Phase 1A Archaeological Documentary Study

Buffalo-Amherst-Tonawanda Corridor Transit Expansion, Erie County, New York

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MANAGEMENT SUMMARY

OPRHP Project Review Number:	19PR01900
Involved Agencies:	Federal Transit Administration and Niagara Frontier Transportation Authority
Phase of Survey:	Phase 1A Literature Search and Archaeological Sensitivity Assessment
Location Information	
Location:	New York
Minor Civil Division:	Amherst, Buffalo, and Tonawanda
County:	Niagara
Survey Area	
Length:	~7 miles
Width:	~50 feet
Area:	~40 acres
USGS 7.5 Minute Quadrangle Map:	Buffalo
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Date of Report:	October 2023

Table of Contents

List of Tables

List of Figures

List of Photographs

Chapter 1: Introduction and Project Description

A. INTRODUCTION

The Federal Transit Administration (FTA), as lead Federal agency, and the Niagara Frontier Transit Metro System, Inc. (Metro), as the local Project Sponsor and joint lead agency, are preparing an Environmental Impact Statement (EIS) to evaluate potential benefits and impacts of expanding Metro's Metro Rail system in Buffalo, NY to Amherst and Tonawanda, NY (the Project) (see Figure 1). The purpose of the Project is to link established and emerging activity centers along the existing Metro Rail line in Buffalo with existing and emerging activity centers in Amherst and Tonawanda and provide a fast, reliable, safe, and convenient transit ride. The Project would serve existing Metro riders, attract new transit patrons, improve regional connections between Buffalo, Amherst, and Tonawanda, and support redevelopment and other economic development opportunities. Additionally, the Project would improve livability by increasing mobility and accessibility in communities throughout the region.

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies, in consultation with stakeholders, to take into account the potential effects of their actions on historic properties within "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties [the Area of Potential Effect or APE], if such properties exist" (36 CFR § 800.16[d]). Historic properties consist of National Register-listed or eligible buildings, structures, sites, objects, or districts and include historic resources and archaeological resources ("cultural resources"). In accordance with Section 106 of NHPA, this Phase 1A Archaeological Documentary Study has been prepared to assist in the identification of potential archaeological resources that could be affected by the Project.

B. PROJECT DESCRIPTION

The Project is an extension of the existing Metro Rail Light Rail Transit (LRT) from its current terminus, at University Station on the University at Buffalo (UB) South Campus, an additional 7 miles, through the UB North Campus to Interstate 990 (I-990) (Figure 1). Though the Locally Preferred Alternative for the Project is for the extension to run on an additional 7 miles of LRT, the EIS also considers the effects of a Bus Rapid Transit (BRT) alternative. Both the LRT and BRT alternatives would occur within the same Project corridor, but the LRT would require construction of tracks and other features, as described later in this chapter, while the BRT would use the existing roadways and involve fewer ground surface impacts.

PROJECT CORRIDOR

As shown on Figures 2 and 3, the route of the Project would follow Kenmore Avenue to the west from the UB South Campus (see Photo 3), turn north on Niagara Falls Boulevard (see Photos 5 and 6), turn east on Maple Road (see Photo 7), turn north on Sweet Home Road, and wind through the UB North Campus (see Photo 8) to John James Audubon Parkway (see Photos 9 and 10) and I-990 (see Photo 11). Ten stations are proposed as part of the 7-mile extension with two stations each containing a park & ride facility. A light maintenance/storage facility is proposed at the end of the line.

BUILD ALTERNATIVES

The LRT Build Alternative would be primarily at-grade, except for a 0.8-mile underground segment from the existing Metro Rail University Station to Niagara Falls Boulevard and at the intersection of Maple Road and Sweet Home Road (Figure 2). Ten stations are proposed, two with park & ride facilities, and an overnight storage and light maintenance facility located near the end of the line. The trackway would be configured with two tracks – one for northbound service and one for southbound service. Figure 2 presents the LRT Build Alternative alignment, including the underground (tunnel) and at-grade alignment, portal locations, ten stations, two park & ride facilities, and the light maintenance/storage facility. The LRT Build Alternative would generally be within existing roadway right-of-way, except for portions along Niagara Falls Boulevard and Maple Road and north of I-990, where there is insufficient right-of-way width.

The BRT Build Alternative would provide transit service north from the existing Metro Rail University Station for approximately seven miles along the same at-grade alignment as the LRT Build Alternative with the exception of the underground portion from University Station along Kenmore Avenue and onto Niagara Falls Boulevard and the grade separation at the intersection of Maple and Sweet Home Roads (Figure 3). The BRT Build Alternative would have the same number of stations in the same locations; however, a transfer would be required between the existing Metro Rail operations at University Station to the BRT service. A new BRT vehicle storage and maintenance facility would also be required at the end of the line just north of the I-990 station.

STATIONS

The proposed stations for both the LRT Build Alternative and BRT Build Alternative would have level boarding to be compliant with the Americans with Disabilities Act. Platforms are planned to be approximately 300 feet long for LRT Build Alternative to accommodate a three-car consist. Platforms are planned to be approximately 150 feet long for the BRT Build Alternative to accommodate up to two articulated BRT vehicles. The proposed stations would include the following:

- Facilities for bicyclists (such as bike racks or bike lockers)
- Shelters, garbage cans, and benches
- Lighting
- Self-serve ticket-vending machines
- Closed-circuit television cameras
- Passenger-assistance telephones
- Variable-message signs
- Public address systems
- Blue-light emergency phones
- Customer information (such as maps and schedules for the BRT or LRT Build Alternative, existing Metro Rail, and connecting Metro Bus routes).

Two proposed stations, Boulevard Mall and I-990, would include a park & ride facility with approximately 350 total spaces, 300 spaces at the Boulevard Mall and 50 spaces at I-990.

SUBSTATIONS

Substations are essential in providing the necessary power to operate LRT. Substations are typically located every 5,000 feet, depending on power source connections and available sites. Locations of substations along the LRT Build Alternative alignment were identified during conceptual design. During preliminary and final design, the location of substations could change. Substations could be located and

designed within a station platform area to minimize impacts. Similarly, substations could be incorporated into existing or new development and designed to blend with surroundings. Substations would not be required for the BRT Alternative.

VEHICLES AND MAINTENANCE FACILITIES

Metro would need to acquire additional LRT vehicles in order to operate the LRT Build Alternative. The LRT Build Alternative would also require the construction of a light maintenance/storage facility to accommodate the expanded LRT vehicle fleet. The preferred site identified for the LRT Build Alternative light maintenance/storage facility would be at the end of the proposed alignment, north of the I-990 and Audubon Parkway interchange. This location was identified due to the available space and the opportunity to reduce dead-head miles.

As part of the BRT Build Alternative, Metro would acquire new 60-foot articulated battery-electric buses to maximize operational efficiencies and environmental benefits of the Project. The BRT Build Alternative would also require the construction of a light maintenance/storage facility to accommodate the dedicated fleet of articulated battery-electric buses since existing Metro Bus storage and maintenance facilities are currently at capacity. The BRT Build Alternative would use the same location as the LRT Build Alternative for a light maintenance/storage facility, however the size of the facility would be larger than the LRT facility. A light maintenance/storage facility under the BRT Build Alternative would require a larger footprint due to the need to store an additional 17 60-foot articulated battery electric buses, versus only two (2) 3-car consists for the LRT Build Alternative, and to account for the area needed for the buses to circulate internally for overnight storage and re-charging.

GROUND DISTURBING IMPACTS: LRT BUILD ALTERNATIVE

Construction activities for the LRT Build Alternative would include dedicated median running light-rail tracks, tunnel and emergency exit stair shafts, ventilation shafts, overhead contact system, vehicle power substations, signal bungalows, traffic signal and safety systems, platforms, and ancillary facilities. Widening of roadway facilities to account for median running light-rail tracks, along with relocation of underground utilities and storm drainage would also occur along the corridor. Construction would also include temporary works to maintain vehicular and pedestrian traffic.

AREAS OF GROUND DISTURBANCE

Construction depths within the existing roadway facilities of Niagara Falls Boulevard, Maple Road, Sweet Home Road, within the UB North Campus along their internal parking lots and service roads, Lee Road, and Audubon Parkway where roadway widening excavation is required would be between 5 and 10 feet. This considers potential utility relocations due to adding the LRT tracks in the median and for widening the roadway, roadway subsurface materials, and drainage. At each station platform the depths would range between 10 and 15 feet, while substation depths of excavation would range between 5 and 10 feet. For the two park-and-ride lots, excavation depths would range between 5 and 10 feet for construction.

In order to construct the twin transit tunnels at UB South Campus, a shaft would be constructed at the north end of UB South Campus near Main Street to allow a sequential excavation method (SEM) process to be utilized (in combination with hard rock drill-and-blast method) to connect the tunneling section between Main Street and the existing end of the LRT. The shaft would be about 80 feet wide and 50 feet long, which accounts for the ability to transport the construction and boring equipment from the surface to tunnel depth. The shaft area will be constructed at UB South Campus in the Allen Parking Lot, between Main Street and Goodyear Road. The orientation of the shaft area would be parallel to the tunnel

alignment. An additional 160 feet by 100 feet in length would be the staging area needed for boring, blasting, and assembling of construction materials.

For the construction of the underground tunnel within UB South Campus and under Kenmore Avenue and Niagara Falls Boulevard, excavation depths would vary depending on where the rock formation ends and the existing depth of the underground tunnel for the existing LRT. Within UB South Campus where the existing LRT ends, the tunnel depth for SEM construction of a tunnel would range between 60 and 70 feet. As the alignment veers towards Kenmore Avenue, the depth would range between 50 and 60 feet under Main Street. Along Kenmore Avenue, construction would shift to a cut and cover method with a depth ranging between 30 and 50 feet. As the alignment shifts under the intersection of Kenmore Avenue and Niagara Falls Boulevard, and under Niagara Falls Boulevard to the portal location, the depth would range between 10 and 30 feet.

For the construction of the grade separation at Maple Road and Sweet Home Road (LRT would go under the intersection), depth of construction to convert the intersection into a grade separation would range between 10 and 30 feet. Appendix A provides detailed maps of anticipated Project locations and estimated depths of disturbance.

STAGING AREAS

The following locations have been identified for construction staging:

- UB South Campus Allen Hall parking lot
- Northeast corner property of Kenmore Avenue and Niagara Falls Boulevard
- Southeast corner property of Eggert Road and Niagara Falls Boulevard
- Southeast corner property of Maple Road and Niagara Falls Boulevard
- Northwest corner property of Maple Road and Sweet Home Road
- UB Jacobs A parking lot east of Flint Entrance and north of Augspurger Road
- UB parking lot on northwest corner of Lee Road and Audubon Parkway
- Northeast corner of Audubon Parkway and Gordon Yaeger Drive
- Property north of the I-990 and Audubon Parkway interchange.

Ground disturbance at staging areas is expected to be limited to one to two feet below current grade, unless the ground surface is paved, in which case no ground disturbance would be expected.

GROUND DISTURBING IMPACTS: BRT BUILD ALTERNATIVE

Construction of the BRT Build Alternative would include dedicated running BRT travel lanes, traffic signal priority, platforms, and ancillary facilities. Widening of roadway facilities to account for median running BRT lanes, along with relocation of underground utilities and storm drainage would also occur along the corridor. Construction would also include temporary works to maintain vehicular and pedestrian traffic.

AREAS OF GROUND DISTURBANCE

Construction depths within the existing roadway facilities of Niagara Falls Boulevard, Maple Road, Sweet Home Road, within UB North Campus along their internal parking lots and service roads, Lee Road, and Audubon Parkway where roadway widening excavation is required would be between 5 and 10 feet. This considers potential utility relocations due to adding the BRT dedicated travel lanes in the median for widening the roadway, roadway subsurface materials, and drainage. At each station platform the depths would range between 10 and 15 feet. For the two park-and-ride lots, excavation depths would range between 5 and 10 feet for construction.

STAGING AREAS

The following locations have been identified for construction staging:

- Northeast corner property of Kenmore Avenue and Niagara Falls Boulevard
- Southeast corner property of Eggert Road and Niagara Falls Boulevard
- Southeast corner property of Maple Road and Niagara Falls Boulevard
- Northwest corner property of Maple Road and Sweet Home Road
- UB Jacobs A parking lot east of Flint Entrance and north of Augspurger Road
- UB parking lot on NW corner of Lee Road and Audubon Parkway
- Northeast corner of Audubon Parkway and Gordon Yaeger Drive
- Property north of the I-990 and Audubon Parkway interchange.

Ground disturbance at staging areas is expected to be limited to one to two feet below current grade, unless the ground surface is paved, in which case no ground disturbance would be expected.

Chapter 2: Research Design and Survey Methods

A. REGULATORY CONTEXT

The Project is an undertaking subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 C.F.R. Part 800). Section 106 of the NHPA requires federal agencies consider the effects of their actions on historic properties.

Historic properties are defined as precontact and historic sites, buildings, structures, districts, and objects listed in or eligible for listing in the NRHP, as well as artifacts, records, and remains related to such properties. Section 106 requires the lead federal agency, in consultation with the State Historic Preservation Officer (SHPO), to develop the Area of Potential Effects (APE), identify historic properties in the APE, and assess the proposed project's effects on historic properties in the APE. Section 106 regulations require that the lead federal agency consult with the SHPO, consulting parties, and the public during planning and development of the proposed project. The federal Advisory Council on Historic Preservation may participate in the consultation or may leave such involvement to the SHPO and other consulting parties who have a demonstrated interest in the undertaking. These agencies, groups, and individuals may participate in developing a Memorandum of Agreement or Programmatic Agreement to avoid, minimize, or mitigate adverse effects as applicable.

As part of the Section 106 process, agency officials apply the NRHP Criteria for Evaluation. A property is eligible for the NRHP if it is significant under one or more of the following criteria defined in 36 CFR § 60.4 as "the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

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

Built resources are typically evaluated under Criteria A, B, and C; Criterion D applies primarily to archaeological resources. According to guidance found in the NRHP Bulletin "How to Apply the National Register Criteria for Evaluation," different aspects of integrity may be more or less relevant depending on why a specific historic property was listed in or determined eligible for listing in the NRHP.

Once historic properties have been identified, project effects are assessed by applying the criteria of adverse effect through the process described at 36 C.F.R. § 800.5:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National

> Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Consultation may continue with SHPO and consulting parties to seek ways to avoid, minimize, or mitigate adverse effects and may include development of a project-specific Memorandum of Agreement to memorialize these decisions and conclude the Section 106 process.

B. AREA OF POTENTIAL EFFECTS

As defined at 36 C.F.R. § 800.16(d), the APE is "the geographic area or areas which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

Individuals from the consultant team, that meet the Secretary of the Interior's (SOI) Professional Qualifications Standards, conducted a site visit in May 2019 to delineate the APE. For archaeological resources, the APE is limited to areas subject to ground disturbance. This disturbance could consist of excavation, construction, or ground surface compaction that could occur through the staging of construction materials or the movement of heavy machinery. The APE was submitted to SHPO on April 8, 2020 as part of the Historic Resources Report (NFTA 2020) and then again in August 2022 with a detailed series of maps indicting the locations and expected depths of disturbance (included as Appendix A; see **Figure 4**). In its written response dated September 19, 2022, SHPO requested preparation of a Phase 1A Archaeological Documentary Study.

C. RESEARCH AND SURVEY METHODS

Within the APE, effects to archaeological resources were considered for portions of the Project where ground surfaces could be disturbed through Project implementation. Identifying archaeological resources is a multiphase process—with the need for the next phase depending on the results of the preceding phase—generally consisting of the following:

- Phase IA: Literature Search and Sensitivity Study assesses the archaeological sensitivity of a project area through documentary analysis.
- Phase IB: Field Investigation determines the presence or absence of archaeological resources through subsurface testing, surface inspection, and monitoring.
- Phase II: Site Evaluation appraises the integrity, significance, and NRHP eligibility of identified resources.
- Phase III: Data Recovery—or another form of mitigation developed in consultation with the SHPO and other consulting parties—mitigates the unavoidable effects of a project by recovering the data value of the resource.

Given the size of the APE and the extent of previous investigations within this area, assessing the Project's effects on archaeological resources meeting the eligibility requirements of the NRHP consisted of a review of the following information:

- Previously completed archaeological resource investigations for areas within or adjacent to the APE.
- Online site-file data on previously identified archaeological sites located within an approximately 0.75-mile radius of the APE.
- Previous development and earth moving activities in order to generally characterize disturbances to ground surfaces along the APE.
- The APE's existing conditions through Google Map's street view feature and existing conditions over the past 20 to 30 years using Google Earth's historical imagery.
- Photographs taken during the architectural field survey.

These information sources were synthesized to identify areas previously identified as having archaeological sensitivity, additional areas of archaeological sensitivity, and areas of low to no sensitivity for archaeological resources. Additional research in the form of site-specific disturbance assessments and fieldwork would be required to determine the presence or absence of resources in these areas and to determine whether any identified resources meet the NRHP eligibility criteria.

The Project corridor is level, except at the UB South Campus, which has a slightly higher elevation. Elevations range from 670 feet at the South Campus to 585 feet (NAD83) north of I-990. During preparation of the DEIS, WSP specialists in geology, soil science, hydrology, and other natural resources, completed desktop reviews of relevant published data sources and databases to characterize the Project's affected environment. This chapter provides portions of those reviews that are relevant to preparation of an archaeological sensitivity assessment of the Project corridor.

A. GEOLOGY

Geological data were collected through the Natural Resources Conservation Service (NRCS), the U.S. Geological Survey (USGS), and the New York State Geological Survey (NYSGS). Bedrock and surficial geologic conditions are based on published maps for the Western New York region. Soils data are provided by soil surveys from the NRCS (formerly the Soil Conservation Service). In addition, the Town of Amherst Foundation Study, which included a literature review, home inspections, soil sampling, field inspections, and phone surveys, was referenced.

Unconsolidated deposits of mostly glacial or glacial lacustrine in origin define the surficial geology in the study area. The glacial deposits consist of till, lake deposits, sand, and gravel deposits. These deposits are composed mostly of clay, silt, sand, and stones. The typical thickness of the deposits is 40 feet but can range from 1 foot to 70 feet.

B. SOILS

The NRCS identifies major classifications of soils into series with similar characteristics (such as texture and drainage). Within each series, soils differ in slope and other characteristics that affect their use. Based on these differences, soil series are further divided into phases (soil map units). Different soil phases exhibit variable water storage, erosion potential, and other characteristics that are important from a development perspective. Clay and silt clay loam with bands of silt loam and sandy loam define the soil texture in the study area. These soils are made up of fine particles that affect the region's drainage, permeability, infiltration, rooting depth, and moisture-holding capacity

The Web Soil Survey maintained by the NRCS indicates that 21 soil complexes are mapped within or adjacent to the Project corridor. These soil types are summarized below. Due to the scattered nature of these soil types, they have been separated by the UB South Campus and Niagara Falls Boulevard in the southern half of the project site and the three roadways making up the northern half: Maple Road, Sweet Home Road, and Audubon Parkway.

A variety of soil types exist within the study area. From University Station to Maple Road, various classifications of Urban land are prevalent. Throughout the UB North Campus, the soil types are a mix of Od (Odessa silt loam), CoA (Churchville silt loam), and CgB (Cazanovia silt loam). North of UB North Campus, the soil type is primarily Cv (Cosad loamy fine sand). The soils lying immediately beneath paved surfaces along the corridor are all expected to be urban fill.

Table 1
Project Site Soils

Section of Project Site	Series Name	Level	Soil Horizon Depth (inches)	Soil Type	Slope (%)	Drainage	Landform
North (Maple Road, Sweet Home Road, and Audubon Parkway)	Cheektowaga Fine Sandy Loam (Ch)	H1	0 to 22	Fine Sandy loam	0 to 3	Very Poorly Drained	Depressions
		H2	9 to 22	Loamy Fine Sand			
		H3	22 to 26	Loamy Fine Sand			
		H4	26 to 60	Stratified Silty Clay - Silty Clay Loam			
	Churchville Silt Loam (CoA)	H1	0 to 11	Silt Loam	0 to 3	Somewhat Poorly Drained	Till Plains, Lake Plains
		H2	11 to 26	Silty Clay			
		H3	26 to 60	Gravelly Loam			
	Claverack Loamy Fine Sand (CrA)	H1	0 to 10	Loamy Fine Sand	0 to 3	Moderately Well Drained	Lake Plains
		H2	10 to 35	Loamy Fine Sand			
		H3	35 to 60	Clay			
	Claverack Loamy Fine Sand (CrB)	H1	0 to 10	Loamy Fine Sand	3 to 8	Moderately Well Drained	Lake Plains
		H2	10 to 35	Loamy Fine Sand			
		H3	35 to 60	Clay			
	Colonie Loamy Fine Sand (CuB)	H1	0 to 7	Loamy Fine Sand	3 to 8	Well Drained	Deltas, Beach Ridges
		H2	7 to 60	Fine Sand			
		H3	60 to 70	Fine Sand			
	Cosad Loamy Fine Sand (Cv)	H1	0 to 9	Loamy Fine Sand	0 to 3	Somewhat Poorly Drained	Lake Plains
		H2	9 to 21	Loamy Fine Sand			
		H3	21 to 24	Fine Sandy Loam			
		H4	24 to 60	Silty Clay			
	Elnora Loamy Fine Sand (ElA)	H1	0 to 4	Loamy Fine Sand	0 to 3	Moderately Well Drained	Deltas, Beach Ridges
		H2	4 to 24	Loamy Fine Sand			
		H3	24 to 60	Fine Sand			
	Ilion Silt Loam (In)	H1	0 to 9	Silt Loam	0 to 3	Poorly Drained	Depressions
		H2	9 to 13	Silty Clay Loam			
		H3	13 to 29	Silty Clay Loam			
		H4	29 to 60	Channery Silty Clay Loam			
	Lakemont Silt Loam (La)	Ap	0 to 9	Silt Loam	0 to 3	Poorly Drained	Depressions
		Eg	9 to 13	Silty Clay Loam			
		Btg1	13 to 18	Silty Clay			
		Btg2	18 to 29	Silty Clay			
		C	29 to 79	Silty Clay Loam			
	Odessa Silt Loam (Od)	Ap	0 to 8	Silt Loam	0 to 3	Somewhat Poorly Drained	Lake Terraces
		Bt/E	8 to 10	Silty Clay Loam			
		Bt1	10 to 15	Silty Clay			
		Bt2	15 to 25	Silty Clay			
		C	25 to 79	Silty Clay			
	Schoharie Silt Loam (SaA)	Ap	0 to 8	Silt Loam	0 to 3	Moderately Well Drained	Lake Terraces
		E	8 to 11	Silt Loam			
		Bt/E	11 to 18	Silty Clay			
		Bt	18 to 33	Clay			
		C1	33 to 52	Silty Clay			
		C2	52 to 79	Silty Clay			

Table 3-1 (cont.)
Project Site Soils

Section of Project Site	Series Name	Level	Soil Horizon Depth (inches)	Soil Type	Slope (%)	Drainage	Landform
North (Maple Road, Sweet Home Road, and Audubon Parkway)	Schoharie Silt Loam (SaB)	Ap	0 to 8	Silt Loam	3 to 8	Moderately Well Drained	Lake Terraces
		E	8 to 11	Silt Loam			
		Bt/E	11 to 18	Silty Clay			
		Bt	18 to 33	Clay			
		C1	33 to 52	Silty Clay			
		C2	52 to 79	Silty Clay			
South (UB South Campus and Niagara Falls Boulevard)	Ovid Silt Loam (Ov)	H1	0 to 10	Silt Loam	0 to 3	Somewhat Poorly Drained	Till Plains, Reworked Lake Plains
		H2	10 to 20	Clay Loam			
		H3	20 to 60	Gravelly Loam			
	Urban Land-Churchville Complex (Uh)	H1	0 to 11	Silt Loam	0 to 3	Somewhat Poorly Drained	Till Plains, Lake Plains
		H2	11 to 26	Silty Clay			
		H3	26 to 60	Gravelly Loam			
	Urban Land-Lima Complex (UrA)	Ap	0 to 9	Loam	1 to 6	Moderately Well Drained	Till Plains, Ridges, Drumlins
		Bt/E	9 to 12	Loam			
		Bt1	12 to 16	Loam			
		Bt2	16 to 25	Gravelly Loam			
		C	25 to 79	Gravelly Loam			
	Urban Land-Odessa Complex (Ut)	Ap	0 to 8	Silt Loam	0 to 3	Somewhat Poorly Drained	Lake Terraces
		Bt/E	8 to 10	Silty Clay Loam			
		Bt1	10 to 15	Silty Clay			
		Bt2	15 to 25	Silty Clay			
		C	25 to 79	Silty Clay			
	Urban Land-Schoharie Complex (Uu)	Ap	0 to 8	Silty Clay Loam	0 to 3	Moderately Well Drained	Lake Terraces
		E	8 to 11	Silty Loam			
		Bt/E	11 to 18	Silty Clay			
		Bt	18 to 33	Clay			
		C1	33 to 52	Silty Clay			
		C2	52 to 79	Silty Clay			
	Wassaic Silt Loam (WaB)	H1	0 to 10	Silt Loam	3 to 8	Well Drained	Till Plains, Ridges, Benches
		H2	10 to 23	Gravelly Silt Loam			
		C	23 to 28	Gravelly Loam			
		R	28 to 32	Unweathered Bedrock			

Sources: USDA Natural Resources Conservation Service Web Soil Survey: https://websoilsurvey.sc.egov.usda.gov (accessed October 2022).

C. HYDROLOGY

This section provides brief descriptions of the surficial water resources, including engineered drainage swales, located on or within 150 feet of the Project. Although the course and shapes of the creeks and lakes have been modified as the area was developed during the 20th century (see Figures 4, 5, and 7), they are in the general vicinity of earlier natural water resources.

ELLICOTT CREEK

Ellicott Creek is a New York State Department of Environmental Conservation (NYSDEC) Class B (Standard B) stream. Ellicott Creek flows westward through the Build Alternatives' alignment at the John

James Audubon Parkway bridge between Frontier Road and North Forest Road. Ellicott Creek was realigned (straightened) in this area when the John James Audubon Parkway bridge was built in 1983. The Ellicott Creek drainage basin upstream of its intersection with the Build Alternatives' alignment is approximately 91 square miles in size. Ellicott Creek and its following tributaries are considered Section 303(d)–listed impaired waters for aquatic life (i.e., fish, shellfish, and wildlife protection and propagation), fish consumption, public bathing, recreation, shellfishing, and water supply. This segment of Ellicott Creek is not listed as a U.S. navigable waterway; however, Ellicott Creek is a state-regulated navigable water within the study area.

BIZER CREEK

Bizer Creek is an NYSDEC Class C (Standards C) water. Bizer Creek has a drainage area of approximately 6 square miles upstream of the Build Alternatives' alignment. The creek flows northward through a culvert across the Build Alternatives' alignment at Rensch Road between Sweet Home Road and John James Audubon Parkway and outlets to Ellicott Creek west of the Build Alternatives' alignment. The walls and bottom of the creek are concrete lined and relatively straight in the area where the Build Alternatives' alignment would cross. Bizer Creek was realigned in the late 1960s to allow for the construction of the UB North Campus. Bizer Creek formerly meandered through the land now used as UB North Campus and outlets into Ellicott Creek approximately 3/4 miles southeast of its current outlet to Ellicott Creek.

LAKE LASALLE

Lake LaSalle is a man-made lake that was constructed as part of the UB North Campus in the late 1960s. Much of Lake LaSalle was constructed on the former alignment of Bizer Creek. Lake LaSalle is not specifically mapped or classified by the NYSDEC; however, based on the classification of the former stretch of Bizer Creek in this location (which was later realigned to the west), Lake LaSalle can be considered an NYSDEC Class C (Standard C) water. Lake LaSalle has several outlet structures to Ellicott Creek that are believed to be plugged or closed off. The outlet that John James Audubon Parkway travels over is hard walled with large riprap, is approximately 50 feet wide, and connects the eastern and western ends of Lake LaSalle.

MUIR LAKE

Muir Lake (a man-made pond) north of the intersection of North Forest Road and John James Audubon Parkway drains through a swale on the eastern side of John James Audubon Parkway. On the Town of Amherst Open Drainage Map, this pond is identified as Muir Lake and the swale is known as Ditch 8. The swale flows north then crosses the parkway through a culvert to ultimately discharge into Ellicott Creek.

ENGINEERED DRAINAGE SWALES

A swale (from Audubon Lake and Walton Pond) flows westward through a culvert along the Build Alternatives' alignment under John James Audubon Parkway at Gordon R. Yaeger Drive. On the Town of Amherst Open Drainage Map, this swale is identified as Ditch 6. Audubon Lake and Walton Pond are man-made ponds that outlet to Ellicott Creek through this waterway. This waterway is mapped by the National Wetlands Inventory (NWI) as an R4SBCx. The drainage area for this swale is approximately 0.29 square miles.

Man-made drainage swales are present along the I-990 roadway and ramps. These swales convey stormwater westward toward Ellicott Creek and are mapped by the NWI as R4SBCx waterways.

John James Audubon Parkway has man-made drainage swales along the roadway that convey stormwater northward toward other swales leading to Ellicott Creek.

Swales (part of Amherst Open Drainage Map's Ditch 4 system) are present north of the terminus of John James Audubon Parkway that NYSDEC has mapped as a Class C (Standard C) waters. This waterway is also a mapped R4SBCx NWI wetland. This engineered swale system conveys stormwater westward from a wetland and a man-made wetland pond to Ellicott Creek. This swale system is just north of the terminus of John James Audubon Parkway, and its drainage area upstream of the Project corridor is approximately 5.5 square miles.

D. CURRENT CONDITIONS

During a site walkover in May 2019, WSP architectural historians noted that the Project alignment is flanked by low- and medium-density residential neighborhoods (see Photos 2, 3, and 4), suburban commercial development (see Photos 5, 6, and 7), and two university campuses (see Photos 1 and 8). The Project alignment begins at the UB South Campus, which was first developed in the 1800s, and in the vicinity of University Park Historic District, which contains residences exhibiting early twentieth-century styles, including Colonial Revival, Craftsman, and Tudor Revival as well as American Foursquare and bungalow forms.

Along the southern half of Niagara Falls Boulevard, the Project alignment is flanked by neighborhoods exhibiting post-World War II and mid-twentieth century residential homes with sidewalks and front yards. Along the northern half of this portion of the alignment, commercial buildings and modest mid-twentieth century and contemporary suburban commercial and religious buildings flank Niagara Falls Boulevard. Common suburban commercial architecture continues along Maple Road as the Project alignment turns toward the east. At Sweet Home Road, where the Project alignment moves toward the northeast, contemporary apartment complexes face the Project alignment before it turns east toward the UB North Campus, which contains numerous mid-rise institutional buildings dating from the 1970s to the present (see Photo 8). The Project alignment then moves north and east along John James Audubon Parkway (see Photo 10) where municipal and office complexes, primarily developed after the 1970s, line the parkway until its intersection with I-990.

A. PRECONTACT CONTEXT

In general, Native American archaeological sites in the northeastern United States are most often located in the vicinity of sources of fresh water on elevated, level, landforms with well-drained soils (New York Archaeological Council 1994). Further indication of the potential presence of Native American activity near a project site is indicated by the number of precontact archaeological sites that have been previously identified in the vicinity of the APE. The APE is included within an area of generalized archaeological sensitivity as mapped by the Office of Parks, Recreation, and Historic Preservation's (OPRHP) Cultural Resources Information System (CRIS). A search of the site files of the OPRHP and New York State Museum (NYSM) indicates that dozens of precontact archaeological sites have been identified within 0.75 miles of the Project corridor (see Chapter 5). The sites represent a variety of occupation site types, including camps and lithic scatters, and some sites are reported to have been periodically occupied over much of the precontact period. Based on the early historic accounts of the first European settlers in the area, this precontact occupation continued well into the historic period.

B. HISTORIC CONTEXT

This overview of the historic development of the three Project area communities of Buffalo, Tonawanda, and Amherst was prepared by WSP's architectural historians for the Project's Historic Resources Report and modified for the present analysis.

HISTORIC DEVELOPMENT OF BUFFALO

17TH AND 18TH CENTURY SETTLEMENT

European trappers and traders first arrived in the Western New York area in the 1600s, interacting with Native American Indian tribes of the Iroquois Confederacy, particularly the Seneca. Through wars, disease, and treaties, the Seneca largely fled the region by the late 1700s; those that remained sold most of their land to European settlers by the end of the eighteenth century. The City of Buffalo grew from a small settlement at Buffalo Creek beginning around 1790, and after land surveys by the Holland Land Company in Western New York, the settlement was quickly platted into streets and lots and sold to buyers beginning in 1804 (Mingus 2003:19; KTA Preservation Specialists:Survey).

19TH CENTURY INDUSTRIALIZATION

Buffalo grew to become a major New York shipping and manufacturing center in the 1800s. Beginning in the late-1810s, Buffalo began extensive work on its Lake Erie harbor, and in 1822, Buffalo was selected as the Erie Canal's western terminus. The canal's opening on October 26, 1825 led to a substantial increase in shipping traffic passing through Buffalo. Investments were made in grain shipping and storage, and development of grain elevators revolutionized this process in Buffalo (Mingus 2003:34-35; Clinton E. Brown Company Architecture: Section E, 2).

Railroads arrived in Buffalo in the 1830s and by the 1850s, expanded dramatically to include intracity travel in addition to locations beyond Buffalo. For local traffic, a network of horse-powered streetcars provided transportation to commuters led by the Buffalo Streetcar Railroad Company and Niagara Street Railroad Company, Inc. The growth of Buffalo's railroads made the city particularly attractive for investment due to a variety of shipping options. As Buffalo grew into a major commercial center, the city's population grew in tandem. In the 1860s, Buffalo became the largest grain port in the world, reached a population of over 75,000, and grew to encompass 42 square miles. Job opportunities, paved streets, streetcars, and public utilities including sewer, water, and gas further drew new residents, many of them foreign-born, to Buffalo (Mingus:44, 49-50).

LATE 19TH AND EARLY- TO MID-20TH CENTURY RAIL EXPANTION

By 1863, Buffalo contained 11 miles of rails used by 60 streetcars, and 30 years later, Buffalo began electrifying its system to become the country's first fully electric streetcar system. This growing network of streetcars and railroads provided connections to Buffalo and further aided growth in suburban areas and nearby towns and villages. Buffalo's first suburban development, Parkside, set an expectation for residential neighborhoods outside of an urban center when it was completed in 1870. New developments influenced by Parkside's tree-lined streets, sidewalks, and curvilinear roads, and often reached by streetcar lines, filled the city's surrounding landscape as farmland was swallowed by new development (Clinton E. Brown Company Architecture: Section E, 3).

Buffalo's various streetcar lines began consolidating into a single entity at the end of the century, leading to creation of the International Railway Company in 1902 (Mingus:60; Gamble 2017; Bregger 2008:9-10). By 1920, the International Railway Company's streetcar network exceeded 190 million rides on 27 lines that projected outward from downtown Buffalo (Gamble 2017). These lines helped spur growth at the Town of Tonawanda's southern border, particularly in Kenmore along Delaware Avenue and near Kenilworth Park which was situated blocks from a line along Main Street that terminated at the new UB campus on the site of the former Erie County Almshouse (now the UB South Campus). The Town of Amherst also witnessed growth, particularly in southern Eggertsville in areas proximate to the Main Street streetcar route.

By the mid-1920s, the International Railway Company began using buses for several of its routes, including those in expanding suburban areas. Streetcar service through the Town of Tonawanda ended in 1928 (Bregger:33). Throughout the 1930s and 1940s, International Railway Company continued to extend its bus routes, and by 1950, streetcars no longer operated in the Buffalo area. The same year, the Niagara Frontier Transit System (referred to as NFT) absorbed the International Railway Company and continued expanded bus routes throughout Buffalo and its suburbs. In 1967, the New York state legislature created the Niagara Frontier Transportation Authority (NFTA) which purchased NFT and other bus lines for $12 million in 1973 (NFTA-Metro). However, rail operations returned to Buffalo in 1979, when NFTA began construction of the 6.2-mile Metro Rail line that extended from downtown Buffalo to the UB South Campus, short of the project's original intent to extend to the University's North Campus. The rail line opened in 1986 with later plans to extend the line north (Vertical File).

HISTORIC DEVELOPMENT OF THE TOWN OF AMHERST

The Town of Amherst was settled in the early 1800s near the location of Williams Mill where a village developed and become known as Williamsville. The Town of Amherst officially was established in 1818. The Erie Canal's opening led to growth in the Buffalo area, particularly along water routes, and brought new settlers to Amherst which grew into a farming community with large numbers of French and German immigrants arriving in areas near Ellicott Creek. As roadway networks expanded throughout Amherst, crossroads became small villages that served these communities providing a commercial center in

addition to churches and schools. The Erie Canal and the road network combined to give early Amherst residents access to trade routes, although most of the town's early development occurred on its southern end near Buffalo (The Buffalo and Erie County Historical Society 1971:1; KTA preservation Specialists:11-12).

By 1854, the first railroad line crossed Amherst, beginning a decline in reliance on water routes to ship goods. Farming villages like Getzville benefited from a station on the so-called "Peanut Line" of the New York Central Railroad. However, as Amherst grew, industries moved out of village centers and relocated toward larger water sources needed for large-scale transportation and power. As a result, manufacturing largely disappeared from Amherst by the 1870s. Amherst instead began to develop into a residential suburb of Buffalo as expanding streetcar lines encouraged growth along their routes (see Figures 5 and 7). Large tracts and farmsteads became residential neighborhoods and demand for housing outside of Buffalo increased. Automobile use and ownership further pushed new construction beyond Buffalo and opened central areas of Amherst to growth; by 1930, Amherst reached a population of 10,000 (KTA Preservation Specialists:5-7, 13-14).

Although growth stagnated during the Great Depression, pent up demand for housing and changes in lending and construction methods resulted in rapid growth in Amherst following World War II.

HISTORIC DEVELOPMENT OF THE TOWN OF TONAWANDA

Like many areas around Buffalo, the Town of Tonawanda grew as a result of the Erie Canal's completion in the 1820s which brought new settlers to Western New York and opened the area to further economic opportunity. The Town of Tonawanda incorporated in 1836 and remained largely a rural, farming community through the 1860s despite growth in railroads and improved transportation connecting to what would become the City of Tonawanda. However, Tonawanda did not develop into a Buffalo suburb until the late-1800s. Louis Eberhardt, a prominent area real estate developer, began subdividing land near Kenmore Avenue along Delaware Avenue in what would become the Village of Kenmore. Eventually, a streetcar line from Buffalo serviced Kenmore and was built down Delaware Avenue (The Buffalo and Erie County Historical Society:4).

Over time, the area around Kenmore grew to include amenities in its suburban location. Kenilworth Race Track, a shooting range, and Curtiss Aerodrome provided entertainment for area residents. Growth continued following the City of Tonawanda's decision to separate from the Town of Tonawanda, as the city's riverside location became a significant manufacturing center that confined industries to that location and consequently opened areas north of Buffalo to residential development. By the 1910s, large tracts began being subdivided, and newly developed roads like Niagara Falls Boulevard and Sheridan Drive allowed easier automobile access to areas beyond streetcar lines (The Buffalo and Erie County Historical Society).

After the closure of Kenilworth Race Track, the southeast corner of the Town of Tonawanda began to develop due to proximity to a streetcar line along Main Street in Buffalo. However, the Great Depression stagnated residential development in the Town of Tonawanda. In 1931, 261 single-family residences and duplexes were constructed, but by 1934, the number dropped to 18. Not until 1940 did the number of residences begin to increase, reaching 400 units by 1941 (Silsby 1997:125).

The decade-and-a-half following World War II led to a housing boom in Tonawanda that resulted in the remaining farm lands being developed into subdivisions and commercial enterprises.

20TH CENTURY DEVELOPMENT OF THE PROJECT CORRIDOR

NIAGARA FALLS BOULEVARD

In the 1900s, the Niagara Frontier Park and Boulevard Association formed to pursue construction of a major route from Buffalo to Niagara Falls. Construction on the route began in Niagara Falls in July 1910, and the New York state legislature formally assigned the route to Town Line Road, which separated Tonawanda and Amherst and connected to Buffalo. The renamed Niagara Falls Boulevard opened in 1913 and quickly became popular with motorists seeking to drive their new automobiles along the paved route. Within six months, accidents plagued the road and farmers commuting to Buffalo markets avoided the paved road entirely. The road's instant popularity led to numerous improvements during the 1920s including street light installation and street widening. Many residents felt the expense was unjustified due to the largely rural and undeveloped nature of the road at that time (Grande 2000; *Waterville Times* 1913; *Buffalo Evening News* 1922; Brandt 1928; Percy 1997:78).

As the main route to Niagara Falls, Niagara Falls Boulevard catered to travelers. Restaurants, motels, and other businesses established themselves along the wide street throughout the early twentieth century. By the 1950s, as a result of significant residential growth in Tonawanda and Amherst, Niagara Falls Boulevard's businesses began to focus more on the needs of its nearby suburban residents. Churches, strip malls, and services flanked the road and its major cross streets. Although Niagara Falls Boulevard does not appear as it did during its early years, a portion of the road, located within the University Park Historic District, is paved with brick. In 1962, the Boulevard Mall opened; it was the state's first enclosed mall and demonstrated the convenience that suburbanites expected as an alternative to traditional downtown shopping experiences.

MID-20TH CENTURY RESIDENTIUAL GROWTH

In the decade prior to World War II, little construction activity occurred in Buffalo's suburban areas. In response, the Federal Housing Administration (FHA) was created in 1934 in part to reform lending practices and insure home mortgages. The widespread availability of secure financing through federally insured mortgages offered home buyers more advantageous terms when compared to the high-interest short-term loans common at the time. Similarly, in 1944, the Veterans Administration created a mortgage guarantee program that offered favorable amortization schedules to veterans.

In the post-World War II era, FHA played a key role in determining the appearance of houses and neighborhoods. Builders adhered to FHA's established design standards because homes that met FHA's standards were pre-approved for mortgage insurance. FHA determined building materials, design, layout of houses, minimum square footage, and subdivision layout. Although FHA used a variety of exterior materials and built homes of various sizes and styles, virtually all new homes were single-family residences built on a concrete slab and most displayed traditional styles. These simple, relatively unadorned houses were constructed quickly and inexpensively and encouraged large-scale production of virtually identical single-family homes.

The 1940s also brought a new, coordinated approach to residential development between developer and builder that enabled a subdivision to be platted, constructed, and sold in short time. This required the developer to file the subdivision plat and install streets and utilities while the builder constructed blocks of houses with standardized specifications. After construction finished, the developer, builder, or a third-party realtor would manage all sales of houses within the tract. If the process met FHA's standards, pre-approved FHA mortgages were available for all homes in the development (Wright 1981:240-243; Transportation Research Board 2012).

In contrast, multi-family developments appeared at a much slower pace compared to single-family developments. Though common in downtown areas, suburban developments rarely contained multi-family housing units due to strong opposition from homeowners and developers. Residents in both the Town of Tonawanda and Town of Amherst protested heavily when proposals for multi-family housing were submitted (KTA Preservation Specialists:14-15).

The decade-and-a-half following World War II led to a housing boom in Tonawanda that developed the remaining farm lands to residences or businesses. The tracts that developed first were those adjacent to already developed neighborhoods. By 1948, Pearce and Pearce was constructing Lincoln Park Village in the area south of Sheridan Drive between Parkhurst and Niagara Falls Boulevard. That company, along with others, continued their frenzied development pace, and by the mid-1950s pushed development north of Brighton Road to the town boundary. Between 1949 and 1956, over 1,000 residential building permits were issued each year; by 1957, the number decreased to 741 as the building began to slow (Silsby:153-155). Tonawanda's population increased from 55,270 in 1950 to 105,032 in 1960 (KTA Preservation Specialists:8). Growth continued into the 1970s until population declines in the greater Buffalo area began affecting suburban areas and continued through the 2000s.

Suburban residential development in Amherst proliferated with quickly constructed homes by builders using a select number of floorplans and materials. The substantial increase in housing led to a significant population increase for Amherst which reached 72,000 residents by 1950. Although demand for housing began to slow in the 1960s, Amherst did not suffer the steep population declines that occurred in Buffalo or Tonawanda likely due to construction of the UB North Campus in the late 1960s and 1970s which brought new residents and sources of employment.

Catering to residential growth in the area, businesses began establishing themselves along major thoroughfares in the area including along Sheridan Drive, Niagara Falls Boulevard, and Kenmore Avenue. Shopping centers proliferated throughout the area including the Falls Boulevard Shopping Center, which included 19 stores when it opened in 1953, as well as the fully enclosed Boulevard Mall in 1962. By the early 1960s, little undeveloped land remained in Tonawanda and only the northern sections of Amherst remained somewhat rural (Silsby:198). This changed by the mid-1960s as plans were made to expand UB with a North Campus location that ultimately opened in the mid-1970s and the development of and improvements to Audubon Parkway through the early 1980s.

Chapter 5: Results of Survey

The present assessment involved reviewing previously completed sensitivity assessments for other project sites along the 7-mile Project corridor and site file information for previously discovered archaeological sites located within 0.75 miles of the Project corridor, both accessed through the CRIS on-line site file database maintained by the SHPO, and supplemental research to assess the effects of historic and modern development. The supplemental research consisted of a review of historic maps to understand the developmental history of the corridor, an examination of photographs taken during fieldwork for the historic structures analysis, completion of a virtual walkover using Google's "street view" mapping tool and Google Earth's historical imagery for development activities over the past 20 to 30 years, and examination of collected information regarding subsurface impacts including utilities. This chapter summarizes the results of this archaeological documentary study.

A. PREVIOUS ARCHAEOLOGICAL SURVEYS IN THE VICINITY OF THE APE

SHPO's CRIS database indicates that at least eight archaeological surveys have been previously completed for areas that are within or adjacent to the APE. However, a review of these eight reports, which were completed over the past 20 years, indicate that additional earlier surveys have also been completed for portions of the APE for a number of large-scale projects. These additional surveys were primarily completed during the 1970s through the 1990s, long before the CRIS platform was developed and they are not documented in the CRIS database. Other referenced surveys were completed as long ago as the early twentieth century. Though these earlier surveys were not directly reviewed for this assessment, the eight available reports provided summaries of the relevant earlier data. Table 2 lists these large scale (major) projects for which relevant cultural resource studies were completed within the APE. (Those not available through CRIS are noted.) Figure 8 indicates the approximate location of these earlier surveys. In addition to these projects, a few smaller archaeological surveys for individual development projects have been undertaken adjacent to the APE, none of which identified any archaeological resources. Table 3 lists these smaller surveys and Figure 8 shows their approximate location.

Several reports related to the projects include comprehensive background research and detailed environmental, precontact, and historic contexts for the region. Generally, these surveys determined that level, well-drained areas near fresh water sources are sensitive for precontact campsites, lithic scatters, and isolated precontact find spots, and that historic roadways and areas near historic map-documented structures are sensitive for 19th century through early 20th century historic resources, depending on the degree of subsequent ground surface disturbance. The surveys within the APE are discussed in additional detail in the following sections.

UNIVERSITY AT BUFFALO, 2012

The 2012 Phase IA completed for UB's comprehensive physical plan (Montague, 2012) includes archaeological sensitivity assessments for the UB North and South Campuses. The report documents 25 previously identified precontact and historic archaeological sites within or immediately adjacent to the UB North Campus, few of which are documented in the CRIS database. Five of these sites (four

unidentified precontact sites and one historic site) are either immediately adjacent to or very close to the Project alignment. The report also indicates the location of dozens of map-documented structures and historic roadways that were removed during creation of the UB campuses. Several of these map-documented structures are depicted either on or immediately adjacent to the Project alignment. The report lists six previously identified archaeological sites within a one-mile radius of the UB South Campus, two of which are depicted on the campus itself (the Erie County Poorhouse Cemetery and an unidentified pre-contact quarry). None of these sites are located on the Project alignment.

According to the report, the UB North Campus has a "high archaeological potential" for the presence of precontact "short-term camps, lithic scatters, and artifact find spots" although their "sensitivity may be degraded by modern land use, including recent utility installations, commercial and residential development, parking lot and sidewalk construction, and landscaping" (Montague, 2012). The report ranks the UB South Campus as having low potential for precontact sites. Both campuses were determined to have a high potential for historic resources. The report recommends Phase IB field testing if feasible or monitoring during construction to determine the presence or absence of archaeological resources (Montague, 2012).

Table 2
Previous Archaeological Surveys (Major)

Map Ref.	Project and Location	Types of Surveys	Results
1	State University of New York, University at Buffalo, North and South Campus	Multiple surveys in the 1990s and a comprehensive Phase IA in 2012 (Montague 2012)	Identification of multiple archaeological sites and delineation of areas of moderate and high archaeological sensitivity
2	Improvements to Sweet Home Road between its intersection with Interstate 990 and Maple Road	Multiple surveys (Hartner 1999)	Identification of multiple archaeological sites
3	Ellicott Creek Watershed/Audubon Project	Multiple surveys during the 1970s	Identification of dozens of archaeological sites
4	Construction of Lockport Expressway (Interstate 990)	Multiple surveys during the 1970s and 1980s	Identification of multiple archaeological sites, all destroyed by road construction
5	Muir Woods Development, Muir Woods north of Interstate 990	Phase IA/IB/2 (Pierce, Stage 1 Cultural Resource Investigation for the Muir Woods Development, Town of Amherst, Erie County, NY 2001a) (Pierce, Stage 2 Archaeological Investigations at the Area C Site [AO29-02-0600]), Muir Woods Development, Town of Amherst, Erie County, NY. 2001b)	Extensive subsurface testing of 326-acre project area identified only a single precontact site determined not NRHP eligible
Source: SHPO's CRIS database, August 2022			

Table 3
Previous Archaeological Surveys (Minor)

Map Ref.	Project and Location	Types of Surveys	Results
1	Student housing on Rensch Road west of John James Audubon Parkway	Two separate combined Phase IA/IB surveys (Hanley, Phase I Cultural Resources Investigation for the Proposed 22.65-acre Rensch Road Student Housing Project, Town of Amherst, Erie County, NY 2007)	Subsurface testing failed to identify any archaeological resources
2	Construction project on the east side of John James Audubon Parkway at North Forest Road	Phase IA and IB	Subsurface testing failed to identify any archaeological resources
3	Audubon Apartments on the west side of John James Audubon Parkway south of Bryant Woods	Phase IA and IB (Hanley, Phase 1 Cultural Resources Investigations for the Proposed Audubon Apartments, 491 John James Audubon Parkway, Town of Amherst, NY. 2015)	Subsurface testing failed to identify any archaeological resources
Source: SHPO's CRIS database, August 2022			

The Project through the UB South Campus has areas of both moderate and high archaeological potential: moderate potential at the proposed portal location and high sensitivity along the LRT Build Alternative tunnel route (at the ground surface, which is above the depth of the tunnel in this area). The Project through the UB North Campus is depicted as having moderate to high archaeological potential.

SWEET HOME ROAD, 1999

Both sides of the portion of Sweet Home Road included within the Project corridor were subjected to subsurface testing during a Phase IA/IB survey for a road widening project. No archaeological resources were encountered during the testing (Hartner 1999). Precontact remains were encountered 1,000 feet to the north, close to a stream, and over 1,000 feet to the west on a well-drained elevated area.

MUIR WOODS, 2001

A large Phase IA/IB survey of a 326-acre portion of Muir Woods located immediately north of I-990 was performed (Pierce, Stage 1 Cultural Resource Investigation for the Muir Woods Development, Town of Amherst, Erie County, NY 2001a). The survey's project area included the proposed location of the northern terminus of the Project, including the proposed I-990 Station, park & ride facility, and storage and light maintenance facility for both Build Alternatives. Despite the excavation of hundreds of shovel test pits, only one small area of precontact sensitivity was identified over 1,000 feet west of the Project corridor. This site was subsequently determined ineligible for the NRHP through completion of a Phase 2 evaluation. (Pierce, Stage 2 Archaeological Investigations at the Area C Site [AO29-02-0600], Muir Woods Development, Town of Amherst, Erie County, NY. 2001b). No resources were identified within the Project corridor.

B. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES

A review of the CRIS database revealed 38 previously identified archaeological sites located within about a 0.75-mile radius of the Project alignment (Table 4). Of this total, 18 are associated with a NYSM number, and likely date back to the early- to mid-20th century when standards for the collection of locational information were not formalized, and 30 are associated with a UB site identification number.

The associated site-file forms for the 38 sites indicate that 17 of them date to the precontact period, nine of them date to the historic period, two include both a precontact and a historic component, and ten provide no information regarding the type of archaeological site. Most of the forms indicate that the archaeological site has been destroyed by development and one indicates that it is NRHP eligible—the Chestnut Ridge 4 Site (UB 3633), located over 1,000 feet west of the Project corridor. When described, the precontact sites generally consist of low-density lithic scatters, often recovered from the plow zone of a formerly agricultural field. Only a few of the historic sites provided information regarding the type of site. Of note, there is a historic cemetery depicted on the east side of UB South Campus and a flour and grist mill depicted northeast of the UB North Campus about 0.25 mile southeast of John James Audubon Parkway.

Table 4

Previously Identified Archaeological Sites within 0.75 Miles of the Project Corridor

SHPO USN (Name/UB Site No./NYSM Site No.)	Cultural Affiliation	Additional Information	Distance from Corridor
A02902-0075 (Dickson's Nightmare/UB 2039)	Historic, early 20th century		155 ft east
A02902-0250 (Neihaus Site/UB 2732)	Historic, late 19th through early 20th centuries	Foundation remains and associated artifacts	1,844 ft west
A02902-0393 (Chestnut Ridge 1)	Historic, mid-19th century		3,498 ft west
A02902-0394 (Chestnut Ridge 2)	Precontact	Lithics in a plow zone	3,638 ft west
A02902-0589 (Chestnut Ridge 3/UB 3045/NYSM 10936)	Precontact	Lithics	3,353 ft west
A02902-0794 (Chestnut Ridge 4/UB 3633/NYSM 11368)	Precontact	NRHP Eligible	1,921 ft north
A02902-0824 (Brunner Farm)	Historic, mid-19th century	Sheet midden	969 ft west
A02902-0880 (Poison Ivy Site/UB 4075)	Precontact		2,296 ft west
A02902-0001 (UB 196)	No information		924 ft east
A02902-0002 (UB 222)	No information		488 ft east
A02902-0003 (UB 232)	No information		339 ft west
A02902-0006 (UB 252C/NYSM 2302)	No information		2,135 ft east
A02902-0024 (UB 252)	No information		352 ft east
A02902-0022 (Wolf Hill)	Historic, 19th century	Flour and grist mill	1,431 ft east
A02902-0020 (Audubon 9/UB 1300/NYSM 2294)	No information		2,309 ft east
A02902-0019 (Audubon 8/UB 1299/NYSM 2293)	Precontact, probably Archaic		2,245 ft east

Table 4
Previously Identified Archaeological Sites within 0.75 Miles of the Project Corridor

SHPO USN (Name/UB Site No./NYSM Site No.)	Cultural Affiliation	Additional Information	Distance from Corridor
A02902-0017 (Audubon 1/UB 1223/NYSM 2295)	Precontact, Meadowood, Early Woodland	Multicomponent site	592 ft west
A02902-0016 (Big Hoop 2/UB 953/NYSM 2297)	Precontact, probably Archaic		1,314 ft west
A02902-0015 (UB 895/NYSM 2305)	No information		2,927 ft east
A02902-0013 (Big Hoop 1/UB 891/NYSM 2298)	Precontact, probably Archaic		1,130 ft west
A02902-0011 (North Forest Road/UB 283/NYSM 2296)	Precontact, Late Woodland		2,761 ft west
A02902-0009 (UB 260/NYSM 2300)	No information		50 ft north
A02902-0008 (Hoefer Site/UB 253 /NYSM 1733)	Precontact, Archaic to Early Woodland		109 ft west
A02902-0026 (Audubon 4/UB 1295/NYSM 2055)	Precontact		2,645 ft west
A02902-0027 (UDC 1/UB 1513/NYSM 2054)	Precontact, Archaic; Historic, 19th century		1,630 ft west
A02902-0028 (UDC 2/UB 1514/NYSM 2051)	Precontact		625 ft west
A02902-0029 (UDC 3/UB 1515/NYSM 2053)	Precontact, Archaic		1,681 ft east
A02902-0249 (Snyder-Smith Site/UB 2731)	Historic, 19th century		2,248 ft west
A02940-0106 (UB Campus Site/UB 233)	Precontact		2,492 ft south
A02902-0600 (Area C Site)	Precontact	Toolmaking, lithics recovered from plow zone	2,755 ft west
A02940-24949 (Erie County Poorhouse Cemetery/UB 2756)	Historic, 1850-1900		1,160 ft east
A02902-0079 (St. Rita's Lane Site/UB 2472)	Historic		1,706 ft east
A02902-0078 (St. Rita's Lane Site/UB 2472)	Historic		1,429 ft east
A02902-0014 (UB 893/NYSM 299)	No Information		1,980 ft west
A02902-0398 (Beechwood Locus)	Precontact		2,072 ft east
A02902-1353 (PCI/Kulbacks-1)	Precontact		2,032 ft east
A02902-0018 (UB 1251/NYSM 2304)	No Info		3,644 ft east
A02902-1523 (Narty-Oswald)	Precontact and Historic		1,521 ft west

C. DISTURBANCE CHARACTERIZATION

This section characterizes the extent of previous ground-surface disturbance along the Project alignment. The Project alignment's ground surface primarily consists of paved areas and to a much lesser extent grass-covered areas. The paved areas consist of roadways such as Niagara Falls Boulevard, Maple Road, John James Audubon Parkway, and the sidewalks and curbs that line some of the roadways. The unpaved areas include the front yards lining the southern portion of the Niagara Falls Boulevard portion of the Project alignment, the shoulders adjacent to the roads and the median between the north- and southbound lanes of John James Audubon Parkway and short portions of Niagara Falls Boulevard. The Project alignment also crosses through a large grassy field south of the UB's Jacobs Management Center on the UB North Campus and several smaller grassy areas.

ROADWAY CONSTRUCTION

Construction of roadways involves replacing the upper original soil layers with some type of bedding material upon which the road would be constructed. This process typically disturbs or destroys any archaeological resources that could have been present in the upper few feet of the original ground surface. (These disturbances would be expected to be shallower below sidewalks or curbs.) This is likely the case for Project corridor roadways such as Niagara Falls Boulevard, Maple Road, and Sweet Home Road. However, sometimes roads are constructed on top of fill to achieve a desired elevation. This appears to be the case for portions of John James Audubon Parkway between UB North Campus and I-990. This road extends through the originally low-lying flood plain of Ellicott Creek and crosses streams on two occasions. Comparison of the parkway's topography to adjacent areas beyond the roadway's shoulder indicate that portions of the road were constructed on top of fill, most likely to keep it at a higher elevation than the historically flood-prone waterway. If the fill material was deposited directly on top of the original ground surface, or if there are older, deeper ground surfaces buried by seasonal flooding of the creek, it is possible that there are undisturbed sensitive areas along this portion of the Project corridor.

SUBSURFACE UTILITIES

Another form of disturbance considered in this assessment is the installation of subsurface utilities, which typically involve excavating a trench sufficiently wide to install the utility and can disturb or destroy archaeological resources along its route. Utility mapping for the Town of Amherst and for the UB's North and South Campuses was examined and UB's architectural planner was consulted for additional information regarding utilities in the grassy field south of UB's Jacobs Management Center on the UB North Campus.

Subsurface utility lines are present along the Project alignment. These utilities include electrical lines for street lighting, sewer, water, storm, and gas lines. Other indications of subsurface disturbance include fire hydrants, storm drains, traffic lights, and telephone poles. Disturbance associated with these utilities could range from minimal to significant.

Detailed information for the UB North and South Campuses indicate the following utility lines: chilled water supply, chilled water return, 24-inch-diameter storm drain, 12-inch-diameter domestic water, 24-inch-diameter sanitary, communications, and electric for exterior lighting. These lines run through the large grassy field south of UB's Jacobs Management Center on the UB North Campus, indicating a high likelihood that any archaeological resources present in this area have been disturbed by the installation of utility lines. Anecdotal information suggests that a portion of this area was also prepared to be a roadway during the development of UB North Campus. Though never completed, this development included establishing a line of fire hydrants and construction of a roadbed. No visual sign of this roadbed exists today aside from the fire hydrants.

D. ARCHAEOLOGICAL SENSITIVITY ASSESSMENT

Based on the results of previous archaeological surveys and the archaeological site-file review, the Project alignment would be considered sensitive for the presence of precontact archaeological resources in well-drained level areas near fresh water sources and historic archaeological resources along historic roadways and map-documented structures. However, intensive modern development such as road construction and the installation of utilities along the Project alignment has likely disturbed or destroyed most of the original ground surface. This appears to be the case for Niagara Falls Boulevard, Maple Road, and Sweet Home Road. Only four portions of the Project alignment appear to retain archaeological sensitivity, as follows (from south to north):

- Unpaved or minimally disturbed areas within the UB South Campus such as the grassy areas and parking lots along the campus' northwestern edge.
- Undisturbed grassy lawns beyond the edge of pavement within the Niagara Falls Boulevard right-of-way.
- Unpaved or minimally disturbed areas within the UB North Campus such as grassy areas, sidewalks, and parking lots.
- Original ground surfaces and stream terraces in the vicinity of Ellicott Creek buried beneath fills beneath John James Audubon Parkway.

Chapter 6: Conclusions and Recommendations

Given the substantial size of the Project, this Phase 1A Archaeological Documentary Study provides a general assessment of the potential for the Project to affect archaeological resources. Research primarily focused on the results of previously conducted archaeological investigations of the APE vicinity, previously identified archaeological sites, and a generalized assessment of previous disturbance. See Chapter 5 for a discussion of the results of the survey. The following is a summary of the conclusions of this study and recommendations for additional research efforts to determine the localized potential for archaeological resources and subsurface testing as necessary to determine their presence or absence and NRHP eligibility.

A. CONCLUSIONS

Regional settlement patterns indicate that level, well-drained areas near fresh water sources and previously identified precontact sites are sensitive for precontact resources and that historic roadways and areas near historic map-documented structures are sensitive for historic resources. As summarized in Chapter 3, the corridor's favorable natural resources include level topography, areas of well-drained soils, and abundant sources of fresh water. As summarized in Chapter 4, after Buffalo emerged as major manufacturing and transportation hub in the early 19th century, the towns that comprise the Project corridor experienced steady growth throughout the 19th and early 20th centuries and ultimately developed into residential communities with concentrations of retail and civic development. Tables included in Chapter 5 list several large and small surveys previously completed in the immediate vicinity of the APE. These surveys determined that the area is sensitive for precontact resources such as campsites, lithic scatters, and isolated find spots and for 19th century through early 20th century historic resources. Dozens of such resources have been previously documented within approximately 0.75 miles of the Project corridor.

The potential for precontact or historic archaeological resources to survive intact beneath the ground surface depends on the degree of subsequent modern development and ground surface disturbance. Precontact archaeological resources are generally shallow, extending only a few feet below ground surface, unless subsequently further buried by later soil deposition, and are particularly vulnerable to modern development. Some historic period features such as foundations, wells, and privies can extend several feet deeper and are less vulnerable to the effects of development.

Much of the 7-mile-long Project will be constructed on existing roadways including Niagara Falls Boulevard, Maple Road, Sweet Home Road, and John James Audubon Parkway. Construction and maintenance of these roadways and their underlying utilities over the past decades has likely resulted in the destruction of any archaeological resources that may have been present at one point beneath these paved surfaces. Despite these substantial disturbances, there are portions of the Project corridor that have been subjected to only minimal to moderate disturbance, and therefore retain their archaeological potential. The Project may also disturb the deeper soils lying beneath existing utilities along the Project roadways, though such areas have low to no archaeological potential given their depth. Four general areas of archaeological potential exist along the Project alignment (from south to north): 1) portions of the UB

South Campus, 2) undisturbed grassy lawns beyond the edge of pavement within the Niagara Falls Boulevard right-of-way, 3) portions of the UB North Campus, and 4) deeply buried habitable landforms beneath portions of John James Audubon Parkway. The potential of each of these areas is briefly summarized below and their location is depicted on Figures 9A through 9D.

ARCHAEOLOGICAL POTENTIAL OF UB SOUTH CAMPUS

The 2012 Phase 1A completed for both UB campuses identified areas of both moderate and high archaeological potential. On the UB South Campus, the LRT Build Alternative calls for a tunnel beneath an area of high archaeological potential and a 160-foot by 100-foot staging area plus an 80 foot by 50 foot shaft in an area of moderate archaeological potential. Because the tunnel is expected to extend below the depth of archaeological sensitivity, it is not expected to impact archaeological resources if present. However, the proposed staging area will be constructed in the Allen Hall Parking Lot, between Main Street and Goodyear Road, an area identified in the 2012 assessment as having moderate archaeological potential for historic period resources and moderate prior disturbance (see Figure 9A).

ARCHAEOLOGICAL POTENTIAL OF NIAGARA FALLS BOULEVARD

As indicated in the LRT Build Alternative figures included in Appendix A, the residential portions of the Project alignment along Niagara Falls Boulevard indicate five to ten feet of disturbance along grassy lawn areas in front of several properties (see Figure 9B and Appendix A, Extents 3 through 6) and localized disturbance from construction of substations (see Figure 9B and Appendix A, Extent 5). Impacts from the BRT Build Alternative are more limited. These areas do not appear to have been previously developed and have only been used as residential lawns since the mid-19th century. They are considered to have low to moderate archaeological potential for both precontact and historic period resources. Any archaeological resources present in these grassy areas may be intact or only minimally disturbed from such activities as landscaping, localized utility work, and creations of sidewalks.

ARCHAEOLOGICAL POTENTIAL OF UB NORTH CAMPUS

The LRT Build Alternative would directly impact several grassy areas and minimally to moderately disturbed areas such as sidewalks and parking lots within the UB North Campus through construction of the rail line, stations, substations, and the relocation of existing utilities. Impacts from the BRT Build Alternative are more limited. Some of these areas have been previously determined to have moderate or high archaeological potential for both precontact and historic period resources, depending on the extent of previous ground surface disturbance (see Figure 9C).

ARCHAEOLOGICAL POTENTIAL OF JOHN JAMES AUDUBON PARKWAY

The final area of archaeological potential comprises original ground surfaces and stream terraces near Ellicott Creek buried beneath John James Audubon Parkway. Many precontact sites have previously been identified in this area. However, the integrity and depth of these areas of sensitivity is unknown. If any intact habitable stream terraces are present along this portion of the Project, they would be considered to have high archaeological potential for the presence of precontact archaeological resources. The LRT Build Alternative calls for disturbance along this roadway to a depth of five to ten feet below the current grade (see Figure 9D and Appendix A, Extents 19 through 24) and localized disturbance to 10 to 15 feet for construction of station platforms and up to 40 feet for construction of substations (see Figure 9D and Appendix A, Extents 19 and 21).

B. RECOMMENDATIONS

As described above, the present study determined that components of the Project will impact four general areas of archaeological potential. However, additional work is necessary to more specifically understand the effects of past development and local conditions on the likelihood of site preservation in each area and to determine the actual presence or absence of archaeological resources and their NRHP eligibility.

Supplemental site-specific research is necessary to assess past development of the location of the staging and shaft area proposed in the UB South Campus, lawns along Niagara Falls Boulevard, grass-covered and minimally to moderately disturbed areas along the Project route through the UB North Campus, and to assess the potential for habitable landforms beneath John James Audubon Parkway. Sources of information could include the results of geotechnical soil borings and utility location surveys currently underway. Additional information can be gathered through additional documentary research and consultation with UB operational staff.

Subsurface testing or archaeological monitoring may be necessary to determine the presence or absence of archaeological resources in specific areas of moderate to high potential. This testing would consist of monitoring the excavation of backhoe trenches in the location of the staging and shaft area proposed in the UB South Campus and the hand excavation of shovel test pits in grass covered areas of archaeological potential along Niagara Falls Boulevard and UB North Campus. Additional testing may be necessary to determine the NRHP eligibility of any identified resources. Any archaeological monitoring or testing would be planned in consultation with the NYSHPO and be conducted in concordance with applicable state and federal laws and guidance.

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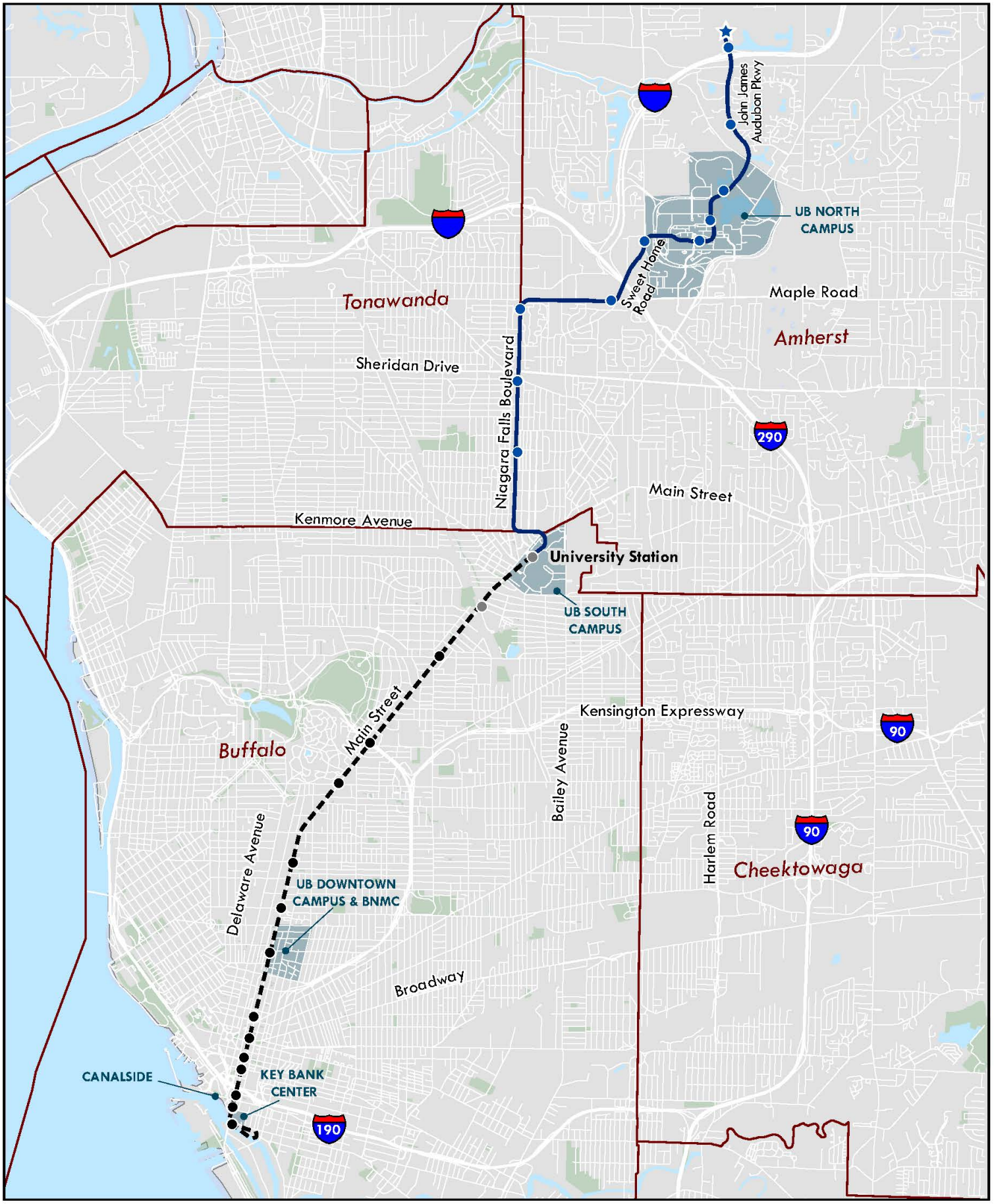
Figure 1. Metro Rail Existing and Proposed Project



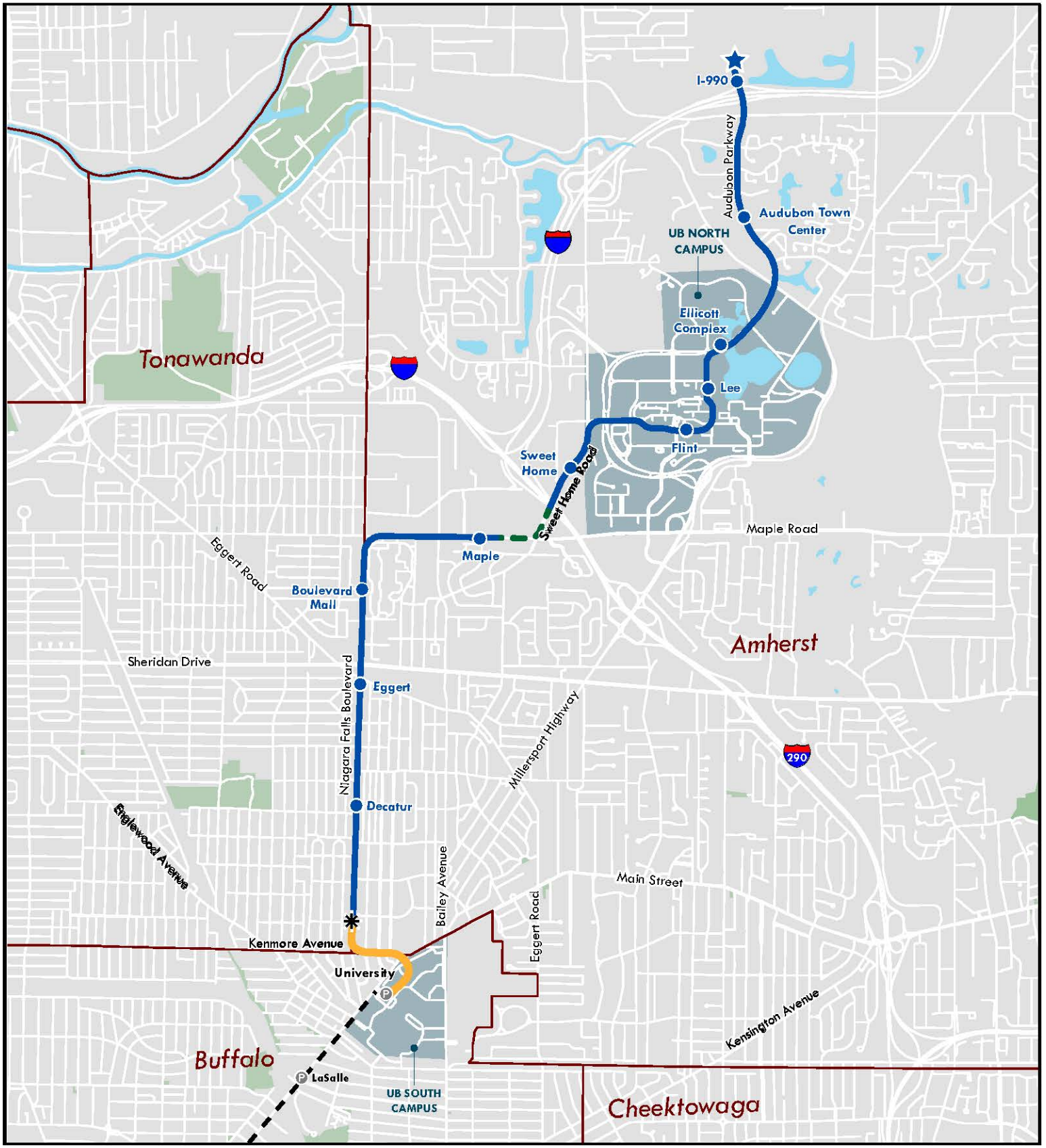
Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Proposed Alignment
- Proposed Station
- Proposed Storage/Light Maintenance Facility
- Proposed Station with Park & Ride
- Existing Station
- Existing Station with Park & Ride
- Existing Metro Rail Line
- City and Town Boundary

N

0 0.5 1 2 Miles

Figure 2. LRT Build Alternative



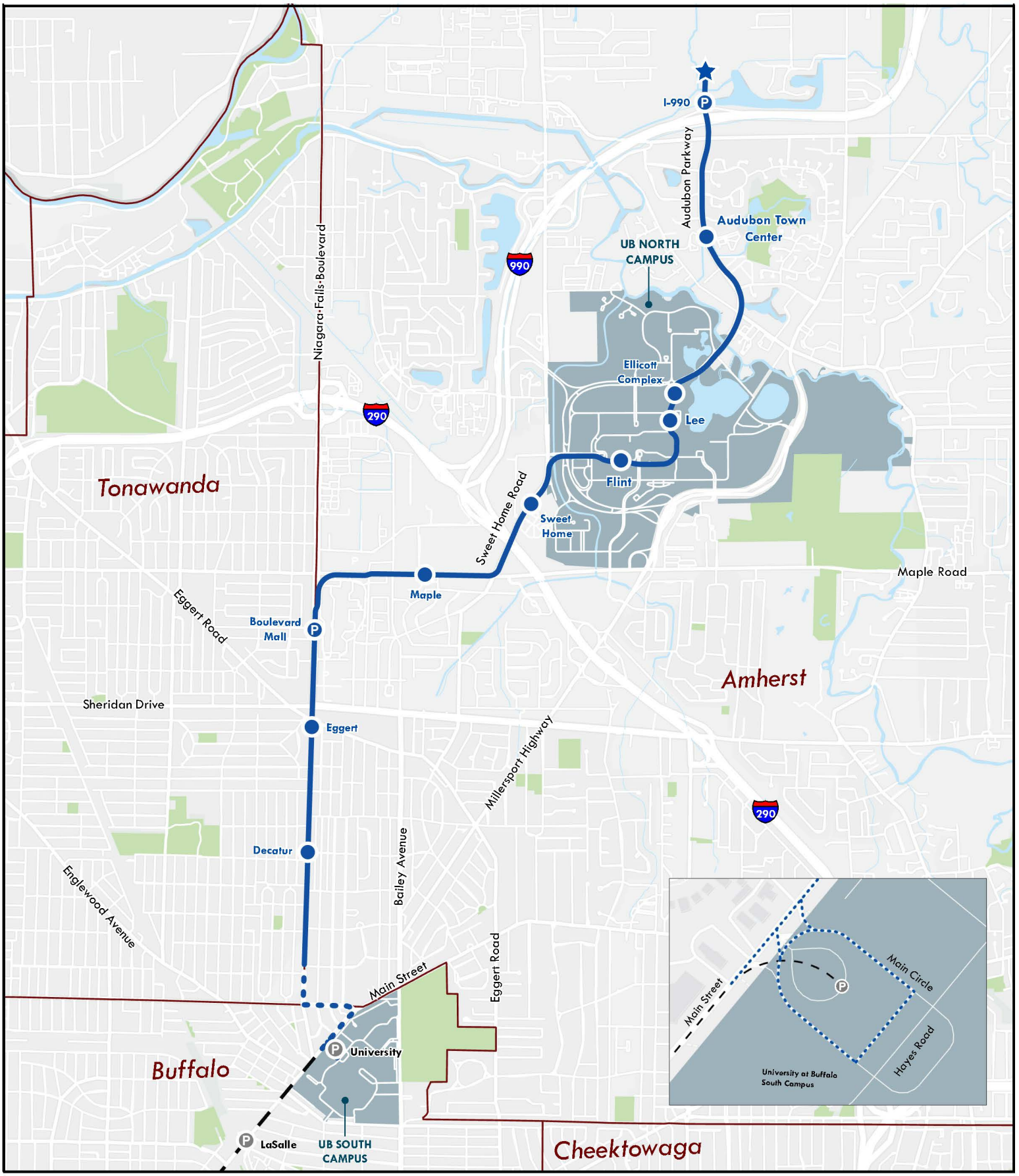
Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Dedicated Transitway
- Tunnel
- Light-rail Grade Separated
- Proposed Station
- Proposed Storage/Light Maintenance Facility
- Proposed Station with Park & Ride
- Portal
- Existing Metro Rail Line
- Existing Station with Park & Ride
- City and Town Boundary

N

0 0.5 1 1.5 Miles

Figure 3. BRT Build Alternative



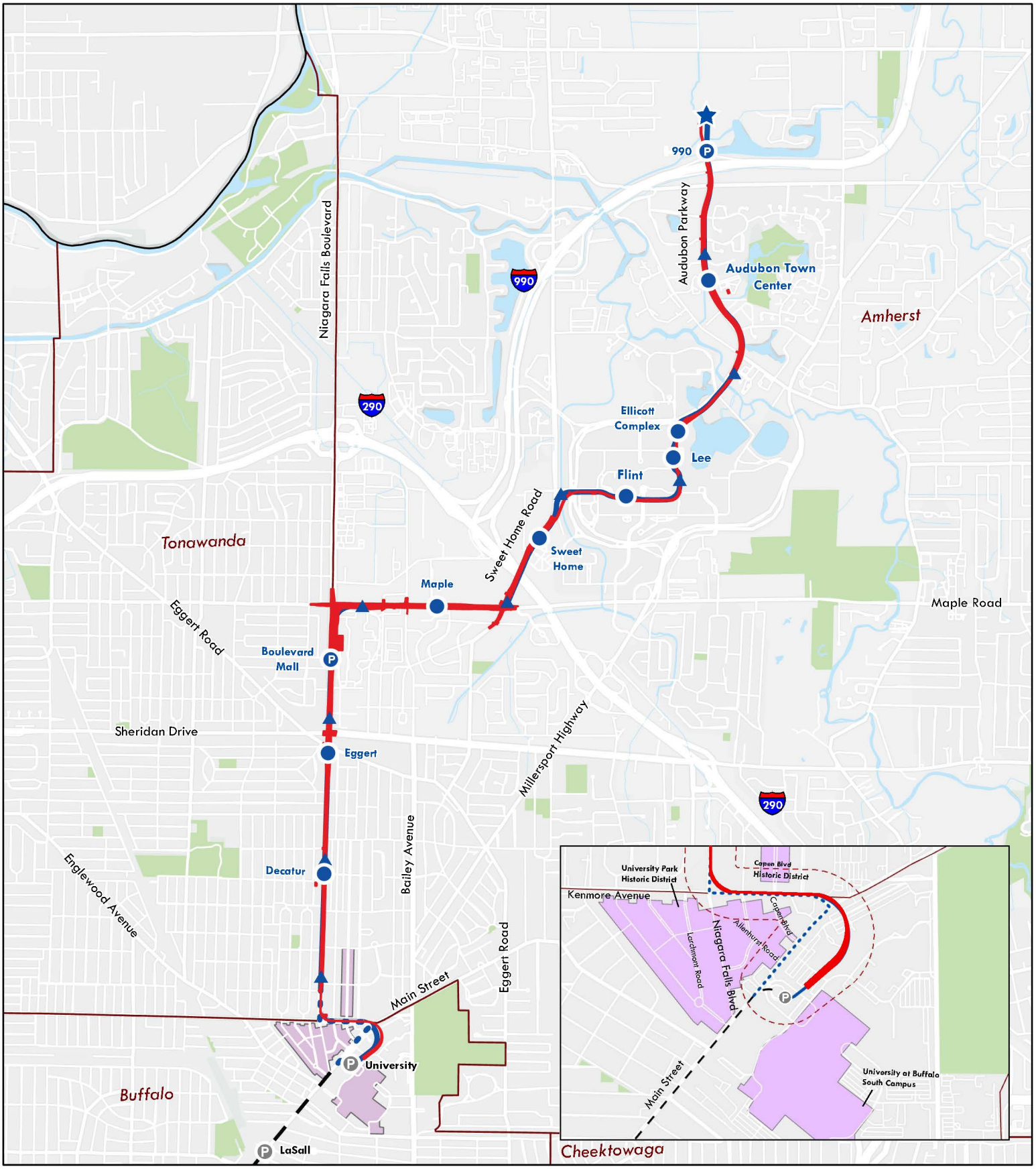
Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Dedicated busway
- Mixed-traffic
- Proposed Station
- Proposed Storage/Light Maintenance Facility
- Proposed Station with Park & Ride
- Existing Metro Rail Line
- Existing Station with Park & Ride
- City and Town Boundary

N

0 0.5 1 1.5 Miles

Figure 4. Area of Potential Effects



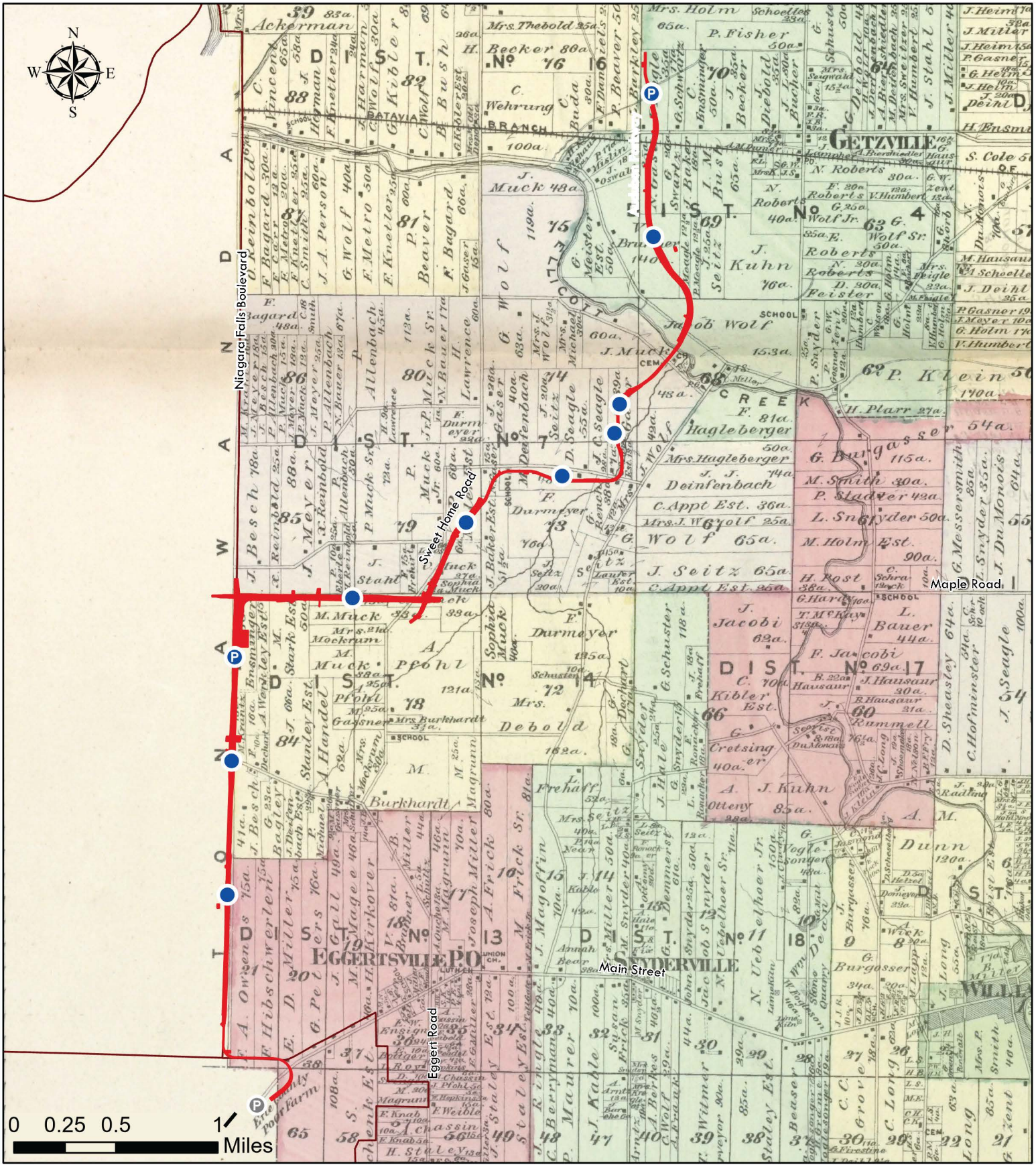
Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Proposed Alignment
- Proposed Station
- Proposed Storage/Light Maintenance Facility
- Proposed Station with Park & Ride
- Mixed Traffic (BRT Build Alternative)
- Existing Station with Park & Ride
- Existing Metro Rail Line
- Proposed Substations (LRT Build Alternative)
- Area of Potential Effect for Archaeological Resources
- Historic District
- City and Town Boundary

N

0 0.5 1 1.5 Miles

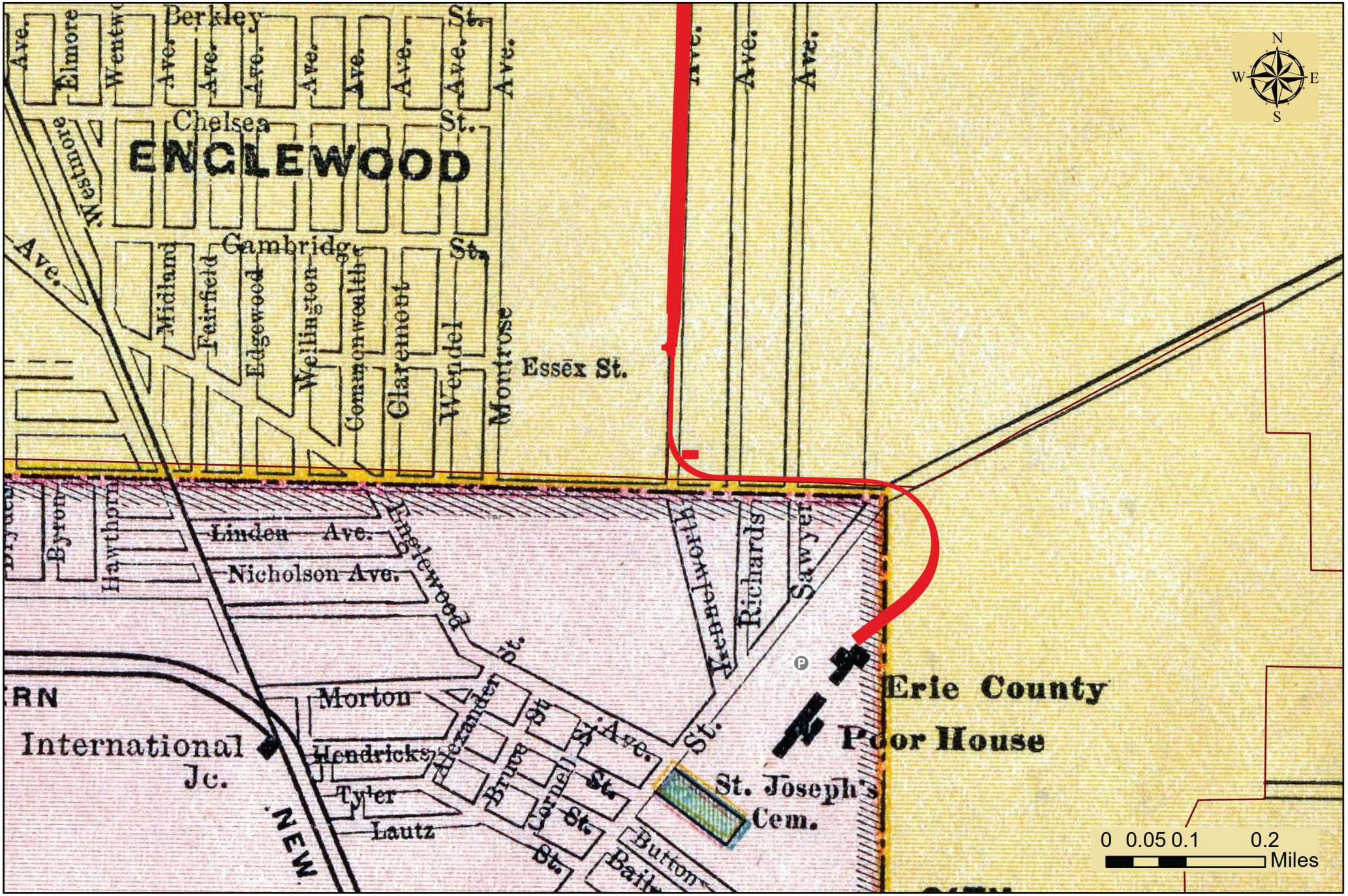
Figure 5. Amherst 1880



Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Proposed Station
- Proposed Station with Park & Ride
- Existing Station with Park & Ride
- Area of Potential Effect for Archaeological Resources

Figure 6. Buffalo 1892



Buffalo-Amherst-Tonawanda Corridor Transit Expansion

Ⓟ Existing Station with Park & Ride

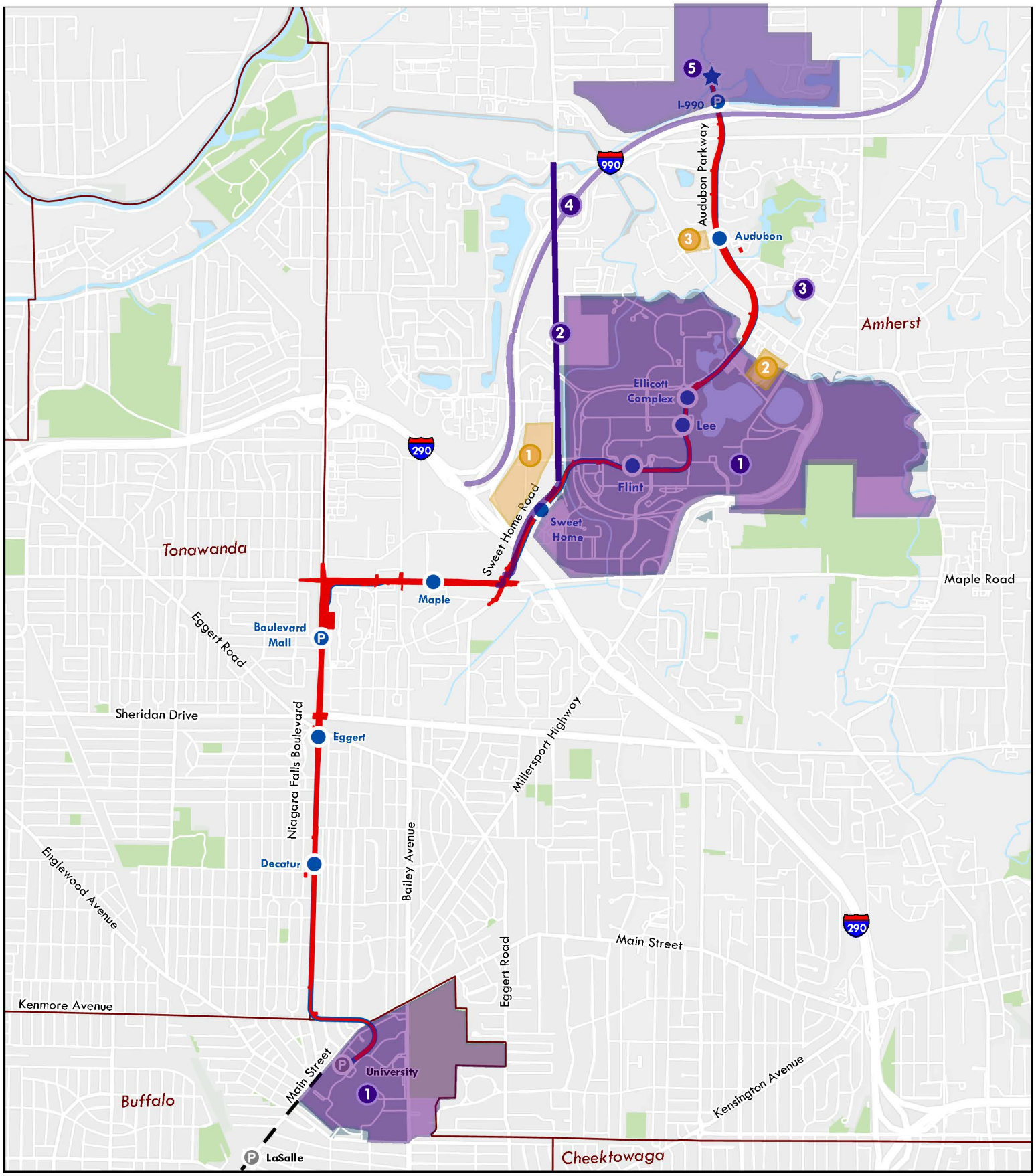
Area of Potential Effect for Archaeological Resources

Figure 7. Buffalo, Tonawanda, and Amherst 1898

Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Proposed Station
- Proposed Station with Park & Ride
- Existing Station with Park & Ride
- Area of Potential Effect for Archaeological Resources

Figure 8. Previous Archaeological Surveys



Buffalo-Amherst-Tonawanda Corridor Transit Expansion

- Proposed Alignment
- Proposed Station
- Proposed Storage/Light Maintenance Facility
- Proposed Station with Park & Ride
- Existing Station with Park & Ride
- Existing Metro Rail Line
- City and Town Boundary
- Area of Potential Effect for Archaeological Resources
- Major Previous Archaeological Survey*
- Minor Previous Archaeological Survey*

* Sourced from the State Historic Preservation Office of Cultural Resources Information System Database

N

0 0.5 1 1.5 Miles

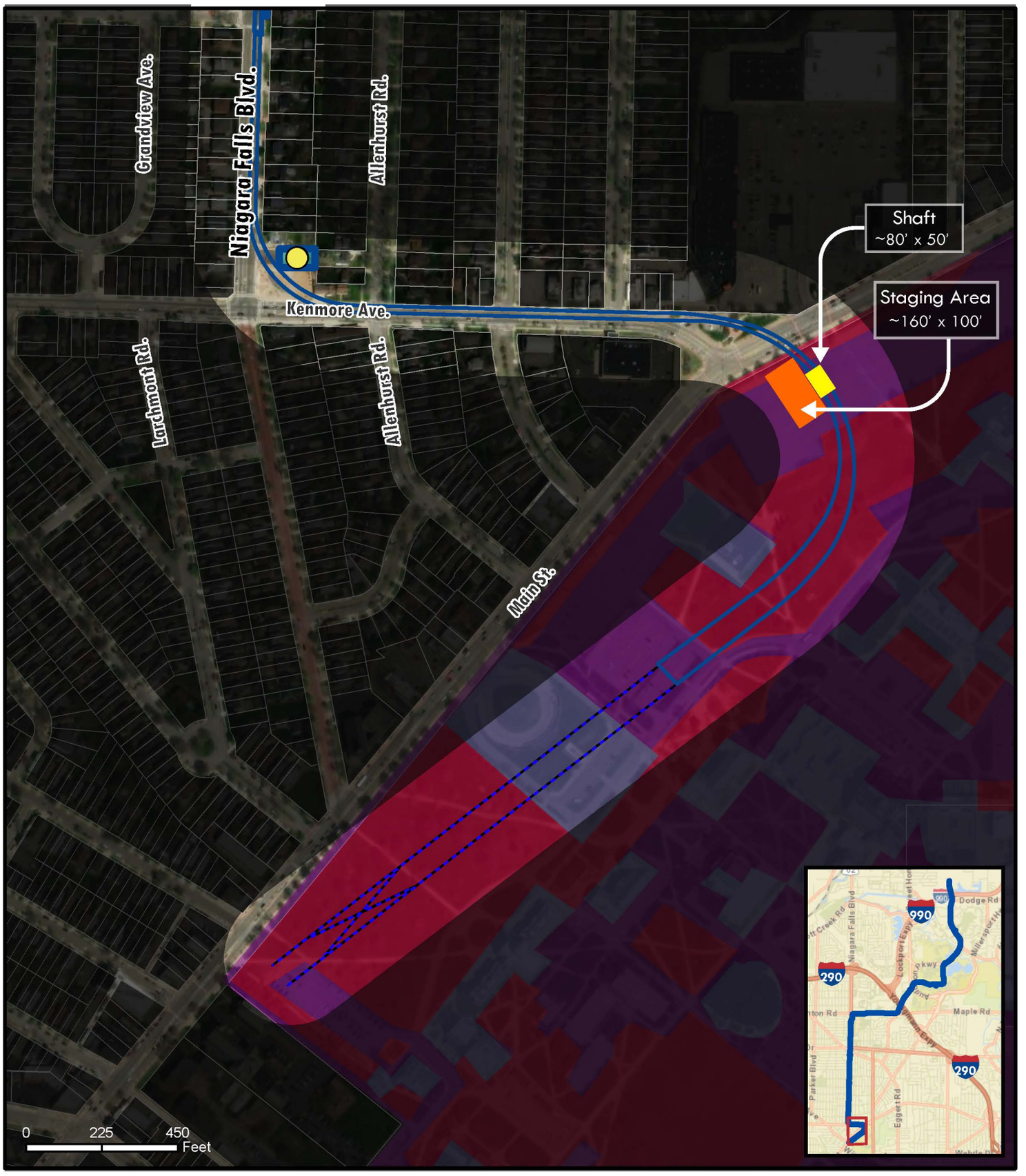


Figure 9A: Areas of Archaeological Sensitivity, UB South Campus

N

- 200' Buffer of LRT Alignment
- LRT Disturbance Limits
- Approximate Substation Location
- Existing Tunnel

Potential Archaeological Sensitivity**

- High archaeological potential and low prior disturbance
- Potential sensitivity for deeply buried precontact land surfaces dependent upon review of borings
- Moderate archaeological potential and moderate prior disturbance
- Low-moderate potential for precontact and historic period resources in undisturbed front yards
- Low archaeological potential and high prior disturbance

**Boundaries are only approximate and will be verified in the future

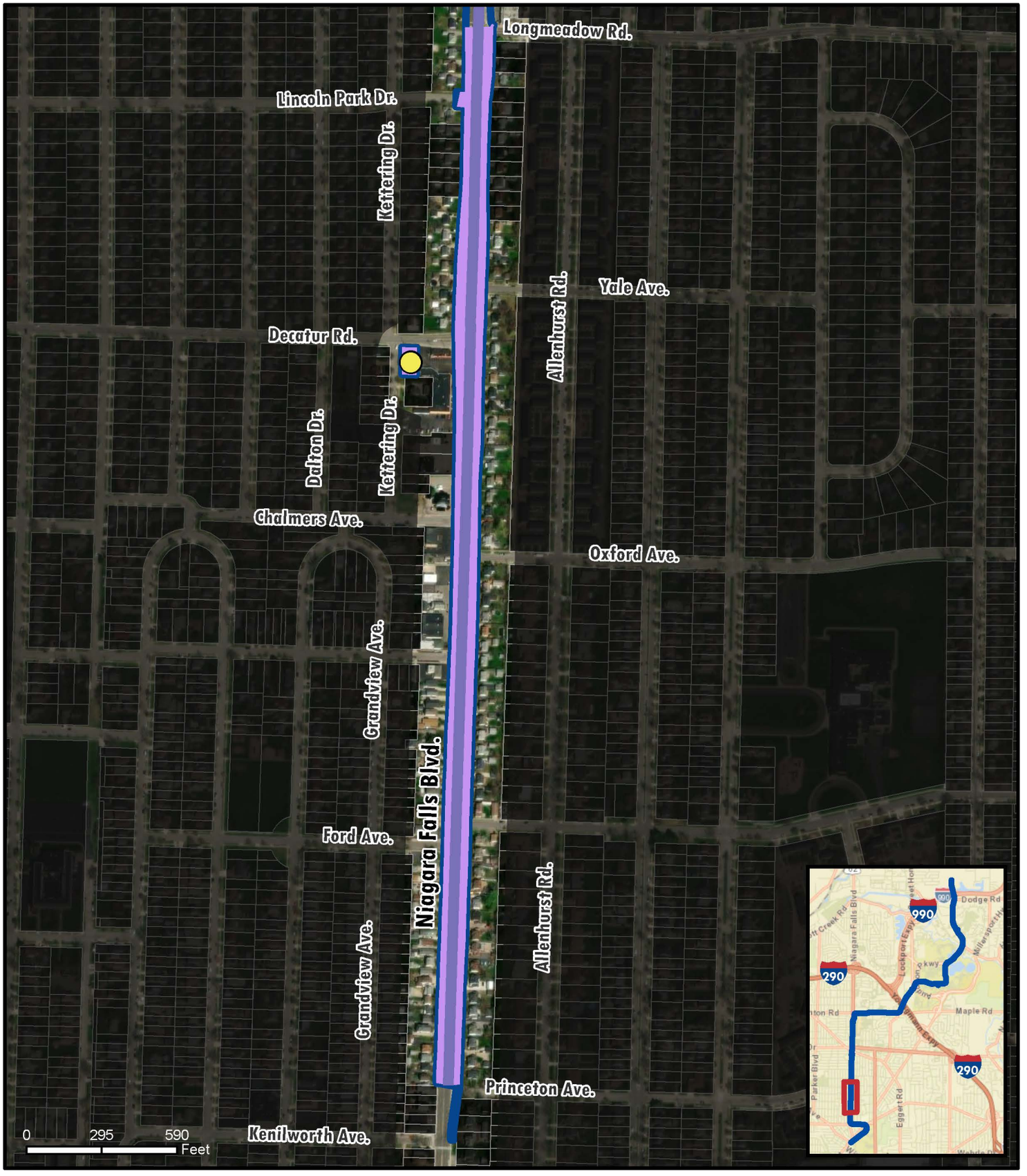


Figure 9B: Areas of Archaeological Sensitivity, Niagara Falls Boulevard

N

- 200' Buffer of LRT Alignment
- LRT Disturbance Limits
- Approximate Substation Location

Potential Archaeological Sensitivity**

- High archaeological potential and low prior disturbance
- Potential sensitivity for deeply buried precontact land surfaces dependent upon review of borings
- Moderate archaeological potential and moderate prior disturbance
- Low-moderate potential for precontact and historic period resources in undisturbed front yards
- Low archaeological potential and high prior disturbance

**Boundaries are only approximate and will be verified in the future

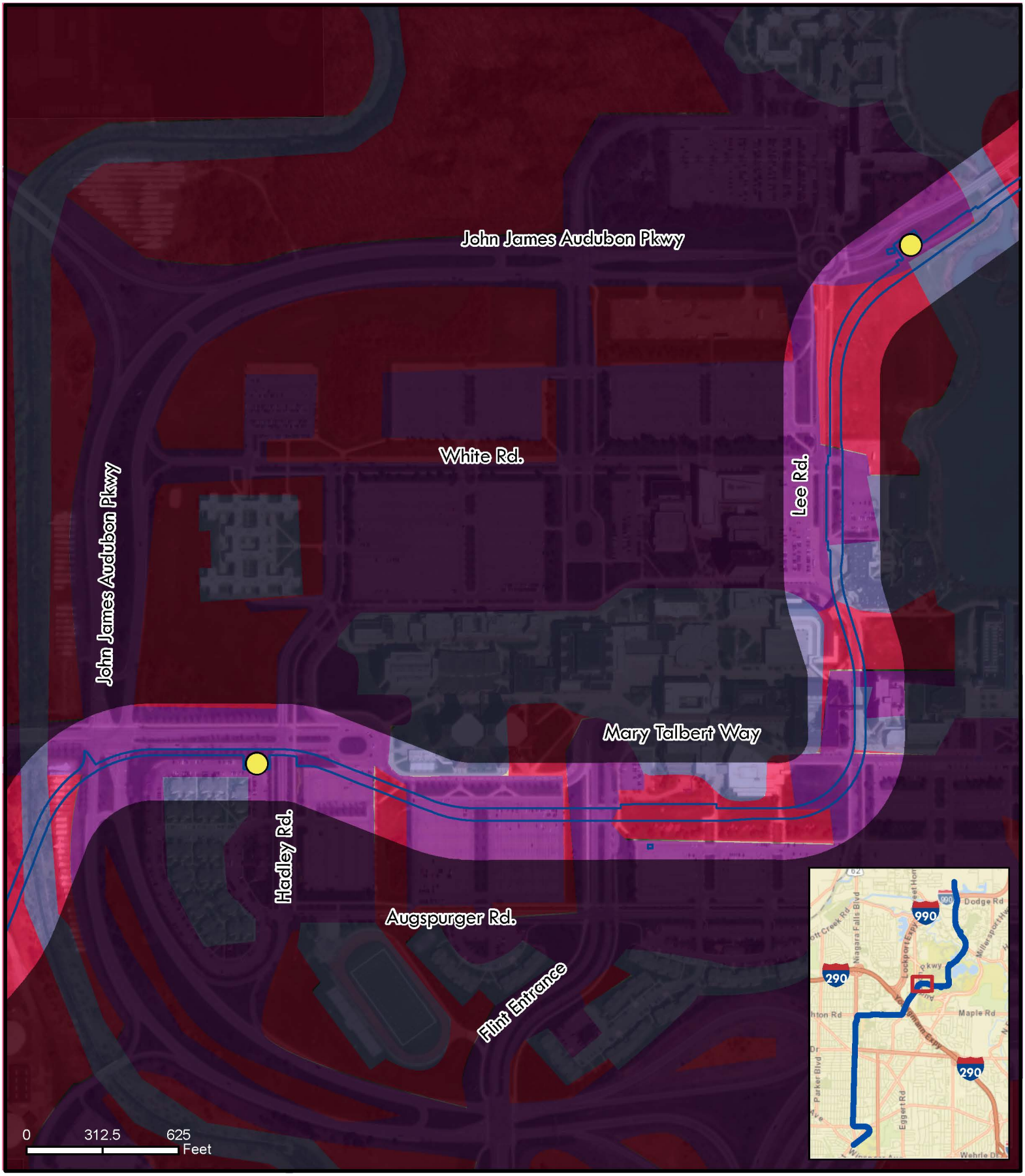


Figure 9C: Areas of Archaeological Sensitivity, UB North Campus

N

200' Buffer of LRT Alignment

LRT Disturbance Limits

Approximate Substation Location

Potential Archaeological Sensitivity**

- High archaeological potential and low prior disturbance
- Potential sensitivity for deeply buried precontact land surfaces dependent upon review of borings
- Moderate archaeological potential and moderate prior disturbance
- Low-moderate potential for precontact and historic period resources in undisturbed front yards
- Low archaeological potential and high prior disturbance

**Boundaries are only approximate and will be verified in the future

Source: SUNY Buffalo 2012

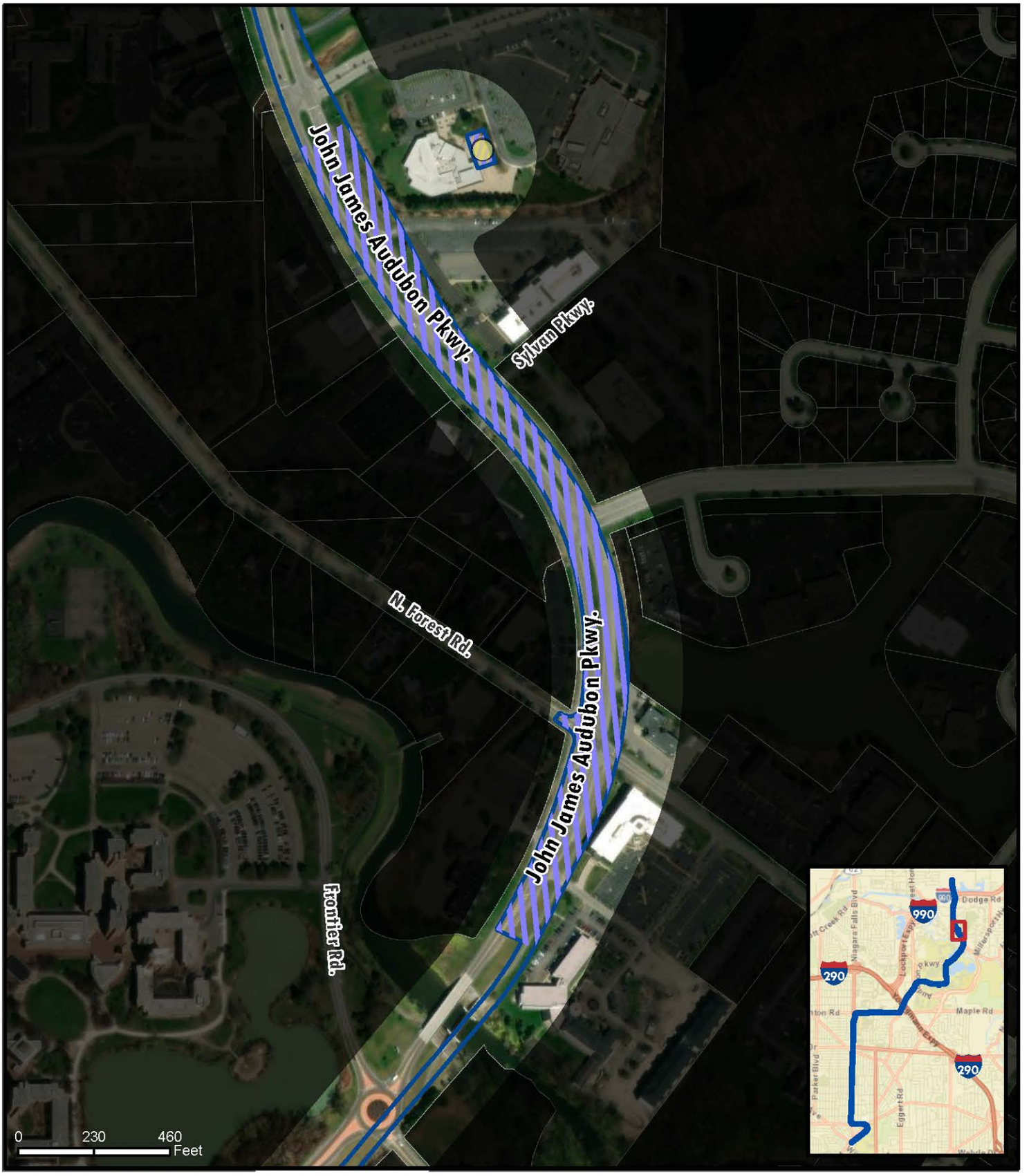


Figure 9D: Areas of Archaeological Sensitivity, John James Audubon Parkway

N

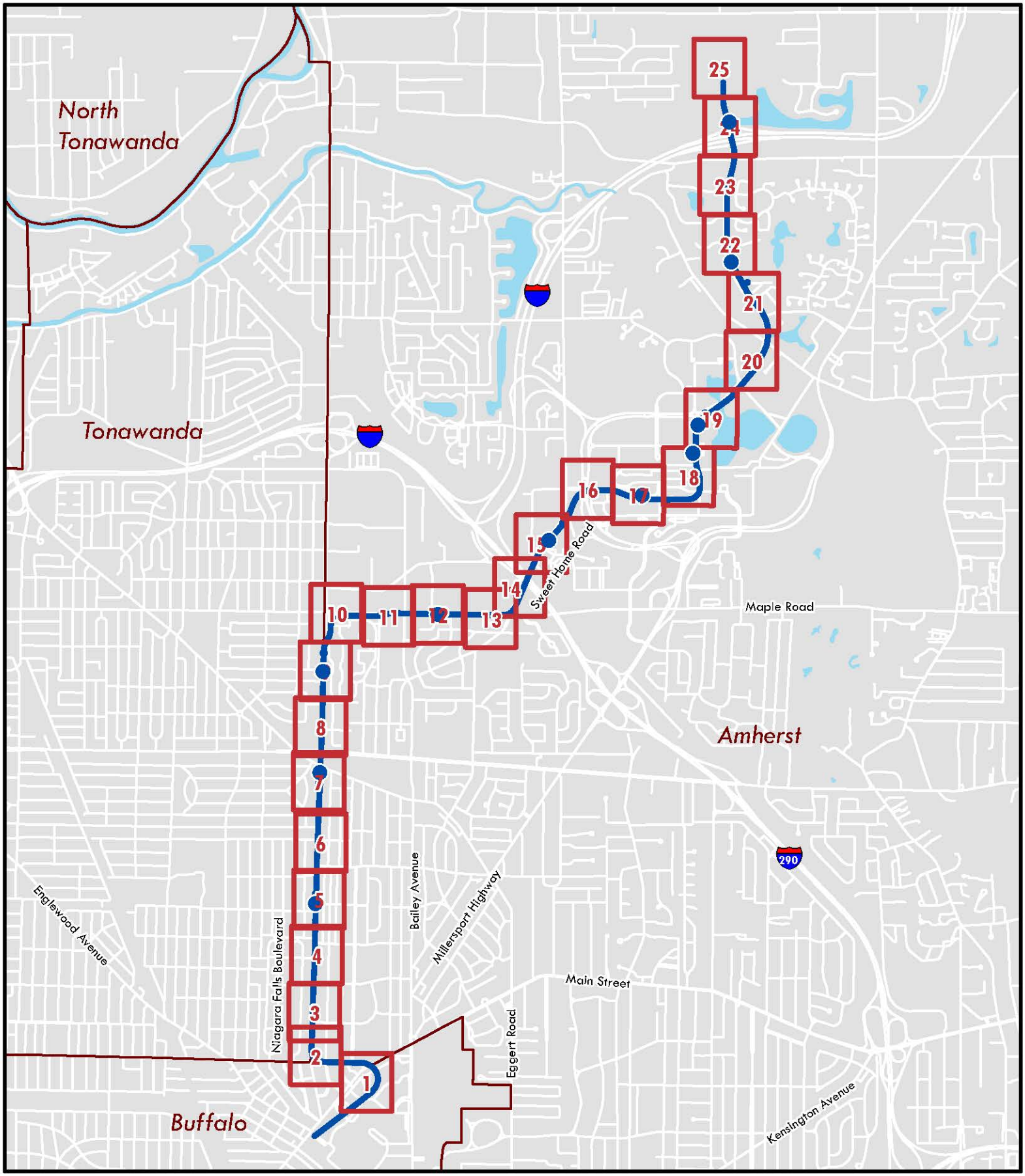
- 200' Buffer of LRT Alignment
- LRT Disturbance Limits
- Approximate Substation Location

Potential Archaeological Sensitivity**

- High archaeological potential and low prior disturbance
- Potential sensitivity for deeply buried precontact land surfaces dependent upon review of borings
- Moderate archaeological potential and moderate prior disturbance
- Low-moderate potential for precontact and historic period resources in undisturbed front yards
- Low archaeological potential and high prior disturbance

**Boundaries are only approximate and will be verified in the future

Appendix A

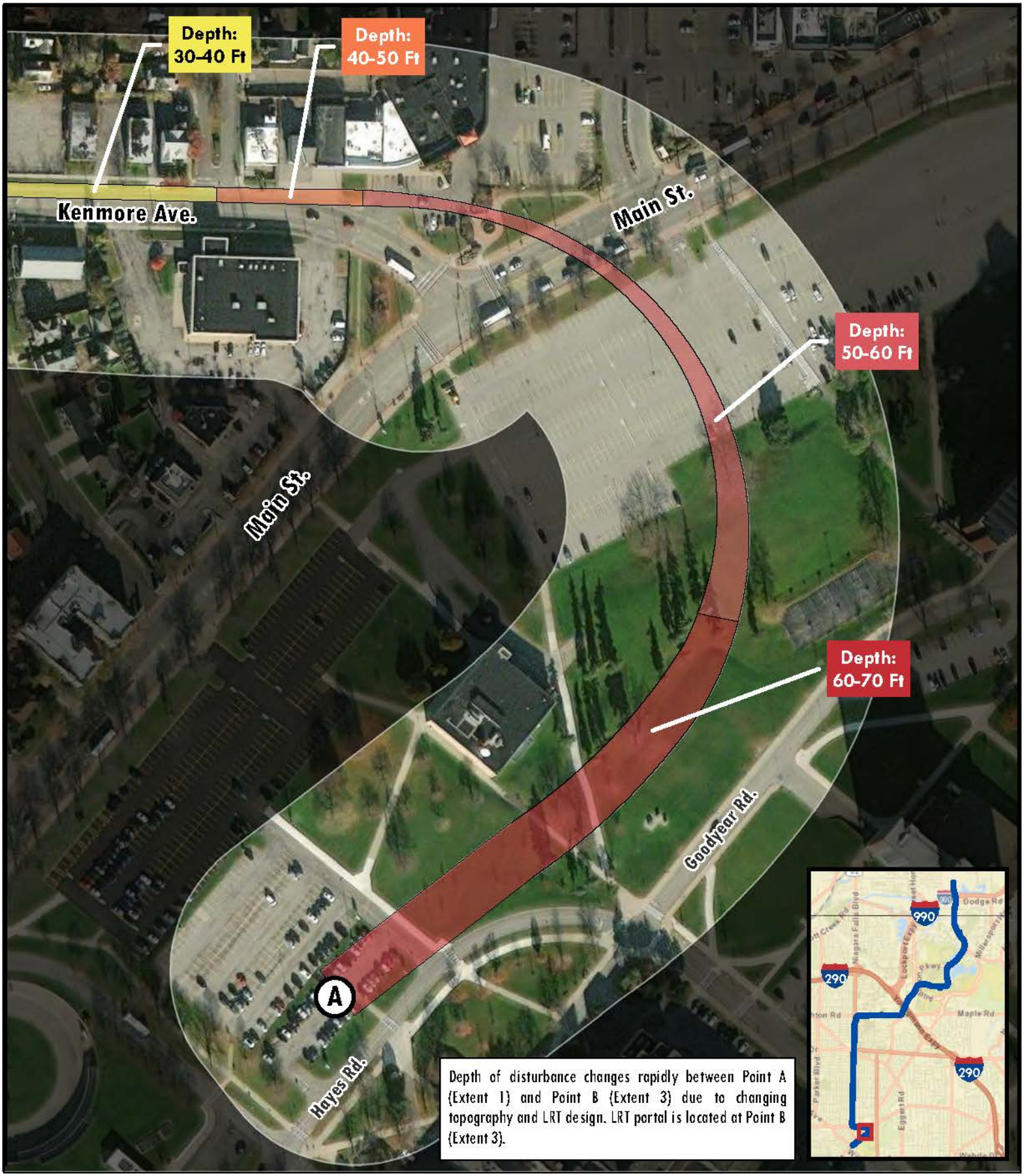


LRT Alternative Depth of Disturbance: Map Extent Index

- Proposed Station
- Proposed LRT Alternative Alignment
- Map Extent
- City and Town Boundary

N

0 0.5 1 Miles



LRT Alternative Depth of Disturbance: Extent 1

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

LRT Alternative Depth of Disturbance: Extent 2

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

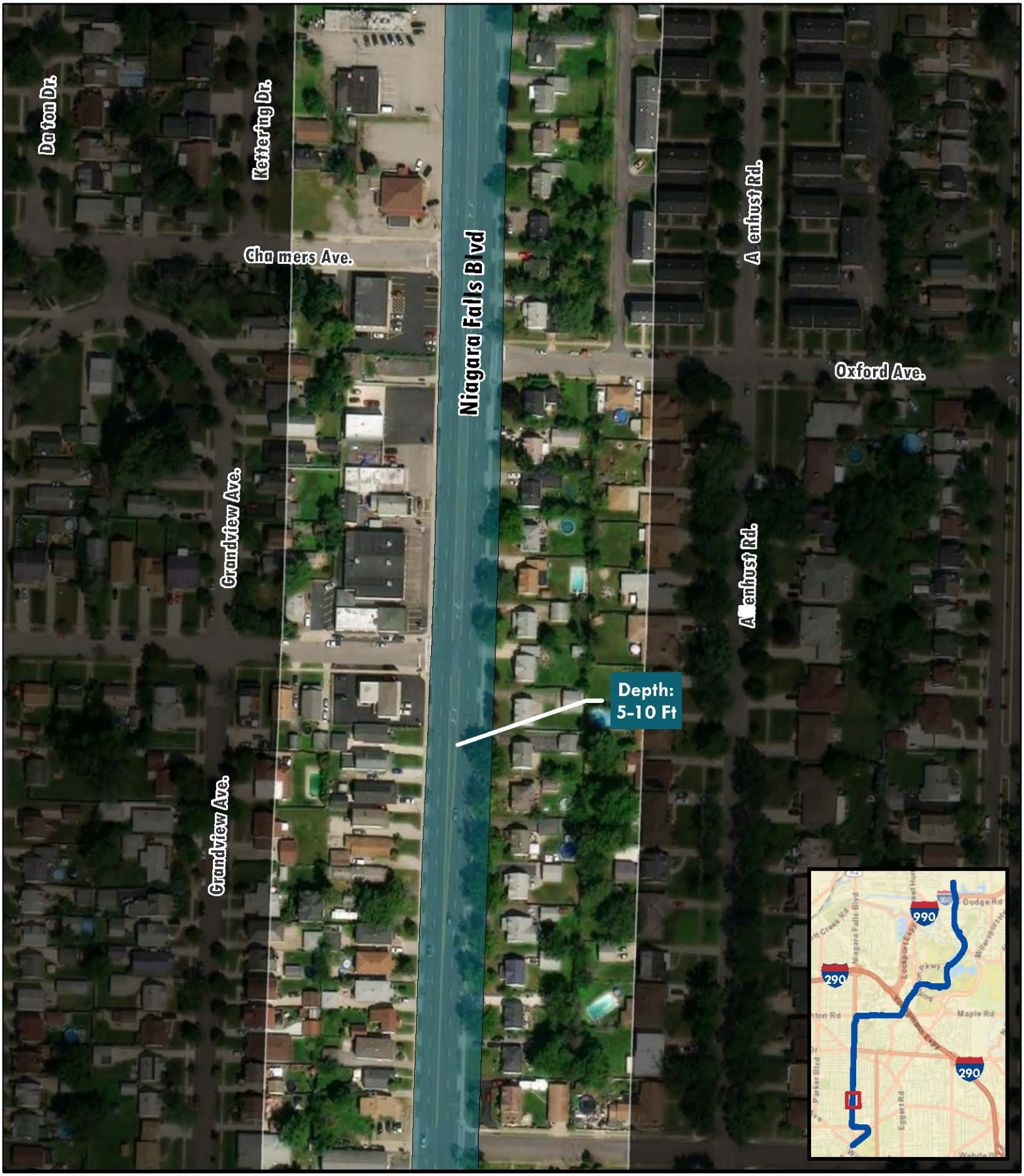
LRT Alternative Depth of Disturbance: Extent 3

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



LRT Alternative Depth of Disturbance: Extent 4

N

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

LRT Alternative Depth of Disturbance: Extent 5

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

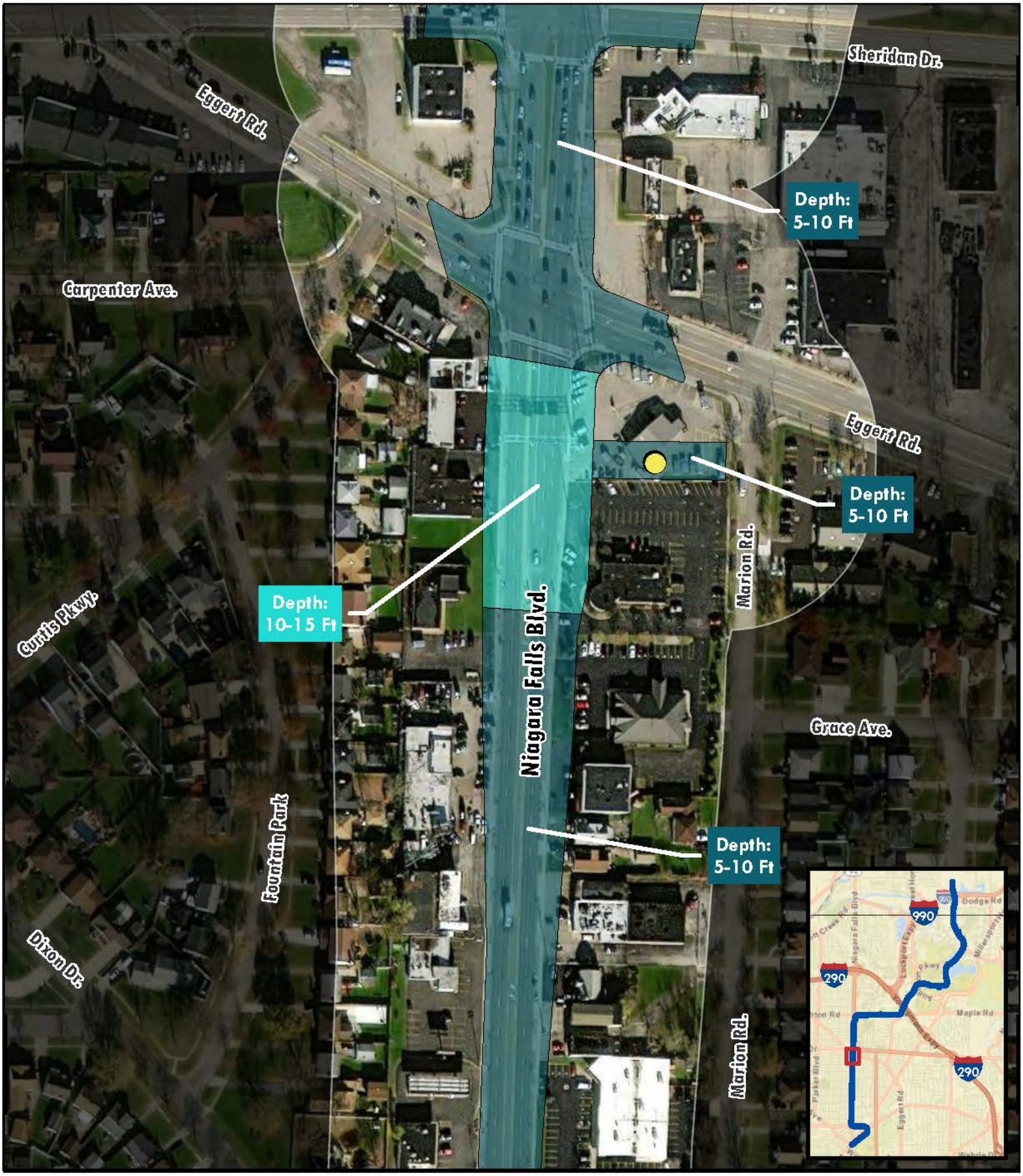
LRT Alternative Depth of Disturbance: Extent 6

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



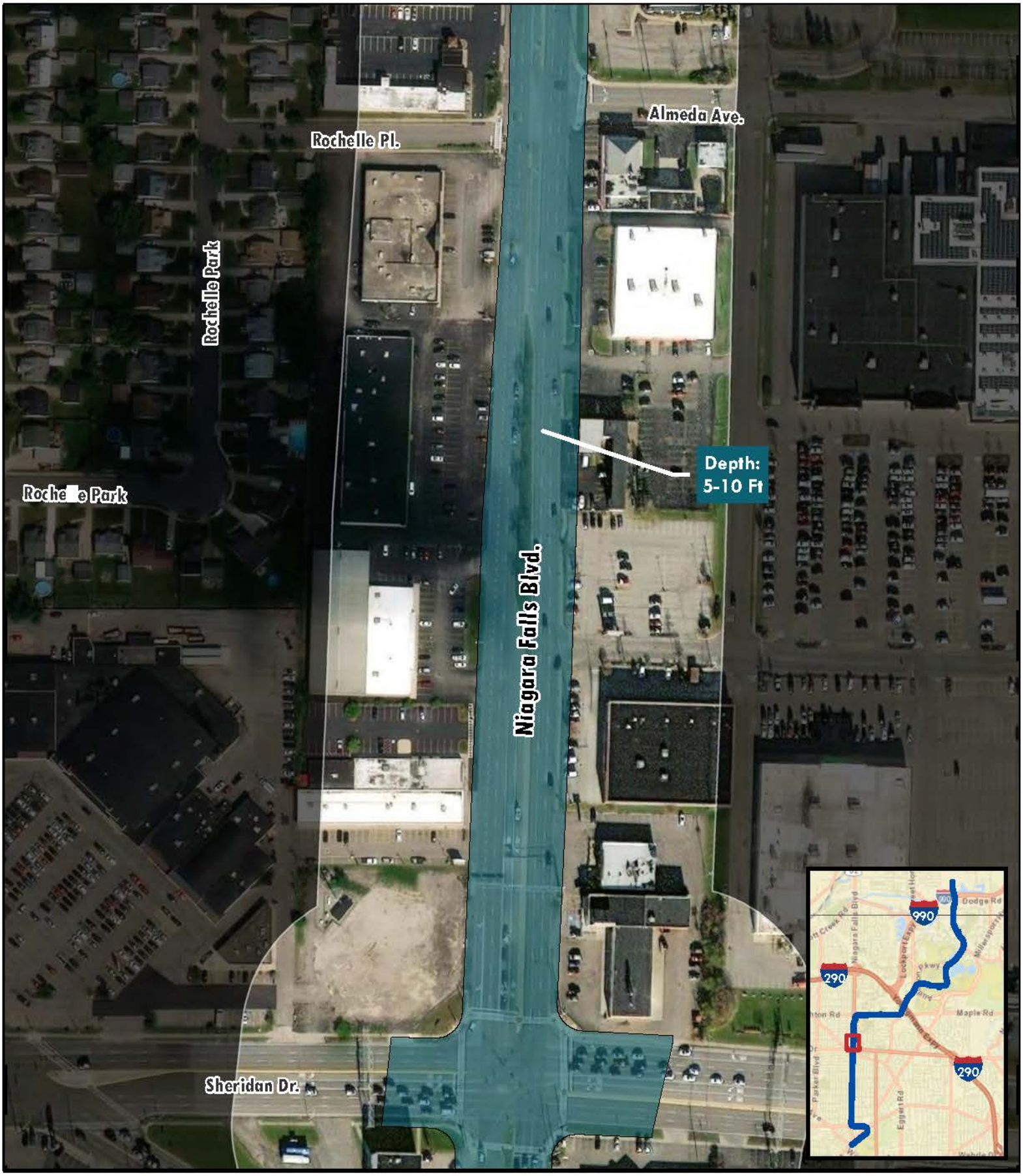
LRT Alternative Depth of Disturbance: Extent 7

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



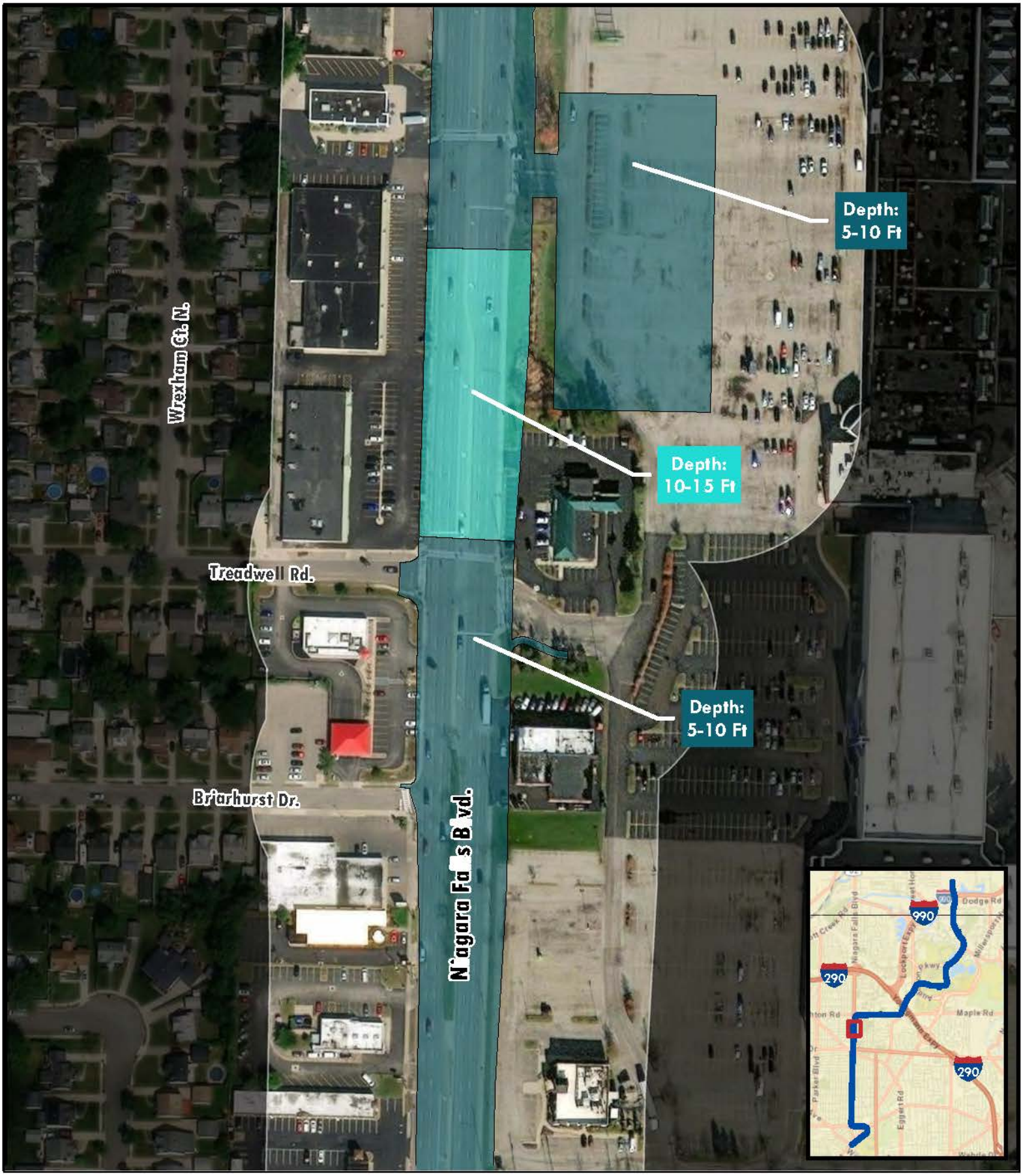
LRT Alternative Depth of Disturbance: Extent 8

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



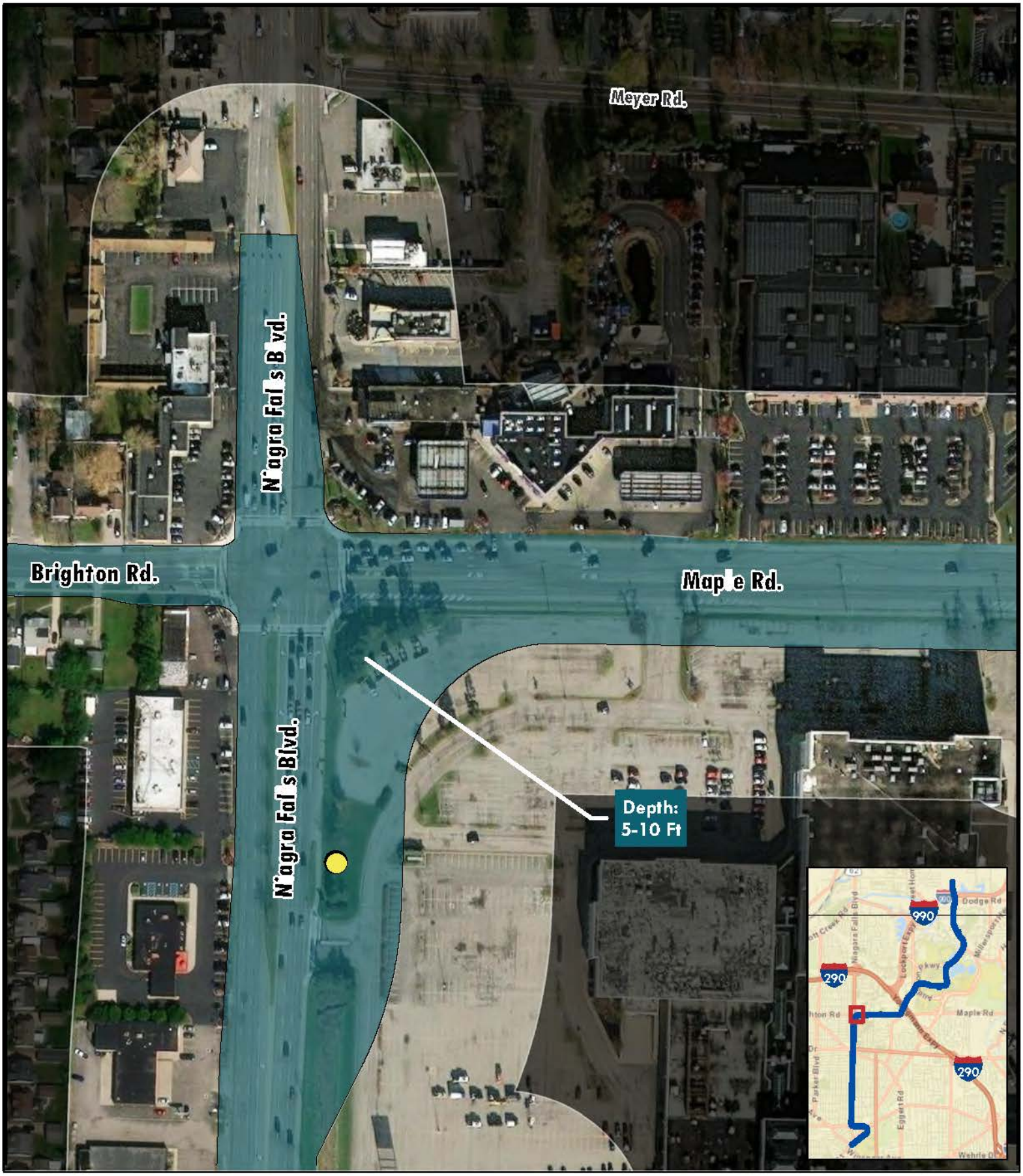
LRT Alternative Depth of Disturbance: Extent 9

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



LRT Alternative Depth of Disturbance: Extent 10

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

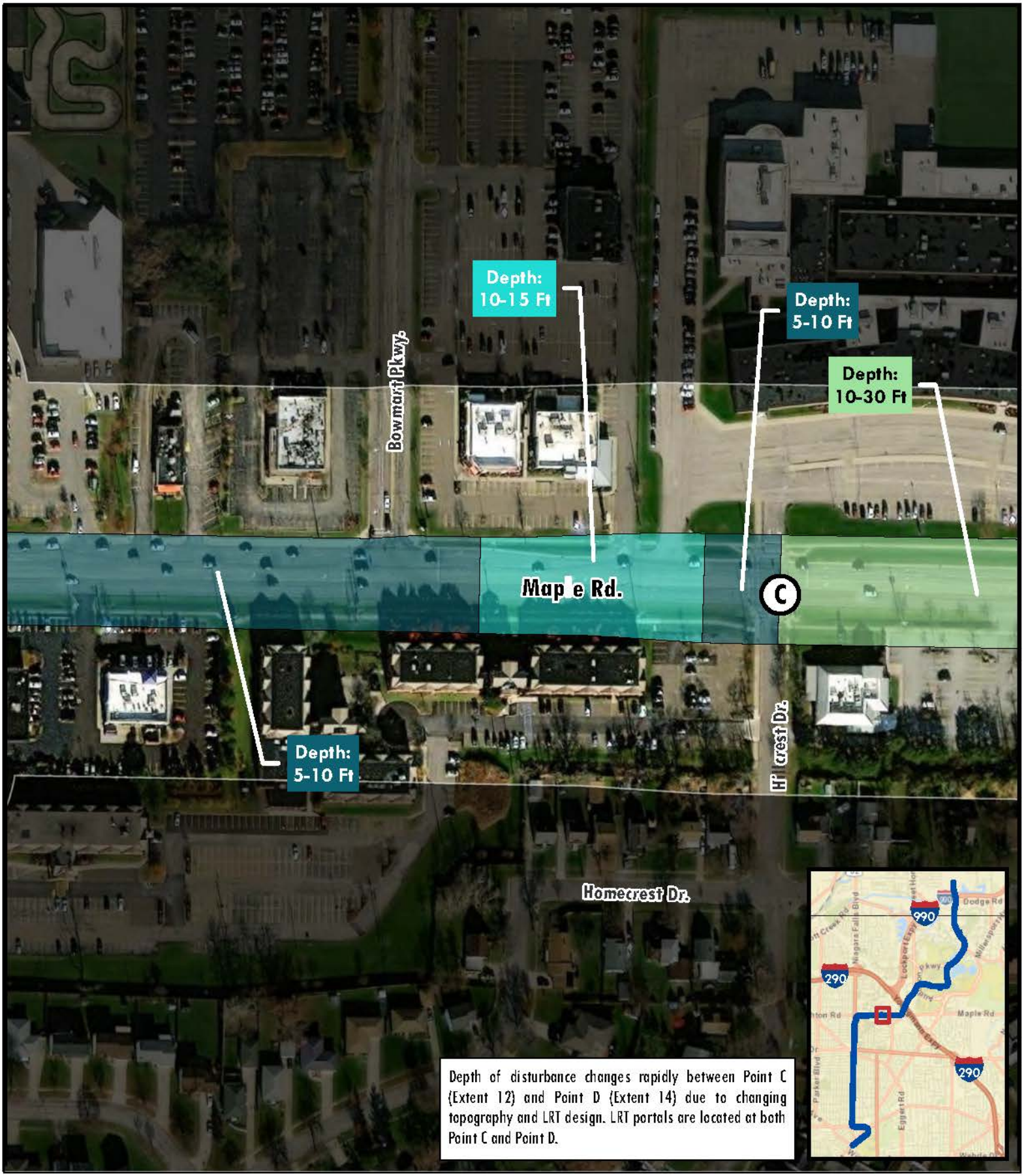
LRT Alternative Depth of Disturbance: Extent 11

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



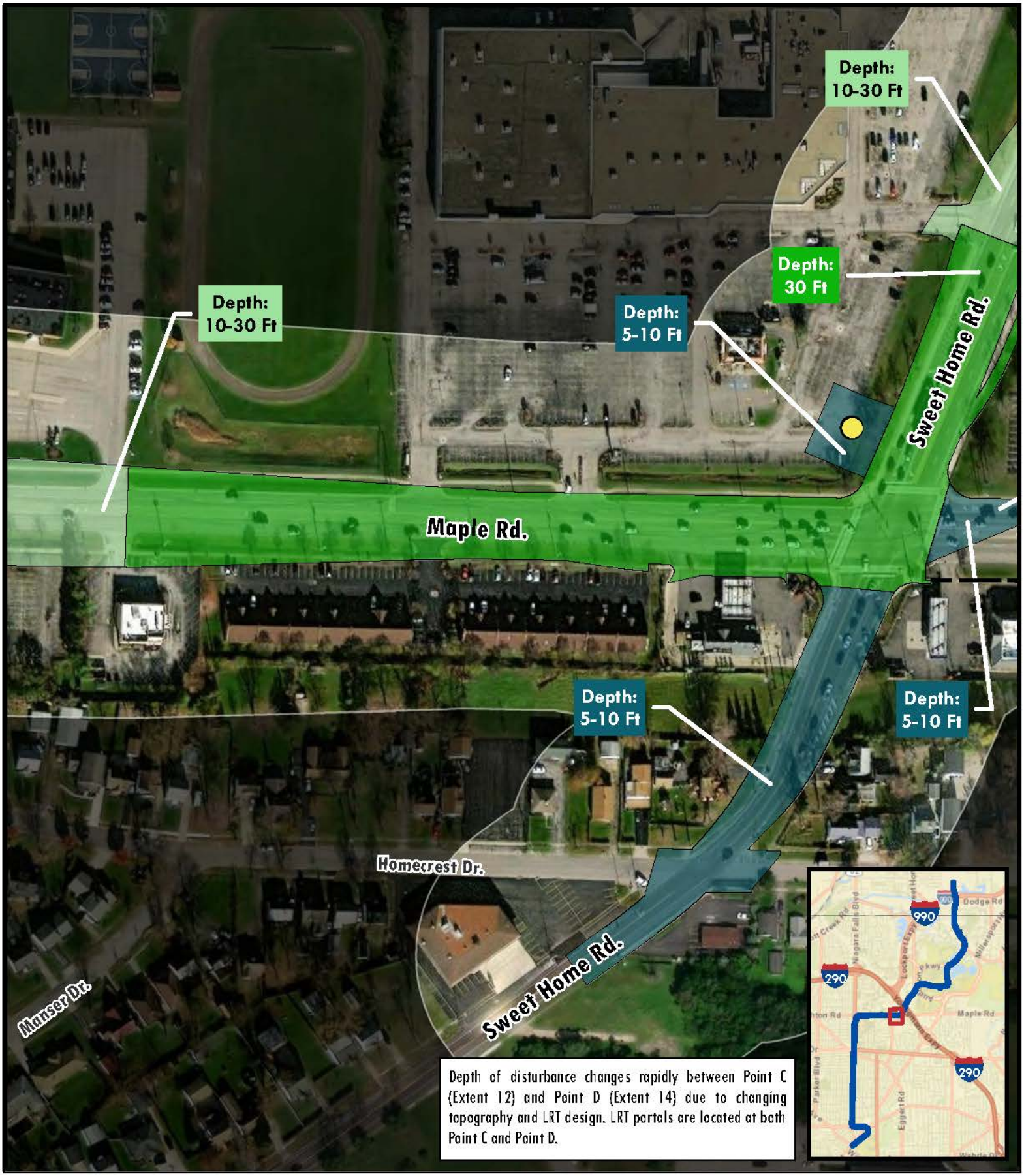
LRT Alternative Depth of Disturbance: Extent 12

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



LRT Alternative Depth of Disturbance: Extent 13

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

LRT Alternative Depth of Disturbance: Extent 14

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

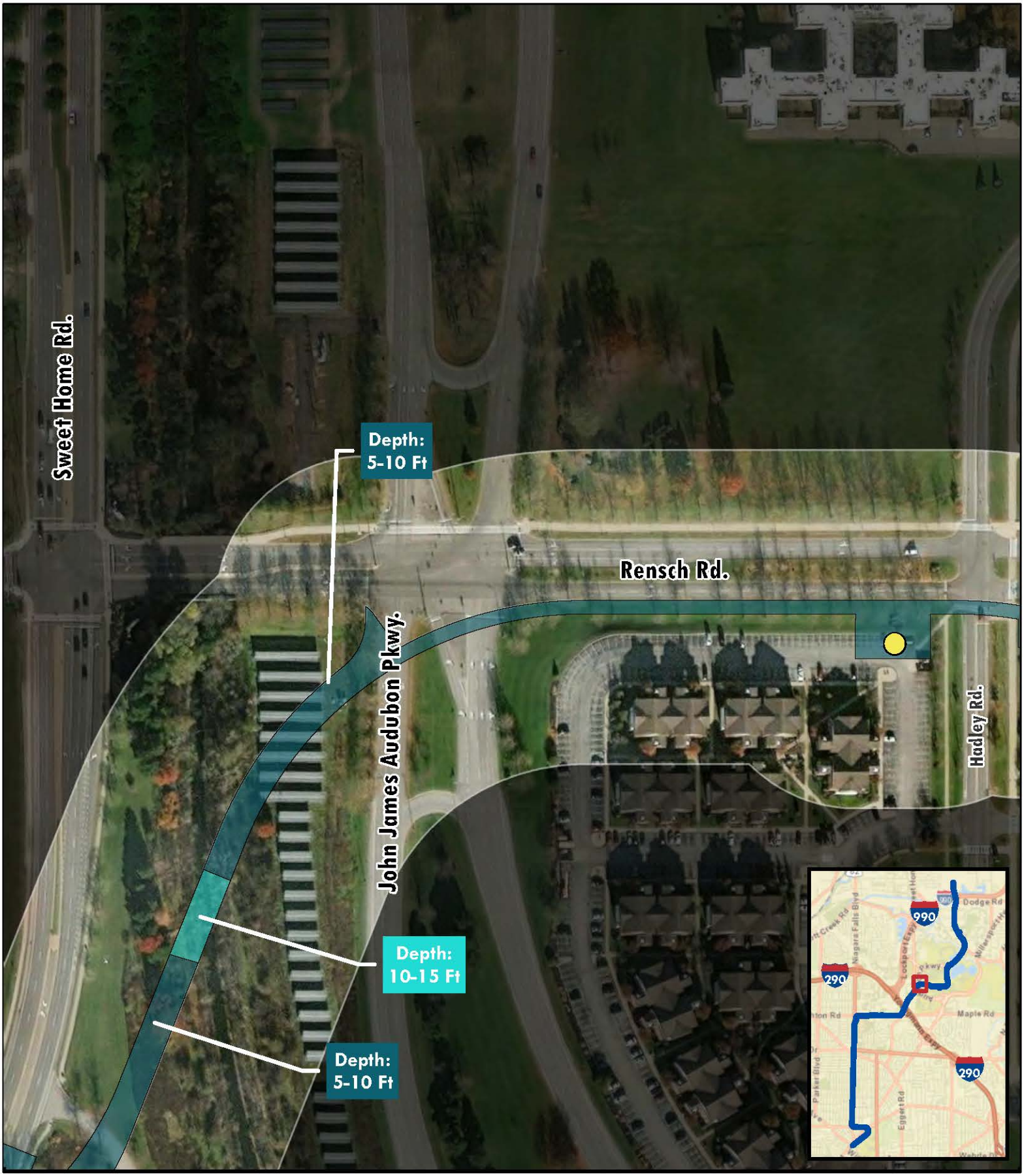
LRT Alternative Depth of Disturbance: Extent 15

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



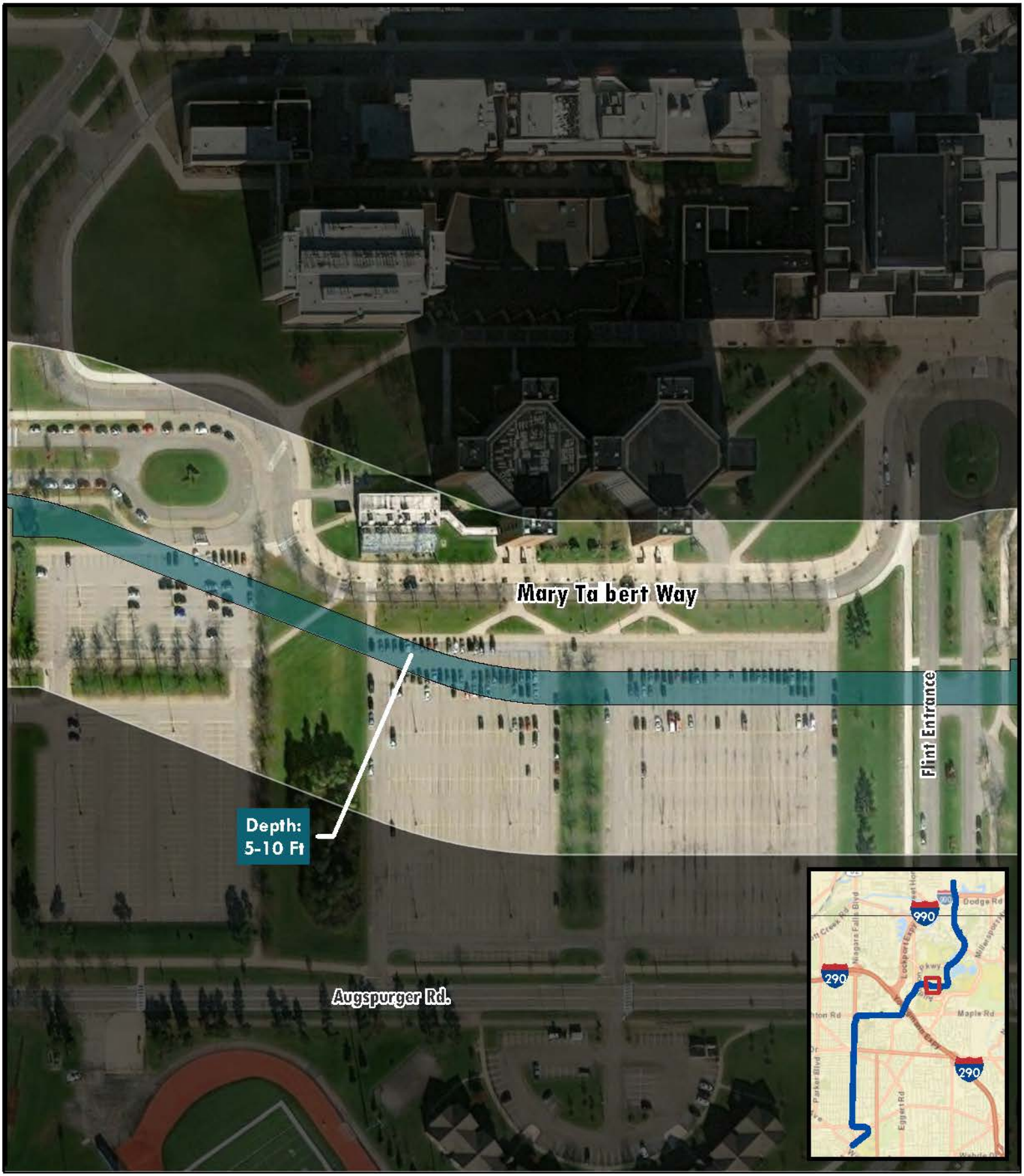
LRT Alternative Depth of Disturbance: Extent 16

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



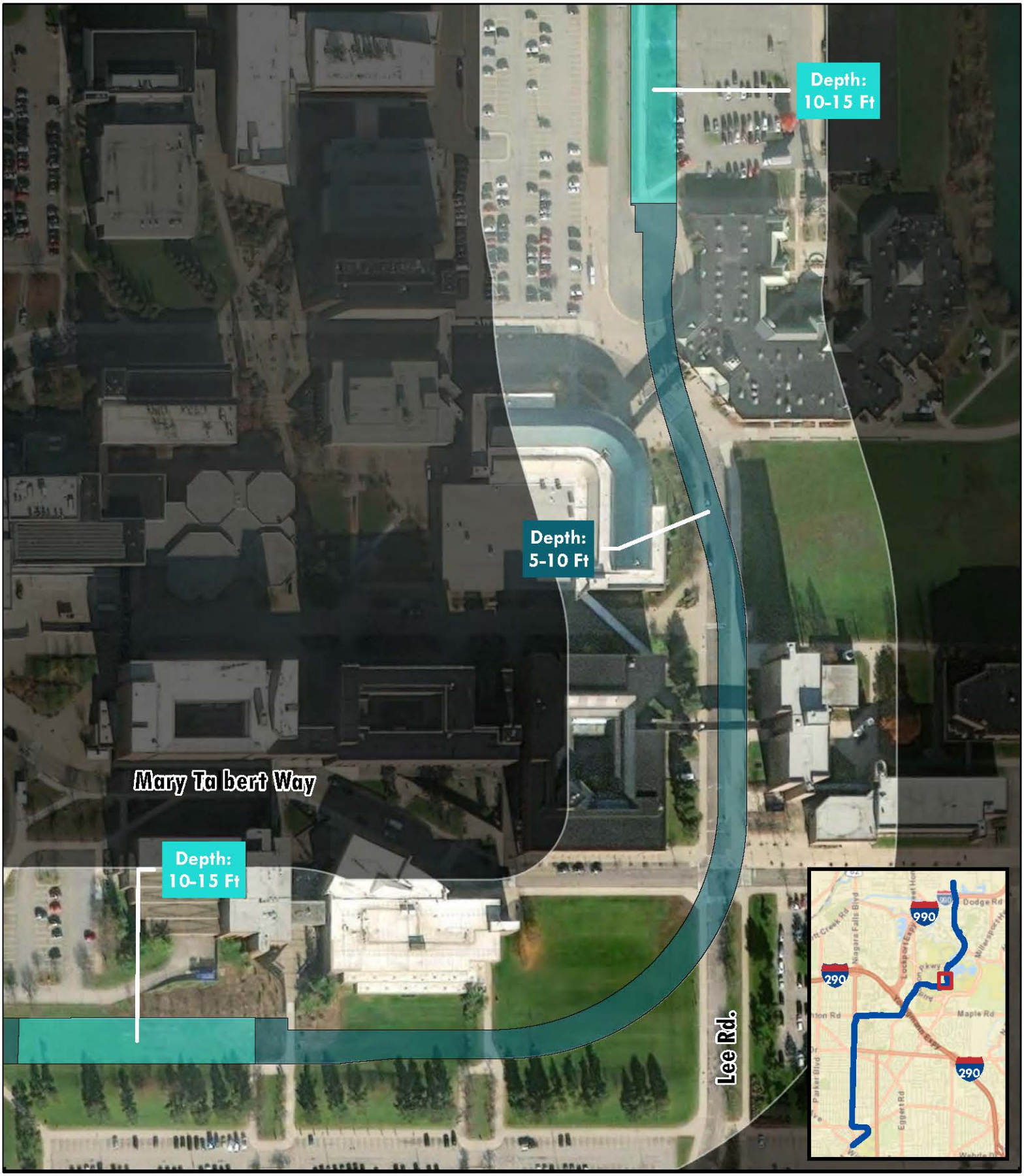
LRT Alternative Depth of Disturbance: Extent 17

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



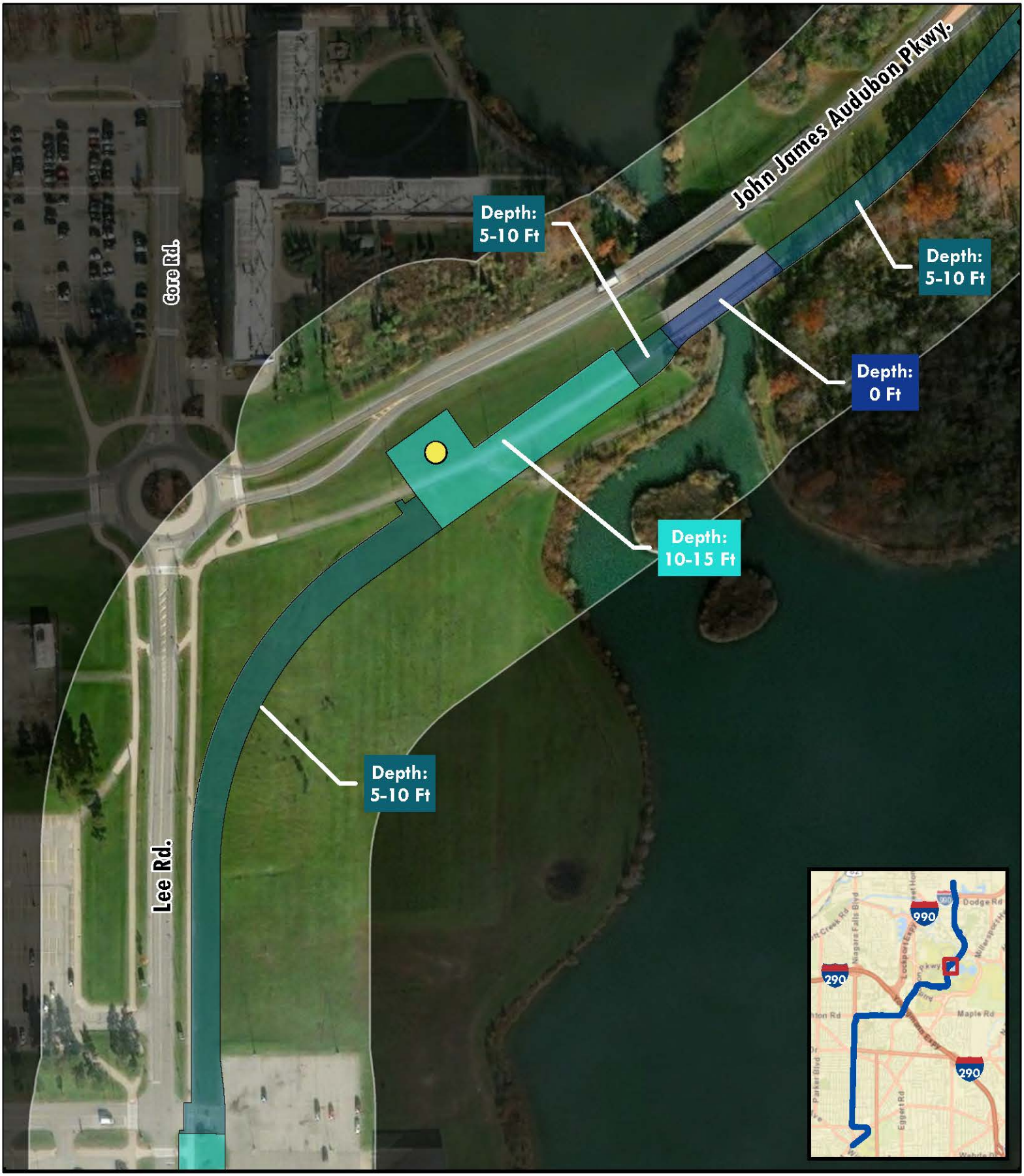
LRT Alternative Depth of Disturbance: Extent 18

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



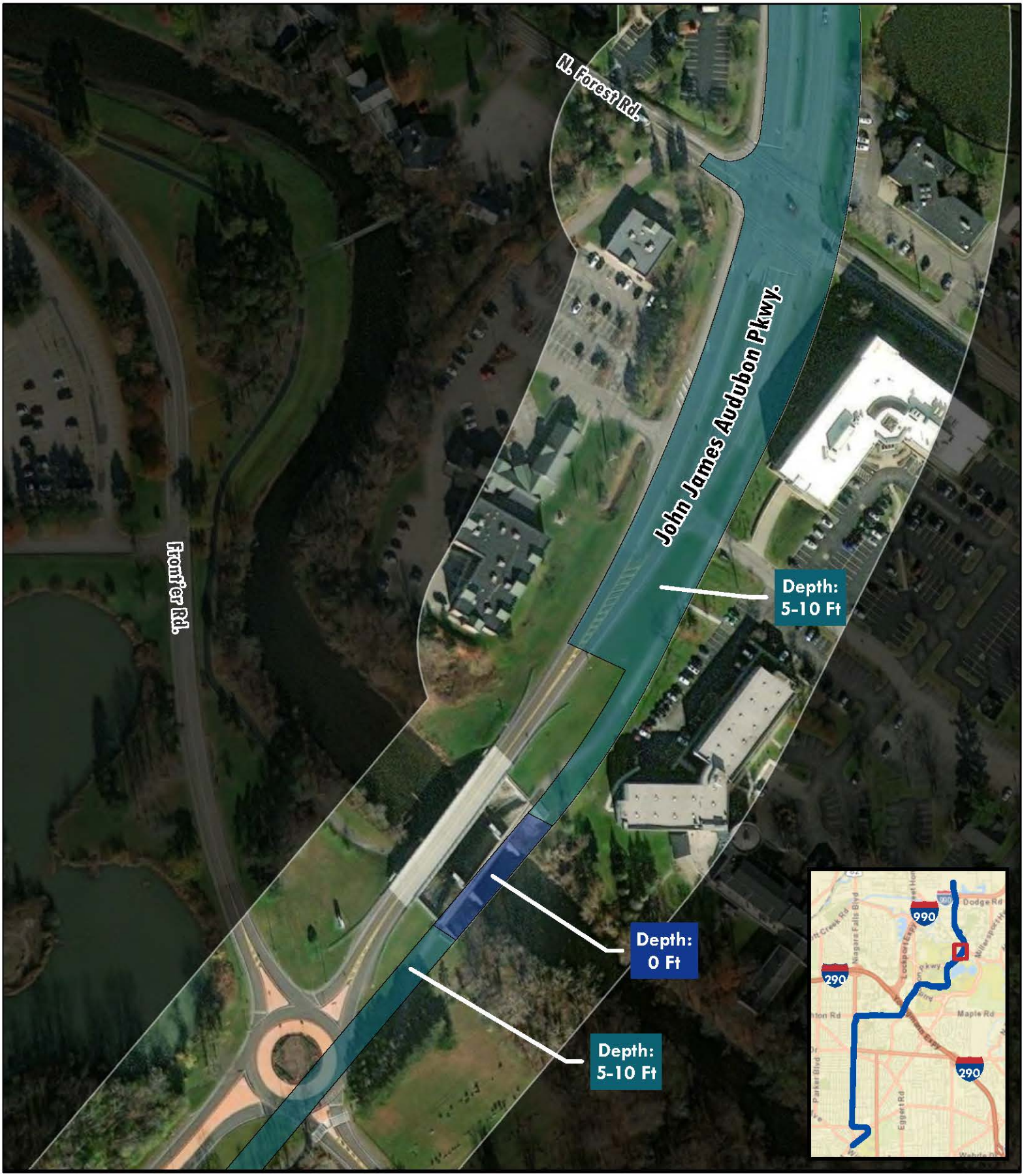
LRT Alternative Depth of Disturbance: Extent 19

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



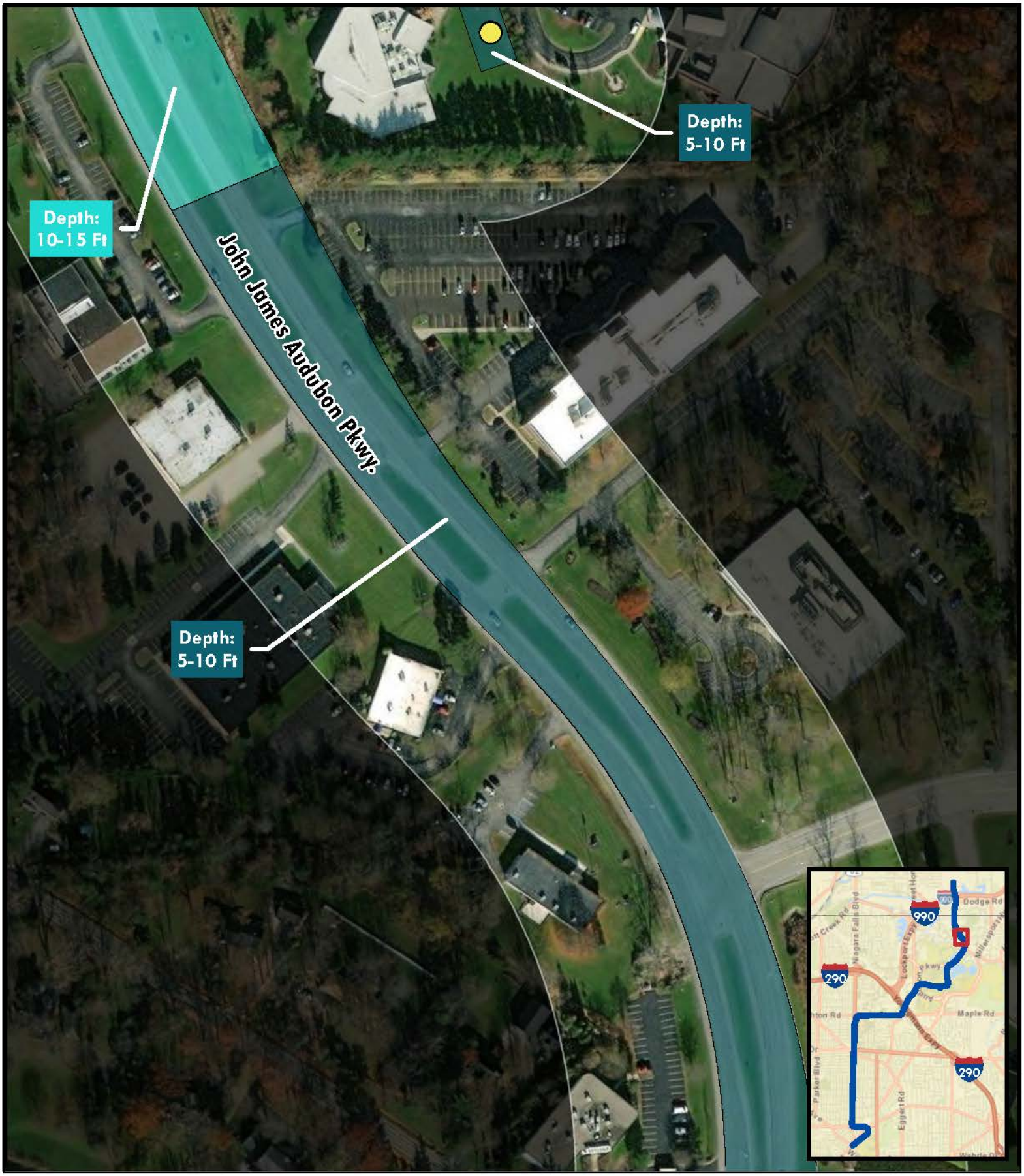
LRT Alternative Depth of Disturbance: Extent 20

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



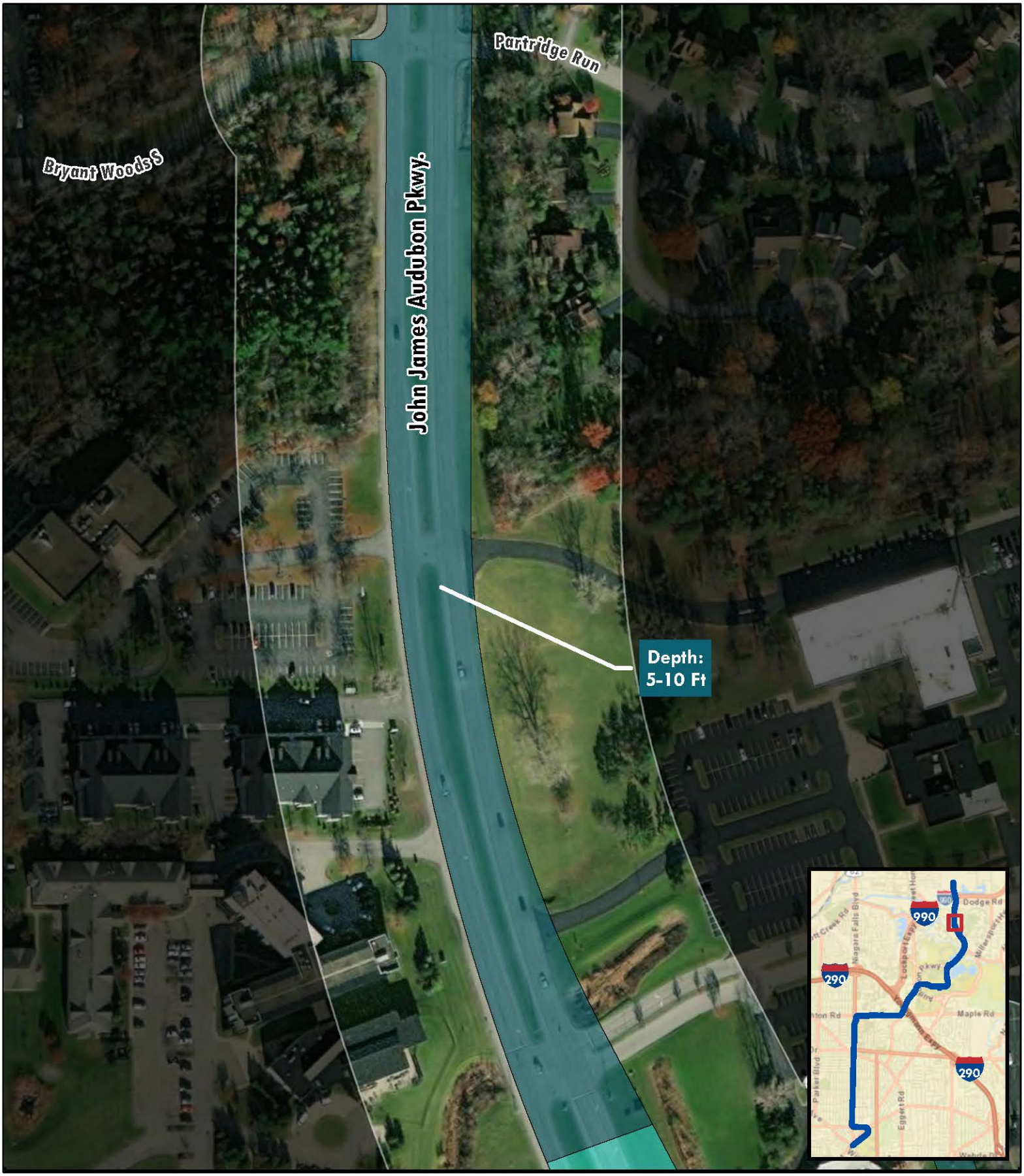
LRT Alternative Depth of Disturbance: Extent 21

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



LRT Alternative Depth of Disturbance: Extent 22

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

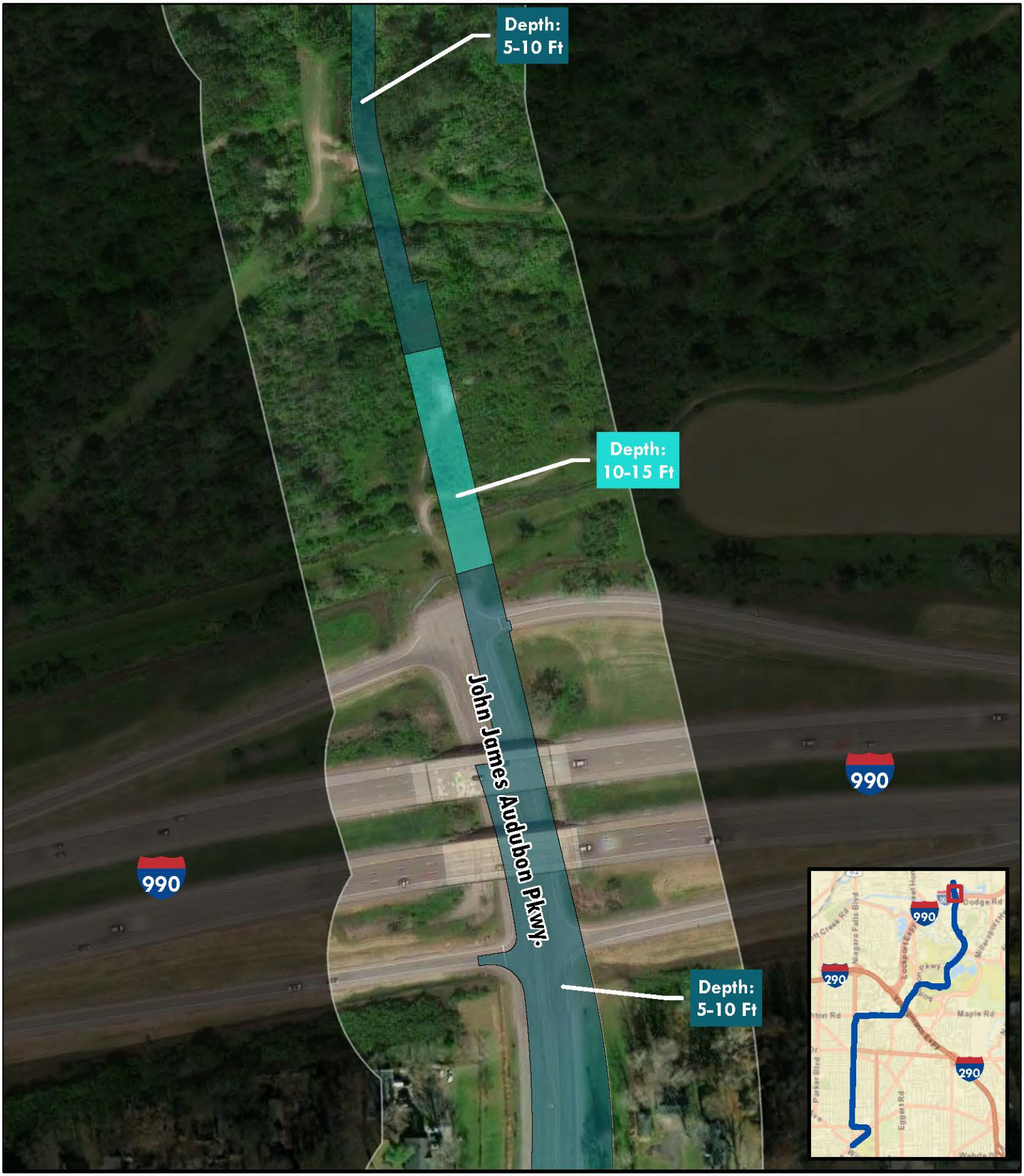
LRT Alternative Depth of Disturbance: Extent 23

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



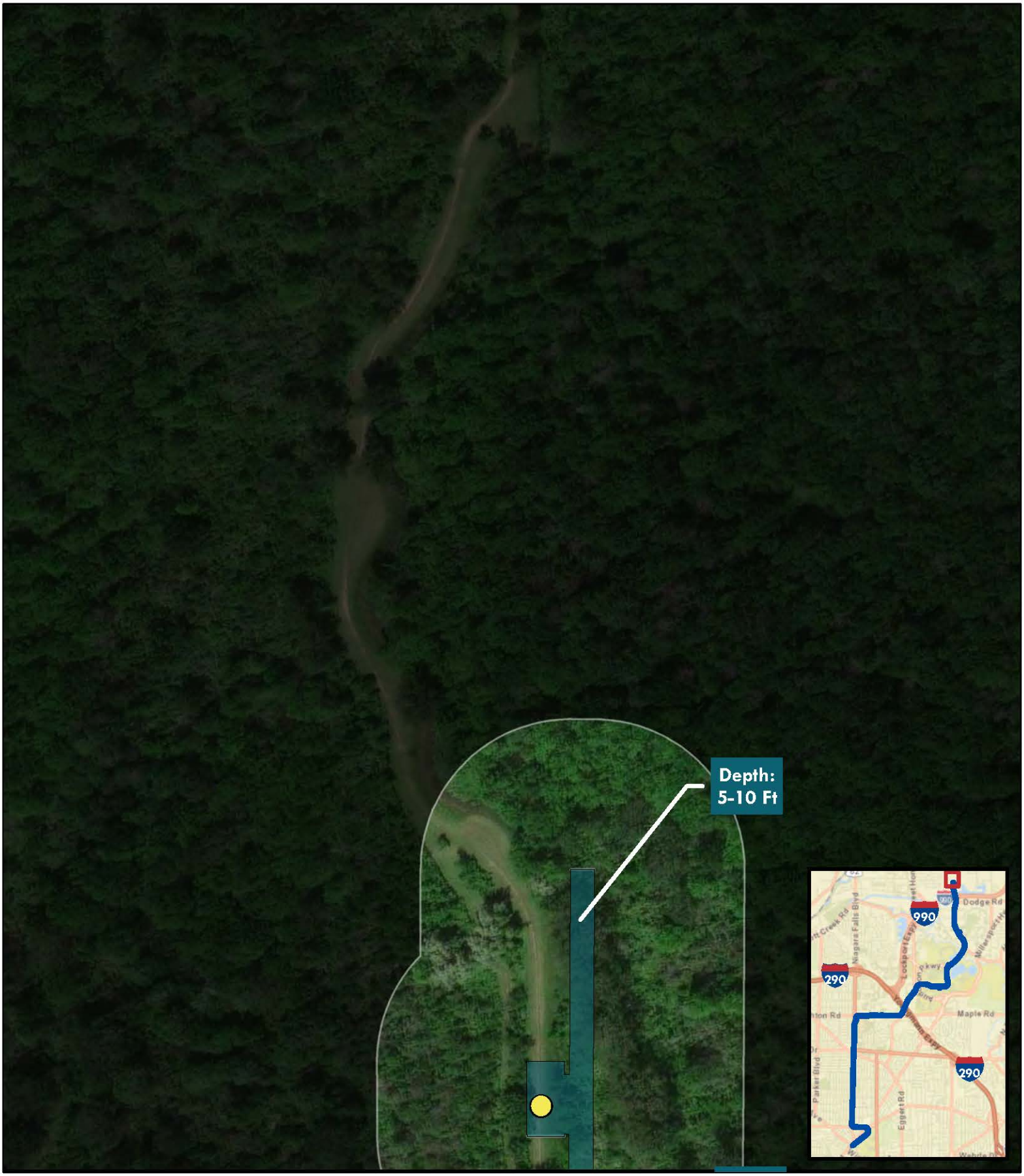
LRT Alternative Depth of Disturbance: Extent 24

N

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only



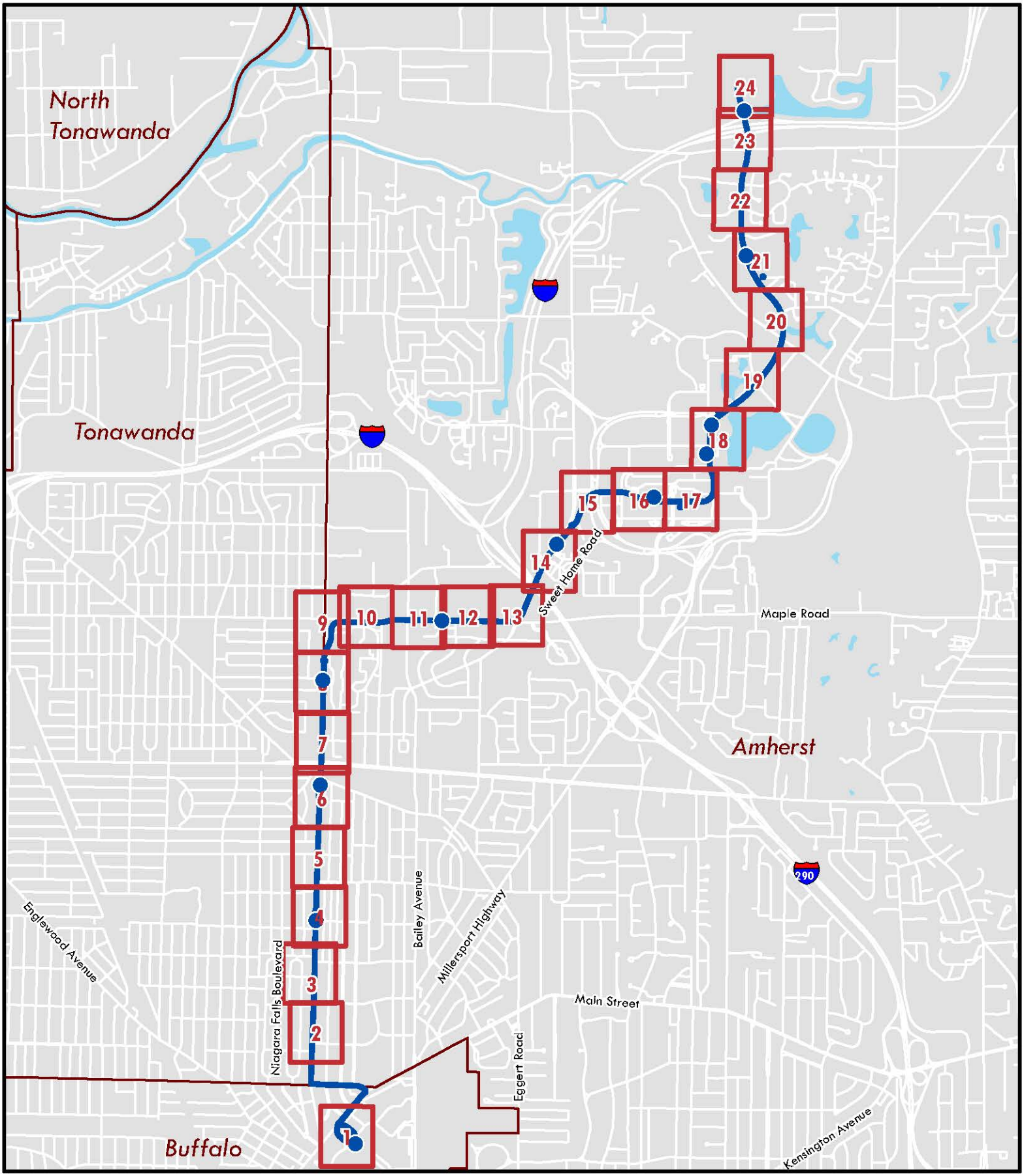
LRT Alternative Depth of Disturbance: Extent 25

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 10-30 Feet Depth
- 30 Feet Depth
- 30-40 Feet Depth
- 40-50 Feet Depth
- 50-60 Feet Depth
- 60-70 Feet Depth
- Approximate Substation Location
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

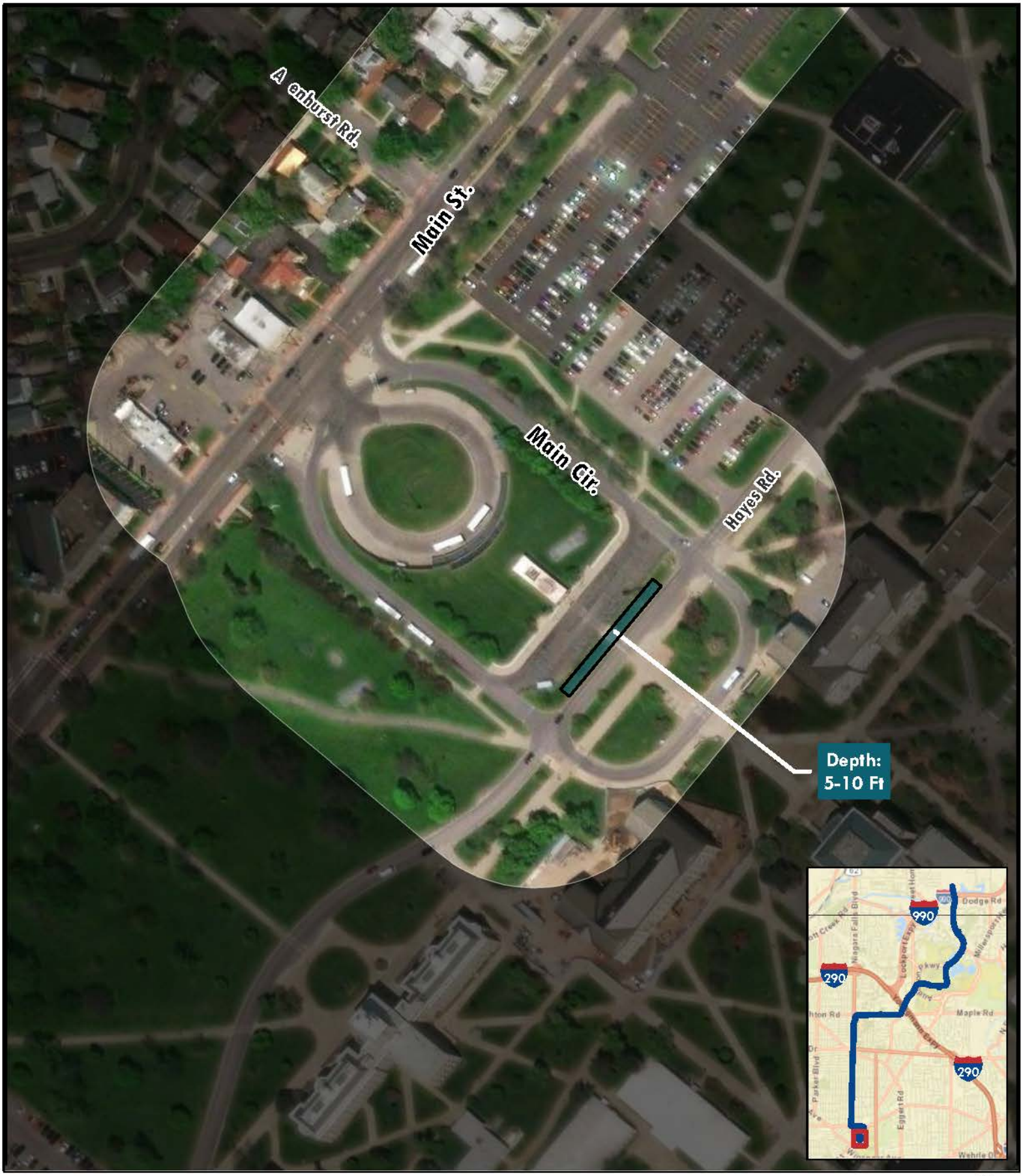


BRT Alternative Depth of Disturbance: Map Extent Index

- Proposed Station
- Proposed BRT Alternative Alignment
- Map Extent
- City and Town Boundary

N

0 0.5 1 Miles



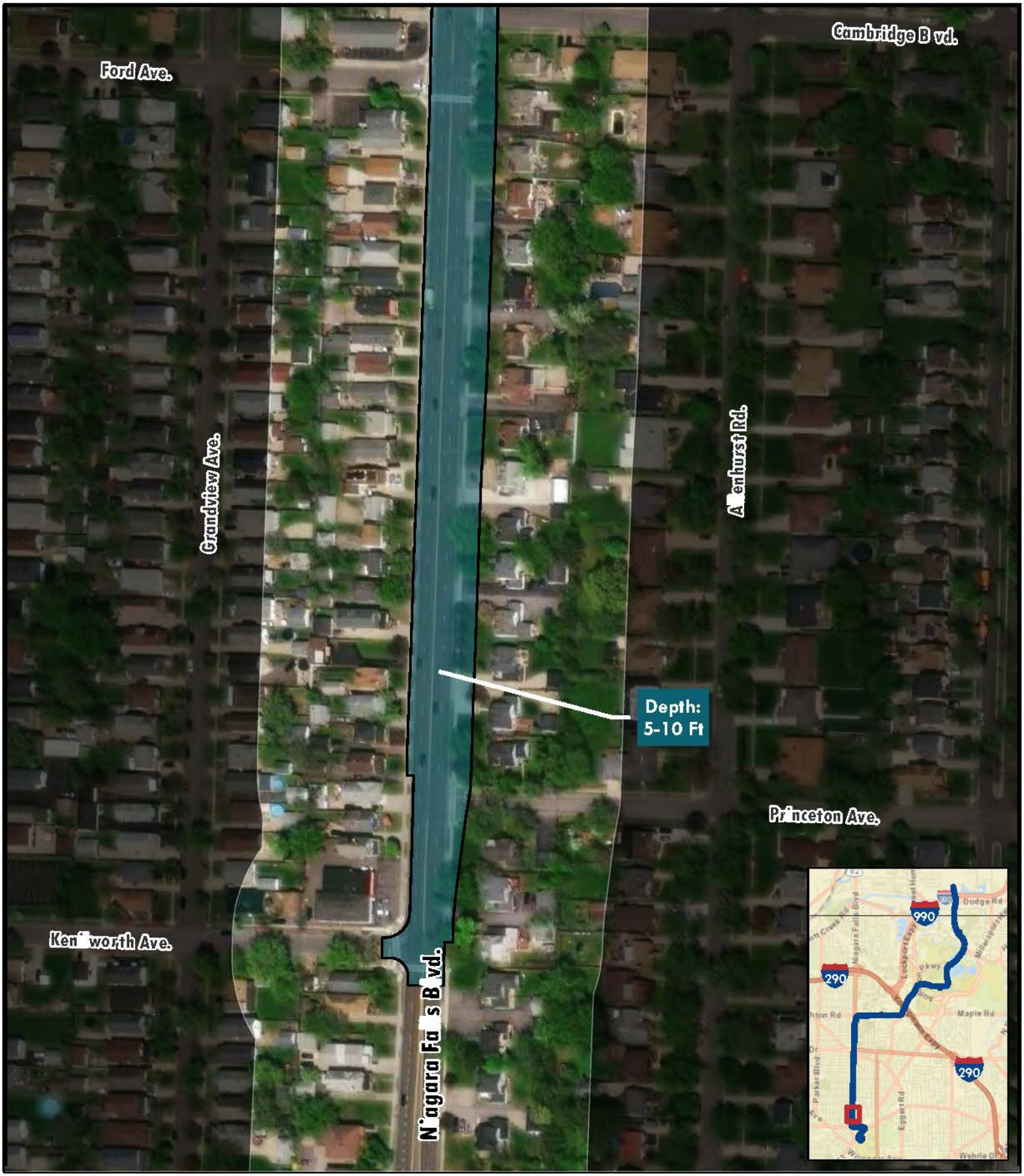
BRT Alternative Depth of Disturbance: Extent 1

- 0 Foot Depth
- 200-Foot Buffer*
- 5-10 Feet Depth
- 10-15 Feet Depth

N

0 100 200 Feet

* Buffer for display purposes only



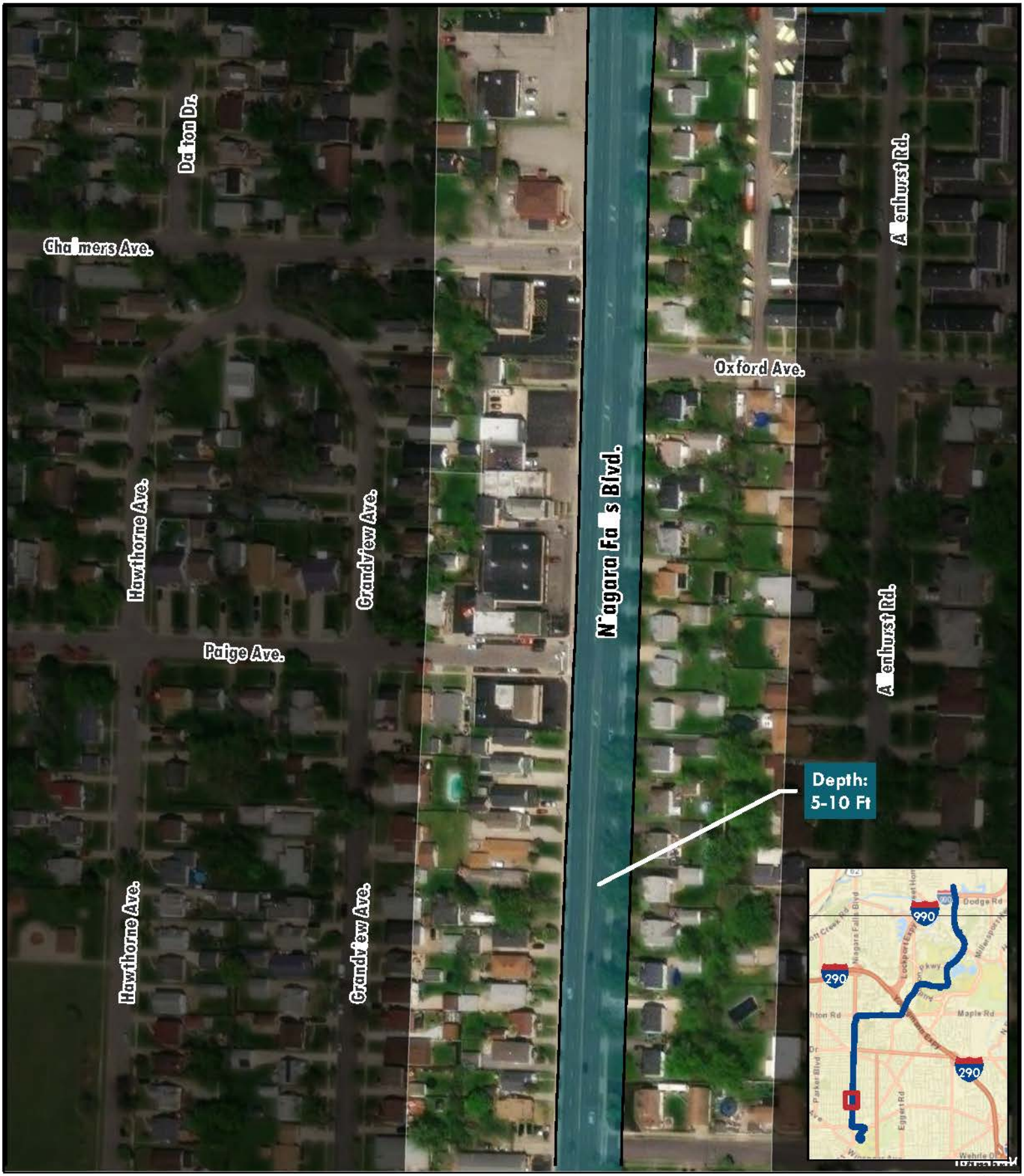
BRT Alternative Depth of Disturbance: Extent 2

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



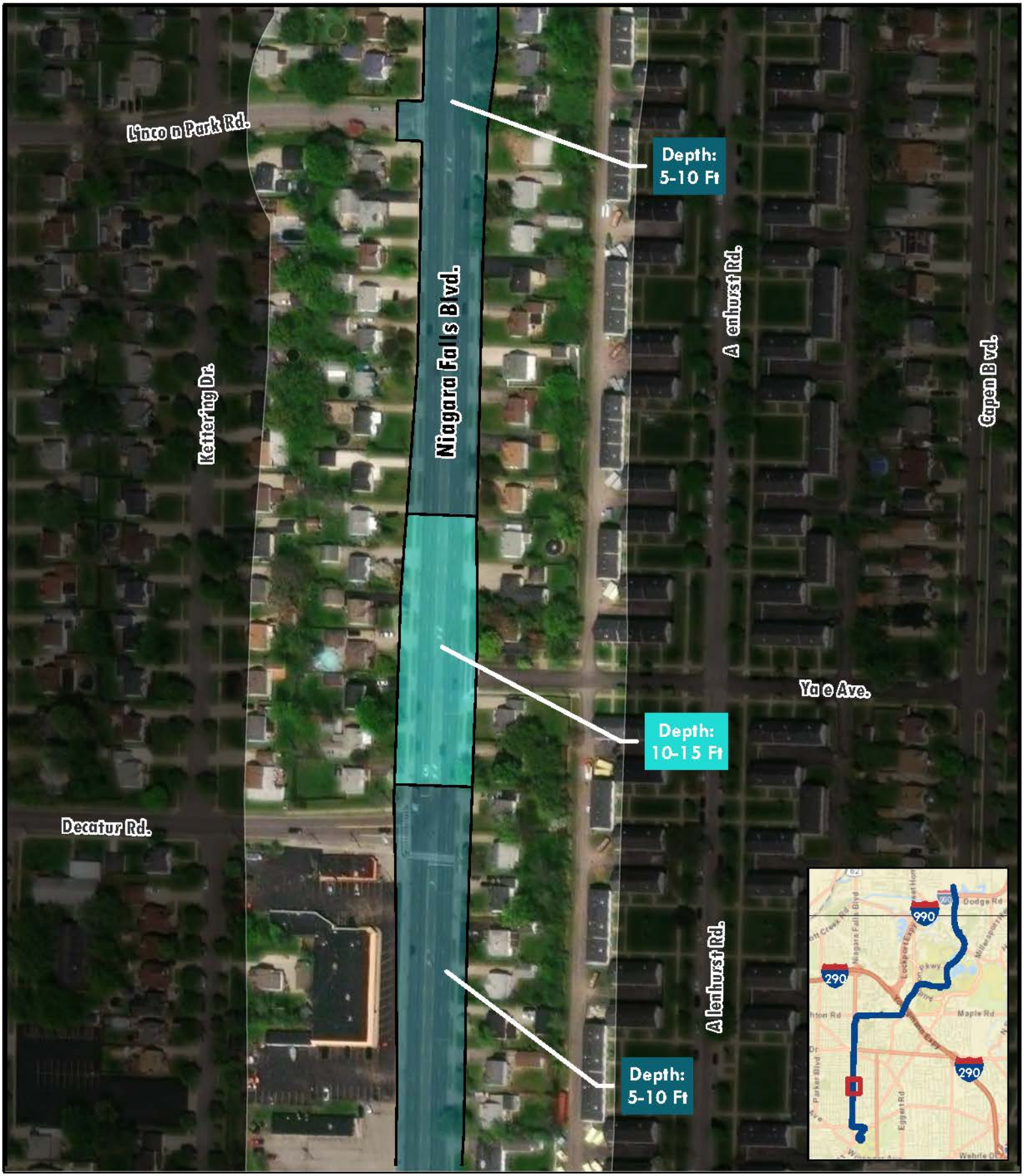
BRT Alternative Depth of Disturbance: Extent 3

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



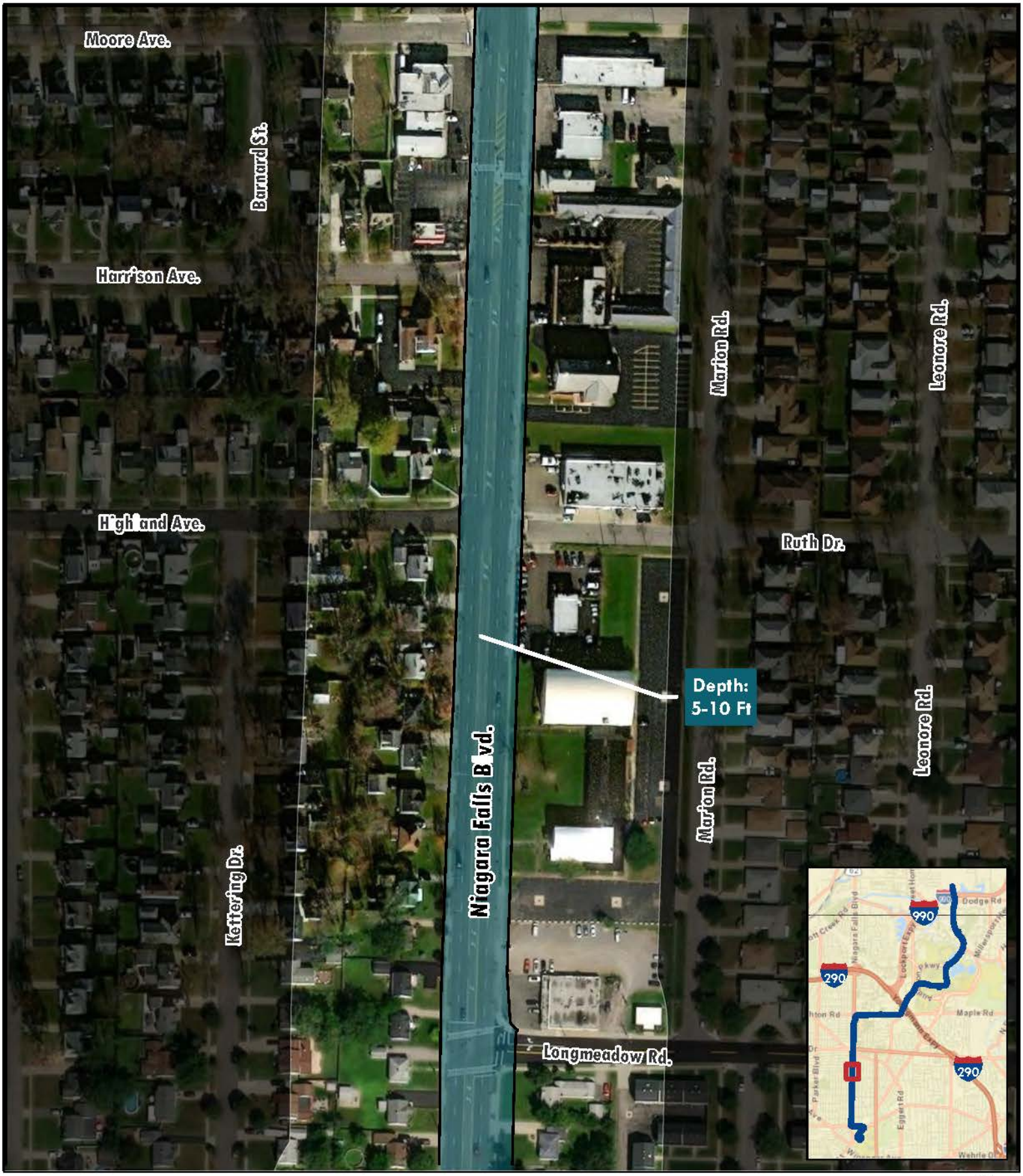
BRT Alternative Depth of Disturbance: Extent 4

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



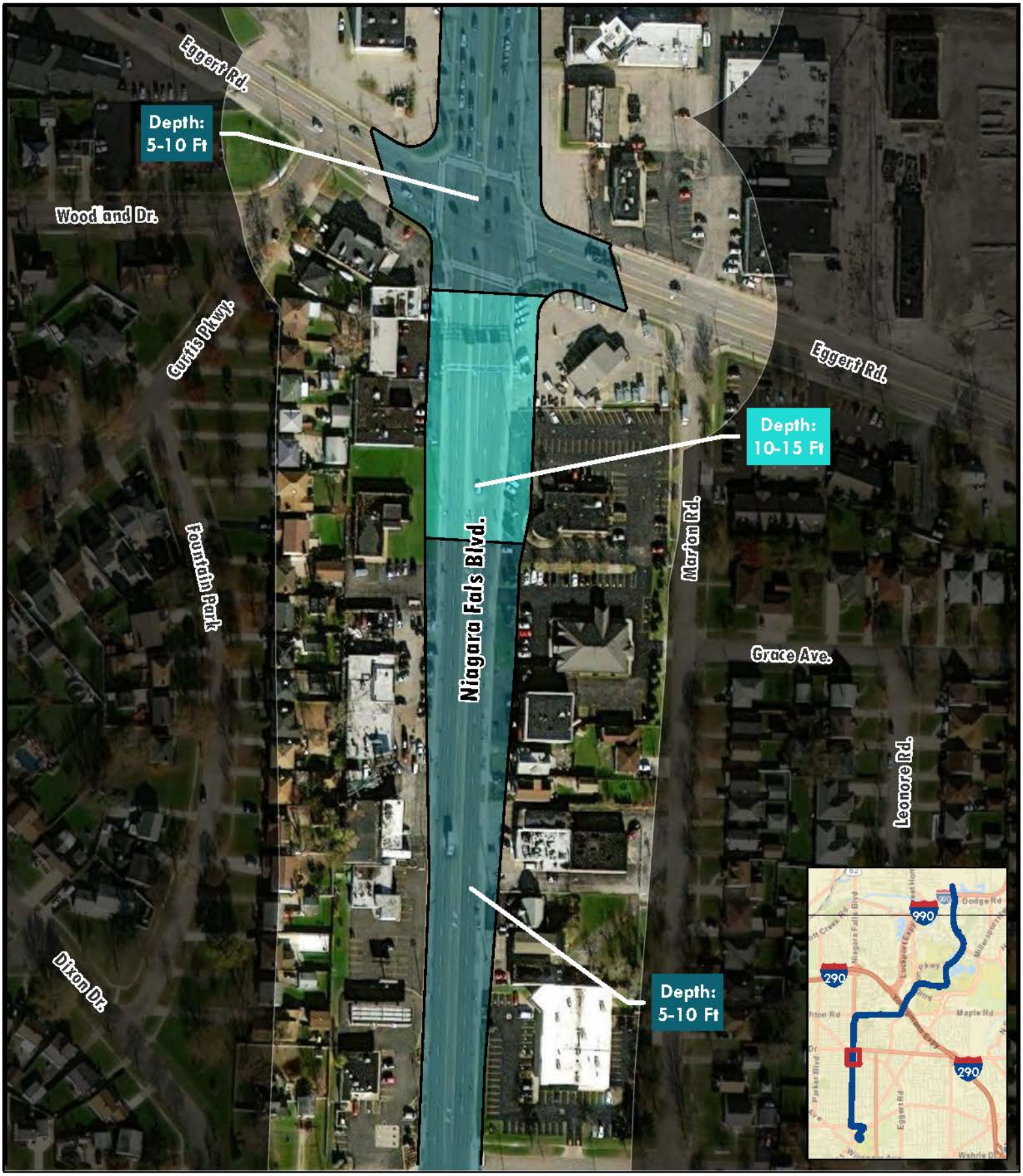
BRT Alternative Depth of Disturbance: Extent 5

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



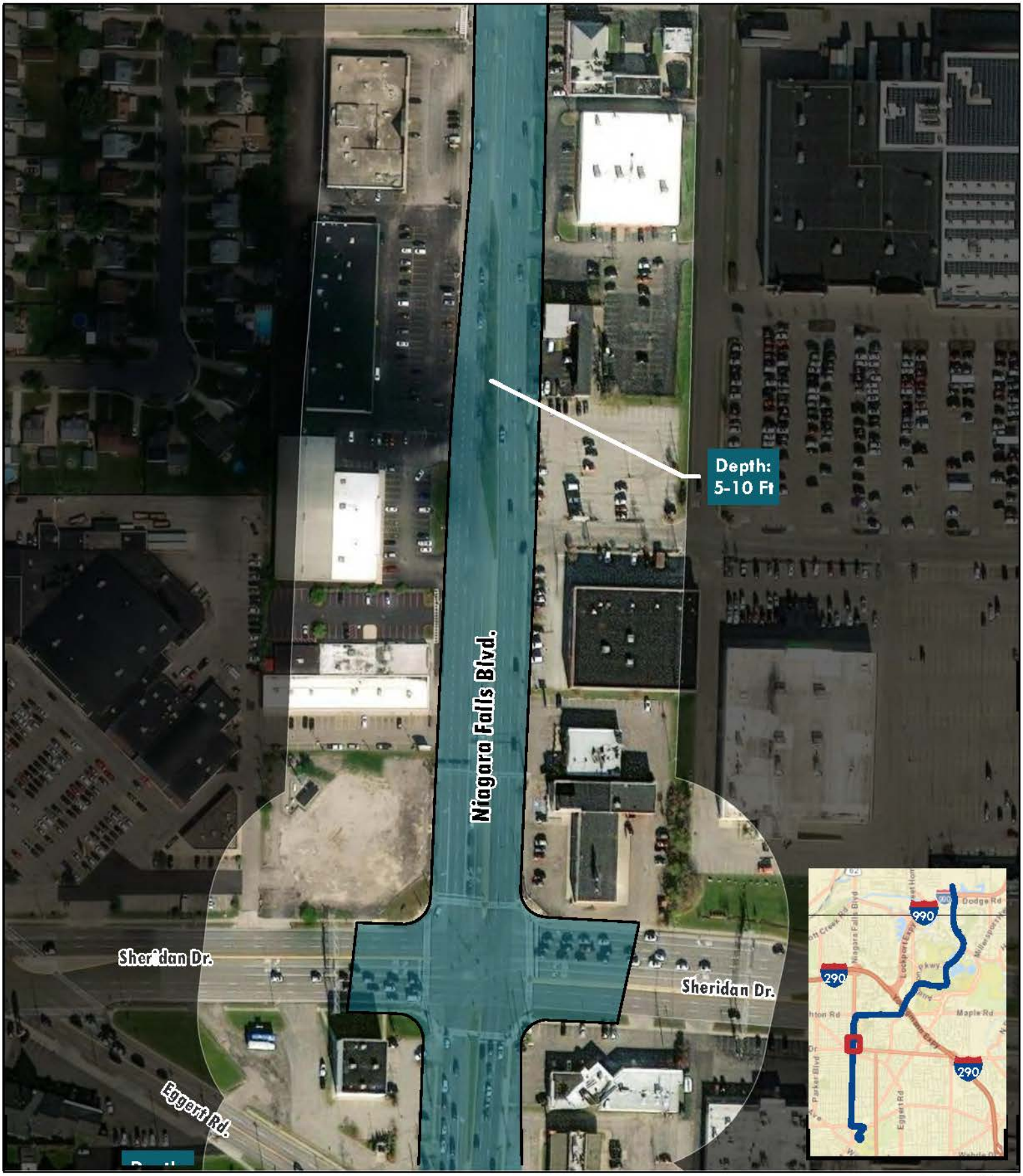
BRT Alternative Depth of Disturbance: Extent 6

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



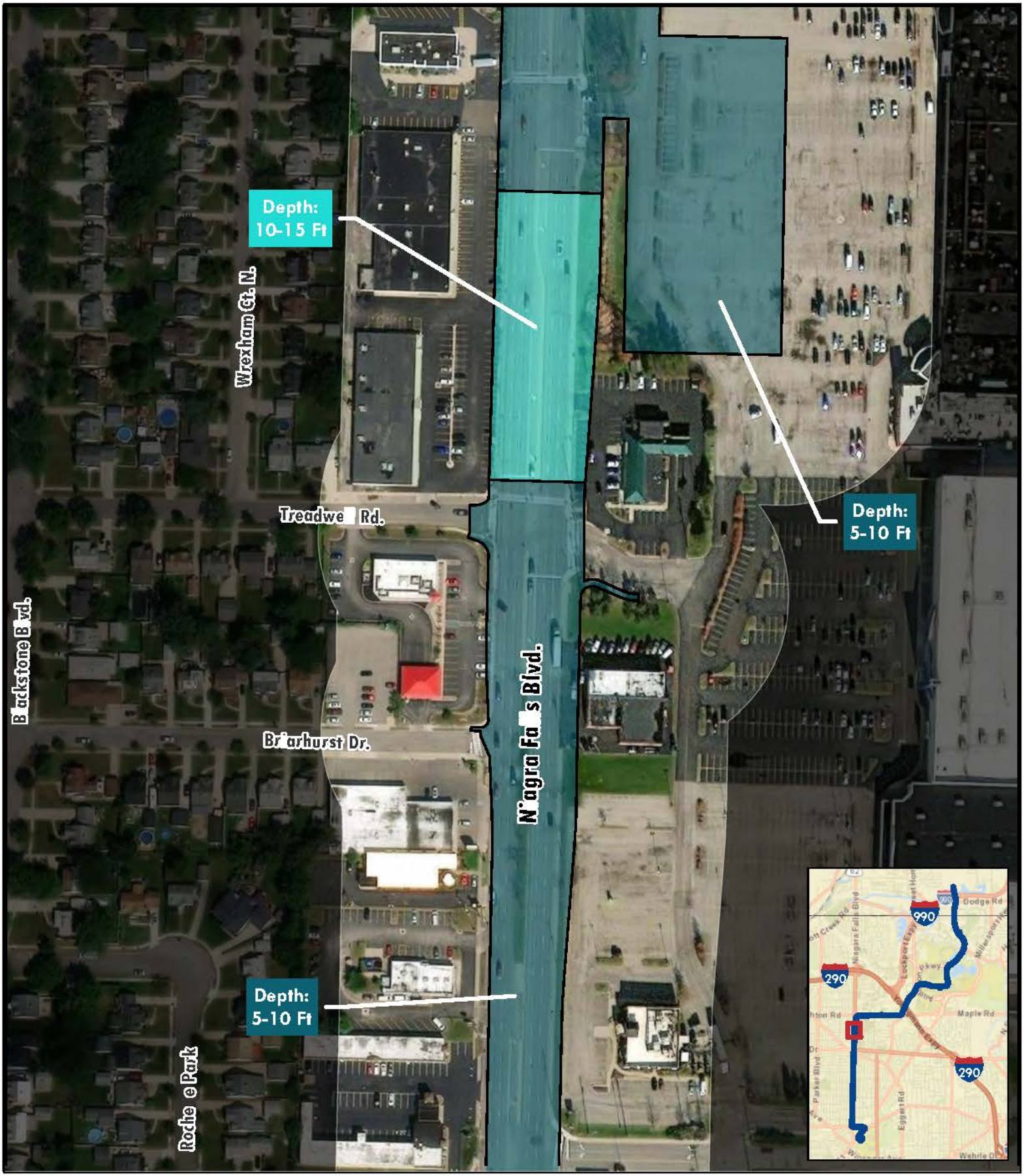
BRT Alternative Depth of Disturbance: Extent 7

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



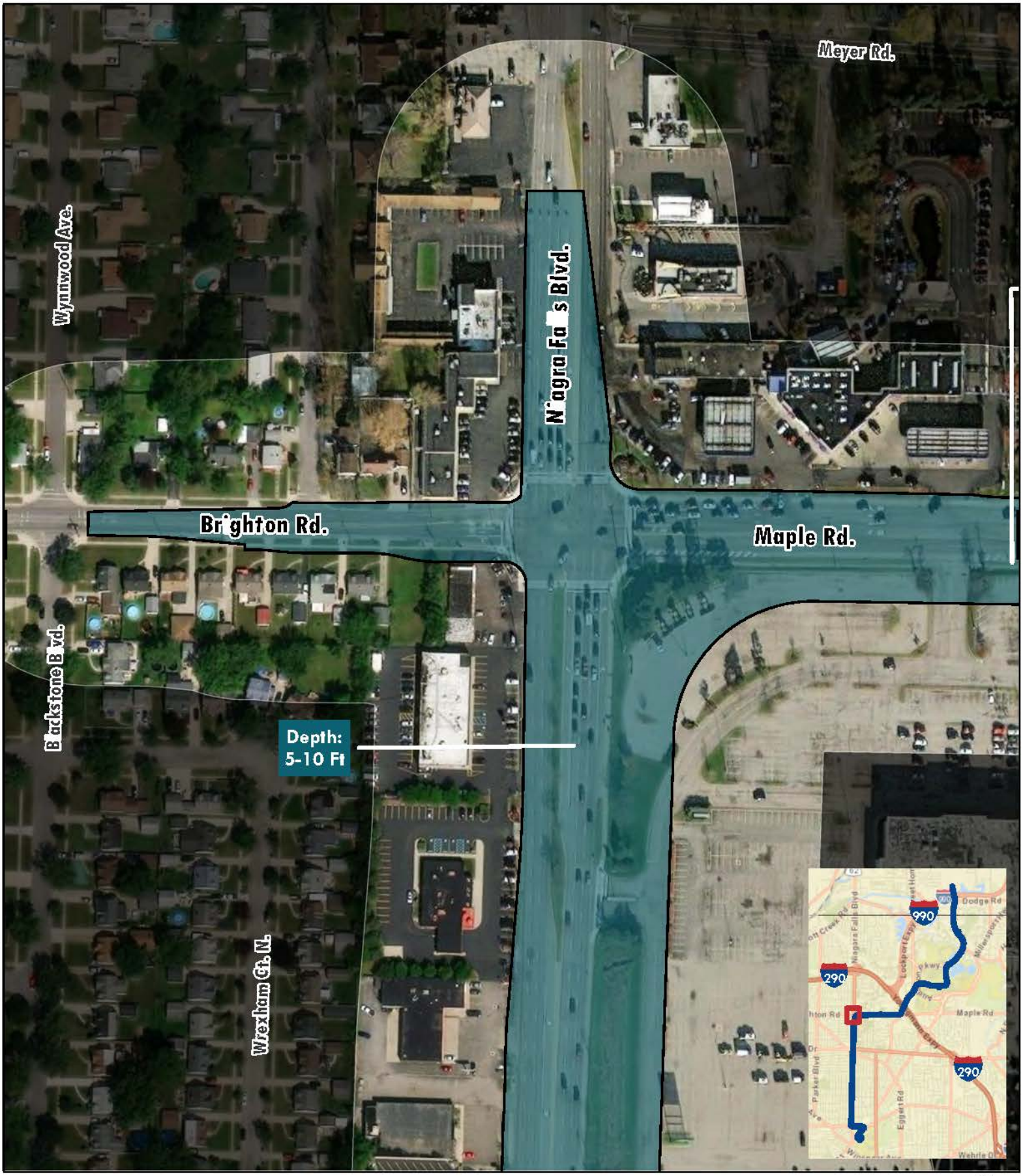
BRT Alternative Depth of Disturbance: Extent 8

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



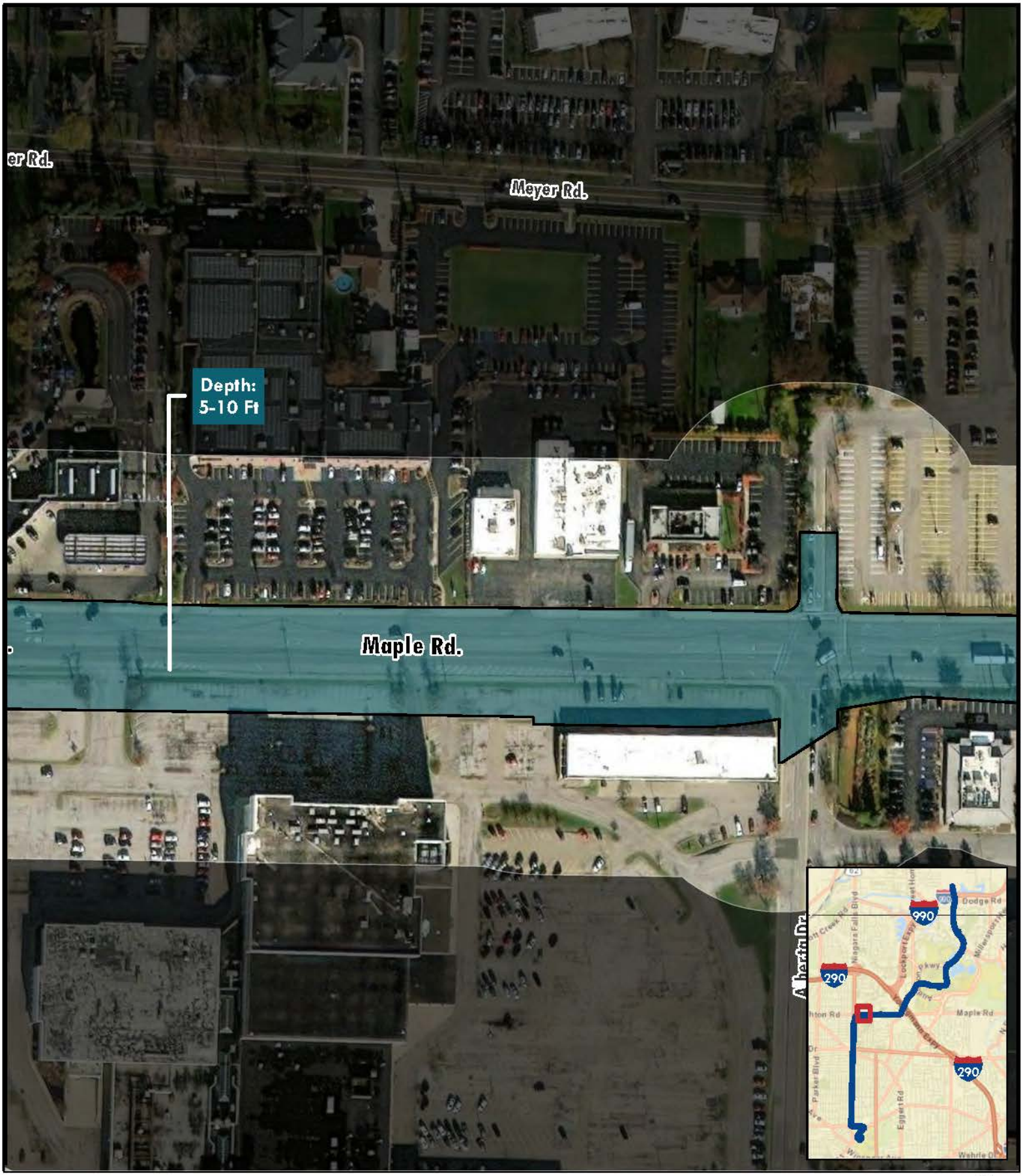
BRT Alternative Depth of Disturbance: Extent 9

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



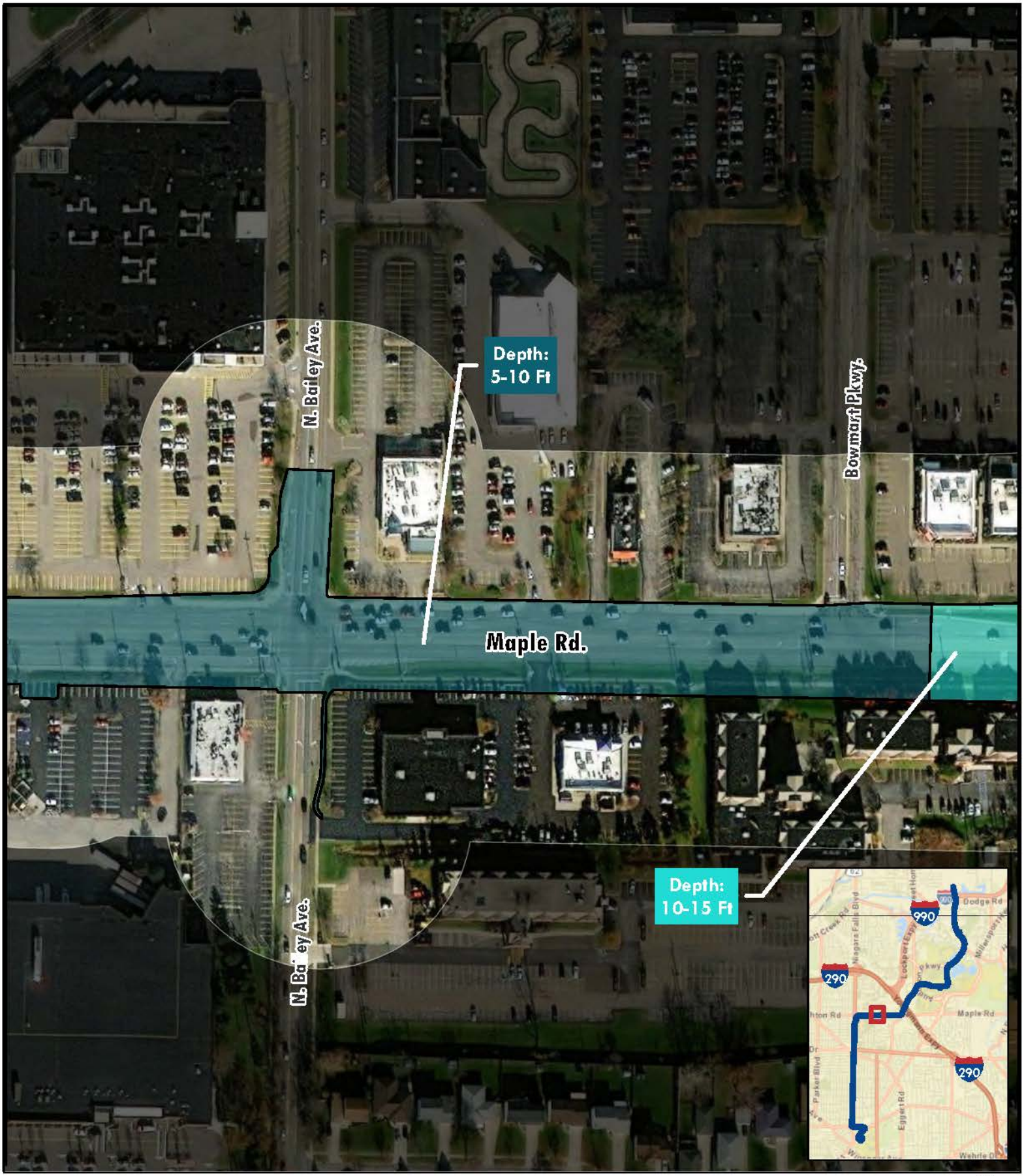
BRT Alternative Depth of Disturbance: Extent 10

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



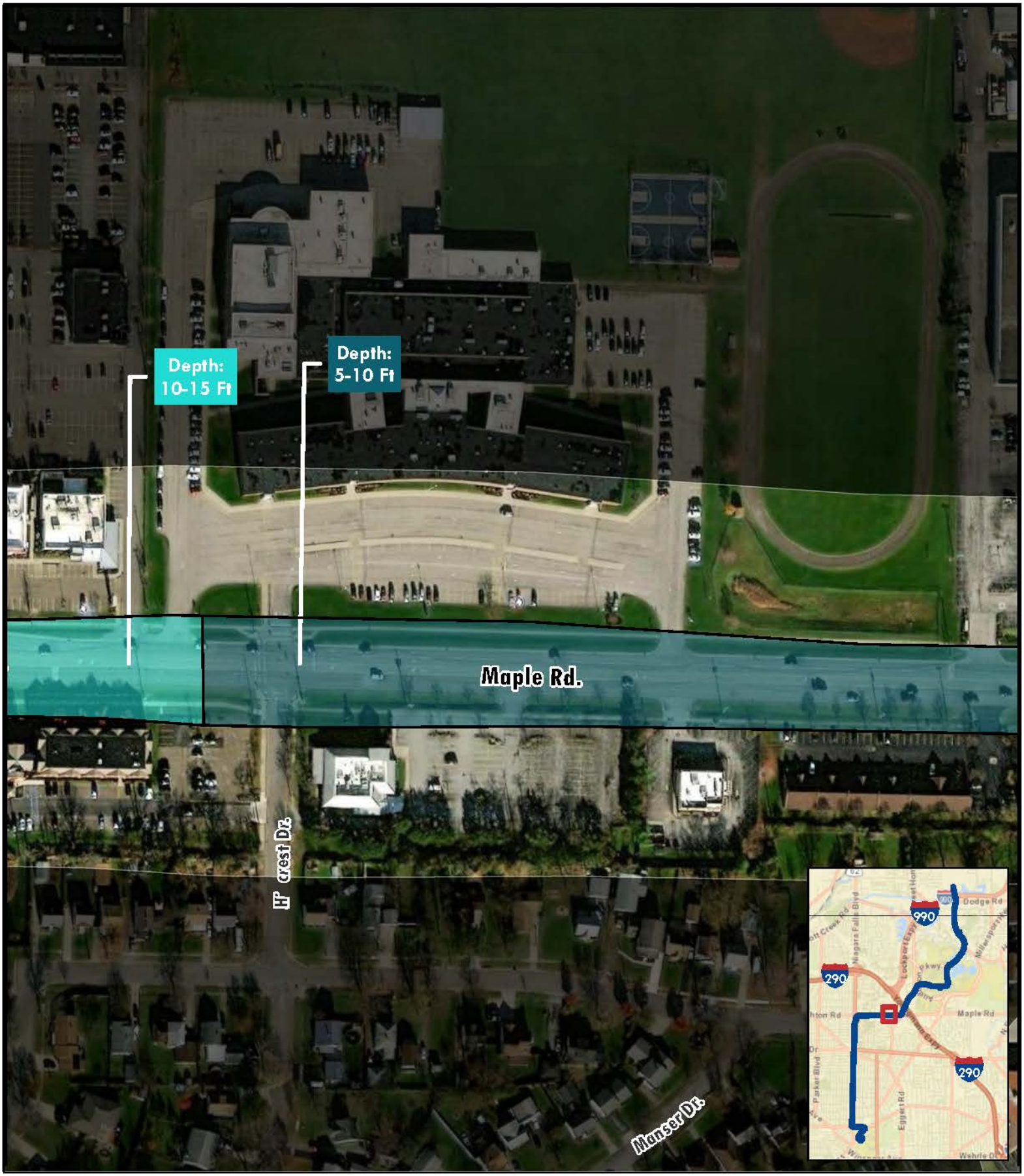
BRT Alternative Depth of Disturbance: Extent 11

- 0 Foot Depth
- 200-Foot Buffer*
- 5-10 Feet Depth
- 10-15 Feet Depth

0 100 200 Feet

* Buffer for display purposes only

N



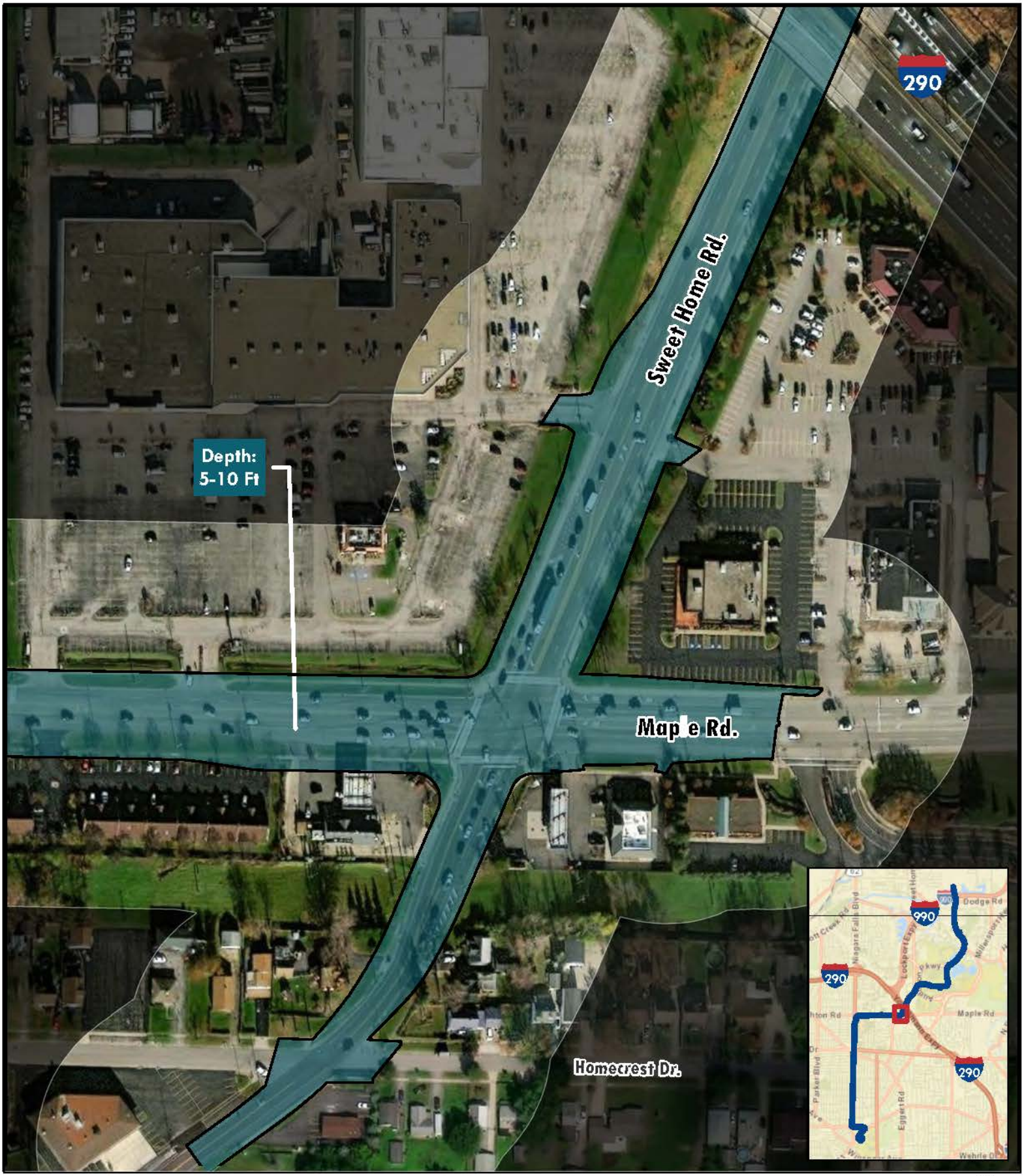
BRT Alternative Depth of Disturbance: Extent 12

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



BRT Alternative Depth of Disturbance: Extent 13

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

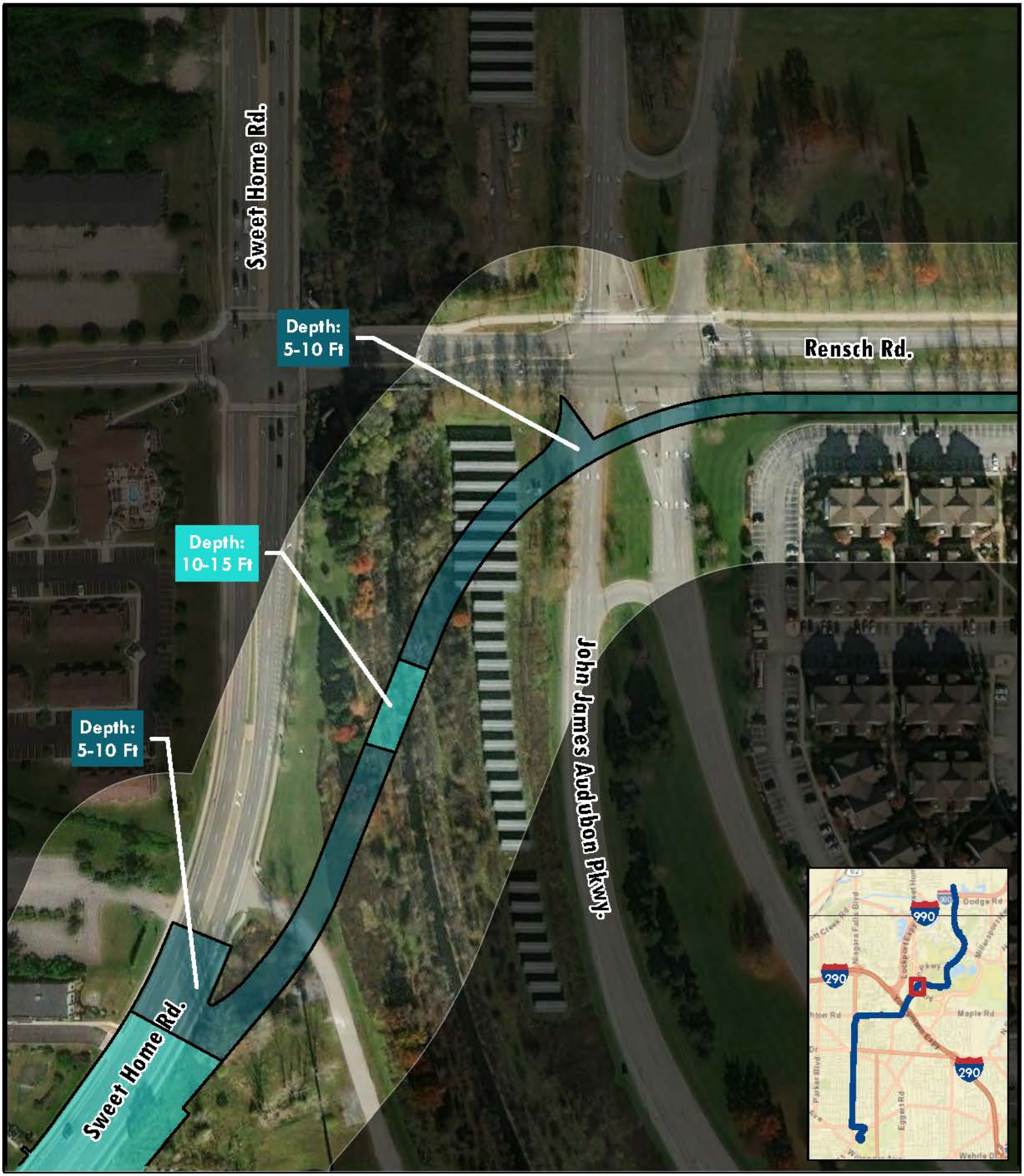
BRT Alternative Depth of Disturbance: Extent 14

N

- 0 Foot Depth
- 200-Foot Buffer*
- 5-10 Feet Depth
- 10-15 Feet Depth

0 100 200 Feet

* Buffer for display purposes only



BRT Alternative Depth of Disturbance: Extent 15

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only

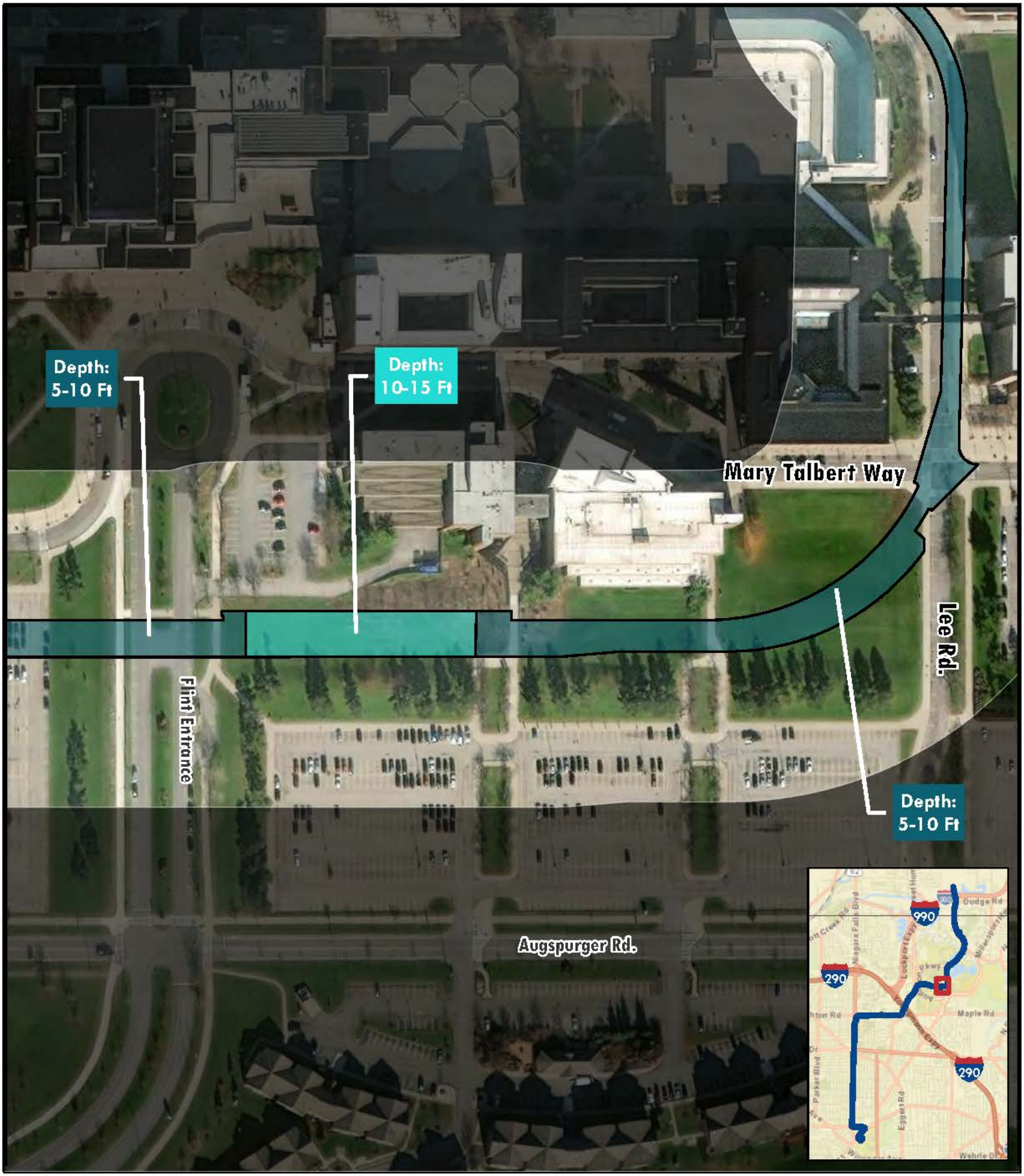
BRT Alternative Depth of Disturbance: Extent 16

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



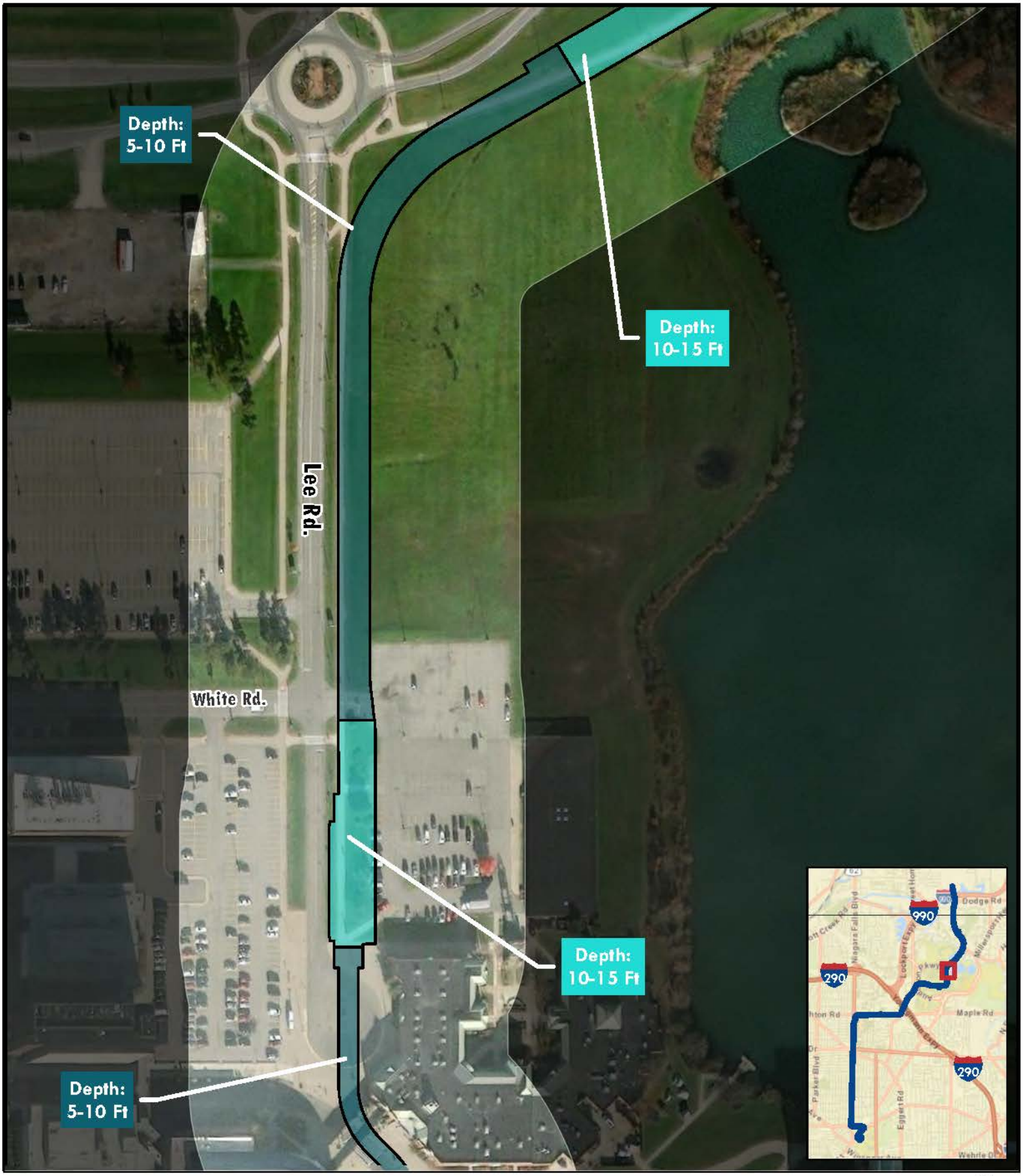
BRT Alternative Depth of Disturbance: Extent 17

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



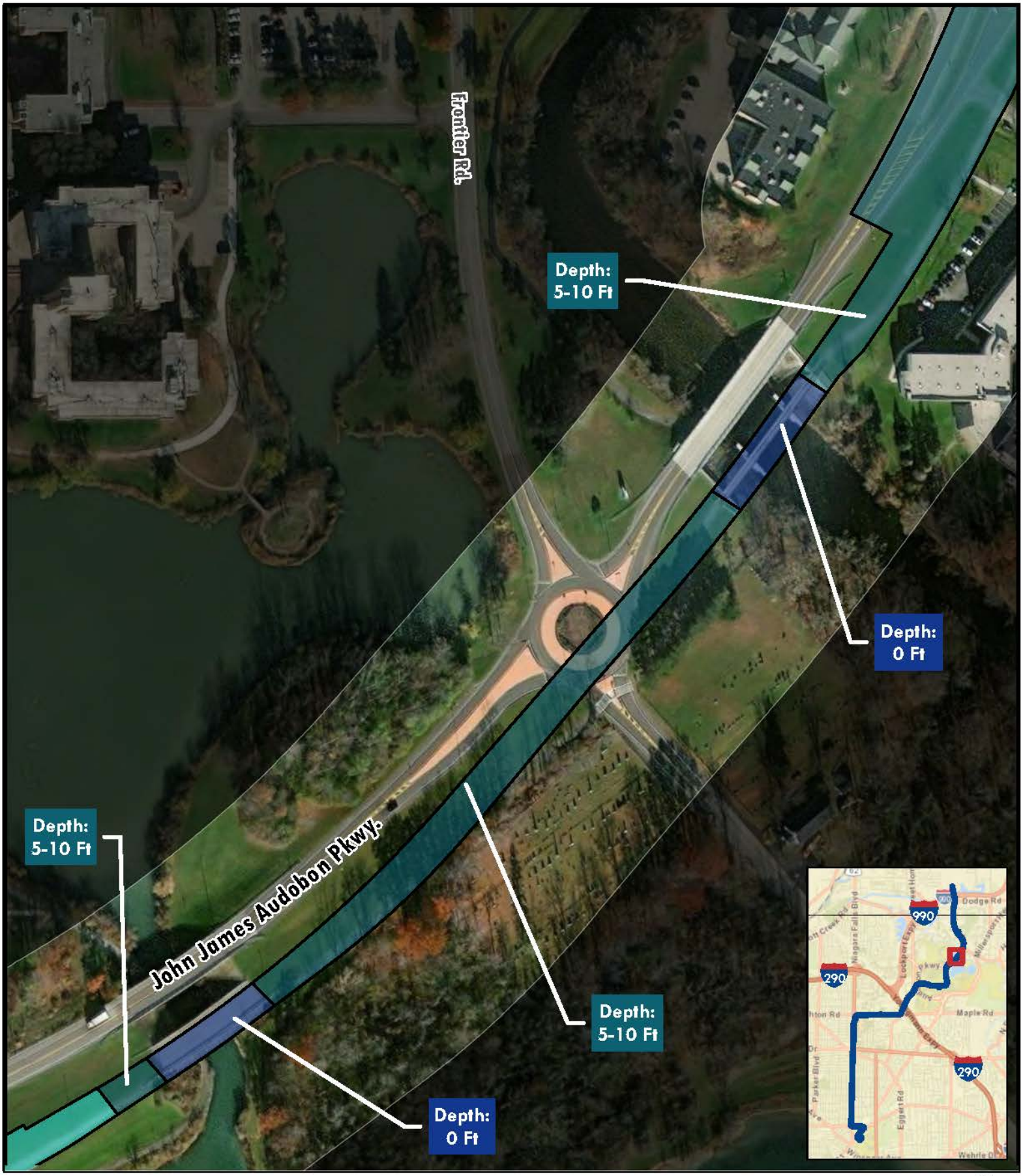
BRT Alternative Depth of Disturbance: Extent 18

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

N

0 100 200 Feet

* Buffer for display purposes only



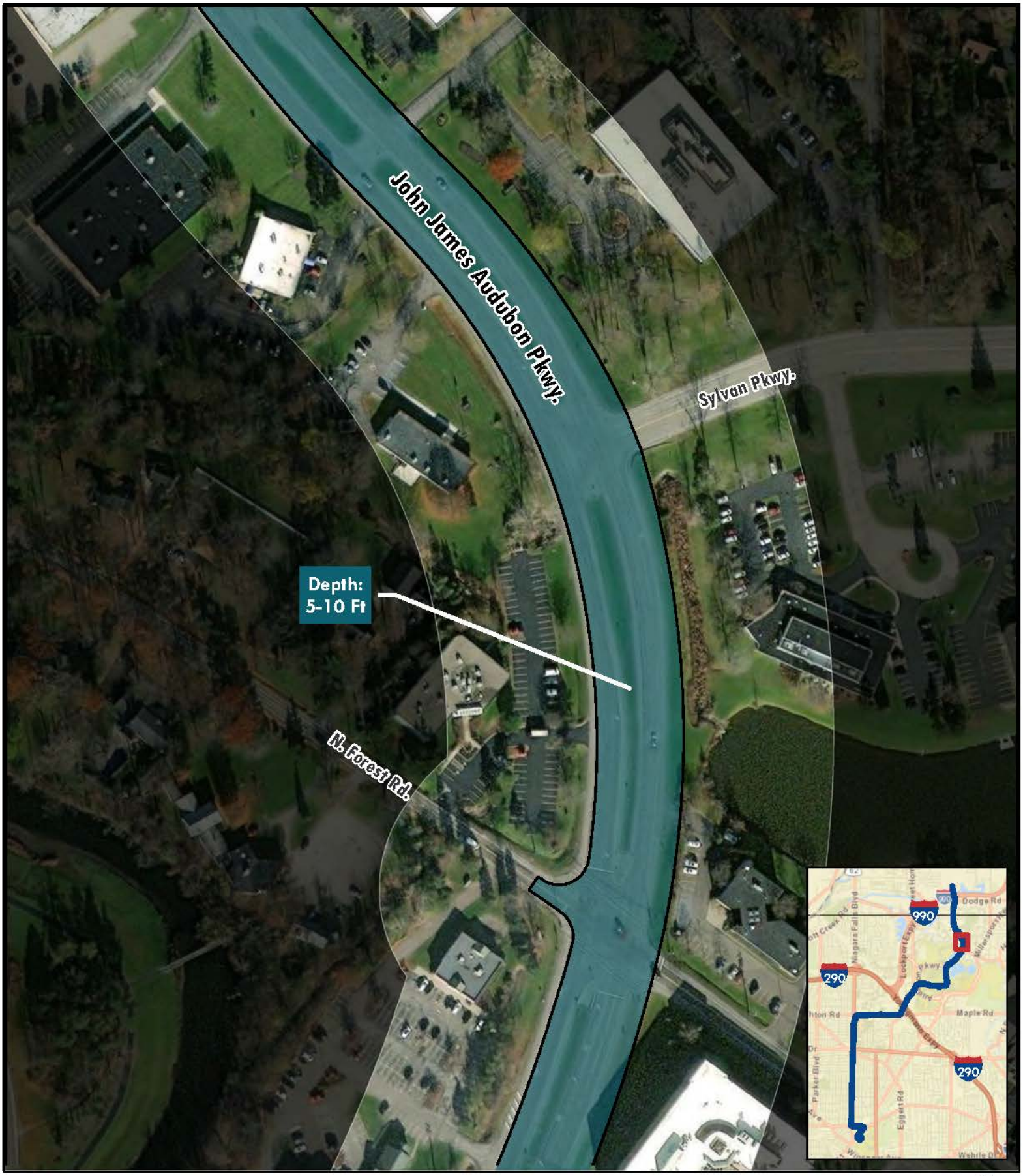
BRT Alternative Depth of Disturbance: Extent 19

- 0 Foot Depth
- 200-Foot Buffer*
- 5-10 Feet Depth
- 10-15 Feet Depth

N

0 100 200 Feet

* Buffer for display purposes only



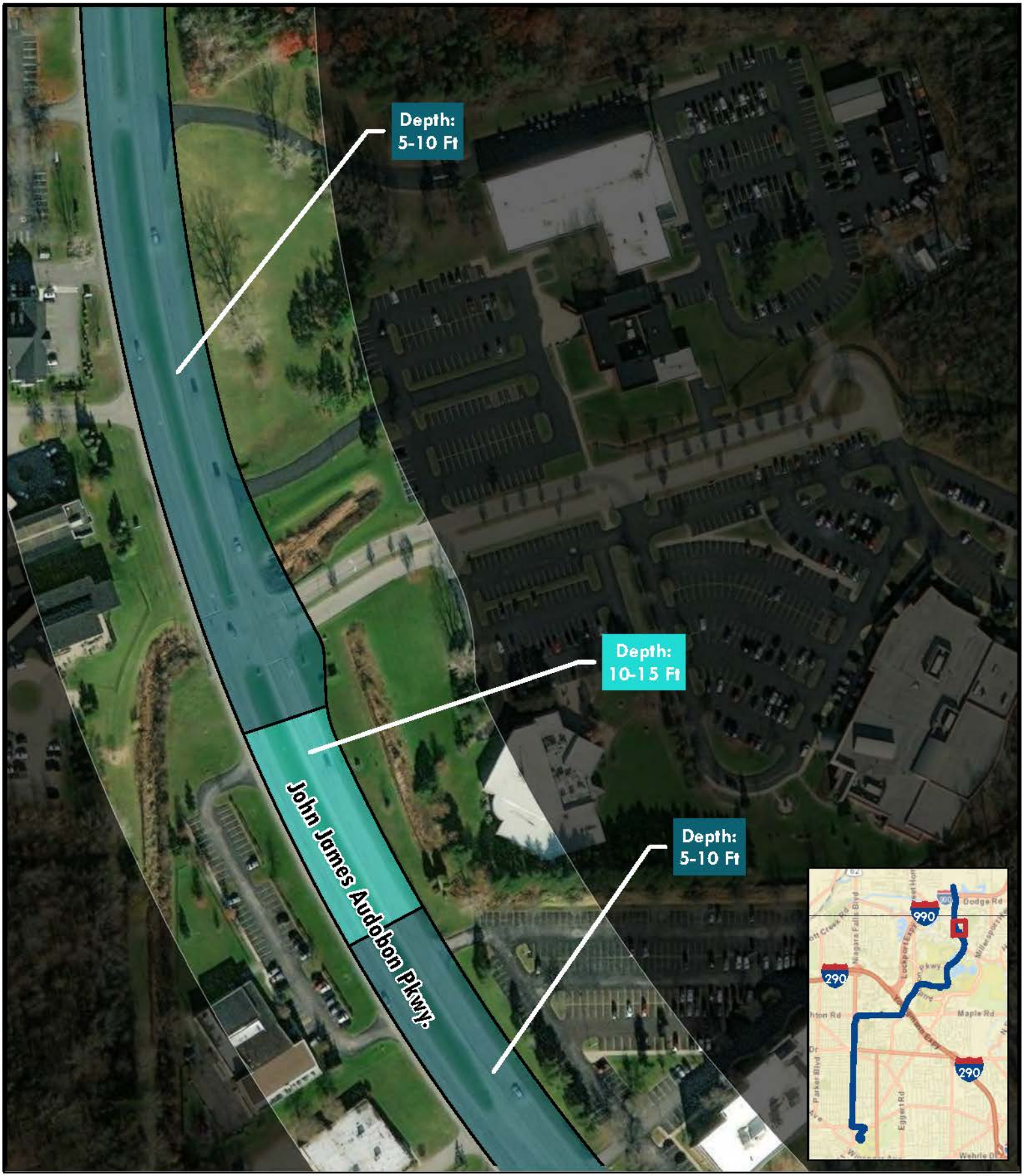
BRT Alternative Depth of Disturbance: Extent 20

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



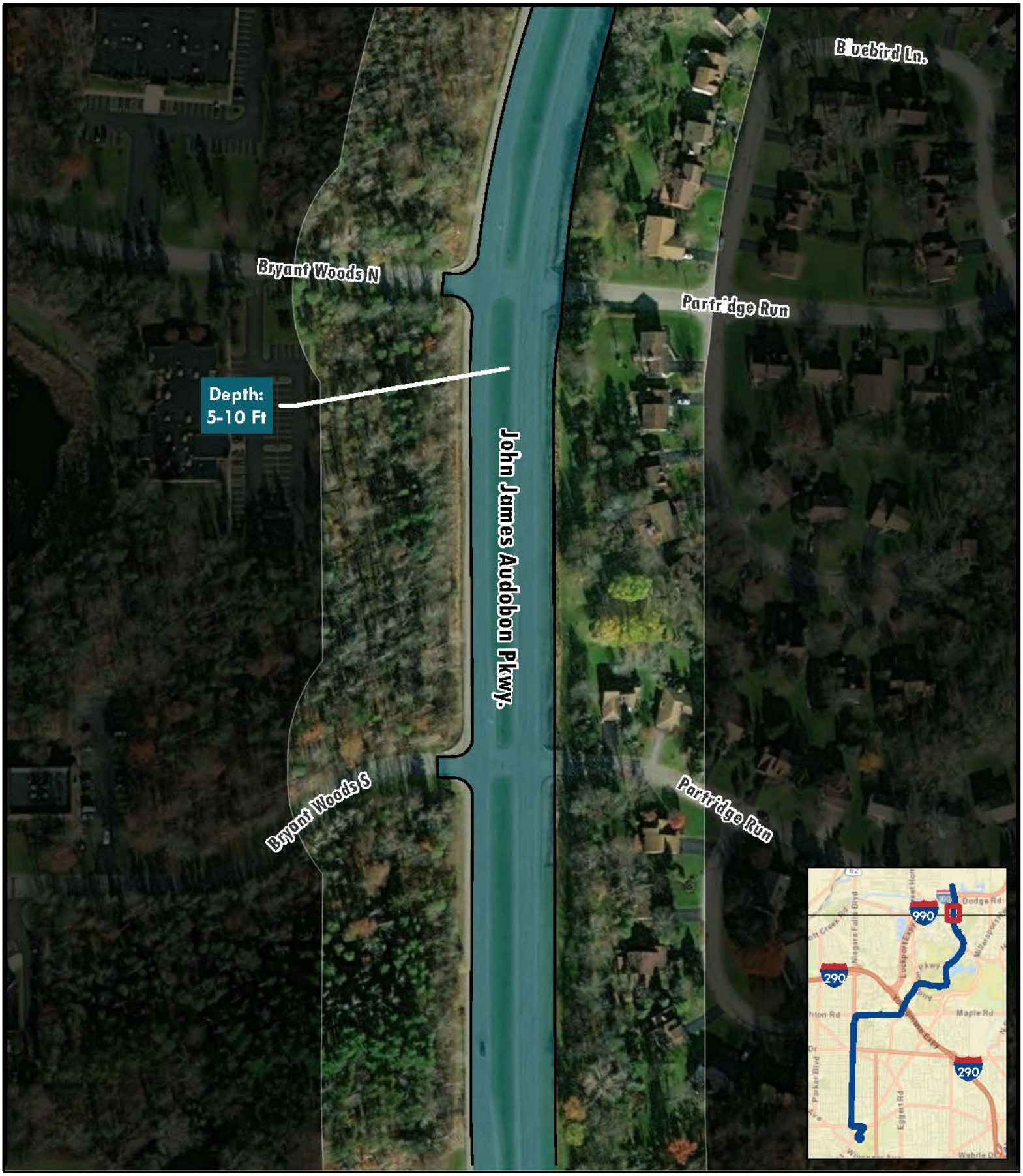
BRT Alternative Depth of Disturbance: Extent 21

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



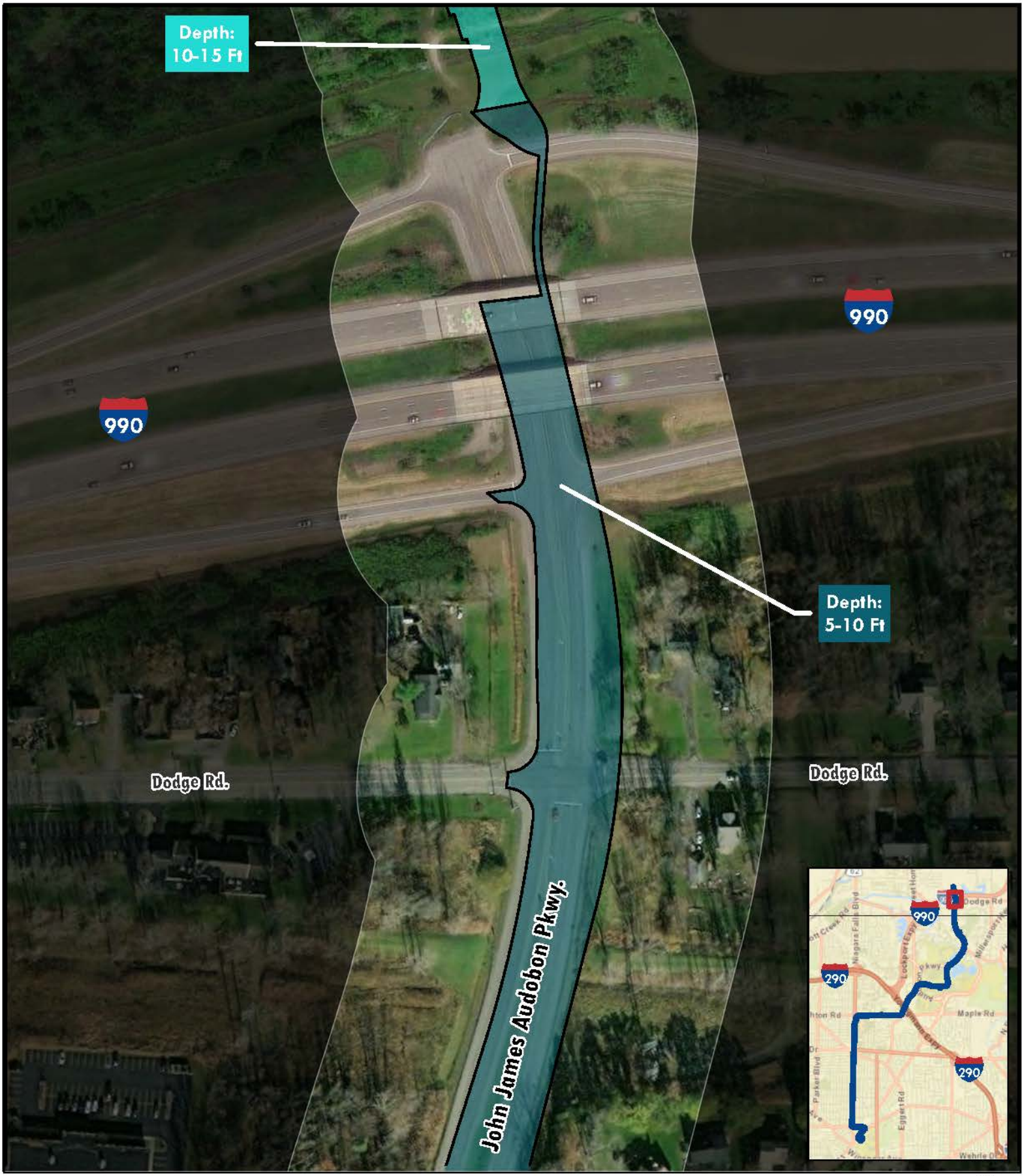
BRT Alternative Depth of Disturbance: Extent 22

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N



BRT Alternative Depth of Disturbance: Extent 23

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N

BRT Alternative Depth of Disturbance: Extent 24

- 0 Foot Depth
- 5-10 Feet Depth
- 10-15 Feet Depth
- 200-Foot Buffer*

0 100 200 Feet

* Buffer for display purposes only

N