site.
The arsenal building remained largely intact twenty years after its reconstruction during the Civil War. By the end of the nineteenth century, the structure had lost its roof and was deteriorating (Photographs from collections of the Onondaga Historical Association, Syracuse, NY).

The State of New York purchased land from Cornelius Longstreet in 1809, and erected the arsenal structure in 1810. It housed a store for a large cache of weapons and ammunition, and was left vacant after the end of the War of 1812. Early historians noted that the arsenal was abandoned and deteriorating by the mid-nineteenth century. The federal government rebuilt and occupied the arsenal for a short period during the Civil War, but by the 1870s it was vacant again (Clark, 1849; Clayton, 1878; Strong, 1894; see Figure 3.2.5-2).

Since the early 1890s, there have been repeated attempts by preservationists to stabilize and rehabilitate the Onondaga Arsenal, which have been frustrated by the unclear ownership of the site. These land ownership issues began with the construction of the arsenal itself (SST, 1893; SPS, 1905). The local commander built the structure approximately 260 feet from the State's land purchased for that purpose, a fact unknown until a professional survey completed in the 1980s. This has resulted in almost two centuries of dispute over the actual ownership of the arsenal building. Under the assumption that the arsenal was located on the State's land, a local chapter of the Daughters of the American Revolution (DAR) received the deed to the land in 1906 with the intention of stabilizing the building. An adjacent landowner, Mr. Abram House, protested and claimed the arsenal sat on his land, but was willing to sell it for $50,000, no small sum in those days (SPS, 1928, 1929, 1931a, 1931b). The dispute carried on for decades and caused some to shy away from the preservation of this site. The City of Syracuse currently lists ownership to the Onondaga DAR, although the group disbanded in 1917. The subsequent successor group claims no affiliation or ownership of the parcel. The individual who purchased the House property in 1971 has alternately claimed and denied ownership, according to press interviews (SPS, 2005; Case, 2012a).



Figure 3.2.5-3. ca. 1920 Photograph (Postcard) of the Onondaga Arsenal Site.
The Onondaga Arsenal has been a ruin that has captured the attention of local historians and preservationists since at least the late-nineteenth century (Postcard from the collections of the Onondaga Historical Association, Syracuse, NY).

Potential for Archaeological Resources at the Onondaga Arsenal Site within the APE for Direct Effects

The former two-story limestone building at the site is now represented one-story corner section of exterior wall and stone foundation remains. Historic images show the arsenal and a stone retaining wall supporting the land it sat on as the only structures in the immediate vicinity (see Figures 3.2.5-2 and 3.2.5-3). The parcel next to the Arsenal Site contains historic-period stone barn foundations, an historic cemetery (see Section 3.3.2 and Figure 3.2.5-4), and the remains of a limekiln (SPS, 2005). The site is located in the City of Syracuse on a small parcel bounded by East Seneca Turnpike to the north, Arsenal Drive to the south, Monticello Drive South to the east, and Interstate 81 to the west. The City of Syracuse lists the address as 145 Arsenal Drive Rear (SOGW, 2016; see Figure 3.2.5-1).

Other archaeological and/or potential historic resources remain at the site. These include a fieldstone retaining wall seen in historic images, still visible behind 132 Arsenal Drive. Recent newspaper accounts indicate that local artifact collectors have disturbed the ground at the arsenal site, and removed nineteenth-century artifacts (Case, 2005). Stone foundation remains of a smokehouse, stable, and limekiln (presumed to date to later periods of occupation and not associated with the Arsenal) are also reported to be located in the immediate vicinity.

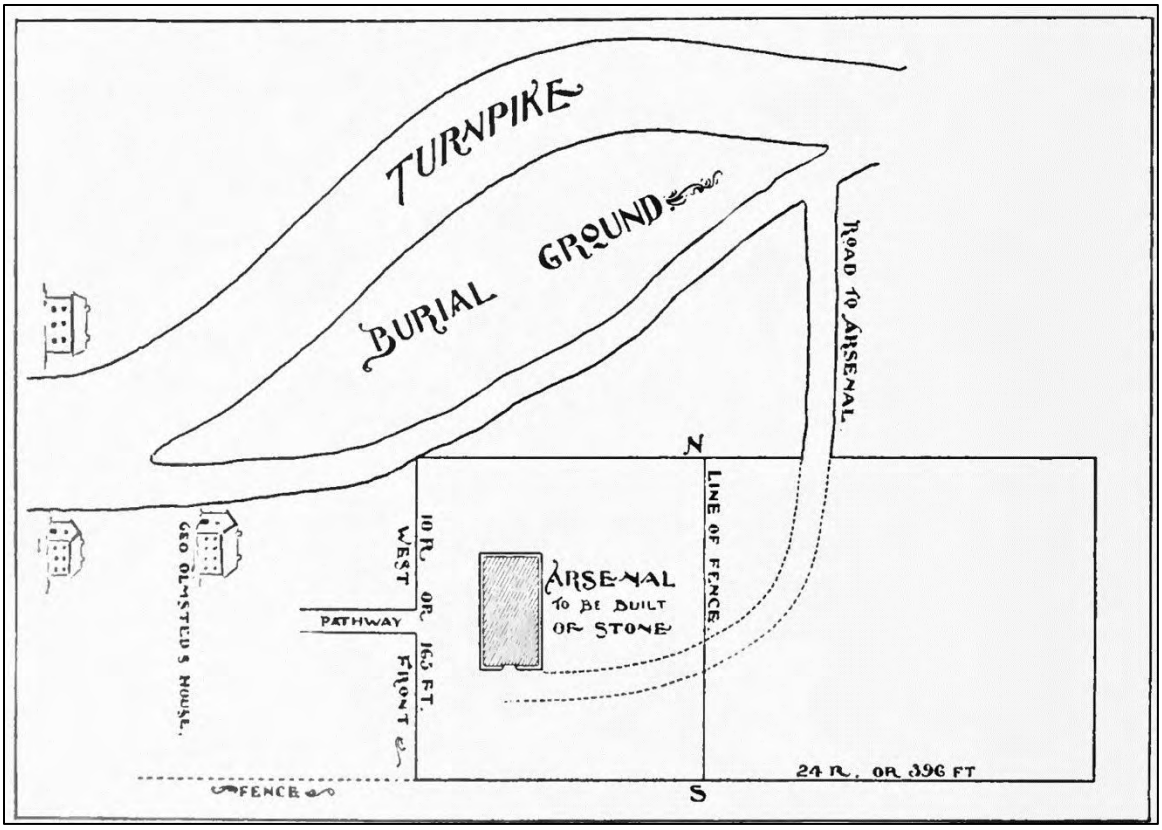


Figure 3.2.5-4. Schematic Map of the Onondaga Arsenal Site and Vicinity.
This schematic site plan shows the approximate location of the Onondaga Arsenal Site and nearby "burial ground" (the House Family Cemetery) in relation to the original route of the Seneca Turnpike (image from Bruce, 1896).

In addition, a small graveyard (the House Family Cemetery; see Section 3.3.2 for additional discussion) is located on the adjacent plot of land to the north (see Figure 3.2.5-4). In 2005, there were three monuments visible at the surface, one of which was still standing (Case, 2005). This cemetery was in use since at least 1818, and is reportedly the burial site of Syracuse founder General Asa Danforth, who "was buried on the knoll, next north of the old stone arsenal…" in what was eventually known as the "A[braham]. House cemetery" (Beauchamp, 1913). Therefore, it is anticipated that there is a high potential for intact archaeological resources to be located at the Onondaga Arsenal Site. It is unknown whether these resources extend within the APE for Direct Effects.

Potential Significance of the Onondaga Arsenal Site

The Onondaga Arsenal Site (NYSOPRHP Site 6740.000389) is noteworthy for its association with the War of 1812. It is anticipated that intact archaeological deposits or features at the Arsenal Site could be NRHP-eligible under Criterion A due to their association with important historical events. In order to be considered eligible under Criterion D, the site would typically need to include a large number of archaeological features and/or artifacts within undisturbed stratified deposits. In the case of the Onondaga Arsenal, the sites would need to retain sufficient integrity and provide meaningful

data sufficient to contribute significant information to our understanding of early-nineteenth-century military practices or other aspects of local and regional history.

Summary: The Onondaga Arsenal Site is recorded in CRIS as NYSOPRHP Site 6740.000389, located approximately 350 feet from the limits of the APE for Direct Effects (see Figure 3.2.5-1[13]). However, no formal archaeological excavations have been conducted at the site to identify a comprehensive list of features or determine the precise boundaries of the site. At minimum, the site is known to include stone structural remains and nineteenth-century artifacts, and a cemetery that is reported to include burials associated with early-nineteenth-century settlers in Onondaga County is located in the immediate vicinity. it is anticipated that there is a high potential for intact archaeological resources to be located at the Onondaga Arsenal Site. However, it is unknown whether these archaeological resources extend within the APE for Direct Effects.

3.3 Potential for Human Remains and Cemeteries

The potential for human remains to be located within the APE for Direct Effects needs to be considered due to religious, cultural, and legal considerations associated with the potential disturbance or exhumation of human burials, as well as archaeological considerations, which may consider human burials as potentially significant archaeological resources. It is anticipated that future archaeological and/or construction monitoring activities that may occur in association with the Project would need to be conducted in accordance and consideration of NYSOPRHP's Human Remains Discovery Protocol (NYSOPRHP, 2015) the Haudenosaunee Policy and Protocol on Human Remains (Haudenosaunee Confederacy, 2009), and the Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 U.S.C. 3001-3013). Historical reports of the potential locations of Native American human remains, as well as modern (existing) and historically documented cemeteries, are described below. The locations of potential and/or historically reported human remains within or adjacent to the APE for Direct Effects are shown on Figure 3.3-1 and Appendix A: Map 11.

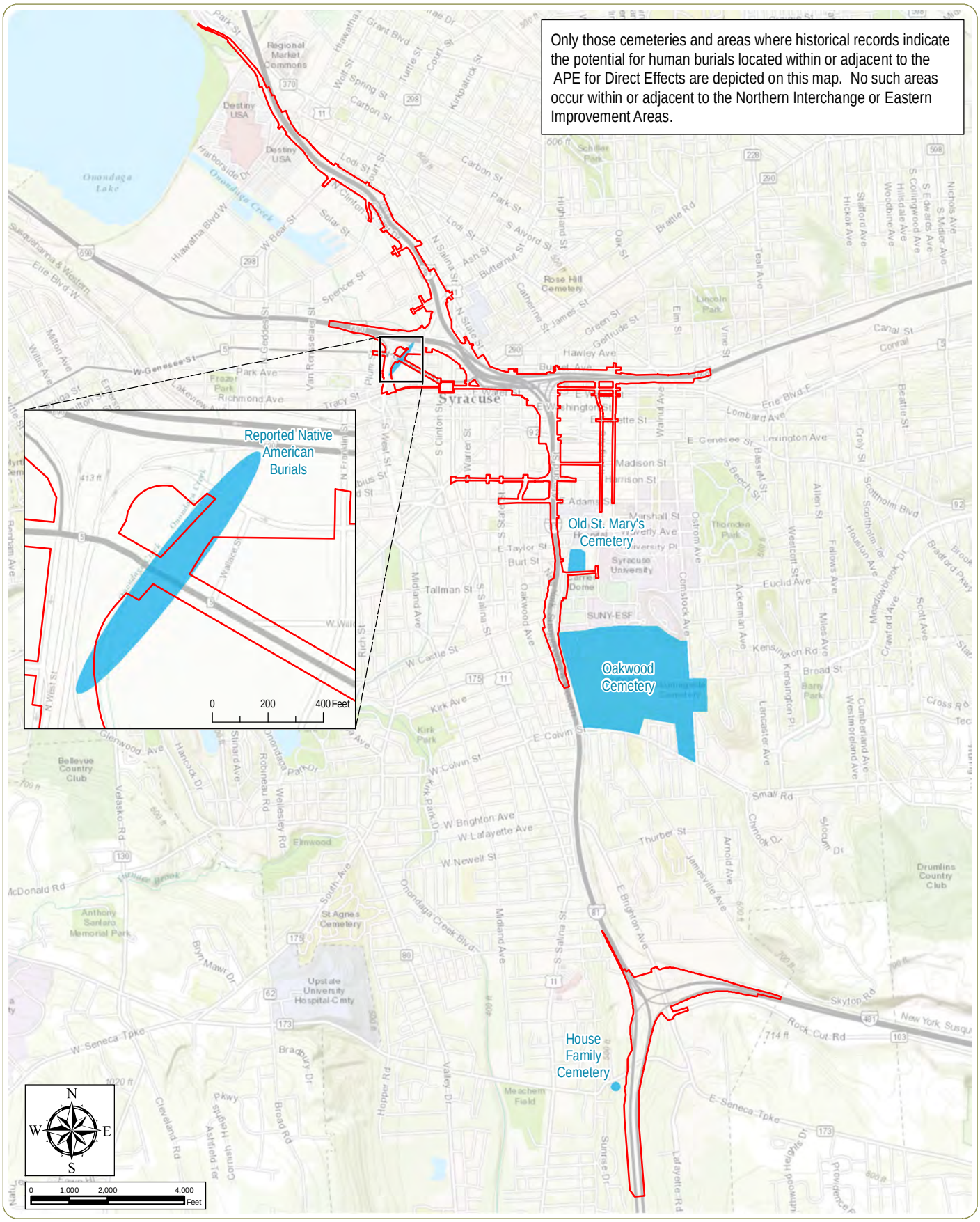
[13] Archaeological site locations were depicted on this map in the version of the report that was submitted to NYSOPRHP and the Onondaga Nation on September 19th, 2016. This sensitive information was removed in this redacted version of the report.

3.3.1 Potential for Native American Human Remains within the APE for Direct Effects

As described in Sections 3.1 and 3.2.1 of this report, there are numerous Native American archaeological sites and settlements described by historians located throughout Onondaga County, including the vicinity of the Project. Historical sources and newspaper accounts describe locations where Native American skeletal remains have been disturbed in the past in areas located within or adjacent to the APE for Direct Effects – these areas are shown on Figure 3.3-1 and Appendix A: Map 11:

- An unattributed 1882 newspaper clipping on file at the Onondaga Historical Society describes the discovery of a skeleton associated with a small number of Native American artifacts adjacent to Oneida Street in downtown Syracuse. Antiquarian William Beauchamp is quoted in the article as saying the skeleton appeared to be on its own (i.e., not part of a larger cemetery) and approximately 150 years old. The article describes the location in which the skeleton was discovered as a small knoll in an otherwise swampy area near Onondaga Creek. Although nearby, Oneida Street is not within the APE for Direct Effects for the current Project.
- Numerous historical accounts describe Native American burials found in the vicinity of Onondaga Creek. A 1925 article in the *Syracuse Post Standard* (SPS) described historic accounts of multiple Native American grave sites "near where Geddes crosses West Genesee" and "near the old Red Mill on the east bank of the Creek near Genesee Street" (SPS, 1925). In addition, when the "Old Red Mill" on Genesee Street was torn down in 1844, "literally hundreds" of Native American skeletons were encountered (Bruce, 1896; SHJ, 1939). Benjamin Newkirk's (or Nukerk's) gravesite, believed to be the first European-American settler buried within the Syracuse city limits, was located on a rise of land near the intersection of Geddes and West Genesee, near the site of the Syracuse Pump House. In 1845, the landowner of Newkirk's grave discovered a "line of graves extending some 20 to 30 feet, in which there was nothing much left but the skulls and some bullets" (PS, 1925). The looting of these graves is described as follows:

> Besides the Kaneenda site, there were many Indian cabins along the west bank of Onondaga Creek, in Syracuse, in 1793, and also a modern Indian cemetery. When the west locks were constructed, over a hundred skeletons were taken up, and some were found in digging a canal for the red mill, on the east side. Newkirk's grave was near the site of the Syracuse Pump House, and Timothy C. Cheney relates that a little east of this grave, he "and other boys used to dig up the remains of Indians, for the purpose of getting possession of the beads, kettles, knives and other implements of warfare, or an ornamental dress that had been buried with them" (Bruce, 1896:33).



I-81 Viaduct Project

Onondaga County, New York

Figure 3.3-1: Cemeteries and Potential for Human Burials

November 2016

Cemeteries and Areas with Potential for Human Burials

APE for Direct Effects

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" Map Service.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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U.S. Department of Transportation Federal Highway Administration

The locations described above near Onondaga Creek and near Genesee Street could be potentially within or near the APE for Direct Effects for the current project. Therefore, this general area is indicated on Figure 3.3-1 and Appendix A: Map 11.

The Onondaga Nation have expressed concern regarding the potential for the presence of Native American human remains in any areas where there is a potential for undisturbed soils within the APE for Direct Effects. Therefore, Phase 1B archaeological testing will be conducted in all areas where the extent of previous soil disturbance is unknown or cannot be demonstrated (see Section 2.6 of this report and Appendix A: Map 10 for a description of prior ground disturbance within the APE for Direct Effects). Part of the purpose of the Phase 1B archaeological testing will be to investigate whether human remains are located within the APE for Direct Effects. Recommendations regarding the locations and extent of Phase 1B archaeological testing for the Project are further described in Section 4.2 of this report.

3.3.2 Cemeteries

Three historic cemeteries are located adjacent to (but outside) the APE for Direct Effects. Oakwood Cemetery is located adjacent to (but outside of) the APE for Direct Effects. In addition, historical records and maps indicate Old St. Mary's Cemetery was formerly located adjacent to (but outside of) the APE for Direct Effects. There is also a burial ground adjacent to the Onondaga Arsenal site (NYSOPRHP Site 6740.000389) on Seneca Turnpike, adjacent to the APE for Direct Effects. The locations of these cemeteries are shown on Figure 3.3-1. Relevant information concerning all of these cemeteries, including an evaluation of the potential for human remains to be present within the APE for Direct Effects, is provided below.

Oakwood Cemetery (c. 1859-present)

Oakwood Cemetery is a 160-acre cemetery listed on the NRHP located at 940 Comstock Avenue in the City of Syracuse, immediately adjacent to (east of) the present course of I-81. The cemetery is bordered on the north by the campuses of Syracuse University and the State University of New York College of Environmental Science and Forestry (SUNY-ESF), on the east by Comstock Avenue, and on the south by Morningside Cemetery (see Figure 3.3-1). The original, 92-acre portion of the cemetery was designed in 1859 by master landscape architect Howard Daniels (see Figure 3.3.2-1). Additional lands were purchased during the late-nineteenth and early-twentieth centuries, and by 1940 the cemetery included 160 acres. Oakwood Cemetery is a historically significant designed landscape that is "an exceptionally distinguished and remarkably intact" example of the mid-nineteenth-century rural cemetery movement (LaFrank, *et al*. 1990; Landscape & Prospect, 1993; Day, 1994;).

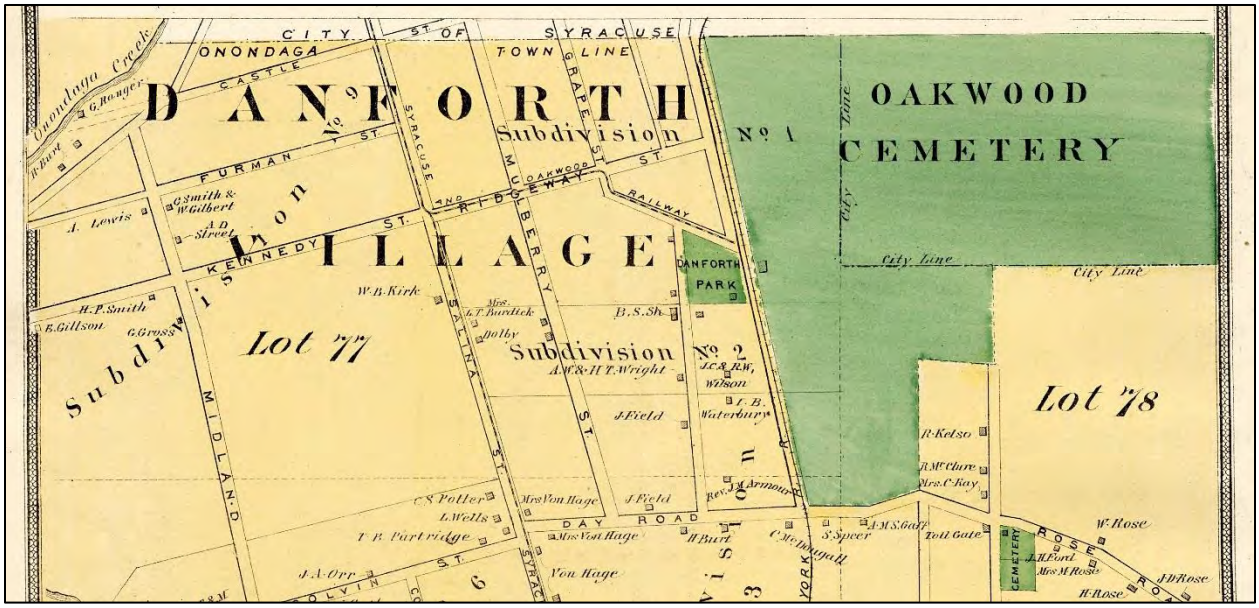


Figure 3.3.2-1. Detail of the 1874 Sweet *Atlas of Onondaga County, N.Y.*
Detail from the 1874 atlas depicting Oakwood Cemetery relative to the nascent Village of Danforth, a residential suburb that was absorbed by the City of Syracuse in 1886. Note the presence of "Danforth Park", identifying the location of the original main gateway to the cemetery (Sweet, 1874).

The original entrance to Oakwood Cemetery was through the main gateway on the western side of the cemetery, at Danforth Park adjacent to the intersection of Renwick and Oakwood Avenues (see Figure 3.3.2-1). In 1864, a streetcar line was built that terminated at Danforth Park and provided downtown residents with access to the park-like setting of the cemetery (Bruce, 1891; La Frank *et al*., 1990). The park included a wood-frame residence for the cemetery's superintendent, located just outside (west of) the gate. In 1902, an elaborate, decorative granite bridge for the Delaware, Lackawanna, and Western Railroad was built over the main gate of the cemetery. The bridge consists of a 25-foot wide arch flanked by massive stone abutments, which carried the railroad over the gateway and screened visibility of the trains from viewers on the ground (see Figure 3.3.2-2). During the construction of I-81 in the 1960s, Danforth Park was buried underneath a massive fill embankment and the original gateway and underpass below the railroad bridge were filled in. The railroad bridge[14] remains intact and visible adjacent to I-81 and marks the original location of the gate (LaFrank *et al*., 1990; Day, 1994). No other portions of, or features associated with, the cemetery are reported to have been disturbed during the construction of I-81.

[14] The railroad bridge, which is immediately adjacent to I-81, is identified as a contributing (i.e., significant) resource in the NRHP nomination for the cemetery (LaFrank, *et al.* 1990).



Figure 3.3.2-2. The Main Gate at Oakwood Cemetery.
The c. 1909 post card (left) shows the elaborate stone arch built to carry the Delaware, Lackawanna, and Western Railroad over the gateway to Oakwood Cemetery in 1902 (Collections of the Onondaga County Public Library, 1909). The photograph at right depicts the visible portion of the gate/railroad bridge in its current condition, adjacent to the I-81 right-of-way (Photo Credit: Google Streetview, 2016).

In 1899, Morningside Cemetery was established on a 105-acre site located southeast of and adjacent to Oakwood Cemetery. Oakwood assumed management and operation of Morningside in 1962. In 1976 the two cemeteries formally consolidated[15] and are now both managed by Oakwood Cemetery, Inc. The earliest burial at Oakwood Cemetery was in November of 1859, and the first burial in Morningside Cemetery was in 1900. At the present time, there are more than 60,000 interments in the consolidated Oakwood and Morningside Cemeteries (Landscape & Prospect, 1993; Find a Grave, Inc., 2014; Oakwood Cemeteries, 2014).

Summary: Oakwood Cemetery was founded in 1859 and is noteworthy as one of the foremost examples of the rural cemetery movement in the United States. The original entrance and main gate to the cemetery were filled in and obstructed by the construction of I-81 in the 1960s. Oakwood Cemetery merged with the adjacent (to the southeast) Morningside Cemetery in 1976. Over 60,000 interments are located within the current limits of the cemetery. It should be assumed that any direct effects within Oakwood Cemetery would have the potential to disturb human burials. In addition, the site is listed on the NRHP as a historically significant designed landscape and includes contributing features along the boundary of the property located adjacent to (but outside of) the APE for Direct Effects. No disturbance to human remains or other features associated with Oakwood Cemetery is anticipated as part of the Project.

[15] Note that the portions of the consolidated cemetery that were originally part of Morningside Cemetery are not included in the NRHP nomination for Oakwood Cemetery. The "Morningside" portion of the cemetery is also outside of the Project's APE for Direct Effects.

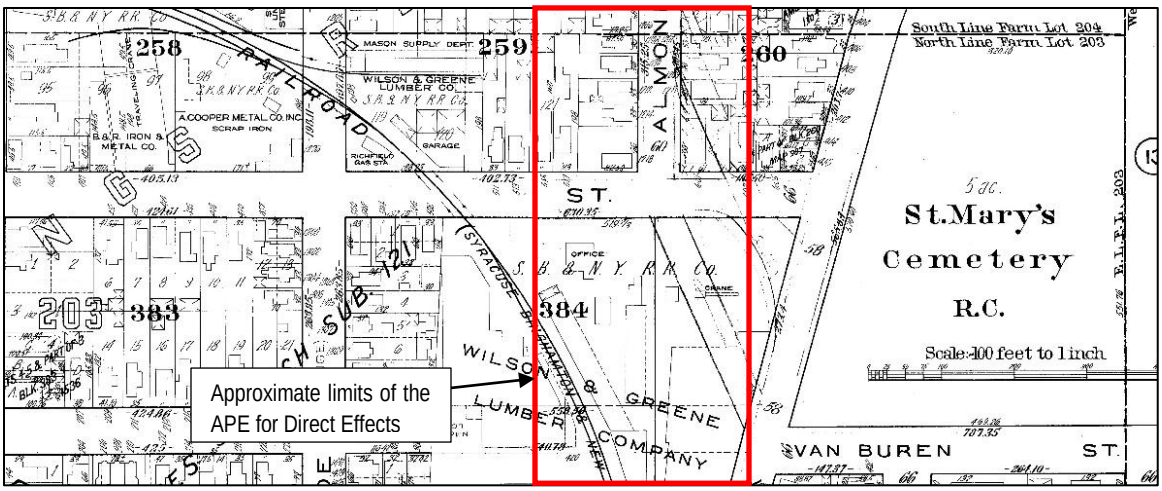


Figure 3.3.2-3. Detail of the 1938 Hopkins *Atlas of the City of Syracuse, N.Y.*
Detail from an 1938 fire-insurance atlas depicting St. Mary's Cemetery on the east side of Renwick Avenue. Note the locations of Almond Street and McBride Street (Hopkins, 1938).

*Old **Saint Mary's Cemetery** (c. 1843-1958)*

Old Saint Mary's Cemetery[16] was formerly (c. 1843-1958) located on an approximately five-acre site on the northeast corner of Van Buren Street and Renwick Avenue, the western portion of which is within the APE for Direct Effects (see Figures 3.3-1 and 3.3.2-3). The congregation of Saint Mary's, later renamed the Cathedral of the Immaculate Conception, was first organized in 1841 (Hewitt, 1909). Historical sources indicate that the earliest burial at Old Saint Mary's was Anna Bierhake in 1838 and that Saint Mary's congregation formally established the cemetery at Renwick Avenue in 1843 (Chase, 1924). A "Catholic Cemetery" is depicted in this general location on the 1852 Map of Onondaga County (Fagan, 1852). The site was formally acquired by the Catholic Bishops of the Diocese of Albany, Buffalo, and Brooklyn in 188817 and by St. Mary's Church in 1926 (SHJ, 1958; SPS, 1958, 1959, 1960). Syracuse University acquired the site in 1959 to incorporate into its expanding campus (SPS, 1959).

The cemetery ceased active use for burials sometime during the 1910s. The Cathedral of the Immaculate Conception dedicated a new Saint Mary's Cemetery on the Genesee-Fayetteville Road (now East Genesee Street) in the Town of Dewitt on September 13, 1912. At least a portion of the burials from Old Saint Mary's Cemetery are reported to have been relocated to the Dewitt cemetery at that time. A manuscript entitled *Inscriptions from Cemeteries in Onondaga County* notes that "part of [the] bodies in this cemetery [i.e., Old Saint Mary's Cemetery] were removed to the Fayetteville road [i.e., the Dewitt location] in 1915, not all" (Beauchamp, n.d.). In addition:

[16] The former cemetery on Renwick Avenue is often referred to as "Old Saint Mary's Cemetery" to distinguish it from the later Saint Mary's Cemetery on East Genesee Street in Dewitt, which was dedicated on September 13, 1912 (Chase, 1924).

[17] At that time, St. Mary's Church had recently (c. 1886) been constructed at St. Mary's Circle (now Columbus Circle). Between 1903 and 1906, the church was completed under the direction of architect Archimedes Russell and re-christened the Cathedral of the Immaculate Conception (259 East Onondaga Street; Hardin 1993:88; Hewitt 1909). The cathedral remains in active use.

> St. Mary's Cemetery Association Syracuse NY has opened an office in the rectory of the Cathedral of the Immaculate Conception for business in relation to the removal of bodies from the old St Mary's Cemetery to the new one near Orville. The work of removal has begun and there are more than 5,000 bodies to be removed (Haight, 1911).

And:

> In 1911 and 1912 the work was taken up of the transfer to the cemetery [i.e., the new Saint Mary's Cemetery in Dewitt] of the bodies in the old St. Mary's Cemetery on Renwick Avenue. That belonged to village days, although the major part of the burials were made in the 'fifties and 'sixties [i.e., the 1850s and 1860s]. No deeds for lots were ever given in the old cemetery, but the transfers were all made and accurate records kept of locations (Chase, 1924:301).

Later (c. 1958-1960) newspaper articles indicate that the cemetery was used until 1919, after which no additional interments were reported to have been made at this site (SHJ, 1958; SPS, 1958, 1959, 1960). By the mid-twentieth century, the cemetery was no longer in use, in a state of neglect, and had become overgrown. In 1958, the New York State Supreme Court granted permission to the Roman Catholic Diocese of Syracuse to remove all human remains from the cemetery on Renwick Avenue and relocate their remains to Saint Mary's Cemetery on East Genesee Street in Dewitt (SHJ, 1958; SPS, 1958). An article from the *Syracuse Post-Standard* provides the following detail:

> The petitioner stated that there has been no interment in the cemetery since 1919, that the character of the neighborhood has undergone substantial changes, [and] there is no existing fund for perpetual care and maintenance… The number of bodies to be transferred if and when the proposed removal is carried out is estimated at "more than 1,000." According to an unauthentic report 4,000 burials were made there before it ceased to be used 39 years ago (SPS, 1958).

The discrepancy regarding the number of burials at the cemetery (1,000 or 4,000) likely reflects that the authors of these later accounts were unaware of the previous removal of human remains from the Renwick Avenue site to the new cemetery in Dewitt in the 1910s (per Chase, 1924; Beauchamp, n.d.). Regardless, the remaining human burials from Old Saint Mary's Cemetery are reported to have been removed to the new cemetery in Dewitt by August 1959 when Syracuse University purchased the lot for the purpose of constructing a parking lot (SPS, 1959, 1960). The remains that were removed from the Renwick Avenue site in 1959 were re-buried in a large, group burial, which is marked with a large monument, near the Kinne Road entrance to the new St. Mary's Cemetery in Dewitt (Connors, 2009).

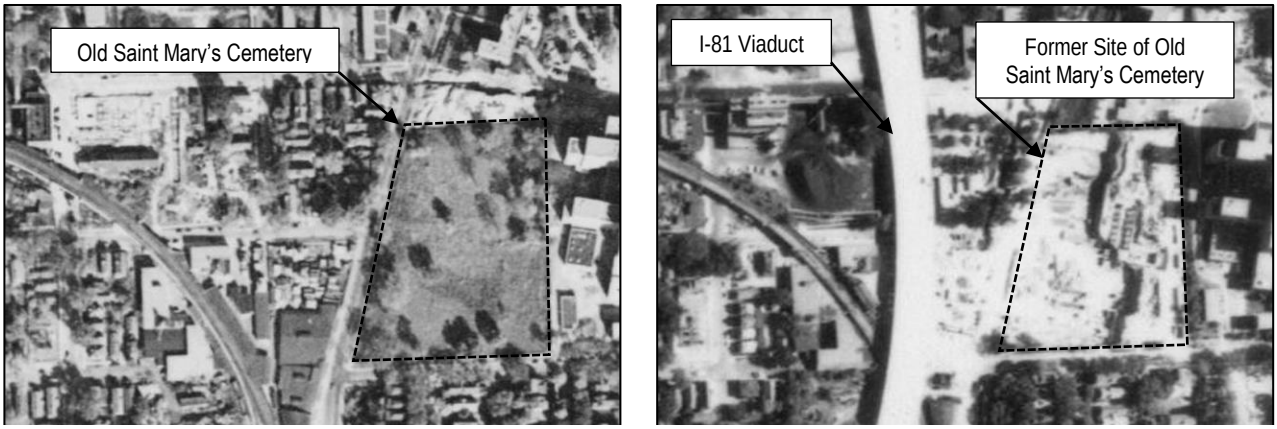


Figure 3.3.2-4. Aerial Photographs of the **Old Saint Mary's Cemetery** Site.
The 1951 aerial photo (left) shows Old St. Mary's Cemetery on the east side of Renwick Avenue (Cornell University, 1951). The 1966 aerial photo (right) shows the site during the construction of Syracuse University's Boland, Brewster, and Brockway Halls and subsequent to the reported removal of burials from the site in c. 1958-1959; note the presence of the I-81 viaduct to the west of the former cemetery site in the 1966 photograph (Cornell University, 1966).



Figure 3.3.2-5. Photographs of the **Old Saint Mary's Cemetery Site.**
The c. 1940s newspaper photograph of St. Mary's Cemetery (left) shows the sloped, overgrown character of the site prior to the removal of the human remains from the site (Source and date of photograph not recorded in archive; Collections of the Onondaga Historical Association, 2014). The photograph at right depicts a comparable view of existing conditions at the site (Photo Credit: Google Earth, 2016).

The University's new parking lot opened in January of 1960. To accommodate the steeply sloped site, the new parking lot included four tiers (or terraces) with two entrances on Van Buren Street (SPS, 1960). In 1966, Syracuse University built Boland, Brewster, and Brockway Halls (401 Van Buren Street), a connected set of high-rise student dormitories and associated parking garage (SU, 2012), which occupy most of the five-acre site of the former cemetery. The changing conditions at the site prior to the removal of the cemetery, during construction of the dormitories, and in its present condition are shown in Figures 3.3.2-4 and 3.3.2-5.

Summary: Between 1888 and 1958, Old St, Mary's Cemetery was located on the five-acre site bordered by Van Buren Street (south), Renwick Avenue (west), Stadium Place (east), and Taylor Street/University Place (north). Approximately 1,000 interments took place here between 1888 and 1919. In the 1910s and in 1959, the human remains

were removed and reburied in (the new) St. Mary's Cemetery on East Genesee Street in the Town of Dewitt. In 1960, Syracuse University constructed a parking lot on the site, which was constructed in four tiers (or terraces) to accommodate the slope of the site. In 1966, the parking lot was replaced by a high-rise dormitory and parking garage complex, which still occupies a significant portion of the former cemetery. Because the human remains from the cemetery were reported to have been removed, as well as the significant ground disturbance associated with construction of the terraced parking lot and subsequent dormitory complex on the site, it is assumed that there is little to no likelihood that undisturbed human burials remain on the site. The former site of the cemetery is located outside of (but adjacent to) the APE for Direct Effects. No impacts to potential human remains are anticipated in this area.

The House Family Cemetery at the Onondaga Arsenal Site (c.1810s)

The House Family Cemetery is a small graveyard located on private property adjacent to the Onondaga Arsenal Site (Beauchamp, 1913; Case, 2005; Landscape and Prospect, 1975; see Sections 2.2 and 3.2.6 and Figures 3.2.5-4 and 3.3-1). This cemetery[18] was established in the early-nineteenth century and may pre-date the adjacent Onondaga Arsenal by several years. The Arsenal itself was constructed in 1812 following a land agreement that was made between Cornelius and Deborah Longstreet and the State of New York (Bruce, 1896). The House family owned the property between ca. 1854 and 1971. Their name has been commonly attached to the cemetery, although it is unclear if the cemetery was established prior to their ownership of the land (Case, 2005). It appears that it may have originally served as a town burial ground, and "practically all graves in the little burial ground are those of early settlers of Onondaga Hollow" with gravestones dating between 1812 and 1822 (*Syracuse Herald,* 1930). The House family did have a presence in the area as early as 1804, when Jonathan House moved to the area from Vermont and engaged in a limestone quarrying business and the family may have also used the burial ground (*Syracuse Herald,* 1930; Case, 2012). A map of the burial ground and arsenal property included in Bruce's 1896 history of Onondaga County suggests that the cemetery was an irregular shape (see Figure 3.2.5-4).

One of the only extant stones within the small cemetery bears the following inscription:

In
Memory of
EUNIS
wife of
James Gage
who died
Sept 17, 1812.
Aged 46 years.

[18] The description of the House Family Cemetery was prepared by Molly McDonald of AKRF, Inc, as part of the historic-architectural resources survey for the I-81 Viaduct Project.

The stone features and urn and willow motif common of gravestones carved in the first decades of the 19th century (Deetz and Dethlefsen, 1966). The stone is atypical of urn and willow slate-style stones, however, as it features circular scrolls at its shoulders as opposed to squared shoulders (Deetz and Dethlefsen, 1966). A partially legible epitaph is carved at the base of the stone. Born Eunice Watkins on August 13, 1768, Eunice married James Adams Gage (born May 31, 1766) and had ten children between 1788 and 1809 (Lewis Publishing, 1904). James A. Gage had been born in Pittstown, Rensselaer County, New York (Daughters of the American Revolution, 1922). In 1793, Gage and his brother, Moses, purchased a 100-acre farm in Norway, Herkimer County, New York, and after traveling there on foot and building log cabins, the two became the first settlers of that part of New York State. Their wives joined them the following year and James and Eunice Gage lived there until 1810, when they moved to Syracuse. James Gage later moved to Painesville, Ohio, possibly after Eunice's 1812 death, and the location of his grave is unknown, but may be in Ohio.

A second monument with a barely legible inscription stands in memory of Joseph and Hannah Clark. Case (2005) reports Joseph's date of death as 1807. The large marker is in the form of an obelisk on a two-tiered square base. A third marker is extant in the cemetery: a fallen red sandstone slab that is barely legible and is overgrown. This may be the House family monument described by reporter Dick Case after a visit to the cemetery in 2005 (Case 2005). Case references a list of at least eight gravestones that was prepared by William Beauchamp, a local historian, though those gravestones are no longer extant.

Summary: The House Family Cemetery is a small early-nineteenth-century graveyard located on private property adjacent to the Onondaga Arsenal Site, outside of (but adjacent to) the APE for Direct Effects. It should be assumed that any direct effects within the cemetery would have the potential to disturb human burials.

No disturbance to any of these three cemeteries is anticipated as part of the Project. However, the subsequent Phase 1B survey for the Project should include archaeological testing within the portions of the APE for Direct Effects located adjacent to the House Family Cemetery (and Onondaga Arsenal Site) to confirm that no burials will be impacted, and determine whether any archaeological deposits associated with the Arsenal, are located within the APE for Direct Effects.

4.0 SUMMARY AND CONCLUSIONS

4.1 Summary Results of the Phase 1A Archaeological Assessment

The I-81 Viaduct Project includes the proposed reconstruction or replacement of the elevated portions of Interstate 81 (the I-81 viaduct) through the City of Syracuse, in Onondaga County, New York. The purpose of the Phase 1A Archaeological Sensitivity Assessment is to determine whether previously identified archaeological resources are located in the Project's Area of Potential Effect (APE), and to evaluate the potential for previously unidentified archaeological resources to be located within the APE.

As defined in 36 CFR Part 800.16(d), the APE represents the geographical area within which the Project "may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist," and defines the area in which identification efforts will occur for architectural and archaeological properties. In accordance with 36 CFR Part 800.4(a)(1), an APE has been defined for the I-81 Viaduct Project based upon a combined scope of work for both build alternatives under consideration. The APE for Direct Effects, represents the combined limits of disturbance (LOD) of the two build alternatives and includes the area in which the proposed build alternatives have the potential to result in direct effects to cultural resources. The APE for Direct Effects includes all areas where there is a potential for physical alterations or ground disturbance during Project construction and includes approximately 459 acres of land in four discrete areas: the Viaduct Priority area, the I-81/I-481 Northern Interchange, the I-81/I-481 Southern Interchange, and the I-481 Eastern Improvements.

The results of background research for the Phase 1A Archaeological Sensitivity Assessment are summarized (in brief) as follows:

- Approximately 67.7 percent (or 311.3 acres) of soils within the APE for Direct Effects are indicative of moderate to severe disturbance. These include the Cut and Fill Land, Made Land, and Urban Land mapped soil units. These soil units are variable in their characteristics but all are man-made through various processes including excavation, filling with non-native soils, filling with other materials (i.e., demolished structural remains), paving, and mixing soil horizons and units through grading and contouring. Urban Land occurs primarily within the Viaduct Priority Area in downtown Syracuse, Cut-and-Fill Land occurs along interstate, railroad, and major highway rights-of-way in all four areas of the APE for Direct Effects, and Made Land, consisting of an open quarry, occurs only within the I-81/I-481 Southern Interchange.
- EDR reviewed NYSOPRHP's CRIS inventory to identified previously reported archaeological sites within the APE for Direct Effects. According to the NYSORPHP's CRIS database, 14 previously recorded archaeological

sites occur within or adjacent to the APE for Direct Effects (see Table 2.2-1 and Appendix A: Map 3). These include eight historic-period sites documented by NYSOPRHP, one pre-contact Native American site documented by NYSOPRHP, and five pre-contact areas documented by the New York State Museum (NYSM). Four of the historic sites have undetermined State/National Register of Historic Places (S/NRHP) eligibilities, three are not eligible for listing on the S/NRHP, and one is eligible for listing on the S/NRHP. The single NYSOPRHP pre-contact site has an undetermined S/NRHP eligibility. The NYSM Sites consist of two prehistoric villages/hamlets, two artifact scatters/traces of occupations, and one camp, as described by Parker (1922). All five of these NYSM areas have undetermined S/NRHP eligibilities.

- Thirty previous archaeological surveys/projects have been conducted within or adjacent to the APE for Direct Effects (see Table 2.3-1 and Appendix A: Map 3). The results of these surveys are summarized and referenced throughout this report, where applicable.
- EDR conducted historical research at local and on-line archives and repositories to document the historical development of the Project's APE and vicinity. An important focus of EDR's research was the review and analysis of historical map sources. Selected historical maps were geo-referenced and overlain on contemporary plans and aerial photos to help identify historic map-documented structures and other potential archaeological features that were formerly located within the APE for Direct Effects.
- The Project vicinity has a rich and complicated history, which is summarized in an overview fashion herein according to the following periods:
    - Pre-Contact Native American Period (ca. 14,000 BP to 1654 AD)
    - Euro-American and Native American Contact during the Colonial Era (ca. A.D. 1534 to 1786)
    - Salt and the Early Settlement of Onondaga County (ca. 1750 to 1825)
    - The Erie Canal and the Birth of the City of Syracuse (ca.1825-1918)
    - Growth in the Post-Canal Era (ca. 1918-1938)
    - Slum Clearance, Post-War Planning and Urban Renewal (ca. 1938-1974)
    - Suburban Expansion in Onondaga County (ca. 1965-2016)
- Existing conditions within the APE for Direct Effects were observed and photographed during multiple site visits conducted by EDR cultural resources staff between 2014 and 2016. In general, existing conditions within the APE for Direct Effects represent the extent to which the Viaduct Priority Area, the I-81/I-481 Southern Interchange, the I-81/I-481 Northern Interchange, and the I-481 Eastern Improvements have been significantly shaped by ground disturbance associated with the construction of Interstates 81 and 481, as well as historic ground disturbance associated with commercial, industrial and residential development throughout the eighteenth, nineteenth and twentieth centuries.

An important focus of the Phase 1A archaeological assessment is describing and interpreting evidence for prior ground disturbance in the APE for Direct Effects. Historical sources described how the landscape of Syracuse was changed drastically during the nineteenth century. Swamps were drained, waterways were filled or made into sewers, and hills were razed to build roads and provide fill for poorly drained residential and commercial lots. In the mid-twentieth century, the construction of elevated interstate highways through Syracuse dramatically transformed the landscape of the city, both socially and physically. Significant sources of previous ground disturbance within the APE for Direct Effects include: landfilling activities associated with nineteenth-century urban development in the City of Syracuse; demolition and construction associated with mid-twentieth century highway construction; disturbance associated with construction, expansion, and/or modification of buildings; areas of cut and fill associated with other road and highway construction; and the installation of underground utilities. EDR conducted a detailed analysis of prior ground disturbance within the APE for Direct Effects, which included historical research, review of NYSDOT record demolition and construction plans, aerial photography (including historical imagery), field observations, and GIS data analysis.

Review of publicly available mapped soils data provided a basis for the ground disturbance analysis. Areas characterized by the Cut and Fill Land, Made Land, and Urban Land soil map units are identified in Appendix A: Map 10 as "Mapped Soil Units". It is assumed that the level of disturbance in these areas would preclude the presence of near-surface archaeological resources, including pre-contact Native American archaeological resources. However, it is anticipated that historic-period archaeological resources associated with nineteenth and twentieth-century development of the city may be located in these areas.

Buried utilities are located throughout the APE for Direct Effects, primarily within public roadways and/or adjacent rights-of-way. Mapped buried utilities include the observed and assumed locations of all utility poles and underground lines associated with electric, fiber optic, water, sewer, telephone, steam, cable television, oil, and unidentified infrastructure. No archaeological resources are anticipated in areas where there are buried utilities.

EDR digitized the locations of 952 former (demolished) structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects (see Appendix A: Maps 10 and 11; Appendix B). During demolition, structures were demolished, basements and cellars were filled, and the properties were cleared and graded (NYSDOT, 1963; SPS, 1964). The foundations of these demolished structures are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. In addition, the extent of prior disturbance associated with the construction and demolition of these structures is assumed to preclude the possibility that other (earlier) archaeological resources are present in these locations. However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found

on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures.

An analysis of geo-technical boring logs was undertaken to document and interpolate the depth of fill within various portions of the APE for Direct Effects. NYSDOT has an extensive archive of geotechnical borings documenting subsurface stratigraphy in the City of Syracuse and the surrounding vicinity. The analysis included review and interpretation of 995 boring logs from the period between 1945 and 2005 that were located within 500-ft (152-m) of the APE for Direct Effects. The depth of fill documented by the boring logs is presented as an interpolated surface in Appendix A: Map 10. Of the 995 boring logs reviewed for the Project, 478 boring logs document depths of fill between 0.5 and 36.5 feet throughout various portions of the APE for Direct Effects. The artificial fill documented by these boring logs is deepest in the vicinity of Hiawatha Boulevard and the DestiNY USA shopping mall in the northwestern portion of the Viaduct Priority Area and the I-81/I-690 Interchange, near the center of the Viaduct Priority Area (see Appendix A: Map 10). These findings are consistent with NYSDOT record plans and historical accounts (and images) regarding the extent of ground disturbance associated with the construction of the interstate system (see Sections 2.4.6 and 2.6.2 of this report). Deep deposits of artificial fill are also documented in the I-481 Eastern Improvement Area in the vicinity of the CSX Railroad ROW (Appendix A: Map 10). No data were available for the Southern and Northern I-81/I-481 Interchanges.

Cut-and-fill Highway and Embankment Areas (see Appendix A: Map 10) include areas within and adjacent to the APE for Direct Effects in which substantial cutting and filling of sediment has occurred related to Interstate and/or highway construction. These include areas where the Interstate is elevated above the surrounding terrain on an earthen berm, areas where the Interstate has been excavated below the natural ground surface, areas where exit and entrance ramps are supported by concrete retaining walls or earthen berms, and other similar circumstances. EDR identified cut-and-fill highway areas based on multiple sources, including NYSDOT demolition and construction plans, aerial imagery (including oblique views and historical imagery), and field reconnaissance/confirmation. The areas identified as "Cut-and-Fill Highway and Embankment Areas" in Appendix A: Maps 10 and 11 are considered to be severely disturbed to such an extent that there is no potential for intact archaeological resources to be present in these areas.

4.2 Conclusions and Recommendations

The Project vicinity has a rich and complicated history and includes numerous significant cultural resources. However, due to the extent of prior ground disturbance, the potential for archeological sites to be present within the APE for Direct Effects is highly variable. Both the Viaduct and Community Grid Alternatives will include significant ground disturbance during Project construction. These activities have the potential to impact archaeological resources that may be located

within the Project's APE for Direct Effects. To determine if intact and potentially significant archaeological resources are located within the APE for Direct Effects, a Phase 1B archaeological survey will be necessary.

The Phase1B archaeological survey will include different field methodologies depending on the existing conditions present within various portions of the APE for Direct Effects. These are anticipated to include shovel testing in un-paved and apparently undisturbed areas, as well as machine-aided investigations in paved areas and/or areas where there is a potential for archaeological resources to be buried beneath fill deposits. In addition, archaeological monitoring during construction would be appropriate in some areas (described in greater detail, below).

Due to the size of the APE for Direct Effects (approximately 459 acres) and the scale of the proposed Project, conducting Phase 1B archaeological survey within all portions of the APE for Direct Effects is not practical nor economically feasible. Therefore, subsequent Phase 1B archaeological investigations should prioritize those portions of the APE for Direct Effects where there is the greatest likelihood for significant archaeological resources to be present, or provide a representative evaluation of that likelihood based on a sampling strategy. The need, and appropriate methodology, for archaeological investigations for various portions of the APE for Direct Effects will be determined based on three factors:

- The potential for significant archaeological resources and/or human remains to be located within the various portions of the APE for Direct Effects (described in this report).
- The extent and depth of previous ground disturbance within the various portions of the APE for Direct Effects (described in this report).
- The proposed depth of soil disturbance and extent of construction-related disturbance for the various portions of the APE for Direct Effects (i.e., the "Vertical APE for Direct Effects"). This information is not yet available and is dependent on more detailed design/engineering for the Project.

When available, the Project design information will be reviewed to identify the extent of proposed construction-related disturbance within archaeologically sensitive areas. This review will provide the basis for the development of a *Phase 1B Archaeological Survey Work Plan* for the Project. The *Work Plan* will identify the locations and field methodologies that will be included in the Phase 1B archaeological survey, and is anticipated to include and further refine the following general recommendations for various portions of the APE for Direct Effects:

- Areas identified as "Cut-and-Fill Highway and Embankment Areas" in Appendix A: Maps 10 and 11 are considered to be severely disturbed to such an extent that there is no potential for intact archaeological

resources to be present in these areas. No Phase 1B archaeological investigations or further consideration of these areas (relative to archaeological resources) is recommended.

- In those areas that are un-paved and/or where significant fill deposits are not documented or anticipated, the Phase 1B survey will include a systematic program of shovel testing conducted in accordance with applicable guidelines. Based on the GIS analyses presented herein, these areas are anticipated to include less than 20 acres within the APE for Direct Effects.
- In paved and/or previously disturbed areas where the proposed depth of construction activities is anticipated to be relatively minimal (i.e., within 2 feet of the existing ground surface), no Phase 1B archaeological investigations are recommended. This is anticipated to include areas where construction activities are limited to road re-surfacing or minor widening, curb replacements, streetscape improvements, and similar small-scale activities.
- In paved and/or previously disturbed areas where the proposed depth of construction activities is anticipated to be significant (i.e., greater than 2 feet below existing grade or otherwise involve large amounts of ground disturbance), the Phase 1B archaeological survey will include machine-aided archaeological investigations to determine if potentially significant archaeological deposits are present beneath fill deposits. A sampling strategy that identifies specific locations for proposed archaeological investigations, based on the factors noted above, will be included in the *Phase 1B Archaeological Survey Work Plan*. It is anticipated that this sampling strategy will prioritize areas where there is a potential for human remains to be present and provide for a representative assessment of the potential for the various types of historic-period archaeological resources to be located within the APE for Direct Effects.
- Within existing public roadways where the proposed depth of construction activities is anticipated to be significant (i.e., greater than 2 feet below existing grade or otherwise involve large amounts of ground disturbance) and where there is a potential for significant archaeological resources to be located (i.e., Erie and Oswego-Canal related resources), on-site archaeological monitoring during construction is recommended to document the presence or absence of potentially significant features. The *Phase 1B Archaeological Survey Work Plan* will include a monitoring protocol that is anticipated to include the following components:

    - A typology of anticipated potentially significant archaeological resources that may be encountered (per the information presented in this Phase 1A report).
    - A protocol for the identification and documentation of potential archaeological resources, including a protocol for the temporary cessation of construction and/or excavation activities to allow for archaeological investigation.
    - A methodology for on-site recording and documentation of cultural materials identified in fill, disturbed contexts, or contexts otherwise determined to represent non-significant deposits (note: it

is anticipated that these materials will not be collected and/or retained for further analysis), as well as criteria for the collection and recording artifacts from potentially significant contexts;
    - Identification of contact personnel for involved agencies and/or consulting parties.
    - Propose standards for the preliminary determination of significance (or non-significance) of potential archaeological finds (per the information presented in this Phase 1A report).
    - Establish a protocol for determining the need for additional archaeological testing/documentation of potentially significant archaeological resources.
    - The monitoring plan will include NYSHOPRHP's *Human Remains Discovery Protocol,* the Haudenosaunee Policy and Protocol on Human Remains (Haudenosaunee Confederacy, 2009), and the Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 U.S.C. 3001-3013) and provide a site-specific protocol and contact information for relevant agency and law enforcement personnel in the event that any human remains are encountered during construction.

- The *Phase 1B Archaeological Survey Work Plan* will include a narrative and appropriate maps that illustrate and provide further rationale for the proposed archaeological testing strategy.

The *Phase 1B Archaeological Survey Work Plan* will build on the information and analyses presented in this Phase 1A report to propose a comprehensive and feasible approach for archaeological testing. As described in Section 3.0 of this report, the goal is to identify areas where there is a potential for *significant* archaeological resources to be located, and exclude other areas from further consideration. The results of the archaeological sensitivity assessment included in Sections 3.1, 3.2, and 3.3 of this report are summarized below, along with recommendations concerning appropriate avoidance or field investigation measures. These recommendations provide the basis for a more detailed archaeological testing strategy to be defined in a subsequent *Phase 1B Archaeological Survey Work Plan* for the Project.

Native American Archaeological Resources

Regarding the potential for pre-contact and Contact Period Native American archaeological resources to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- In the absence of documented earth disturbance, the Viaduct Priority Area and the I-81/I-481 Southern Interchange are considered to be of moderate to high sensitivity for Native American archaeological sites and the I-81/I-481 Northern Interchange and the I-481 Eastern Improvements are considered to be of moderate sensitivity for Native American archaeological sites. Sites from these periods would necessarily pre-date the

significant filling and engineering of the landscape that took place as part of the development of the City of Syracuse throughout the nineteenth and twentieth centuries. Therefore, potential Native American archaeological sites are only anticipated to be located in areas with undisturbed soils.

- As described herein, much of the APE for Direct Effects has been previously disturbed by historic and modern development. Based on the analysis presented in Section 2.6 of this report, of the approximately 459 acres included within the APE for Direct Effects, only approximately 19 acres appear to be characterized by (potentially) undisturbed soils. The locations of portions of the APE for Direct Effects where the extent of previous ground disturbance is not documented or cannot be determined, and where there is, therefore, the potential for Pre-Contact Native American archaeological resources to be present, are depicted in Appendix A: Map 11.
- Phase 1B archaeological survey in these areas will include a systematic program of shovel testing conducted in accordance with applicable guidelines.

Canal-Related Archaeological Resources

Regarding the potential for canal-related archaeological features to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- Portions of the former Erie and Oswego Canals are located within the APE for Direct Effects (see Appendix A: Map 11). Both canals were filled and paved over in the 1920s. Previous archaeological investigations in Syracuse have identified intact archaeological features associated with canal infrastructure. However, given that both canals were filled in the 1920s and their remaining features have experienced various episodes of physical disturbance (e.g., the installation of municipal infrastructure utilities), the physical integrity of canal-related archaeological features within the APE for Direct Effect is anticipated to be variable. Intact archaeological features associated with either canal, depending on their physical integrity, could potentially be eligible for listing on the NRHP under Criterion A, C, or D.
- An intact limestone aqueduct is located within the APE for Direct Effects, where Erie Boulevard crosses Onondaga Creek. The aqueduct has previously been determined eligible for listing on the NRHP under Criterion C (NYSOPRHP Site 06740.009729). It is anticipated that Project design will avoid impacts to this historic resource.
- For construction activities within the roadways of Erie or Oswego Boulevards where the proposed depth of construction disturbance is anticipated to be significant (i.e., greater than 2 feet below existing grade or otherwise involve large amounts of ground disturbance) and where there is a potential for significant archaeological resources to be located (i.e., Erie and Oswego-Canal related resources), on-site archaeological monitoring during construction is recommended to document the presence or absence of

potentially significant features. The *Phase 1B Archaeological Survey Work Plan* will include a monitoring protocol, as described above.

- A portion of the historic Oswego Canal alignment underlies the northerly portions of I-81 within the Viaduct Priority Area, which is identified in Appendix A: Map 11 as "Cut-and-Fill Highway and Embankment Areas". This area is considered to be disturbed to such an extent that there is no potential for intact archaeological resources to be present. No archaeological monitoring is warranted or recommended in this area.

Large-Scale Commercial, Industrial, and Institutional Historic-Period Archaeological Resources

Regarding the potential for large-scale commercial, industrial, and institutional archaeological sites to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- Downtown Syracuse was the hub of industrial, commercial and institutional activity for Central New York in the ninetieth and twentieth centuries. Infrastructure associated with the once burgeoning salt industry, as well as numerous other commercial enterprises, was formerly located within the APE for Direct Effects. The former locations of industrial, commercial, and institutional-related features within the APE are shown on historical maps and photographs of Syracuse (see Appendix A: Maps 4 and 6 and Appendix B).
- Previous archaeological investigations have identified or determined the potential for archaeological resources associated with industry-related structures and features to be located beneath fill deposits in areas adjacent to the APE for Direct Effects. The locations of the map-documented industrial structures within the APE for Direct Effects, where there is a high potential for industry related archaeological resources to be present, are illustrated in Appendix A: Maps 4, 6, and 11. Archaeological sites associated with the salt industry (or other industries) located within the APE for Direct Effects could potentially be eligible for listing on the NRHP under Criterion D if these sites contribute significant information to our understanding of historic manufacturing and production technology and/or economic practices, sufficient to broaden our understanding of this important aspect of local and regional history.
- It is assumed that foundations and other structural remains associated with many of these larger commercial buildings are located throughout the APE for Direct Effects. In most cases, the foundations or structural remains unto themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. Therefore, although these sites are potentially ubiquitous throughout the APE for Direct Effects, archaeological investigation would only be warranted in those instances where archaeological data has the potential to contribute significant, meaningful new information.

- The sampling strategy for machine-aided archaeological investigations included in the *Phase 1B Archaeological Survey Work Plan* will recommend specific sites for archaeological field investigations based on the proposed depth of soil disturbance and extent of construction-related disturbance in specific areas (per more detailed Project design information), the potential for significant archaeological features associated with large-scale commercial, industrial, and institutional archaeological sites to be present, and the extent of existing disturbance in those areas.
- No archaeological investigations or further consideration (relative to archaeological resources) are recommended for those large-scale commercial, industrial, and institutional map-documented structures located within areas identified as "Cut-and-Fill Highway and Embankment Areas" (see Appendix A: Map 11). These areas are considered to be disturbed to such an extent that there is no potential for intact archaeological resources to be present.

Residential and Small-Scale Commercial Historic-Period Archaeological Resources

Regarding the potential for residential and small-scale commercial archaeological sites to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- Urban renewal efforts during the mid-twentieth century, including the routing of an elevated highway through downtown, caused the most radical change to the built environment of Syracuse since the construction of the Erie Canal. The construction of Interstates 81 and 690 through Syracuse required demolition of large portions of city neighborhoods including much of the Fifteenth Ward, which was home to the highest concentration of African-American and Jewish populations in the city. It is estimated 800-900 families were displaced by the construction of highways in the Fifteenth Ward.
- Hundreds of former residential and small-scale commercial structures are depicted on historic maps within the APE for Direct Effects. The 1892 Sanborn atlas, 1938 Hopkins Map, and 1955-1966 NYSDOT demolition plans (Appendix A; Maps 4 and 6 and Appendix B, respectively) provide significant detail regarding the location, dimensions, and in some instances ownership or use of buildings that were formerly located within the APE for Direct Effects. EDR digitized the locations of structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects, which resulted in the mapping of 952 former (demolished) structure locations (see Appendix A: Maps 10 and 11).
- The digitized locations of the demolished structures are indicative of the density of development (and demolition) that occurred within these portions of the city and provide a robust data set for assessing the potential for historic period archaeological sites to be present within the APE for Direct Effects. The foundations of these demolished structures unto themselves are unlikely to be considered archaeologically or historically significant, in large part because the location, dimensions, and arrangement of those buildings can

be well understood based on review of historic cartographic sources and archaeological data is unlikely to contribute significant new information. However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures. Archaeological features, such as privies, cisterns, and wells, associated with former residential and small-scale commercial properties, depending on their physical integrity, could potentially be eligible for listing on the NRHP under Criterion D.

- The sampling strategy for machine-aided archaeological investigations included in the *Phase 1B Archaeological Survey Work Plan* will recommend specific sites for archaeological field investigations based on the proposed depth of soil disturbance and extent of construction-related disturbance in specific areas (per more detailed Project design information), the potential for significant archaeological features associated with residential and small-scale commercial, industrial, and institutional archaeological sites to be present, and the extent of existing disturbance in those areas. Given the large number of potential residential and small-scale commercial sites within the APE for Direct Effects, the *Work Plan* will identify a limited number of proposed archaeological testing locations that will be selected based on their potential to encounter sites that can be considered representative of the broader Project area based on the identities of their former (historical) occupants and locations within the APE for Direct Effects. The rationale for the selection of archeological testing locations will be described in the *Work Plan*.
- No archaeological investigations or further considerations (relative to archaeological resources) are recommended for potential residential and small-scale commercial sites located within areas identified as "Cut-and-Fill Highway and Embankment Areas" (see Appendix A: Map 11). These areas are considered to be disturbed to such an extent that there is no potential for intact archaeological resources to be present.

Military Archaeological Resources

Regarding the potential for military archaeological sites to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- The Onondaga Arsenal Site (NYSOPRHP Site 6740.000389) is the only known historic military site in the vicinity of the APE for Direct Effects, located approximately 350 feet outside of the limits of disturbance for the Project.
- No previous archaeological excavations have been conducted at the Arsenal Site to identify a comprehensive list of features or determine the precise boundaries of the site. At minimum, the site is known to include stone structural remains and nineteenth-century artifacts, and a cemetery that is reported to include burials associated with early-nineteenth-century settlers in Onondaga County is located in the immediate vicinity (i.e.,

the House Family Cemetery, see below). It is anticipated that there is a high potential for intact archaeological resources to be located at the Onondaga Arsenal Site. However, it is unknown whether these archaeological resources extend within the APE for Direct Effects.

- The portion of the APE for Direct Effects located adjacent to the Onondaga Arsenal Site is located in an (apparently) undisturbed area identified as being potentially sensitive for Native American archaeological resources. A Phase 1B archaeological survey will be conducted in this area, which will include a systematic program of shovel testing conducted in accordance with applicable guidelines.

Cemeteries and Potential for Human Burials

Regarding the potential for cemeteries and/or human burials to be present within the APE for Direct Effects, the following summary and recommendations are provided:

- The potential for human remains to be located within the APE for Direct Effects needs to be considered due to religious, cultural, and legal considerations associated with the potential disturbance or exhumation of human burials, as well as archaeological considerations, which may consider human burials as potentially significant archaeological resources. It is anticipated that future archaeological and/or construction monitoring activities that may occur in association with the Project would need to be conducted in accordance and consideration of NYSOPRHP's Human Remains Discovery Protocol (NYSOPRHP, 2015) the Haudenosaunee Policy and Protocol on Human Remains (Haudenosaunee Confederacy, 2009), and the Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 U.S.C. 3001-3013).
- The Onondaga Nation have expressed concern regarding the potential for the presence of Native American human remains in any areas where there is a potential for undisturbed soils within the APE for Direct Effects. Therefore, Phase 1B archaeological testing will be conducted in all areas where the extent of previous soil disturbance is unknown or cannot be demonstrated. Part of the purpose of the Phase 1B archaeological testing will be to investigate whether human remains are located within the APE for Direct Effects.
- Historical accounts described Native American human remains that were disturbed during nineteenth-century construction activities near the crossing of Genesee Street over Onondaga Creek (this area is indicated in Appendix A: Map 11).
- Following receipt of more detailed Project design information, the location of these reported burials (at Genesee Street and Onondaga Creek) will be evaluated relative to the proposed depth and extent of soil disturbance in this area. If appropriate, then this area will be identified in the *Phase 1B Archaeological Work Plan* as an area where machine-aided Phase 1B archaeological testing will be necessary.

- In addition, three historic cemeteries (one of these is the former site of a relocated cemetery) are located adjacent to (but outside) the APE for Direct Effects. These include the NRHP-listed Oakwood Cemetery, the former site of Old St. Mary's Cemetery, and the House Family Cemetery (see Appendix A: Map 11). No disturbance to any of these three cemeteries is anticipated as part of the Project. However, the subsequent Phase 1B survey for the Project will include archaeological testing within the portions of the APE for Direct Effects located adjacent to the House Family Cemetery (and Onondaga Arsenal Site) to confirm that no burials will be impacted.

The information and recommendations included in this Phase 1A Archaeological Sensitivity Assessment provide a foundation for evaluating the I-81 Viaduct Project's potential effect on archaeological resources. As noted above, more detailed Project design information will be reviewed to identify the extent of proposed construction-related disturbance within archaeologically sensitive areas. This review will provide the basis for the development of a *Phase 1B Archaeological Survey Work Plan* for the Project. The *Work Plan* will identify the locations and field methodologies that will be included in the Phase 1B archaeological survey, and is anticipated to include and further refine the archaeological sensitivity assessment and recommendations included herein.

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I-81/I-481 Northern Interchange

Viaduct Priority Area

I-81/I-481 Southern Interchange

I-481 Eastern Improvements

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I-81 Viaduct Project

Onondaga County, New York

Appendix A - Map 1: Area of Potential Effect (APE) for Direct Effects

November 2016

Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Legend

APE for Direct Effects

0 500 1,000 2,000 Feet

N W E S

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S.Department of Transportation
Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

Appendix A - Map 2: Soils

November 2016

Notes: 1. Basemap: NYSDOT Planimetric Mapping for the Brewerton, Cicero, Syracuse West, Syracuse East, South Onondaga and Jamesville 7.5-minute quadrangles.
2. Soil data source: NRCS Soil Survey Geographic Database.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

I-81/I-481 Northern Interchange

Viaduct Priority Area

I-481 Eastern Improvements

I-81/I-481 Southern Interchange

Index Map

Legend

APE for Direct Effects

0 500 1,000 2,000 Feet

N W E S

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S.Department of Transportation Federal Highway Administration

I-81/I-481 Northern Interchange

Viaduct Priority Area

I-481 Eastern Improvements

I-81/I-481 Southern Interchange

Phase 1: Highway Program PIN 3298.00 Onondaga Co (PAF, 1977)

Phase 1: Rt. 370 between I-81 & Old Liverpool Rd. (NYSM, 2006)

Phase 1A and 1B Proposed Fiber,Optic Line City of Syracuse (Hartgen, 1999)

Phase 1A: Onondaga Creekwalk (PAF, 2001)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase II/III Ammonia and Phosphorus Removal Syracuse Wastewater Treatment Plant (Hartgen, 2001)

Phase 1B Monitoring: Kirkpatrick Street Pump Station and Force Main Project (Hartgen, 2003)

Phase 1B Scope: Kirkpatrick Street Pump Station Upgrade and Onondaga Creek Floatables Control (Hartgen, 2000)

Phase 1B Reconnaissance: Kirkpatrick Street Pump Station and Force Main Project (Hartgen, 2001)

Stage 1 Cultural Resource Investigation for the Solar/Kirkpatrick Street Improvement Project (CCRG, 2001)

Phase 1B: Syracuse Creekwalk Project (PAF, 2003)

Phase 1A: Onondaga Creekwalk (PAF, 2001)

Phase 1A Syracuse Combined Sewer Overflow Project (Pratt & Pratt, 1979)

Phase 2 End of Field Letter: Kirkpatrick Street Pump Station Project (Hartgen, 2001)

Phase 1A Archaeological (background and Literature Review of the Proposed Project Site at 405 Spencer Street (Alliance Archaeological Services, 2016)

Phase 1A Syracuse Combined Sewer Overflow Project (Pratt & Pratt, 1979)

West St Sewer Separation (Onondaga Co. CSO Lake Improvement Program (Parsons, 1999)

Phase 1: PIN 3506.32.101 I-690 Bridges (PAF, 2010)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1: Erie Blvd. over Onondaga Creek Project (PAF, 2008)

Phase 1A: Clinton Square Project (Curtin, 2000)

Phase 1B: Clinton Square Project (Panamerican, 2000)

Phase 1A: Onondaga County CSO Alternatives Proposed Clinton Station Overflow Control Facility (Hartgen, 2001)

Phase 1A: Walton St. Bridge & Creek Walk (Hartgen, 2000)

Phase 1B Construction Monitoring: Walton St. Bridge & Creek Walk (PAF, 2004)

Phase III Data Recovery and Historic Context Development: Clinton Station Site Railroad Machine Shop (Hunter, 2009)

Faces of the Past: Archaeology of an Underground RR Site (Armstrong & Wurst, 1998)

Phase 2/3: Clinton Street CSO Abatement Project (Hartgen, 2009)

Phase 1A: Onondaga County CSO Improvements, Clinton Station Site (Hartgen, 2001)

Phase 1A Syracuse Combined Sewer Overflow Project (Pratt & Pratt, 1979) Onondaga County CSO Lake Improvement: Dickerson St & Clinton Station Phase 1B Scope (Hartgen, 2003)

Phase 1B: Onondaga County CSO Alternatives Proposed Clinton Station Overflow Control Facility (Hartgen, 2003)

Phase 2/3: Clinton Street CSO Abatement Project (Hartgen, 2009)

Phase 1A: Onondaga County CSO Alternatives Proposed Clinton Station Overflow Control Facility (Hartgen, 2001)

Phase 1A: Onondaga County CSO Lake Improvement, Dickerson St. Site (Hartgen, 2002)

Phase 1A Syracuse Combined Sewer Overflow Project (Pratt & Pratt, 1979)

Stage 1B Best Management Practices Syracuse CSO Project (Pratt & Pratt, 1981)

Phase 1: SRO 24 Bed Close Community Facility (PAF, 2004)

Phase 1A Syracuse Combined Sewer Overflow Project (Pratt & Pratt, 1979)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Stage 1B Best Management Practices Syracuse CSO Project (Pratt & Pratt, 1981)

Phase 1: PIN 3506.21.101 I-690 Exit Lane at Townsend St., Syracuse (PAF, 1990)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1B: EBSS Gate Chamber No. 4 (Hartgen, 2001)

Archaeological Resources Screening, I-690 Over Teall Avenue and Beech Street Bridge Replacement (EDR 2016)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1B Syracuse Armory House (PAF, 2003)

Phase 1A Syracuse Armory House (PAF, 2003)

Phase 1 Cultural Resource Survey, Central New York Services, Single Room Occupancy Enriched Services (Pratt & Pratt, 2002)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1A: Syracuse Connective Corridor (Hartgen, 2009)

Monitoring/Data Recover Plan: East Genesee Street Reconstruction Project (PAF, 2012)

Report of Field Reconnaissance: Phase 1A Syracuse University Health Science Addition (PAF, 2004)

Phase 1: Thornden Park Carriage House Renovations, Syracuse (Rochester Museum & Science Center, 2000)

Phase 1A: Syracuse Sanitary Sewer Upgrades (Hartgen, 2000)

Phase 1: Highway Program PIN 3750.45, Onondaga Co. (PAF, 1977)

Stage 1 Cultural Resource Investigation for the 554 East Brighton Avenue Cell Tower Location (CCRG, 2001)

Phase 1: Highway Program PIN 3750.45, Onondaga Co. (PAF, 1977)

Phase 1A/1B Archaeological Investigation for the Proposed Central New York Islamic Center (Alliance Archaeological Services, 2014)

I-81/I-481 Northern Interchange

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Viaduct Priority Area

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I-81 Viaduct Project

Onondaga County, New York

Appendix A - Map 3: Previous Archaeological Surveys

November 2016

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" Map Service.
2. Only archaeological sites located within 500 feet of the APE for Direct Effects are shown.
3. Archaeological site locations were depicted on this map in the version of the report that was submitted to NYSOPRHP and the Onondaga Nation on September 19th, 2016. This sensitive information was removed in this redacted version of the report.
4. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Legend

Previous Cultural Resources Survey

APE for Direct Effects

0 500 1,000 2,000 Feet

N W E S

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U.S.Department of Transportation Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 1 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information.
3. Coverage of this historic map does not extend to the limits of the APE for Direct Effects. Accordingly, this map only displays the area depicted on the historic map.
4. Large-Scale Commercial, Industrial, and Institutional Map Documented Structures correspond to and are further described in Table 3.2.3-1 of the Phase 1A report. The MDS analysis includes noteworthy and/or potentially significant industrial, commercial and institutional sites located within the APE for Direct Effects. Excluded from this analysis are coal yards, lumber sheds, gas stations and automotive garages, for which dozens were identified on the historic maps within the APE for Direct Effects. Also excluded from the analysis are mixed use buildings with first level storefronts and apartments above. These small scale commercial/residential structures proliferated throughout historic Syracuse, with many still standing today.
5. This is a color graphic. Reproduction in grayscale may misrepresent the data.

0 125 250 Feet

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Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 2 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information.
3. Coverage of this historic map does not extend to the limits of the APE for Direct Effects. Accordingly, this map only displays the area depicted on the historic map.
4. Large-Scale Commercial, Industrial, and Institutional Map Documented Structures correspond to and are further described in Table 3.2.3-1 of the Phase 1A report. The MDS analysis includes noteworthy and/or potentially significant industrial, commercial and institutional sites located within the APE for Direct Effects. Excluded from this analysis are coal yards, lumber sheds, gas stations and automotive garages, for which dozens were identified on the historic maps within the APE for Direct Effects. Also excluded from the analysis are mixed use buildings with first level storefronts and apartments above. These small scale commercial/residential structures proliferated throughout historic Syracuse, with many still standing today.
5. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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I-81 Viaduct Project

Onondaga County, New York

Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 3 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 4 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

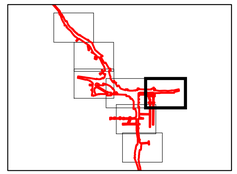
Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 5 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

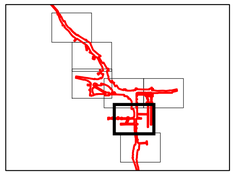
Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 6 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

Appendix A – Map 4:
1892 Sanborn-Perris Co.
Insurance Maps of Syracuse, New York

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- Potential Canal-Related Resources

Sheet 7 of 7



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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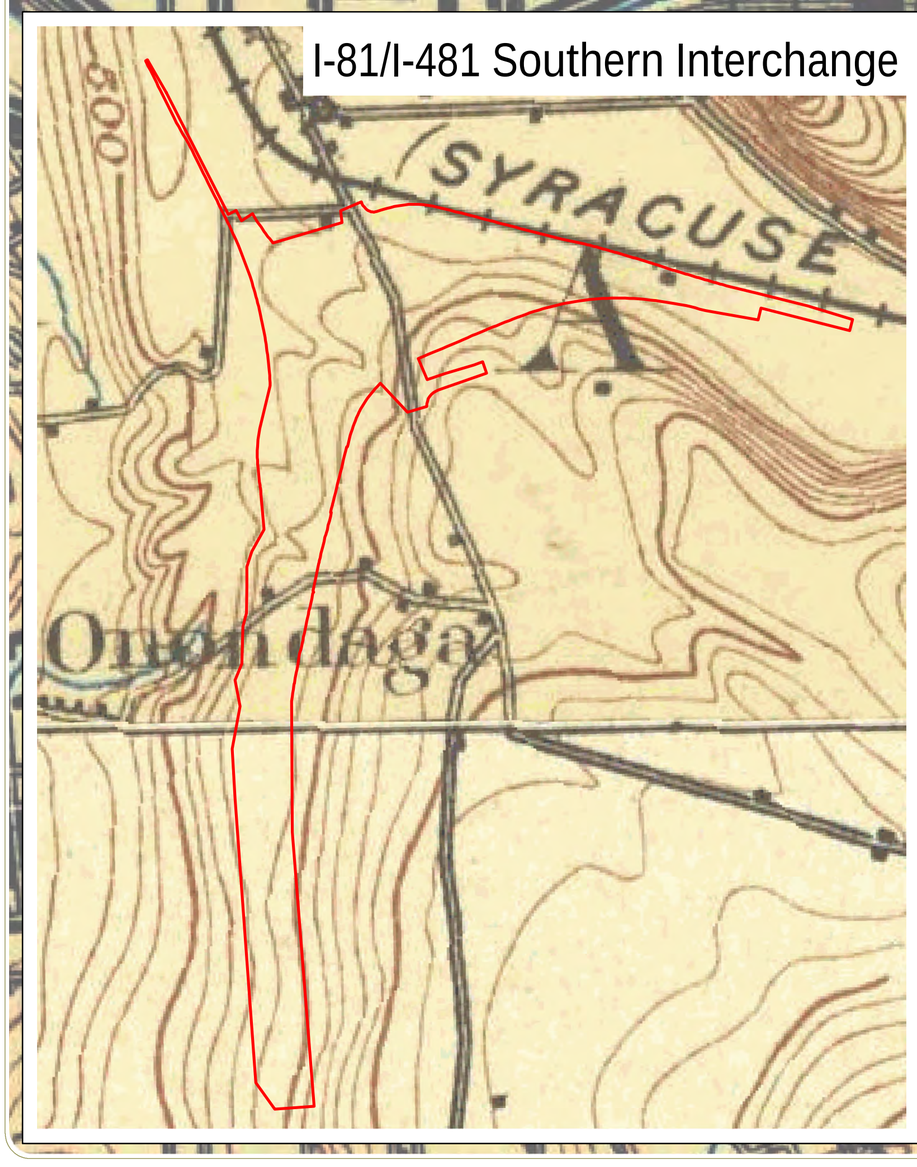
U.S.Department of Transportation
Federal Highway Administration

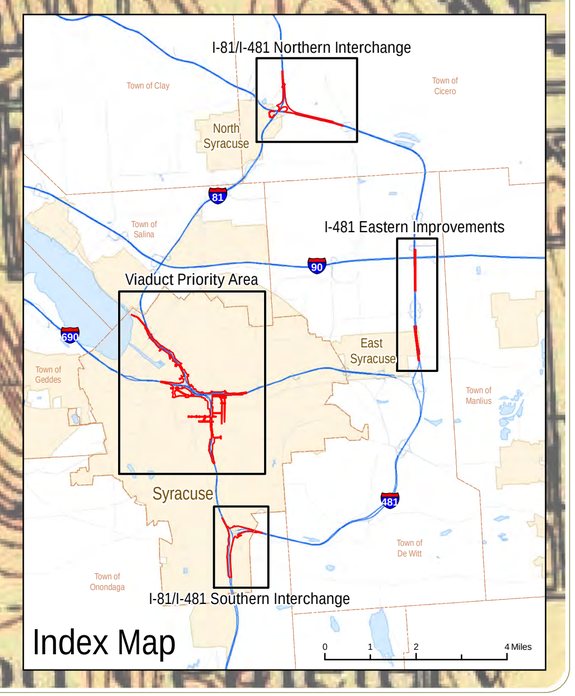
I-81/I-481 Northern Interchange

I-481 Eastern Improvements

Viaduct Priority Area

I-81/I-481 Southern Interchange





I-81 Viaduct Project

Onondaga County, New York

Appendix A - Map 5: 1898 USGS *Syracuse, NY* and 1900 *Tully, NY* Topographic Quadrangle Maps

November 2016

Notes: 1. Basemap: 1898 USGS *Syracuse, NY* and 1900 USGS *Tully, NY* Topographic Quadrangle Maps.
2. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information.
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Legend

APE for Direct Effects

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Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

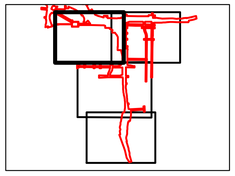
Appendix A – Map 6:
1938 Hopkins *Map of the City of Syracuse*.

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures

Sheet 1 of 4



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

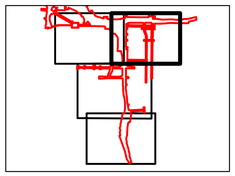
Appendix A – Map 6:
1938 Hopkins *Map of the City of Syracuse*.

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures

Sheet 2 of 4



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

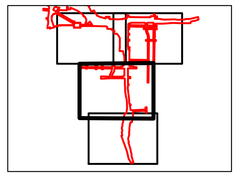
Appendix A – Map 6:
1938 Hopkins *Map of the City of Syracuse*.

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures

Sheet 3 of 4



Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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Federal Highway Administration

I-81 Viaduct Project

Onondaga County, New York

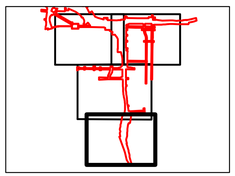
Appendix A – Map 6:
1938 Hopkins *Map of the City of Syracuse*.

November 2016

Legend

- APE for Direct Effects
- Large-Scale Commercial, Industrial, and Institutional Map Documented Structures

Sheet 4 of 4



Notes:

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I-81/I-481 Northern Interchange

Viaduct Priority Area

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Appendix A - Map 7: 1938 USGS *Syracuse East, NY*, 1939 *Syracuse West, NY*, 1940 *Cicero, NY*, 1943 *South Onondaga, NY* and 1943 *Jamesville, NY* Topographic Quadrangle Maps

November 2016

Notes: 1. Basemap: 1938 USGS *Syracuse East, NY*, 1939 *Syracuse West, NY*, 1940 *Cicero, NY*, 1943 *South Onondaga, NY* and 1943 *Jamesville, NY* Topographic Quadrangle Maps.
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Legend

APE for Direct Effects

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I-81/I-481 Northern Interchange

I-481 Eastern Improvements

Viaduct Priority Area

I-81/I-481 Southern Interchange

Syracuse

0 1 2 4 Miles

I-81/I-481 Northern Interchange

I-81/I-481 Southern Interchange

Viaduct Priority Area

I-481 Eastern Improvements

I-81 Viaduct Project

Onondaga County, New York

Appendix A - Map 8: 1955 USGS *South Onondaga, NY*, 1955 *Jamesville, NY*, 1957 *Syracuse East, NY*, 1957 *Cicero, NY* and 1958 *Syracuse West, NY* Topographic Quadrangle Maps

November 2016

Notes: 1. Basemap: 1955 USGS *South Onondaga, NY*, 1955 *Jamesville, NY*, 1957 *Syracuse East, NY*, 1957 *Cicero, NY* and 1958 *Syracuse West, NY* Topographic Quadrangle Maps.
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Legend

APE for Direct Effects

0 500 1,000 2,000 Feet

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Index Map

I-81/I-481 Northern Interchange
I-481 Eastern Improvements
Viaduct Priority Area
I-81/I-481 Southern Interchange

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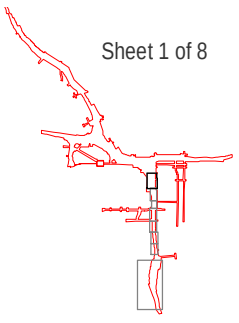
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

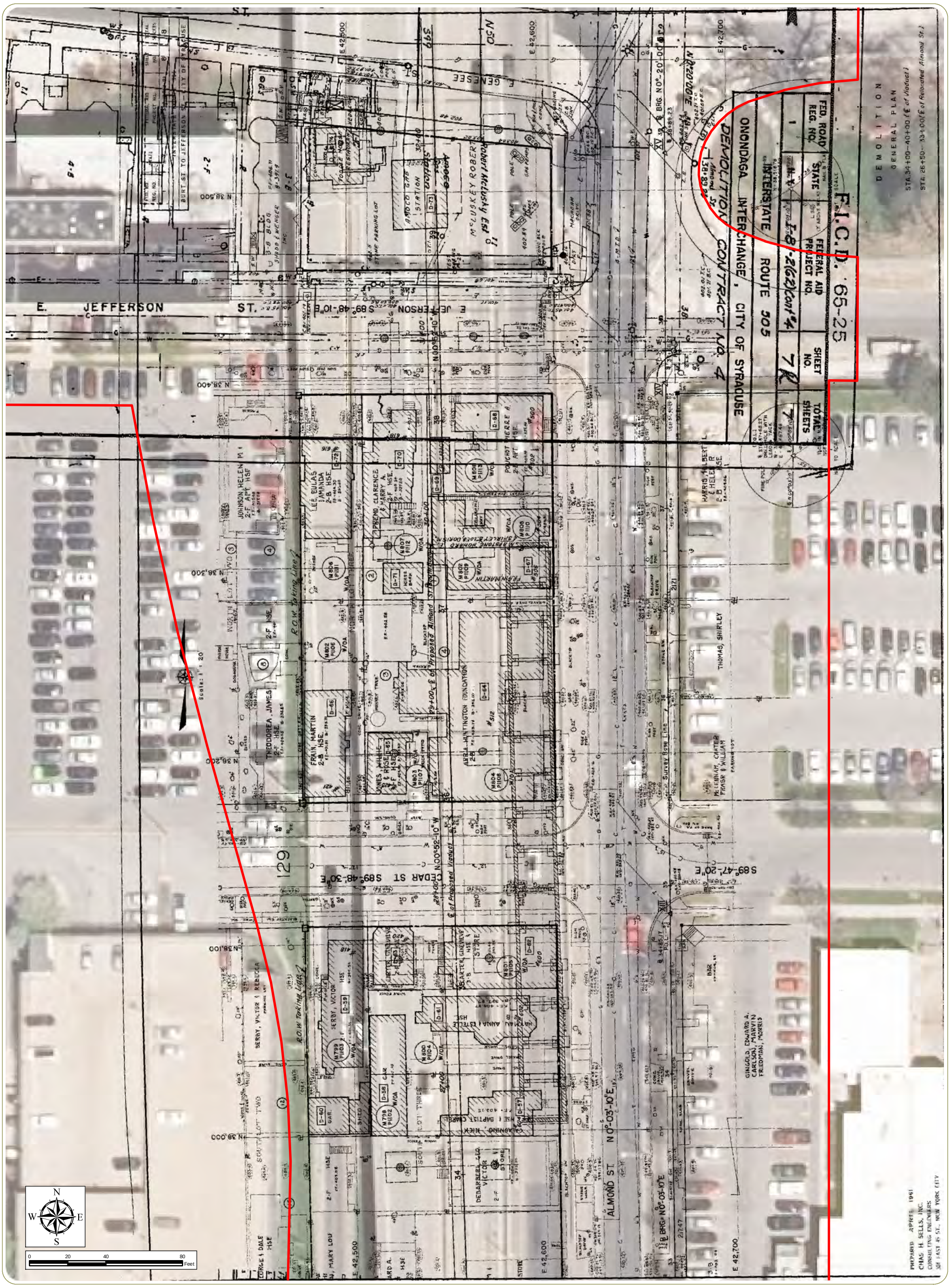
Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. NYSDOT Demolition Plans were prepared at varying scales and at varying levels of detail, therefore the scale of this map set is correspondingly variable.
3. This map set only covers a portion of the APE for Direct Effects, presented as an example of the extent of demolition associated with the construction of I-81. All demolished structures identified within the full APE were digitized and are presented in Appendix A, Map 10.
4. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information. 5. This is a color graphic. Reproduction in grayscale may misrepresent the data.



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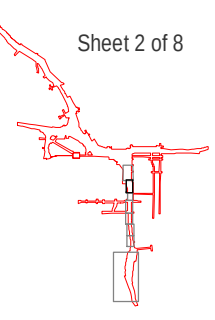
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

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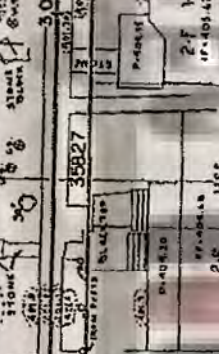
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

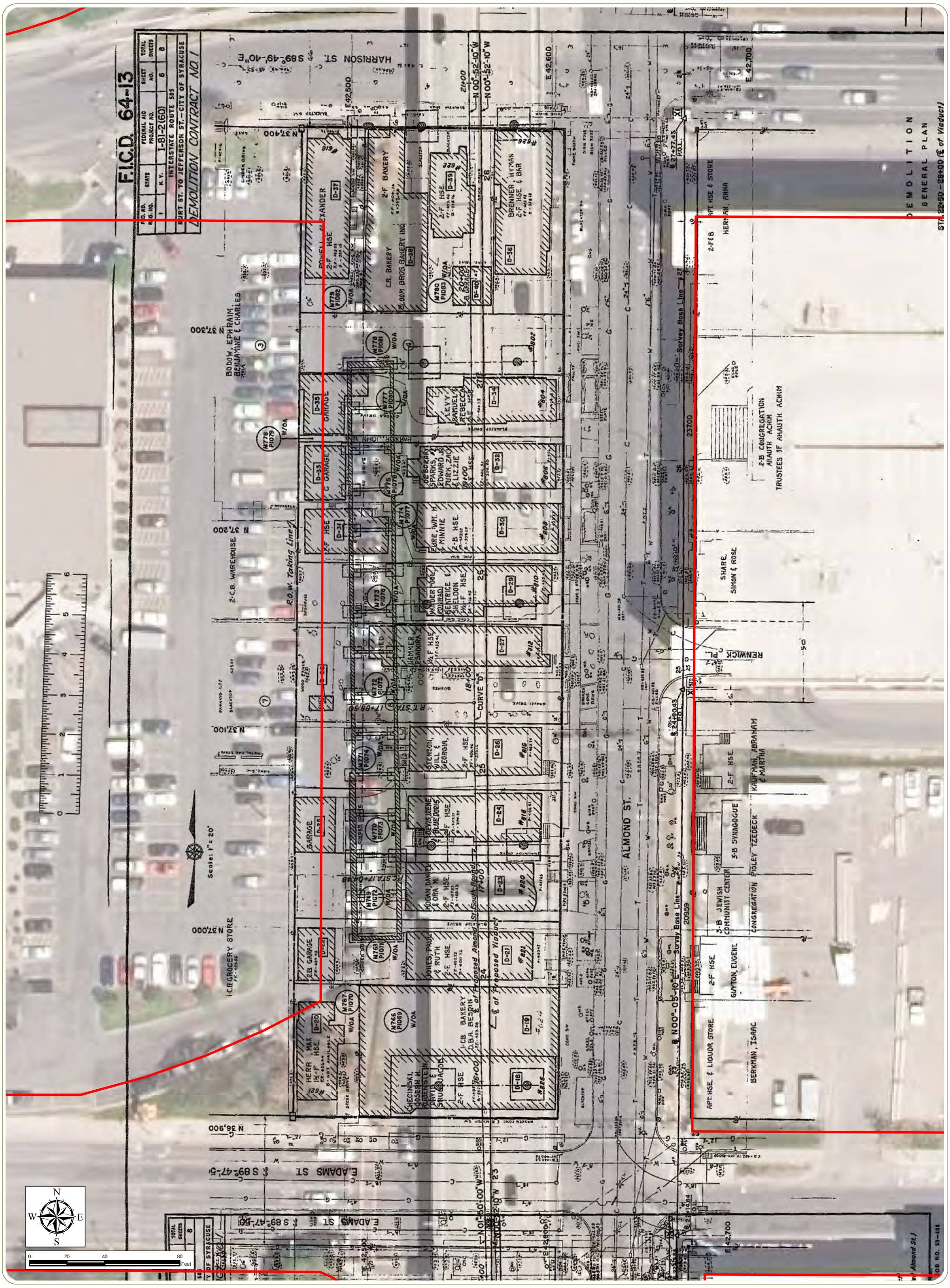
Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
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I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

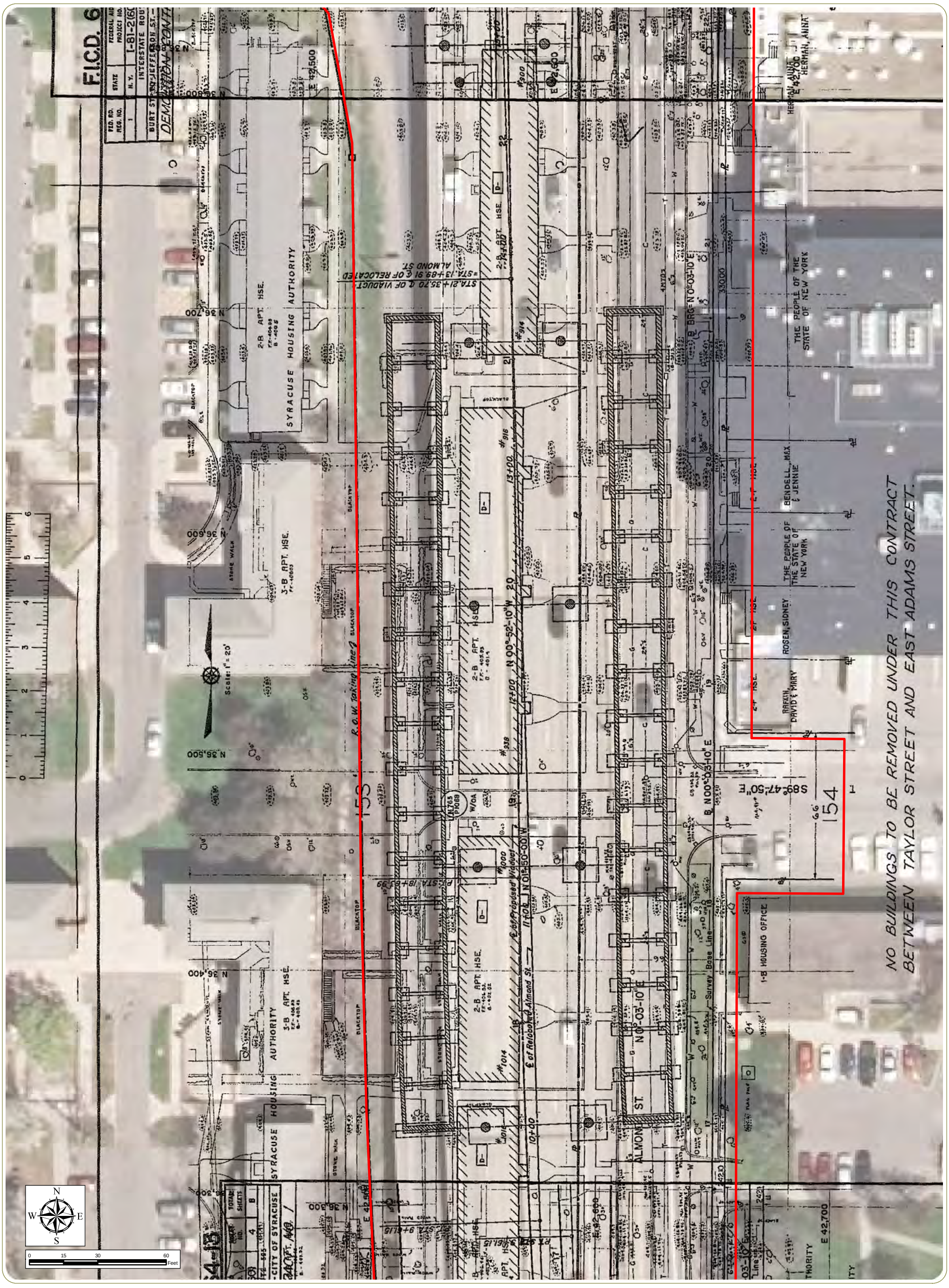
Notes: 1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. NYSDOT Demolition Plans were prepared at varying scales and at varying levels of detail, therefore the scale of this map set is correspondingly variable.
3. This map set only covers a portion of the APE for Direct Effects, presented as an example of the extent of demolition associated with the construction of I-81. All demolished structures identified within the full APE were digitized and are presented in Appendix A, Map 10.
4. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information. 5. This is a color graphic. Reproduction in grayscale may misrepresent the data.



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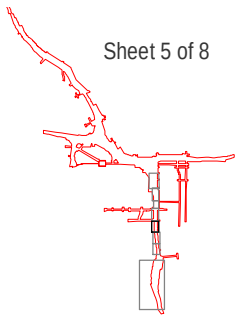
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

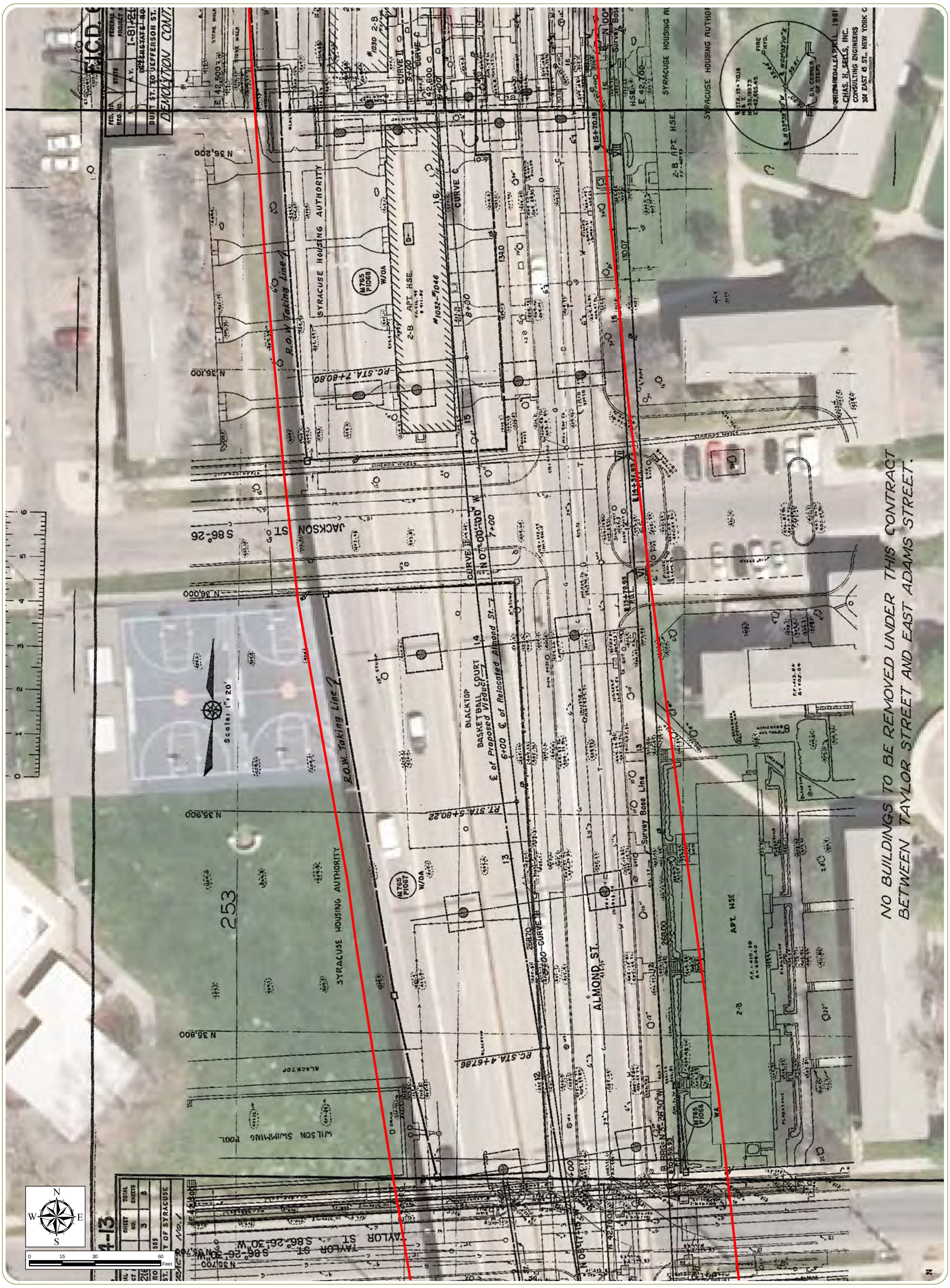
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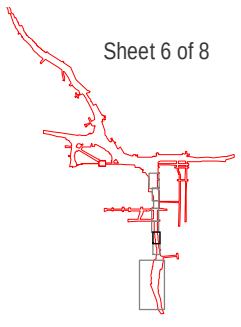
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

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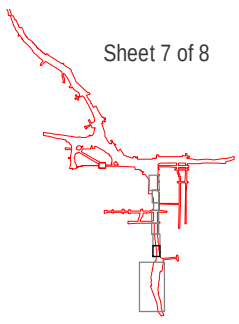
I-81 Viaduct Project

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Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

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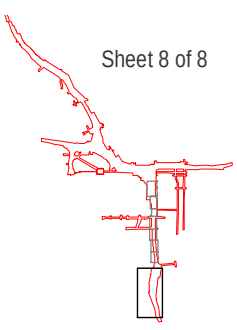
I-81 Viaduct Project

Onondaga County, New York

Appendix B: NYSDOT Demolition Plans ca. 1955-1966

APE for Direct Effects

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Appendix A - Map 9: 1973 USGS *Syracuse West, NY*, 1973 *Jamesville, NY*, 1973 *South Onondaga, NY*, 1973 *Cicero, NY* and 1977 *Syracuse East, NY* Topographic Quadrangle Maps

November 2016

Notes: 1. Basemap: 1973 USGS *Syracuse West, NY*, 1973 *Jamesville, NY*, 1973 *South Onondaga, NY*, 1973 *Cicero, NY* and 1977 *Syracuse East, NY* Topographic Quadrangle Maps
2. This historic map has been geo-referenced with modern map features. Potential sources of error inherent in this process include cartographic inaccuracies, differences in scale, and changes in the modern landscape. The geo-referenced map therefore presents approximate locations of historic map-documented features, and is not intended to depict survey-accurate information.
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Legend

APE for Direct Effects

0 500 1,000 2,000 Feet

N W E S

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Index Map

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Viaduct Priority Area
I-81/I-481 Southern Interchange

0 1 2 4 Miles

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Appendix A – Map 10: Previous Soil Disturbance

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I-81/I-481 Southern Interchange

I-481 Eastern Improvements

Viaduct Priority Area

Notes:

1. Basemap: NYSDOT Brewerton, Cicero, Syracuse West, Syracuse East, South Onondaga and Jamesville 1:24,000 Planimetric Quadrangles
2. Buried Utilties: includes the observed and assumed locations of all utility poles; and underground lines associated with electric, fiber optic, water, sewer, telephone, steam, cable television, oil, and unidentified infrastructure. Additionally, the locations of existing highway bridge support structures are included.These were identified by Popli Design Group during existing site condition surveys for the I-81 Viaduct Project.
3. Demolished Structures: EDR digitized the locations of 952 former (demolished) structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects. During demolition, structures were demolished, basements and cellars were filled, and the properties were cleared and graded. The foundations of these demolished structures are unlikely to be considered archaeologically or historically significant. In addition, the extent of prior disturbance associated with the construction and demolition of these structures is assumed to preclude the possibility that other (earlier) archaeological resources are present in these locations. However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures.
4. Mapped Soil Units: Soil geography representing the three soil map units indicating a lack of native soil and heavy disturbance by urban development or construction activity. These soil map units are taken from the industry standard USDA NRCS SSURGO Soil Database of collected soil surveys.
5. Cut-and-Fill Highway and Embankment Areas: Areas identified on aerial photographs and field observation as having a high degree of ground disturbance associated with construction of the existing highway. These areas include embankments, the roadway itself, ditches, swales, and retaining walls. These areas have no potential for archaeological resources.
6. Depth of Fill: An interpolated surface of estimated depth of fill in existing soil based on NYSDOT Soil Borings in the vicinity of the APE for Direct Effects.
7. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Index Map

Legend

- APE for Direct Effects
- **Previous Ground Disturbance**
  - Buried Utilities
  - Demolished Structures
  - Cut-and-Fill Highway and Embankment Areas

Depth of Fill
- No Fill or No Data
- 1 to 4 Feet
- 5 to 8 Feet
- 9 to 16 Feet
- 17 to 26.2 Feet

Mapped Soil Units
- Cut and Fill Land
- Made Land
- Urban Land
- Water

0 500 1,000 2,000 Feet

N W E S

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Appendix A - Map 11: Archaeological Sensitivity Assessment

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I-81/I-481 Southern Interchange

Viaduct Priority Area

Notes:

1. Basemap: NYS Digital Orthoimagery Program 1-foot resolution orthoimagery, 2015.
2. Previously Disturbed Areas are combination of surveyed buried utilities with a 2-foot buffer; Estimated depth of fill where available based on NYSDOT Soil Borings; Mapped Soil Units indicating a lack of native soil and high disturbance due to urban development; idenfied highway and embankment cut and fill areas; and demolished structures as shown on NYSDOT Record Plans. These elements are all shown and described further on Appendix A - Map 10.
3. Native American Archaeological Sensitivity: Areas where the extent of previous ground disturbance is not documented or cannot be determined, and where there is therefore a potential for Pre-Contact Native American archaeological resources to be present. These areas are shown on this map with a 30-foot buffer for display purposes.
4. Cut-and-Fill Highway and Embankment Areas: Areas identified on aerial photographs and field observation as having a high degree of ground disturbance associated with construction of the existing highway. These areas include embankments, the roadway itself, ditches, swales, and retaining walls. These areas have no potential for archaeological resources.
5. Demolished Structures: EDR digitized the locations of 952 former (demolished) structures shown on the ca.1955-1966 NYSDOT demolition plans within the APE for Direct Effects. During demolition, structures were demolished, basements and cellars were filled, and the properties were cleared and graded. The foundations of these demolished structures are unlikely to be considered archaeologically or historically significant. In addition, the extent of prior disturbance associated with the construction and demolition of these structures is assumed to preclude the possibility that other (earlier) archaeological resources are present in these locations. However, potential artifact deposits and shaft features, which include privies, wells, and cisterns, are found on many domestic and commercial properties in urban contexts and are potentially located in former yard areas adjacent to the former locations of map-documented structures.
5. Large-Scale Commercial, Industrial, and Institutional Map Documented Structures correspond to and are further described in Table 3.2.3-1 of the Phase 1A report. The MDS analysis includes noteworthy and/or potentially significant industrial,commercial and institutional sites located within the APE for Direct Effects. Excluded from this analysis are coal yards, lumber sheds, gas stations and automotive garages, for which dozens were identified on the historic maps within the APE for Direct Effects. Also excluded from the analysis are mixed use buildings with first level storefronts and a partments above. These small scale commercial/residential structures proliferated throughout historic Syracuse, with many still standing today (see note regarding “Demolished Structures”, above).
6. Archaeological site locations were depicted on this map in the version of the report that was submitted to NYSOPRHP and the Onondaga Nation on September 19th, 2016. This sensitive information was removed in this redacted version of the report.
7. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Legend

- Native American Archaeological Sensitivity
- Cemeteries and Areas with Potential for Human Burials
- Historic Period Archaeological Sensitivity
  - Military Sites
  - NRHP-Eligible Erie Canal Feature
  - Potential Canal-Related Resources
  - Large-Scale Commercial, Industrial, and Institutional Map Documented Structures
- APE for Direct Effects
- Previously Disturbed Areas
- Cut and Fill Highway and Embankment Areas
- Demolished Structures

0 500 1,000 2,000 Feet

N W E S

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Viaduct Priority Area
Syracuse
I-81/I-481 Southern Interchange
0 1 2 4 Miles

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Photo 1

Viaduct Priority Area - Representative view of the APE for Direct Effects within downtown Syracuse, St. Joseph's Hospital parking garage, Prospect Street, view to the southwest.



Photo 2

Viaduct Priority Area - Representative view of the APE for Direct Effects within downtown Syracuse, Crouse Hospital parking garage, Irving Avenue, view to the west-northwest.



Photo 3

Viaduct Priority Area - Representative view of the APE for Direct Effects north of downtown Syracuse, Court Street bridge over Interstate 81, view to the northwest.



Photo 4

Viaduct Priority Area - Representative view of the APE for Direct Effects north of downtown Syracuse, Spencer Street bridge over Interstate 81, view to the southeast.



Photo 5

Viaduct Priority Area - Representative view of urban environment and utilities within the APE for Direct Effects, Erie Boulevard East, view to the east.



Photo 6

Viaduct Priority Area - Representative view of urban environment and surface streets within the APE for Direct Effects, Almond Street, view to the south.



Photo 7

Viaduct Priority Area - Concrete wall and utilities along West Street portion of the APE for Direct Effects, West Genesee Street, view to the southeast.



Photo 8

Viaduct Priority Area - Cut-and-fill highway and embankment area along Interstate 690 East, Canal Street, view to the west-northwest.



Photo 9

Viaduct Priority Area - Representative view of urban environment and surface streets within the APE for Direct Effects, Adams Street, view to the east-southeast.



Photo 10

Viaduct Priority Area - Oakwood Cemetery and former Delaware-Lackawanna (CSX) railroad right-of-way immediately east of the southern extent of the APE for Direct Effects, view to the northwest.



Photo 11

I-81/I-481 Southern Interchange - Representative view of topography within APE for Direct Effects along Brighton Avenue, view to the southwest.



Photo 12

I-81/I-481 Southern Interchange - View of cut-and-fill highway embankments and made land within APE for Direct Effects, Brighton Avenue looking toward Loretto Health and Rehabilitation center, view to the north-northwest.



Photo 13

I-81/I-481 Southern Interchange -
View of cut-and-fill highway embankments and made land within APE for Direct Effects, Seneca Turnpike looking toward Interstate 81 South (left) and Brighton Avenue bridge (right), view to the north.

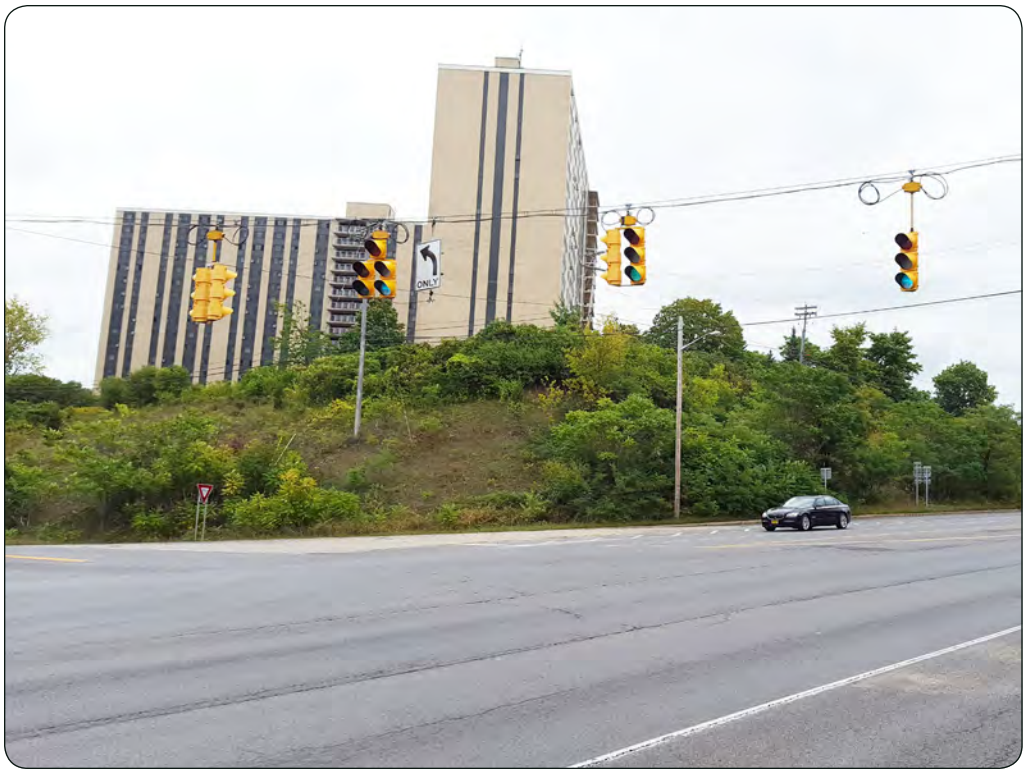


Photo 14

I-81/I-481 Southern Interchange -
Representative view of senior citizen housing (Brighton Towers), Brighton Avenue, view to the southeast. Note the steep slopes to the south.



Photo 15

I-81/I-481 Southern Interchange - Representative view of residential development west of Interstate 81 and the APE for Direct Effects, Lynn Circle, view to the east. Note the very steep slope of the hillside adjacent to the APE for Direct Effects.



Photo 16

I-81/I-481 Southern Interchange - Representative view of commercial/industrial development located northeast of the APE Direct Effects, Ainsley Drive, view to the south. Note the topography along Interstate 481 and rising to the south.



Photo 17

I-81/I-481 Southern Interchange -
View of Jaquith Industries from Glen Avenue overpass, view to the southwest.
Note that Interstate 81 is constructed below grade in this area.



Photo 18

I-81/I-481 Southern Interchange -
View toward Rock Cut Road from Brighton Avenue, view to the east-northeast. Note the steep slopes on the north and south sides of Rock Cut Road.



Photo 19

I-81/I-481 Northern Interchange - Representative view of cut-and-fill highway embankments and made land within APE for Direct Effects, Interstate 481 North, view to the east-northeast.



Photo 20

I-81/I-481 Northern Interchange - View of cut-and-fill highway embankments and made land within APE for Direct Effects, Thompson Road, view to the north.



Photo 21

I-81/I-481 Northern Interchange - Representative view of suburban residential development adjacent to the APE for Direct Effects, Meadow Drive, view to the west.



Photo 22

I-481 Eastern Improvements - Representative view of residential development and successional vegetation within APE for Direct Effects, Thomspon Road, view to the south.



Photo 23

I-81/I-481 Northern Interchange - Representative view of wetland and successional vegetation north of APE for Direct Effects, west of Northern Boulevard, view to the north.



Photo 24

I-81/I-481 Northern Interchange - Representative view of commercial development adjacent to the APE for Direct Effects, view to the west.



Photo 25

I-481 Eastern Improvements - View of cut-and-fill highway embankments and made land within APE for Direct Effects, view toward Kirkville Road exit along Interstate 481 north, view to the southwest.



Photo 26

I-481 Eastern Improvements - View of cut-and-fill highway embankments and wetland conditions within APE for Direct Effects, Ellis Road, view to the east-southeast.



Photo 27

I-481 Eastern Improvements - Representative view of successional and wetland vegetation adjacent to the APE for Direct Effects, Roberts Road, view to the south.



Photo 28

I-481 Eastern Improvements - Representative view of office park west of Interstate 481 APE for Direct Effects, view to the east.



Photo 29

I-481 Eastern Improvements - Representative view of CSX railyard beneath Interstate 481 within APE for Direct Effects, Ellis Road, view to the east.



Photo 30

I-481 Eastern Improvements - Representative view of commercial development along NYS Route 290 near southern extent of APE for Direct Effects (visible in background of photograph), view to the east.