

NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR)

APPENDIX D Cultural Resources Technical Report

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Appendix D Cultural Resources Technical Report

- Appendix D-1 Phase IA - Architectural Assessment: Tyngsboro, Chelmsford, and Lowell, Massachusetts
- Appendix D-2 Phase IA - Archaeological Assessment: Massachusetts
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APPENDIX D-1

Phase IA - Architectural Assessment:
Tyngsboro, Chelmsford, and Lowell,
Massachusetts

Nashua-Manchester 40818 (Capitol Corridor) Project

Phase IA - Architectural Assessment
Tyngsboro, Chelmsford, and Lowell, Massachusetts

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Project Description

The Nashua-Manchester 40818 (Capitol Corridor) Project (Project) takes its name from the approximately 73-mile rail corridor between Boston, Massachusetts, and Concord, New Hampshire. Increasing transportation demand and growing concerns about mobility, economic development, and quality of life have led the citizens and officials in New Hampshire and Massachusetts to explore options to improve transit service between Lowell, MA and Manchester, NH within the Capitol Corridor by leveraging existing transportation infrastructure, including CSX Railway. The Federal Transit Administration (FTA), as the lead federal agency for the current undertaking and the New Hampshire Department of Transportation (NH DOT), as Project sponsor, are proposing new rail and transit services in the corridor to increase the functionality of the transit network connecting New Hampshire and Massachusetts.

While Massachusetts Bay Transportation Authority (MBTA) commuter rail service currently operates between Boston and Lowell, there has not been passenger service north of Lowell since 1967. While the commuter service was discontinued in the 1960s the CSX rail corridor remains in active use and is one of the major transportation resources project designers can leverage to achieve new transit goals. This railroad bed originally was designed to accommodate a set of two or more parallel tracks. Following the discontinuance of passenger rail service much of this second track was removed, and thus the current rail line contains only a single track along most of its length. While only a single track exists at present, the corridor right-of-way (ROW) remains at its initial width and therefore the existing rail bed can accommodate the reintroduction of sections of double track needed to reestablish commuter rail services without needing to establish additional railbed or expand the existing railroad ROW into adjacent properties.

The reestablishment of commuter rail services along the Capitol Corridor is not a wholly new idea. A portion of the current project corridor was previously investigated as part of a previous Project Notification Form (PNF) and Phase IA submittals (RPR6304) for the Boston-Lowell-Nashua-Manchester-Concord Rail and Transit Alternatives Analysis prepared by URS in 2014. Following these initial submittals, the Massachusetts Historical Commission (MHC) issued a response requesting that more information be provided and additional discussion with the MHC be undertaken regarding concurrence on the proposed Area of Potential Effects (APE), and the initiation of the Section 106 process under the National Historic Preservation Act of 1966 (NHPA). Shortly after the issuance of that comment, the Project was abandoned; the additional information was not provided to the MHC and further consultation did not occur. While the current undertaking is distinct from the previous undertaking in scope, it has a similar goal and therefore builds upon the foundation of this previous undertaking.

Proposed Action

Within Massachusetts, the Nashua-Manchester 40818 (Capitol Corridor) Project calls for approximately 17,464 feet or 3.3 miles within the existing MBTA railroad ROW to be reoutfitted with double-track to allow trains to pass one another. An additional 2,310 feet or 0.44 miles of existing track will be realigned within the existing railroad ROW. While new track construction for the reestablishment of the double track sections is part of the Project, all planned track work will occur within the confines of the existing railroad bed of the MBTA ROW. Apart from track modification and doubling tracking within the existing Pan Am ROW no other construction is proposed. Under current design plans, the manner by which the construction contractor will access work areas within the railroad ROW has yet to be determined. As such the layout of temporary access roads has yet to be established. As project plans move forward, the APE will be expanded to encompass any such access roads, which will then be subjected to cultural resource evaluation.

Application of Program Comment

During consultation with the FTA, New Hampshire Department of Transportation (NH DOT), and consulting parties, several of the proposed project related activities were determined to fall under exemptions laid out by the Advisory Council on Historic Preservation's (ACHP) *Program Comment to Exempt Consideration at of Effect to Rail Properties within Rail Rights-of-Way* as amended on June 10, 2019 (Program Comment).

Relevant exemptions in ACHP's Program Comment applied to proposed improvements in the Capitol Corridor Project include:

- "Track and trackbed maintenance, repair, replacement, and upgrades within the existing footprint. These activities must not include alterations to the trackbed that would result in a substantial visual change (i.e., elevation or alignment) in the relationship between the trackbed and the surrounding landscape or built environment (i.e., existing subgrade, sub-ballast, ballast, and rails and crossties (track))" (ACHP 2019:II.A.1).
- "Reinstallation of double tracking on a currently single-tracked line that had historically been double-tracked" (ACHP 2019:II.A.2).

Applying these exemptions to the Project Area excludes the vast majority of the proposed undertaking from Section 106 review.

Area of Potential Effects

The APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist" (36 CFR §800.16[d], amended 2004). The APE includes all identified areas to be affected by the Project both during construction and following the Project's conclusion. Development of the APE for this Project considered potential visual effects, auditory effects, beneficial and adverse effects, direct and indirect physical effects, and changes in the use of land or historic properties. The delineation of the APE took into consideration the location and appearance of the existing railroad line; the character and condition of the built environment; and the qualities of the natural environment and how it would be affected by the construction of four passenger rail stations, a layover yard, bridge improvements, and upgrades, and the reintroduction of areas of double-tracking along the rail corridor between Lowell, Massachusetts and Manchester, New Hampshire.

The proposed Project is characterized by an approximately 100-foot-wide railroad bed, which is predominantly occupied by a single set of railroad tracks. The corridor runs adjacent to the Merrimack River and is flanked by a vegetative buffer along the majority of its length. In the larger cities of Manchester and Nashua, the corridor extends through areas occupied by dense industrial, commercial, and residential uses and architecture. The initial filing of the PNF to the MHC included the entire length of the extant rail corridor between Lowell, MA, and the state line with New Hampshire, a distance of about 9 miles. During the consultation with the FTA, New Hampshire Department of Transportation (NH DOT), and consulting parties (consultation in which the MHC declined to participate), the bulk of the project-related activities were determined to fall under exemptions laid out by the Program Comment, as described above.

The reintroduction of a second track will not necessitate new ground disturbance or grading as the work reestablishes a previous use, and all related activities will occur within an existing railroad bed. Furthermore, the majority of these sections of railroad ROW are shielded from view by an established vegetative screen which limits potential visual impact from the proposed improvements. Appendix C presents a detailed mapping of the spatial footprint of the proposed APE.

The APE depicted in Appendices A and C considers both direct and indirect effects relative to the project impacts. Direct and indirect effects were determined based on the preliminary project plans, renderings, and a field visit. If project plans are modified from those included in Appendix B, the APE will have to be

adjusted accordingly. Following the adjustment of the APE, additional research and survey will be necessary to evaluate previously unsurveyed areas and the Project's effects on any potentially significant cultural properties.

Appendix C presents an APE boundary designed to assess potential direct impacts on cultural properties and assess visual/atmospheric impacts to these cultural properties. The assessment of archaeological sensitivity and potential within that APE focuses on the direct impacts or Limit of Disturbance (LOD) of planned construction where ground disturbance occurs. Relative to archaeology, effects like the construction of access roads for track upgrades have not yet been identified at the current level of design. Indeed, such impacts may not occur as most track upgrades can be accomplished from within the existing railroad bed. Given the development of project plans to date, the archaeological assessment will principally focus on the LODs for rail bridge locations. Rail bridge locations may require upgrades or restoration, which might necessitate additional ground disturbance either in the form of direct ground disturbance or actions like tree clearing, creation of temporary laydown yards/staging areas, or establishment of temporary access routes for equipment like cranes. Until impacts for the rail bridge locations can be more clearly defined and an LOD of the proposed construction related to the rail bridges established, the full 250-foot buffer of the APE around such rail bridge locations will be considered a defacto LOD for those structures for the purposes of considering potential archaeological impacts.

Historic Background

The region that comprises the Lowell Study area is made of three modern municipalities—namely, the city of Lowell, the town of Chelmsford, and the town of Tyngsborough. Of these three modern areas, only Chelmsford has maintained any consistency of name since its inception. The city of Lowell was once known as East Chelmsford, prior to the great industrial boom that took place there. Tyngsborough was once part of the town of Dunstable, a large portion of which is now part of New Hampshire—specifically, the area around the present-day city of Nashua. While the early histories of these communities are largely similar, Lowell headed off on a radically different course in the first quarter of the nineteenth century. This departure was an industrial boom that radically transformed the agrarian community of East Chelmsford into the industrial powerhouse of the city of Lowell, Massachusetts. Due to the intensity of settlement in the part of the study area occurring within Lowell, the likelihood of encountering historic resources there is increased. Therefore, additional time will be spent describing the history of the town of Lowell to ensure that proper context is provided for the examination of potentially surviving cultural resources within the study area.

Early Settlement

The story of Tyngsborough begins with the establishment of the settlement of Dunstable, Massachusetts. Early forays into the region were largely limited to ventures designed to carry on trade with the native populations of the Merrimack Valley. One such venture occurred in 1665 and was executed by John Cromwell, a fur trader who established a trading post along the Merrimack near a small falls. This experiment did not endure and was subsequently abandoned (Fox 1846:21). In 1673, the land where Tyngsborough now lies was part of a 200-square-mile land grant made to Edward Tyng (Fox 1846:16–17). Tyng established the town of Dunstable—named after his native town of Dunstable, England—near the confluence of the Merrimack and Nashua Rivers (the site of modern-day Nashua City). This early settlement encompassed the whole of the Lowell Study Area, and a great deal more territory besides. The initial settlement was successful in establishing small communities, but little else, as the events of the final quarter of the seventeenth century shifted focus away from community growth and toward community protection, stagnating the European settlement of the region well into the eighteenth century (Fox 1846:68).

In 1675, the region became the scene of a bloody conflict between the native peoples of New England and European settlers that would become known as King Philip's War (Fox 1846:28). King Philip was the

European name given to Metacomet, the grand sachem of the Wampanoag, who had been baptized as and given the Christian name Philip as a child (Waters 1917:84). This war raged for three years, although fighting slowed after the death of Metacomet on August 12, 1676 (Waters 1917:85; Allen 1820:161). A native raid on Chelmsford on March 18, 1676, resulted in the burning of up to 15 homes and the deaths of several citizens who were ambushed while crossing the river to tend their cattle (Waters 1917:113; Cowley 1868:20). Additional citizens died as a result of participating in the fighting on behalf of the Massachusetts militia (Waters 1917:125). Not all of the native peoples in the area were hostile to the people of Chelmsford; in fact, the town was befriended by Wannalancet of the Wamesits, who occupied the area now known as Lowell (Allen 1820:157). Wannalancet aided the English settlers by using his influence to prevent attacks on their settlements and warning the communities of impending attacks from hostile native groups, like the Mohawk (Waters 1917:125; Old Residents' Historical Association of Lowell Mass 1874:393–394; Allen 1820:157; Cowley 1862:16). While Wannalancet and his people abstained from the conflict, the war seeded deep mistrust of all Indians across the region, and they were frequently harassed or attacked by groups of English settlers (Waters 1917:125; Cowley 1862:16). So in 1677, Wannalancet and his people departed the region and settled for a time in Canada (Fox 1846:21; Contributions of the Old Residents' Historical Association of Lowell Mass 1874:394; Cowley 1862:17). He returned in 1678 and resumed occupation in the region until 1686, when he sold his land to John Tyng and once more removed to Canada to live with the St. Francis Indians (Contributions of the Old Residents' Historical Association of Lowell Mass 1874: 395; Allen 1820: 27, 45; Cowley 1868:21). Wannalancet and his people had sustained losses of both territory and population at the hands of the English, who had stolen land, sold natives into slavery, and frequently broke treaties (Waters 1917:126). However, when King William's War erupted in the 1690s, the English sought out their old friend in Canada and persuaded him to return to his homeland to help mediate the conflict. Wannalancet obliged, but never again made it back to his people, dying in 1696, and was subsequently buried by his friend John Tyng (Contributions of the Old Residents' Historical Association of Lowell Mass 1874:398).

While King Philip's War had caused many of the occupants of the nascent towns of Chelmsford and Dunstable to flee, the cessation of the conflict in 1678 prompted many to return and the town grew once more under the umbrella of a tenuous peace (Fox 1846:37; Water 1917:127). When William and Mary took over the throne of England, the king of France, who had hoped that England would once more have become a Catholic country under James II, took up the cause of the Stuarts and declared war on the Protestant couple (Old Residents' Historical Association of Lowell Mass 1874: 396; Waters 1917:127). The resulting conflict came to be known as King William's War, noted above, which in 1690 began in the New World when French troops marched south from Canada with their native allies and attacked Schenectady, New York (Waters 1917:127). Once again, the region fell into conflict and the colonists of Dunstable and Chelmsford lived in constant and often justified fear of attack (Waters 1917:132–133). During this time, the towns were frequently garrisoned (Fox 1846:65–68, 82, 103). After years of bitter fighting in Europe and the colonies, Britain and France came once more to peace, signing the treaty of Ryswick in 1697. The conflict resolved nothing and much of the territory that had been won or lost during the conflict was restored to its previous owners (Waters 1917:138). Just five short years later, in 1702, Britain once more found itself at war with both France and Spain. The North American side of this conflict came to be known as Queen Anne's War, but this was only really a theater of the larger War of Spanish Succession, a Europe-wide contest to preserve the military balance of power in Europe, as well as the balance of power between European Protestants and Catholics, which had been established during the preceding Thirty Years War (Waters 1917:138). This war raged for 11 years, until the signing of the Treaty of Utrecht in 1713, which saw Britain acquire new North American territories like Arcadia (Waters 1917:138). Despite the positive outcome of these conflicts, the constant fighting and fear of Indian attacks that permeated every aspect of a European settler's life caused the efforts at establishing and expanding settlements to stagnate until well into the early eighteenth century (Fox 1846:68).

Colonial Period

During the latter portion of the seventeenth century and into the early part of the eighteenth century, many land disputes between competing charters and land grants occurred between the established colony of Massachusetts and the newly formed colony of New Hampshire. For much of this time, both colonies laid claim to the town of Dunstable and its surrounding territory, part of the original Tyng grant. This debate continued for well over 50 years, until the boundary between the two rival colonies was settled in 1741 (Stearns 1986:v; Fox 1846:147; Peters 2006:8). This decision split the original Tyng grant in half, with the northern portion and town of Dunstable going to New Hampshire and the southern portion of Dunstable going to Massachusetts (Fox 1846:147; Peters 2006:8). It was during this time that Massachusetts created the municipality of Tyngsborough out of part of the southern portion of their new territory. Thus, this boundary settlement led to the creation of Dunstable and Tyngsborough in Massachusetts and the town of Dunstable in New Hampshire (Fox 1846:150).

The first half of the eighteenth century was punctuated by two further wars—the War of Jenkins' Ear and King George's War, which saw men from Massachusetts involved in the conflicts, but did not have the same harrowing effect on the region as earlier wars, as the action was more distant (Waters 1917:157). The second half of the eighteenth century saw two additional wars, the French and Indian War and the American Revolution. Men from the region participated in both of these conflicts, but the fighting occurred elsewhere (Fox 1846:159–168). The result of the French and Indian War, which concluded in 1763, saw the French presence in Canada eliminated (Waters 1917:162). Many men from Chelmsford and Tyngsborough fought in this conflict for the British crown, some losing their lives in the process, but still the town survived and prospered as an agrarian community (Water 1917: 163–189). The French and Indian War had a devastating effect on the surviving native populations in the region, who were largely exterminated during this period; this was to be the last of the Indian wars.

In the wake of the French and Indian War, Britain—although a territorial victor in the conflict—found itself saddled with debt from the defense of its colonies and the prospect of further debt to defend them (Makin 1994:54; Rabushka 2009:715; Nestor 2004:25). Prior to this point, the colonies had been largely exempted from taxation, but the Crown decided to implement several new taxes as a way of replenishing the royal coffers and offsetting the cost for the defense of the North American colonies (Makin 1994:54–58; Nester 2004:24, 28–29). The colonists had reaped the benefits of the military presence during the war, so the people back in Britain thought it only fair that they be asked to contribute to paying off the debt amassed in their defense (Makin 1994:54). The new taxes were poorly received by colonists in North America, who had never paid much tax and who had long enjoyed more or less free trade due to the demonstrated inability of the Crown to enforce previous tax laws and customs duties, which had led to a culture of pervasive smuggling (Makin 1994:57; Nester 2004:24, 29). The new taxes were seen as oppression, especially as no colonist had a voice in parliament, and the result was the American Revolution, yet another conflict during which many individuals from the region were active participants (Cowley 1868:23). Once again, times got tough, men were away at war, and farms and families languished. It was not until the cessation of the conflict in 1789 and the birth of the United States that the region would finally know a sustained peace.

Post Revolution to Pre-Industrial

The towns of Tyngsborough and Chelmsford were still largely agrarian by the dawn of the nineteenth century. While water resources had been developed in the eighteenth century and small saw and gristmills flourished, large-scale manufacturing was as yet only a dream (Lowell Historical Society 2006:7; Cowley 1868:24). Communities like Chelmsford and Tyngsborough were still largely isolated due to limited roads and rivers that were made unnavigable by the presence of waterfalls.

The first attempt to improve transportation in the area was achieved in 1796 with the opening of the Pawtucket Canal, which bypassed the Pawtucket Falls and opened upriver access to New Hampshire to the north (Lowell Historical Society 2006:7; Cowley 1868:25). The Pawtucket Canal only bypassed one falls and was of limited value as far as transportation, as it only connected the region to nearby Concord, Massachusetts, so it was soon overshadowed (Cowley 1868:25, 27). In 1792, with the formation of the Middlesex Canal Company, a much larger canal project was conceived that would open up the Merrimack River to trade (Mower 1991). When construction was completed in 1804, the canal, which was readily accessible via the nearby town of Middlesex, provided a direct water route north to New Hampshire towns like Concord and south to the populous city of Boston (Mower 1991; Lowell Historical Society 2006:3). The Middlesex Canal came through the area near Tyngsboro, where a lock was established to bypass Wicasee Falls (Mower 1991). This newfound connectivity between towns along the Merrimack prompted new investment in the region and led to the first industrial boom town in the United States.

Industrial Revolution

By the first quarter of the nineteenth century, the Merrimack River Valley became the focus of industrial speculation. Due in part to the transportation opportunities made possible by the Middlesex Canal, investors were attracted to the area, which offered substantial waterpower to run large complexes of mills. Early attempts at establishing cotton mills in the region were undertaken in 1813 and 1815, but were small in scale and ultimately failed (Cowley 1868:32). Additional saw and gristmills were established during the second decade of the nineteenth century, as well as a powder mill, all of which met with some success (Cowley 1868:33).

The region might have remained home to only modest industry were it not for one group, now known as the Boston Associates, who—having recently developed a successful mill system in Waltham Massachusetts—went in search of another location to implement their business model (Lowell Historical Society 2006:8; Rosenberg 2011:299; Cowley 1868:42). In 1821, the Boston Associates opened the Merrimack Manufacturing Company in East Chelmsford (Lowell Historical Society 2006:8; Rosenberg 2011:299). This corporation expanded and repurposed the old Pawtucket Canal, using it to direct a controlled volume of water to power their mills, developing and controlling waterpower that they were able to lease to other mills (Rosenberg 2011:299; Cowley 1868:44–45). The Merrimack Manufacturing Company was a huge success, and East Chelmsford was quickly transformed from an agrarian community to a nascent industrial town. The Lock and Canal Company, originally formed in 1792 with the creation of the Pawtucket Canal and subsequently purchased by the Merrimack Manufacturing Company, was reorganized in 1825 as an independent corporation that managed and leased waterpower to other corporations to run their mills (Cowley 1868:49). The Merrimack Manufacturing Company, among others, set about building a community for their workers, which initially was principally comprised of boarding houses for their mill girls (Rosenberg 2011:299). In just five years, the community of East Chelmsford had grown enough to become a town of its own; in 1826, the town of Lowell was incorporated, named in honor of Francis Cabot Lowell of the Boston Associates (Lowell Historical Society 2006:8; Rosenberg 2011:299).

Throughout the first half of the nineteenth century, new mills sprang up all over Lowell. The Hamilton Manufacturing Company was established in 1825 and grew to include five mill buildings and a print shop by 1868 (Cowley 1868:50–51). In 1828, the Appleton Company was established (named for one of the Boston Associates, Nathan Appleton) and had grown to include three mill buildings by 1868 (Cowley 1868:51–52). The Lowell Manufacturing Company was founded the same year as the Appleton Company and had the same number of mill buildings by 1868, although they had a more diversified production than just cotton, as they also produced carpet and wool (worsted mill) (Cowley 1868:52–53). Other mill companies soon followed, including the Middlesex Company (1830), Suffolk Manufacturing Company (1831), Tremont Mills (1831), Lawrence Manufacturing Company (1831), Massachusetts Cotton Mills (1839), and Boott Cotton Mills (named for Kirk Boott of the Boston Associates), which was founded in 1835 (Cowley 1868:53–58). This boom in construction and population created a demand for countless

other support industries that built and maintained the city. Thus, substantial groups of carpenters, blacksmiths, machinists, and all manner of other tradesmen were drawn to Lowell to supply its needs (Cowley 1868:61–62). The western part of Lowell had by 1846 found itself the center of the area's lumber industry, where saw and planing mills produced the building materials the ever-growing town required (Cowley 1868:62). By the middle of the nineteenth century, just prior to the outbreak of the Civil War, the town of Lowell's population had grown to nearly 40,000—nearly 20 times what it had been when the town was incorporated three decades earlier in 1826, and double what it had been when it received its charter as a city in 1836 (Cowley 1868:154, 116; Schouler 1868:420). The explosion of industry at Lowell had transformed the region from a sleepy agrarian backwater to a thriving industrial center.

Though the growth of Lowell is inexorably linked to the growth of the canals, their role of great importance after 1835 was tied to their ability to produce waterpower, not transportation. From the 1830s through the end of the century, the major driver of transportation became the railroad. The first railroad established in the region was the Boston-Lowell Railroad, opened in 1835 (Cowley 1868:78). The following year, a new charter was granted to extend the Boston-Lowell Railroad to Nashua, New Hampshire, accomplished in 1838 with the opening of the Nashua-Lowell Railroad (Gerstner & Gamst 1997:312–313). The Boston-Lowell Railroad received increasingly more connections, like the Boston-Portland (1839) and the Boston-Maine (1840) lines (Gerstner & Gamst 1997:315–316). Additional lines, like the Salem and Lowell Railroad, was established in 1848 (Cowley 1868:137). By the late 1830s, the railroads had become an important means of transportation in Lowell, as well as an economic opportunity. Lowell soon found itself involved in the production of steam locomotives. These locomotives became the workhorses of the Boston-Providence Railroad, among others (Gerstner & Gamst 1997:333–334). The coming of the railroads to Lowell increased the speed and reliability of trade and made the cost of shipping substantially cheaper than it had been via canal or road (Gerstner & Gamst 1997:312–304). Additionally, these rail lines enabled passengers to travel more quickly around New England. This transportation innovation spurred further economic growth and made distant markets more profitable by reducing the cost of freight (Gerstner & Gamst 1997:304). However, for the Middlesex Canal, the coming of the railroad spelled disaster. Unable to compete with the faster and cheaper trains, the canal was closed in 1860 (Mower 1991; Gerstner & Gamst 1997:294).

Civil War to Twentieth Century

The Civil War saw great upheaval in the United States, and the city of Lowell was no exception. Faced with a dwindling supply of cotton from the southern states, many mills in Lowell were forced to close down, displacing much of the work force (Lowell Historical Society 2005:8). Nevertheless, the citizens of Lowell rose to the occasion, supplying 5,266 men for service in the Union Army—more than had been asked of them (Schouler 1868:424). While the fighting men of New England were victorious in battle, the South would ultimately get its revenge. After the Civil War, the South began to invest in textile infrastructure, having realized during the conflict that their lack of manufacturing infrastructure had made them vulnerable (Minchin 2013:21–22). The South had a large pool of unskilled labor and ready access to cotton, and thus was able to cheaply produce textiles (Minchin 2013:21–22).

The late nineteenth century boom of textile manufacture in the American South started to undercut the northern textile industry, but the full effect of this industrial shift would not be felt until after the Great Depression (Minchin 2013:21–22). In the 1840–1850s, prior to the Civil War, Lowell saw a large wave of Irish immigrants arrive in search of work and join the small established Irish community within the city, which had existed since Kirk Boott had brought them over to dig the canals in the 1820–1830s (Dublin 1992:65–67). While there was already an established population of Irish workers at Lowell, this new wave of immigration greatly expanded their numbers. This expansion was followed by a wave of immigration from French Canada in the 1860s–1870s (Dublin 1992:67; Lowell Historical Society 2005:8). These new immigrants replaced the mill girls of the earlier part of the century, who had mostly returned home when the mills had been closed during the war (Dublin 1992:67). The heads of the mills believed that the only way they could compete with the emerging industry in the South was to employ cheap,

unskilled immigrant labor. Cheap immigrant labor helped to keep down costs and enabled mill owners to remain profitable despite fluctuations in raw cotton supply (Dublin 1992:67). This shift in mindset meant that immigrant labor would dominate Lowell's industrial workforce through the end of the century.

In the latter part of the nineteenth century and early twentieth century, additional waves of immigration from Eastern Europe and the Mediterranean brought additional workers to the mills in Lowell that had regained prosperity and continued to grow (Dublin 1992:68). These new immigrants created their own ethnic communities within the city, much as the Irish and French Canadians had previously done. By the dawn of the twentieth century, Lowell was an extremely multi-ethnic city, with Irish, French-Canadian, Polish, Greek, Portuguese, Hungarian, Jewish, and Lithuanian neighborhoods (Dublin 1992:68, 70–74; Lowell Historical Society 2005:8).

Decline of the Textile Industry

For most of the late nineteenth century, the northern mills continued to hold their own with their southern counterparts. However, in 1895, the strain began to show and the cotton industry in Lowell began to decline (Dublin 1992:82). The process was slow and did not come to a tipping point until the depression that followed World War I. After World War I, the textile industry collapsed, which was bad for all cotton manufactures—but in the South, access to cheaper material, more modern machinery, and non-union labor enabled them to persevere (Minchin 2013:22, 33; Dublin 1992:82). Mills all over New England could no longer compete and folded (Minchin 2013:21–22, 249–250). While some mills shuttered their doors as early as 1914, the worst came during the year of 1926, when Lowell's economy saw the closing of the Hamilton Company, the Suffolk Mill, the Tremont Mill, the Massachusetts Mill, and the relocation of the Appleton Mill and Saco-Lowell Shop (Dublin 1992:82). The impacts for Lowell were dire. Immigration came to a standstill and population declined. Mills all across the city closed as the cotton industry shriveled, so that by the mid-1930s, the cotton industry in Lowell had regressed to the size it had been just after the first mills in Lowell were established back in the 1830s (Dublin 1992:85). Those mills that remained—namely the Boott, Lawrence, and Merrimack Mills—were the last vestiges of the cotton industry in Lowell through the 1940s (Minchin 2013:249). Unemployment ran rampant and the city entered a long period of post-industrial decline (Dublin 1992:85). This was briefly curtailed by the outbreak of World War II and the demand for textiles and munitions that came with it, but the resurgence was short-lived; when the war ended, so too did the economic upturn (Dublin 1992:89). In the 1950s, the remaining Boott and Merrimack Mills finally closed, signaling the end of the textile industry in Lowell and contributing to further economic hardship (Dublin 1992:90).

Late Twentieth Century

Lowell struggled throughout the 1960s to find its economic footing, but it was not until the 1970s that the city began to recover. In 1974, the Lowell Heritage State Park was established, followed by the Lowell National Historic Park in 1978 (Dublin 1992:90; Lowell Historical Society 2005:8). The establishment of the University of Lowell in 1975 created new economic opportunities for the city, as did the arrival of Wang Laboratories, involved in the new computer industry (Dublin 1992:90). These events started Lowell on a path to recovery. Higher education and the technology industry proved the path to Lowell's salvation, as the city saw new investment in these industries continue through the 1980s and into the 1990s. The derelict buildings left by the abandonment of the milling industry were put to new use and occupied once more. As these new industries have grown, Lowell has once more begun to attract immigration. Lowell's modern immigrants come from Southeast Asia and Latin America, and like their predecessors at the dawn of the twentieth century, they have established ethnic neighborhoods of their own, enriching the cultural tapestry of the city (Dublin 1992:91; Lowell Historical Society 2005:8).

Resource Identification

The proposed APE encompasses portions of the rail corridor and surrounding tax parcels containing buildings and structures in the MBTA Railroad ROW where either a proposed realignment of the existing track or construction of a double track in a location currently containing a single track has a potential for visual and auditory effects. The landscape is predominantly comprised of rail infrastructure and vegetation, featuring a mature tree-lined rail corridor with associated tracks, bridges, and culverts extending alongside the Merrimack River (Photo 1). Generally, the surroundings of the Project Area feature a mix of residential and small commercial buildings, with sections of wooded, undeveloped land between groupings of buildings on the south and west sides of the track (Photos 2 and 3). The north and east sides of the track are flanked by the Merrimack River in some areas, and the remainder of adjacent areas are primarily a mix of larger industrial properties and swaths of wooded, undeveloped land (Photo 4).

NRHP Properties in the APE

AECOM conducted a search of MHC’s Massachusetts Cultural Information System (MACRIS) in December 2021 and determined that there are no resources listed in the National Register of Historic Places (NR) located within the boundaries of the proposed APE.

Previously Surveyed Resources in the APE

Background research conducted via MACRIS also determined that there are two previously surveyed resources located within the proposed APE (see Table 1 for a summary of the previously surveyed properties). This includes one NRHP-eligible resources and one NR-not eligible resource.

Table 1. Previously Surveyed Resources in the APE

MHC Inventory	Name	Location	City	Date	Resource Type	Eligibility	Photo(s)	Map Page
CLM.920	Wotton Rd - Deep Brook Railroad Bridge	Wotton Road	Chelmsford	1937	Bridge	Not Eligible	5-6	10
CLM.917	Stony Brook Railroad Bridge	East of Middlesex Street	Chelmsford	c. 1850	Bridge	Eligible	Not Accessible	11

Source: MACRIS 2021

- The **Wotton Road - Deep Brook Railroad Bridge** (CLM.920) is a 16-foot-long steel I-beam stringer bridge with ashlar stone abutments that carries the Nashua and Lowell Railroad/Boston and Maine Railroad over Deep Brook in Chelmsford at milepost #29.10. It was built in 1937. According to the Historic Structure Inventory Form completed for a Phase II MBTA historical property survey in 1987, “the bridge is an example of a common type of twentieth century bridge construction and does not possess enough historic or engineering significance to merit further research or documentation” (Scott 1987). The bridge was recommended not eligible for listing in the NR on the inventory form in November 1987.
- The **Stony Brook Railroad Bridge** (CLM.917) is an 84-foot-long stone double arch bridge constructed c. 1850 that carries the Nashua & Lowell Railroad/Boston & Maine Railroad over the mouth of Stony Brook at the Merrimack River in Chelmsford. According to the Historic Structure Inventory Form completed for the Phase II MBTA Historical Property Survey in 1988, the bridge is the only intact stone-arch bridge on the line (Stott 1988). The bridge was recommended eligible for listing in the NR in December 1988.

Field Reconnaissance

After a review of the background research, a field reconnaissance visit was conducted within the APE during September and October of 2021. These field reconnaissance efforts consisted of a windshield and pedestrian survey to assess the general conditions of the built environment in the Project Area and capture digital photographs of the two previously documented resources and to identify and document any previously undocumented historic architectural resources over 50 years of age. Historic architectural resources are defined as above-ground buildings, structures, objects, districts, or landscapes. Prior to the field visit architectural historians and surveyors examined historical maps, aerial photographs, and Google Earth, to identify as yet undocumented historical architectural resources within the APE.

Newly Identified Properties

Additional background research was conducted via desktop assessment to assist in the identification of properties that have not been previously surveyed and that are located within or directly adjacent to the proposed APE. A review of historic maps, atlases, aerial photographs, city property records available on the Massachusetts Interactive Property Map (MAGIS) web mapping application, and previous documentation for associated resources on MACRIS resulted in the identification of eight properties approximately over 50 years of age at the time of survey, including buildings, structures, and bridges. By virtue of their age, properties that are over 50 years of age are considered potentially eligible for listing in the NRHP and have the potential to be affected by the undertaking. Ultimately, this additional research and a subsequent field survey effort undertaken by a qualified Architectural Historian in December 2021 did not uncover any previously undocumented historic architectural resources located within the proposed APE.

Recommendations

The NH DOT has put forward the Nashua-Manchester 40818 (Capitol Corridor) Project in an effort to establish new commuter service between Lowell, Massachusetts and Manchester, New Hampshire. While in New Hampshire this effort will involve the creation of new stations and a layover facility, in Massachusetts project work will be limited to track upgrades within the existing railroad corridor north of Lowell, Massachusetts. Such work falls under the routine maintenance exception as put forth in the Sections II.A.1 and II.A.2 of the Program Comment issued by the Advisory Council on Historic Preservation. Therefore, the APE in Massachusetts is limited to areas around the two previously-identified bridges that may require upgrades in order to facilitate renewed or increase rail traffic. Anticipated impacts to these resources have yet to be determined; however, as there is very little possibility for direct physical impacts to previously identified resources within the APE and no determined possibility for visual impact, AECOM recommends that no additional work is required for this Project.

Should it be determined that additional bridges or culverts along the rail corridor will require upgrades or replacement outside the scope of the ACHP's program comment, AECOM will recommend additional Section 106 investigations on a case-by-case basis as necessary.

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Appendix A – Project Location Map

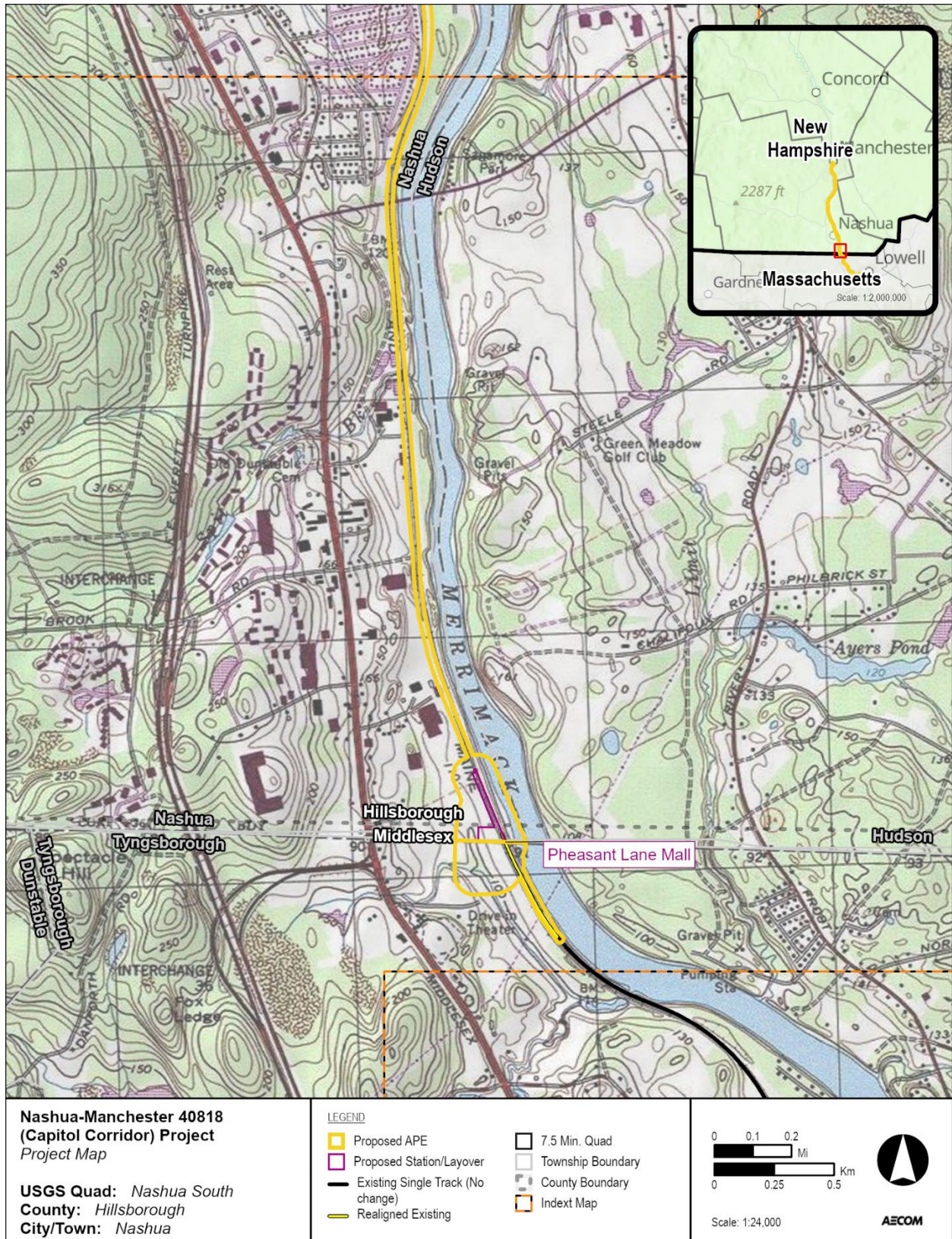


Figure 1. Page 1 of the Project Map showing the APE.

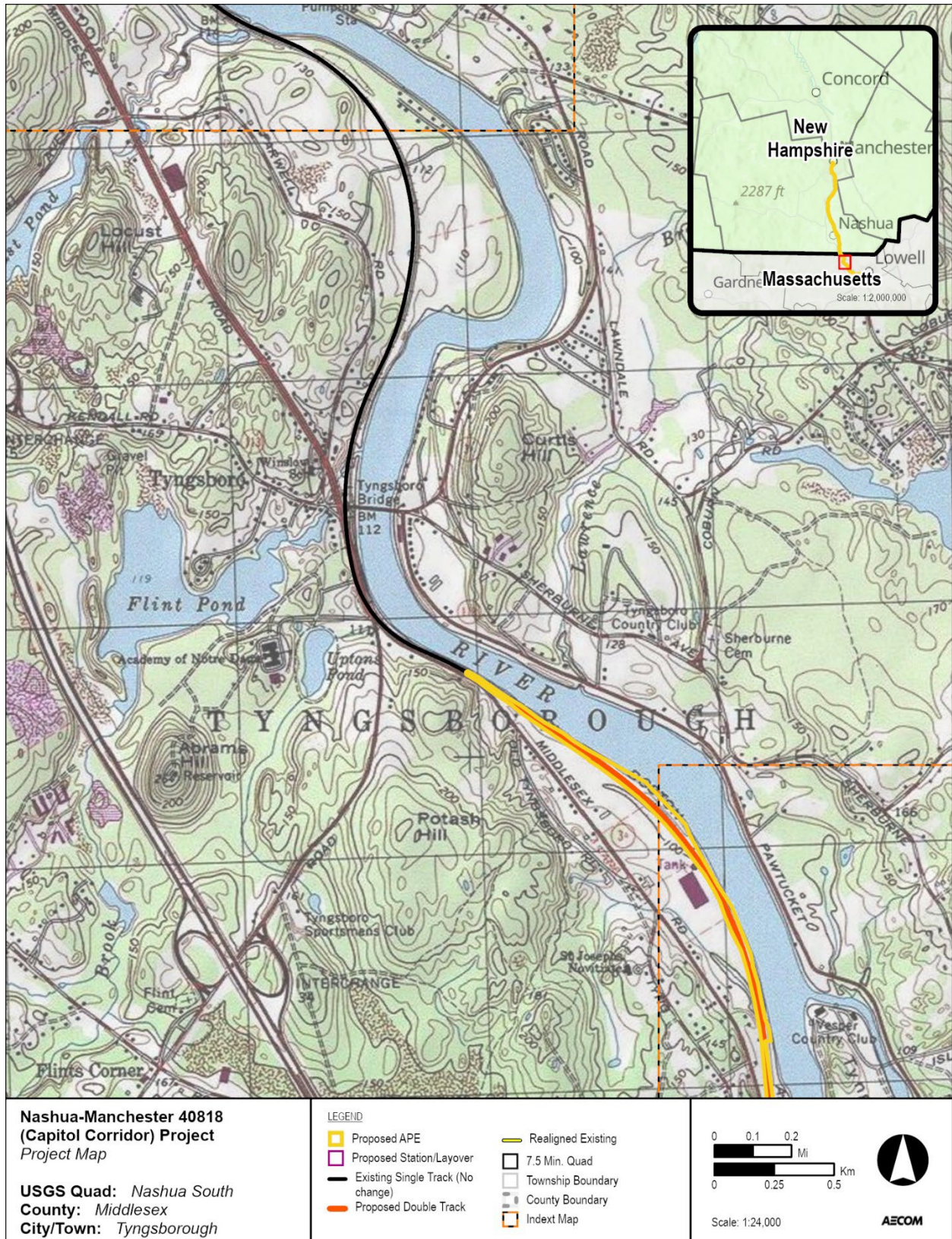


Figure 2. Page 2 of the Project Map showing the APE.

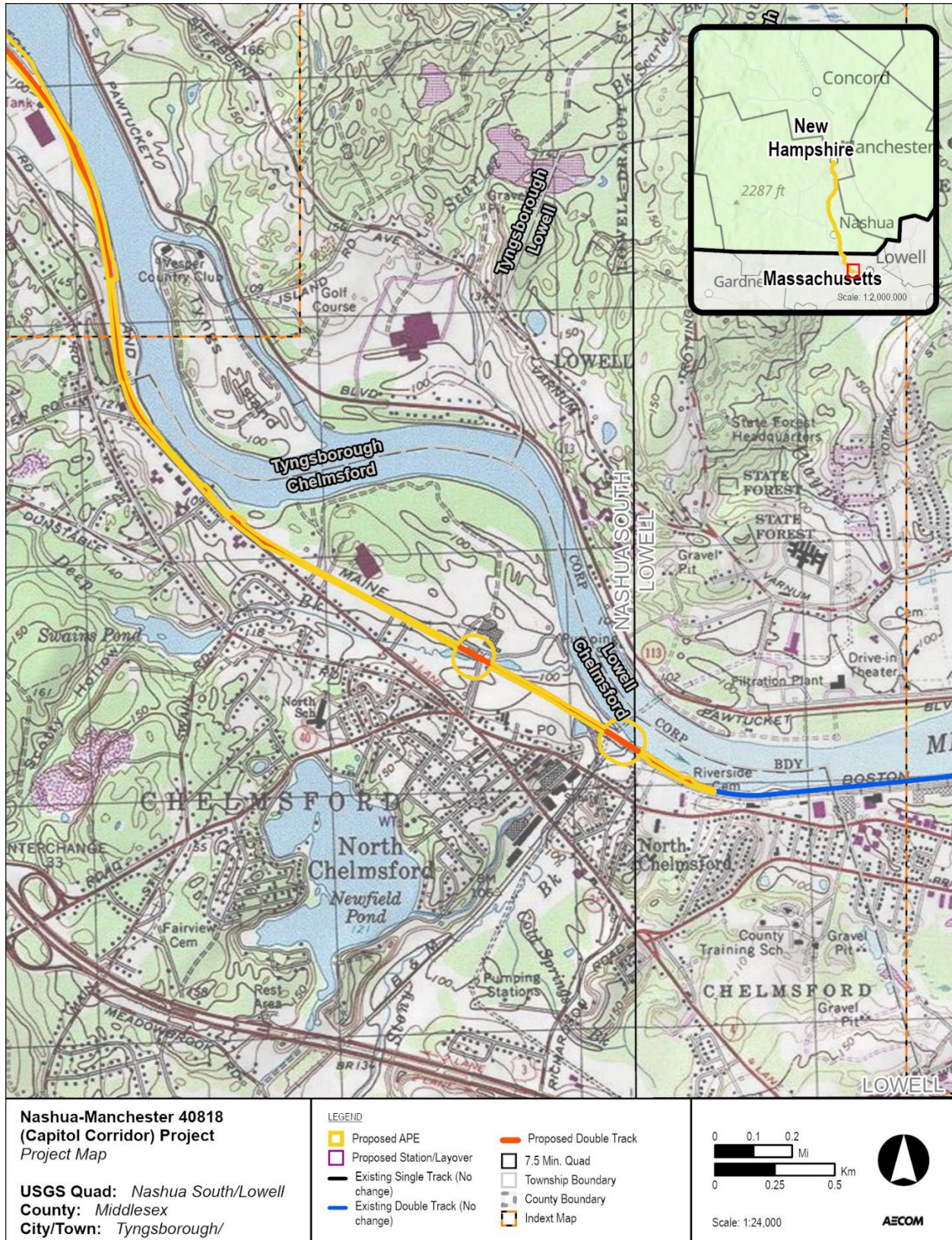


Figure 3. Page 3 of the Project Map showing the APE.

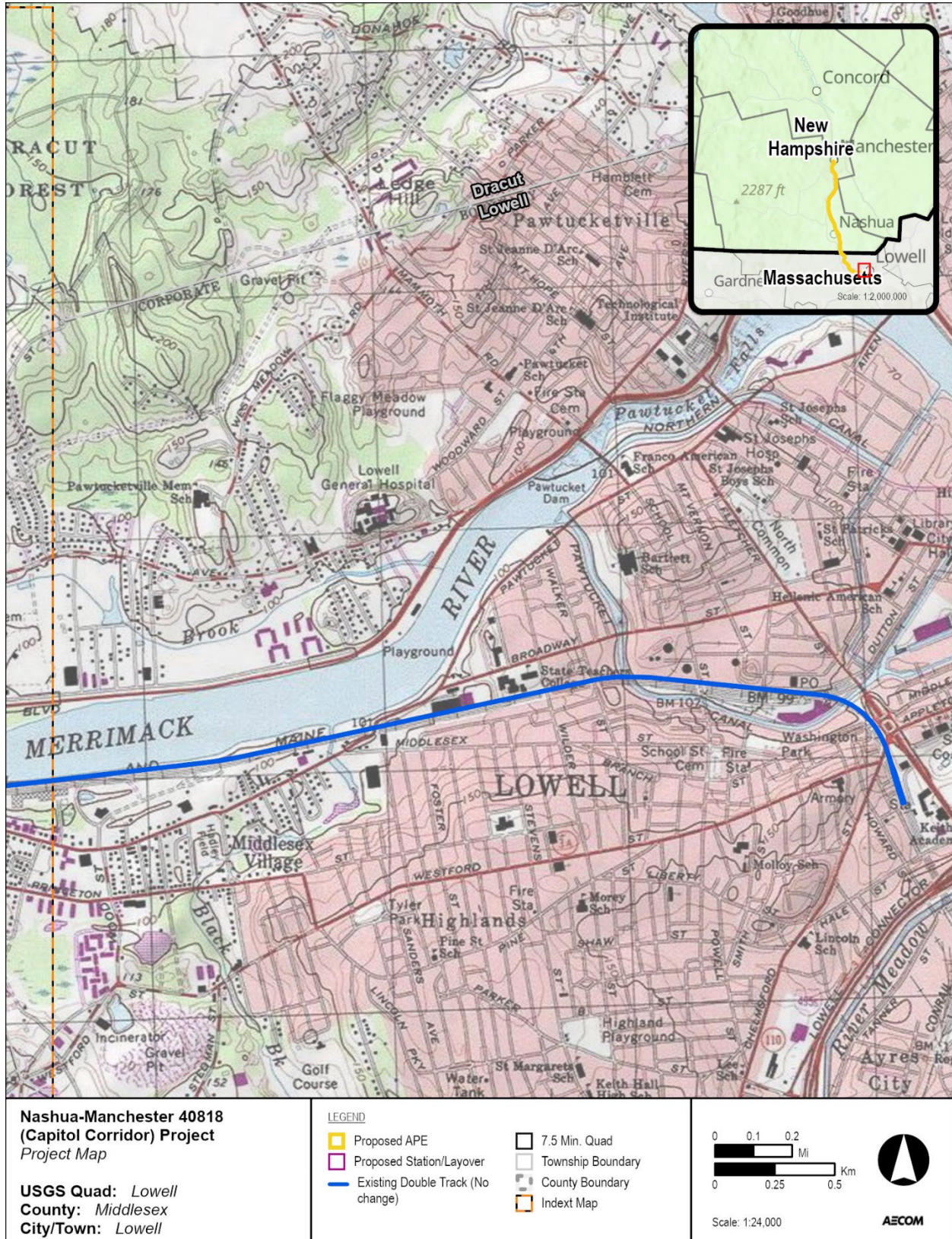
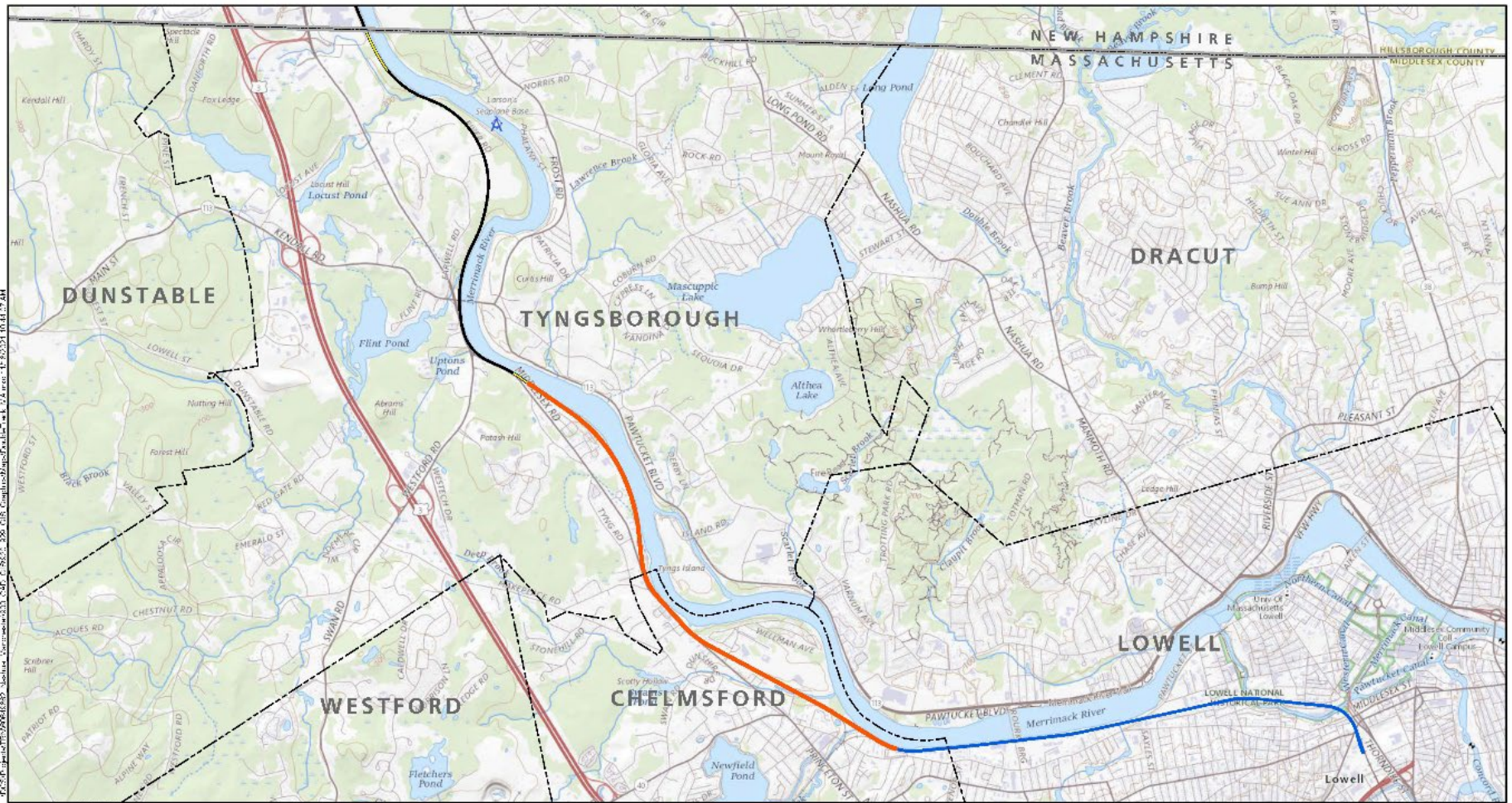
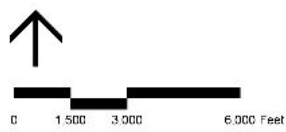


Figure 4. Page 4 of the Project Map showing the APE.

Appendix B – Construction Drawings



Sources: MassGIS, USGS



- Proposed Double Track
- Existing Double Track
- Existing Single Track
- Realigned Existing

NASHUA-MANCHESTER | Proposed Alignment

Proposed Track Alignment
Massachusetts Section



DRAFT
11/18/2021

Figure 5. Proposed Track Alignment for the Massachusetts section of the New Hampshire Capitol Corridor Rail Project. Proposed new construction (double track construction) is shown in red and the proposed track realignment is shown in yellow (AECOM 2021).

Appendix C – Photographs of the APE



Photo 1. View of the MBTA tracks alongside the Merrimack River, looking northeast from the Riverside Cemetery (CLM.802).



Photo 2. Residential cluster south of the tracks, looking north from Tyngsboro Road.



Photo 3. Residential streetscape of Sleeper Street extending from Tyngsboro Road to the tracks, looking northeast.



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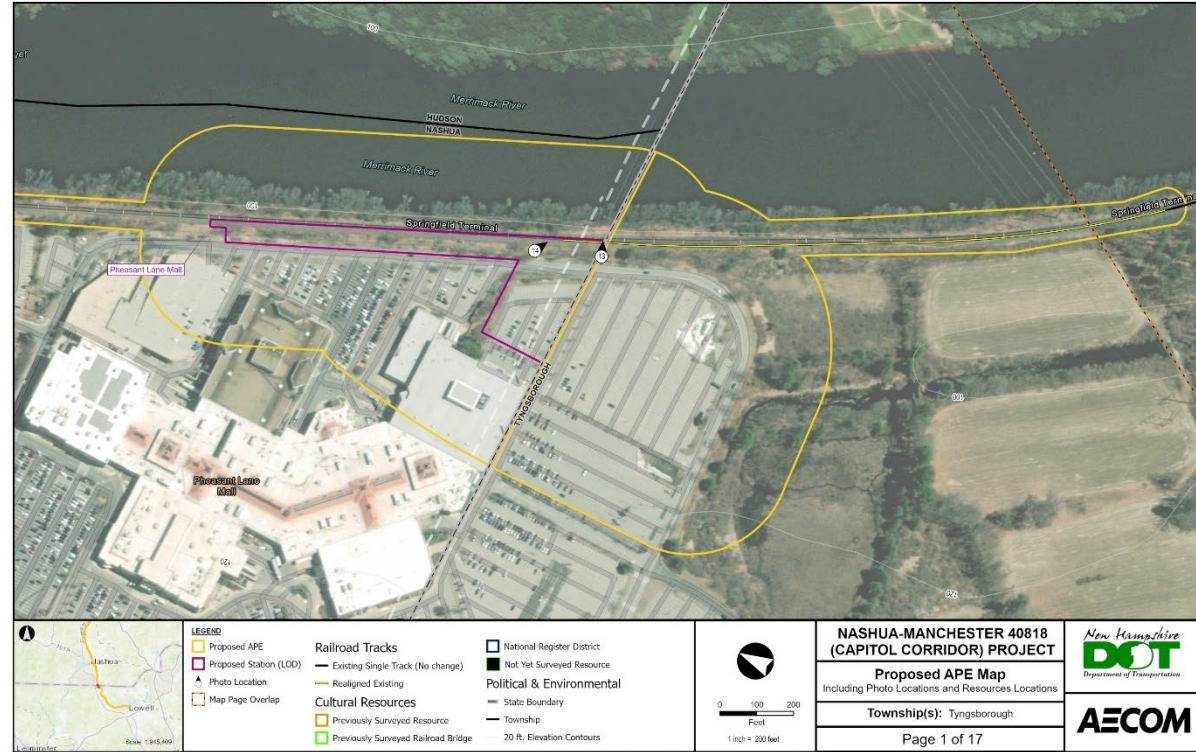
Photo 5. View of side of Wotton Rd - Deep Brook Railroad Bridge (CLM.920), looking northwest.



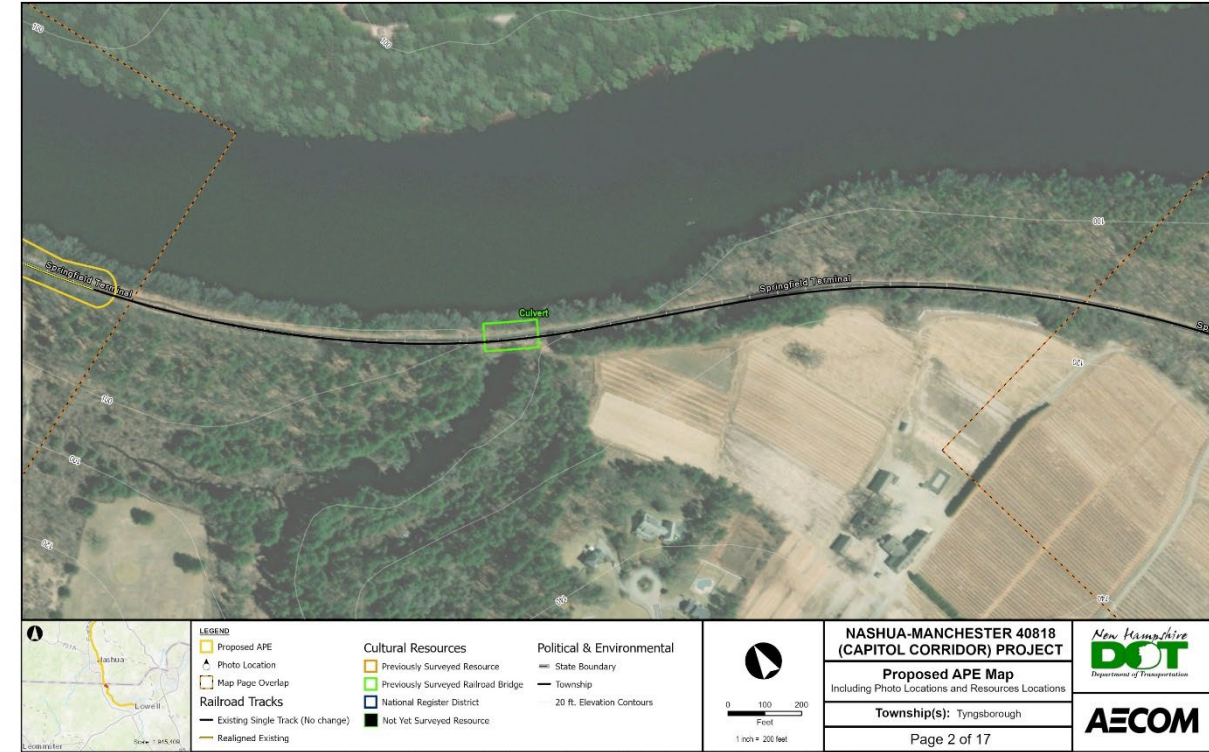
Photo 6. View of top of Wotton Rd - Deep Brook Railroad Bridge (CLM.920), looking north.

Appendix D – Detailed Map of the APE

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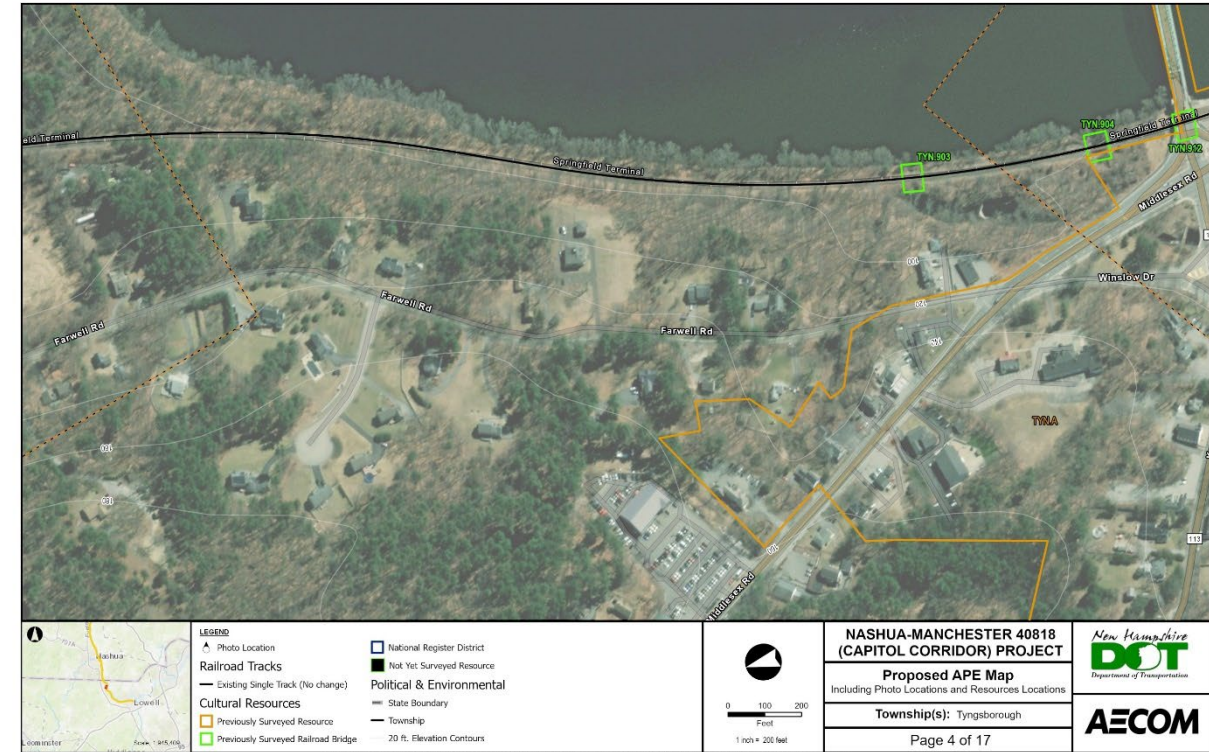
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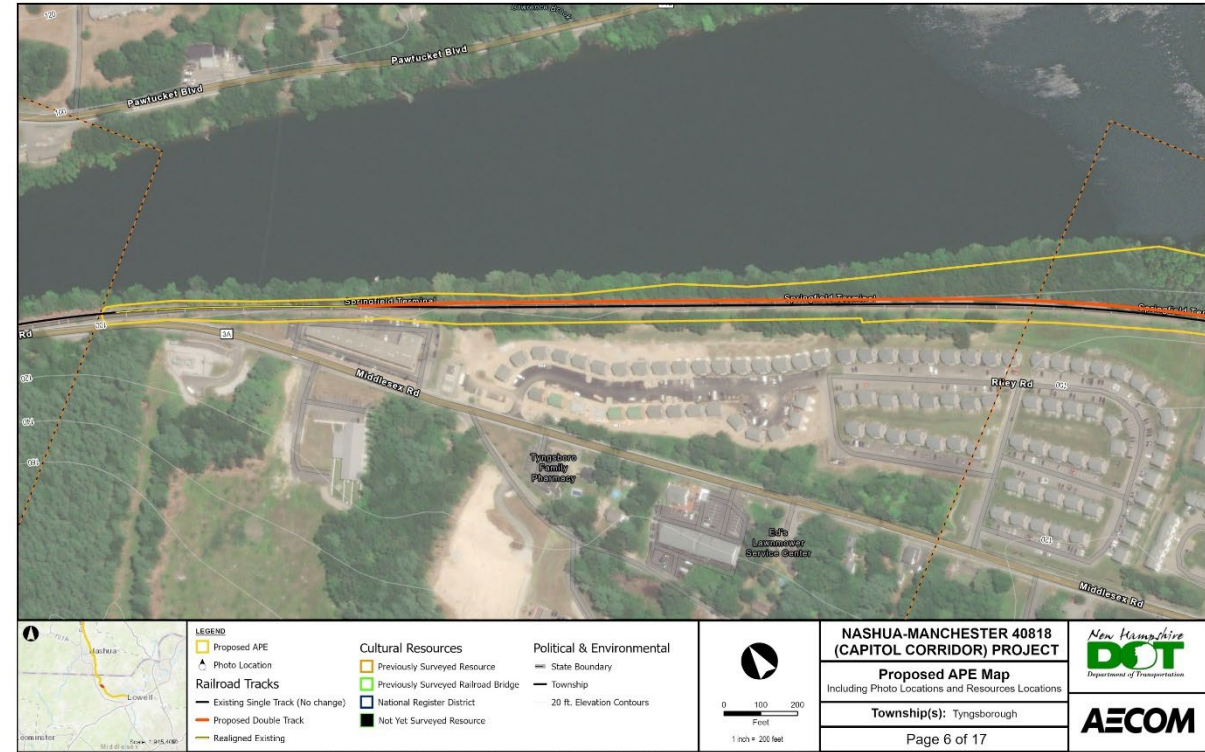
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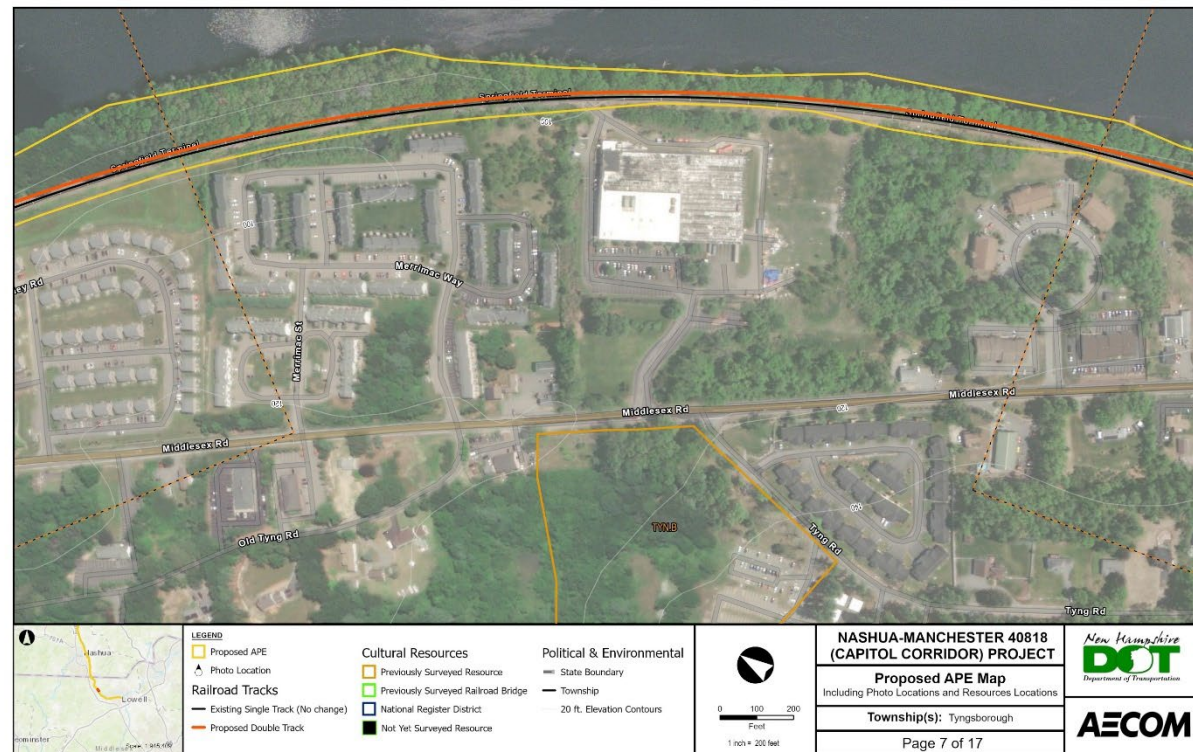
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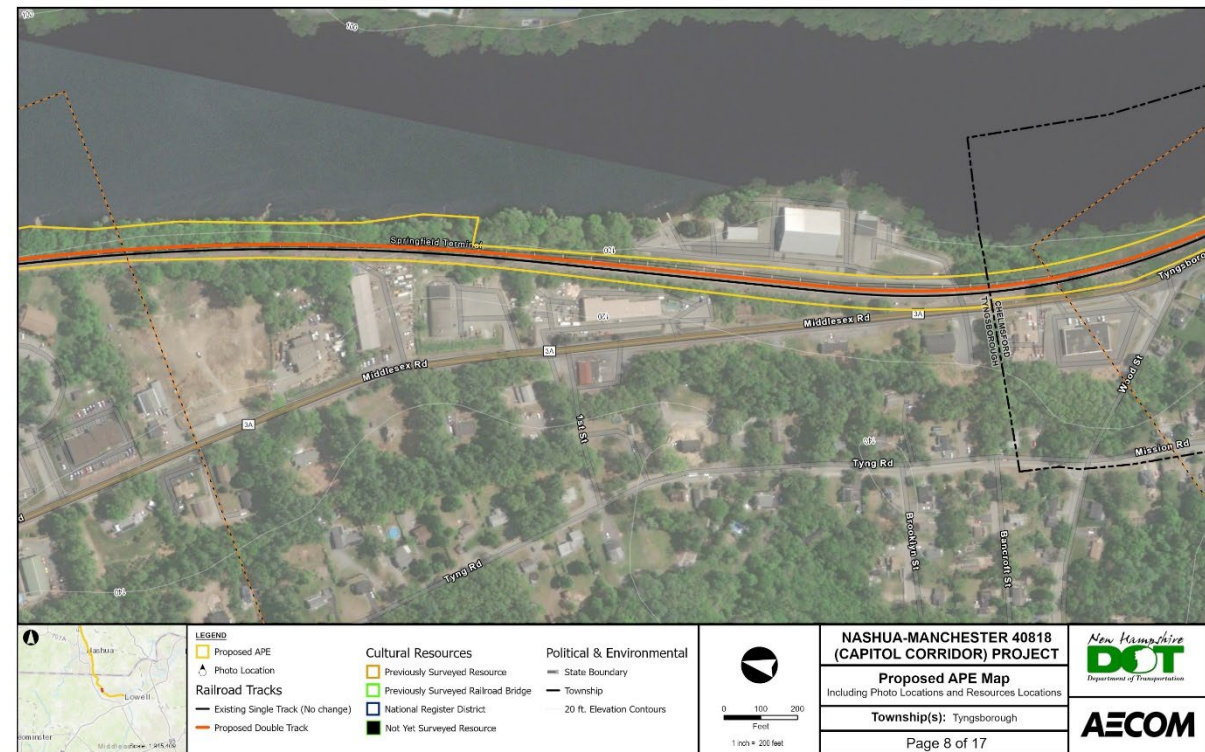
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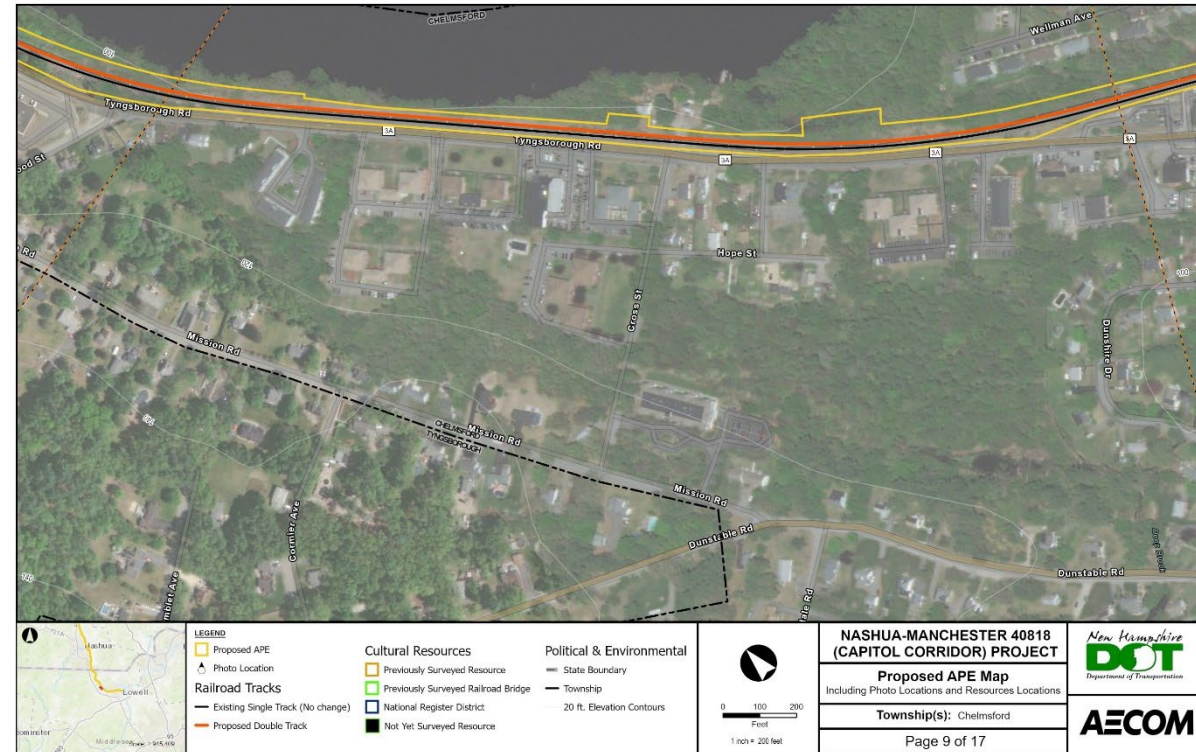
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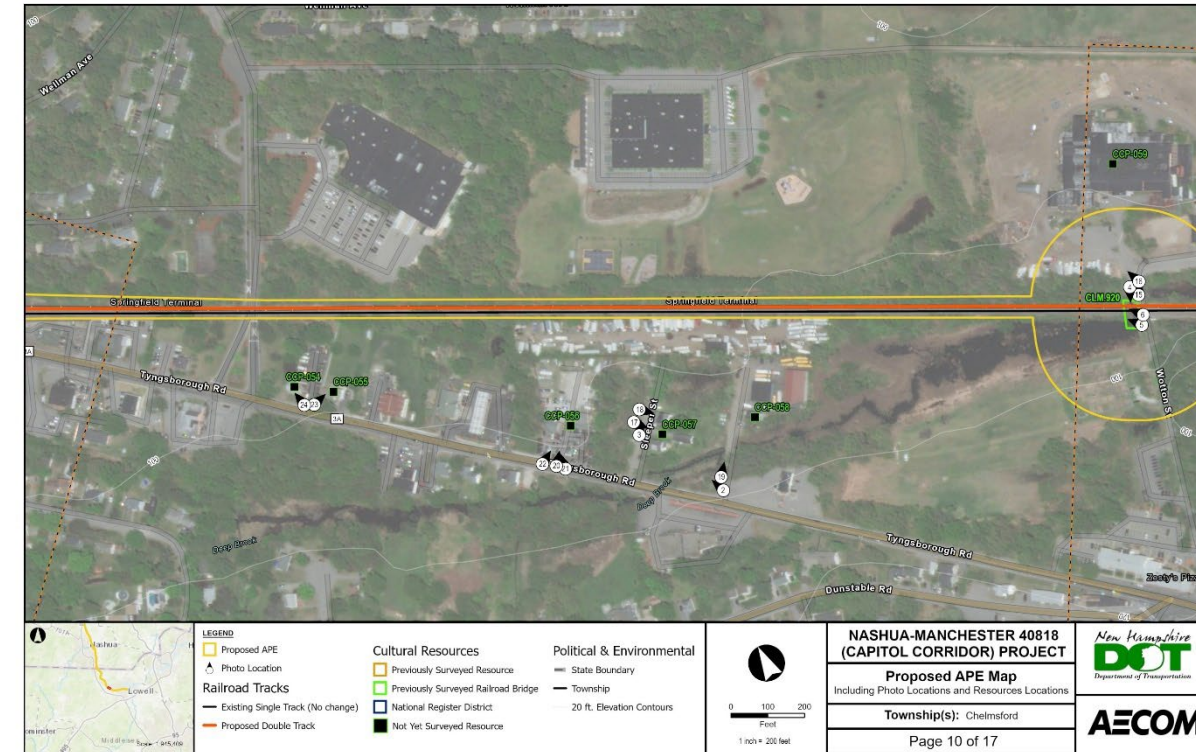
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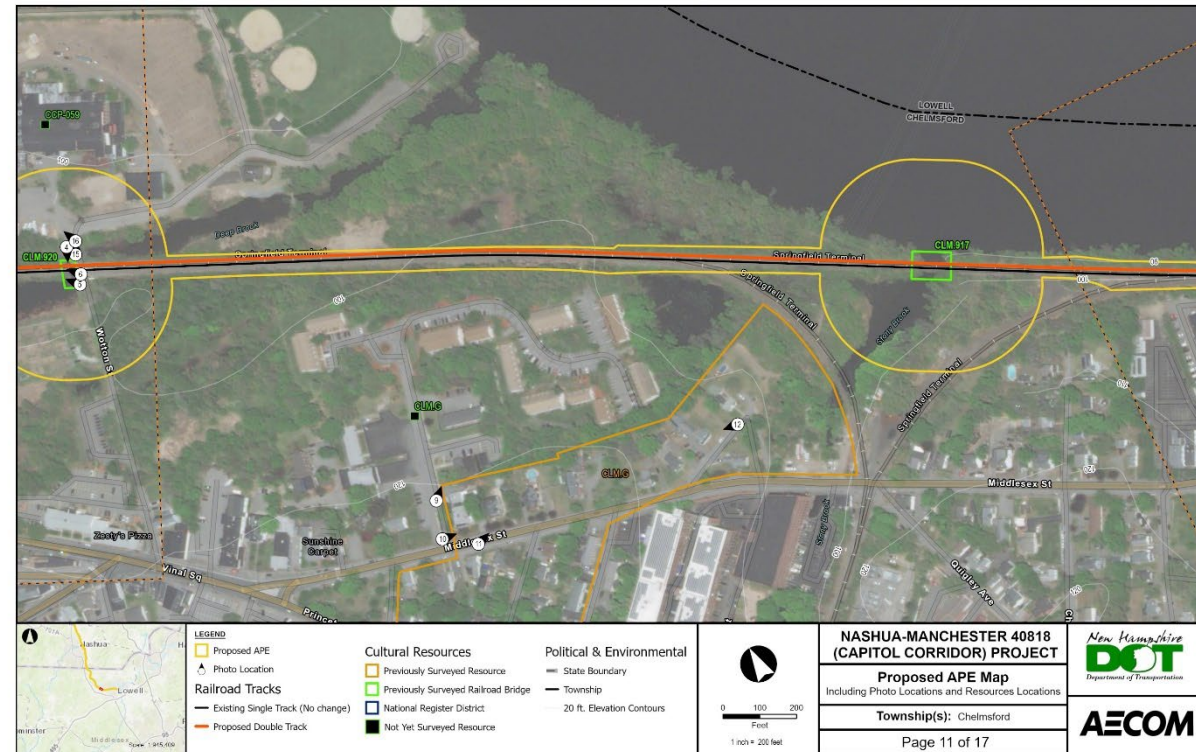
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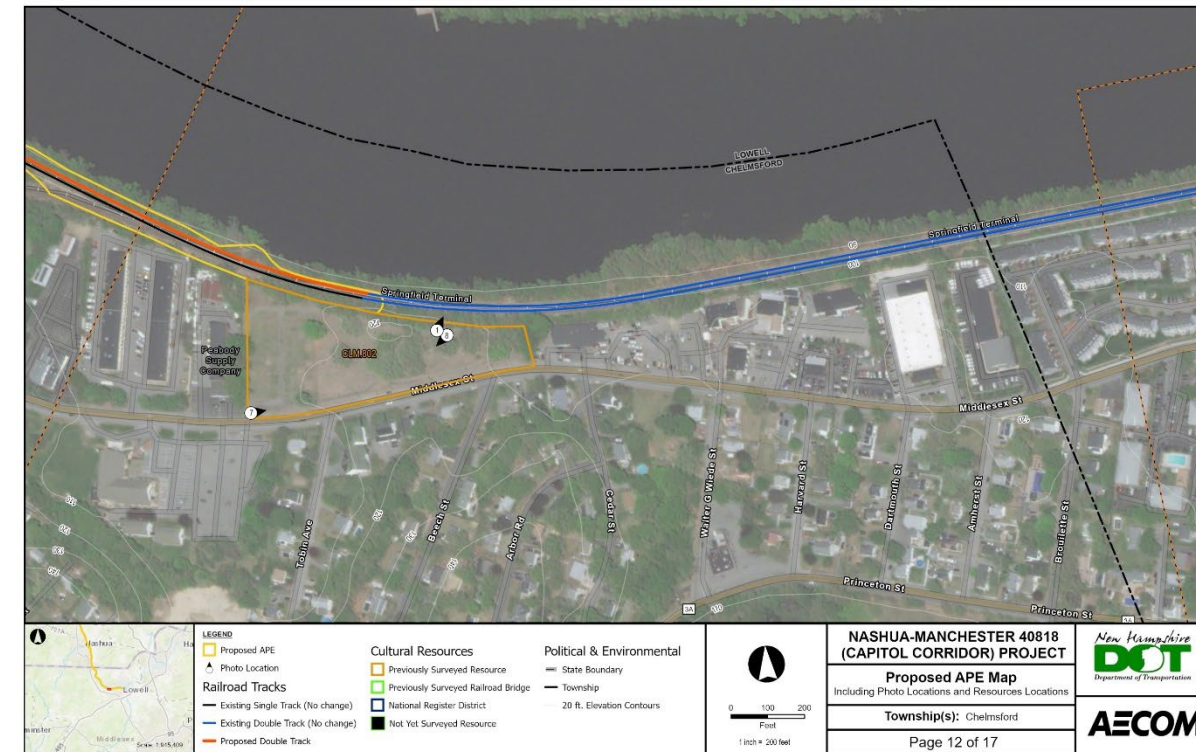
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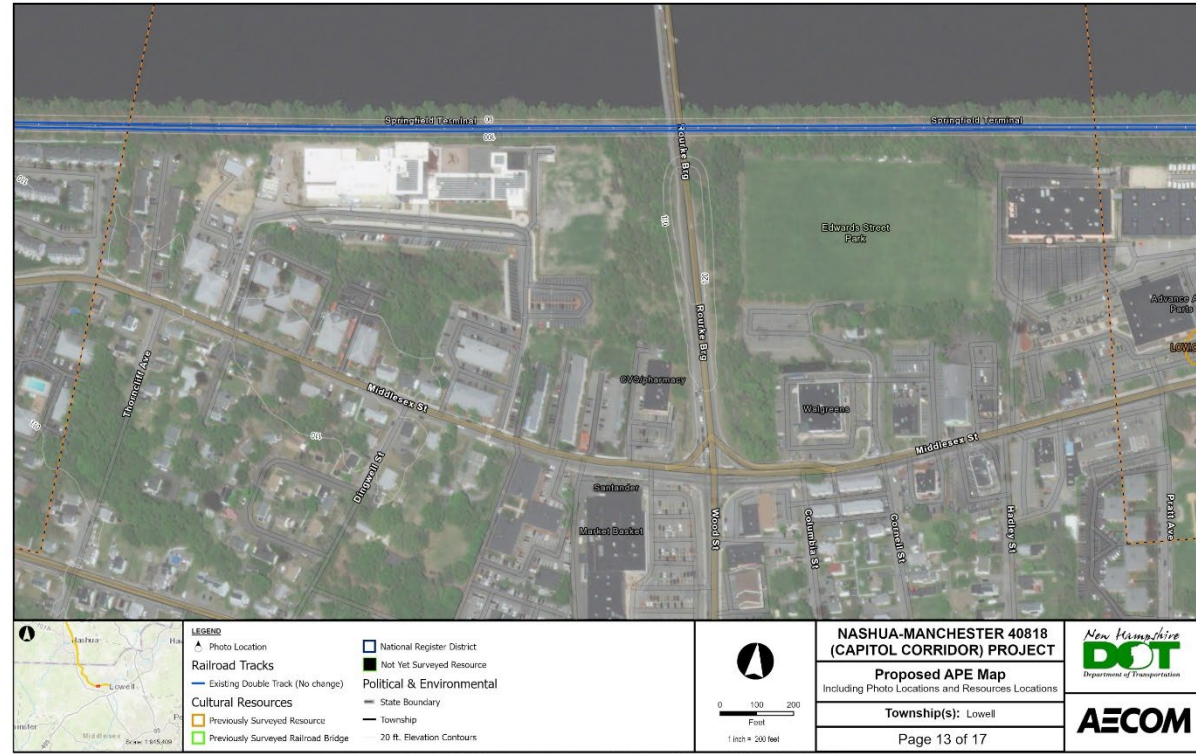
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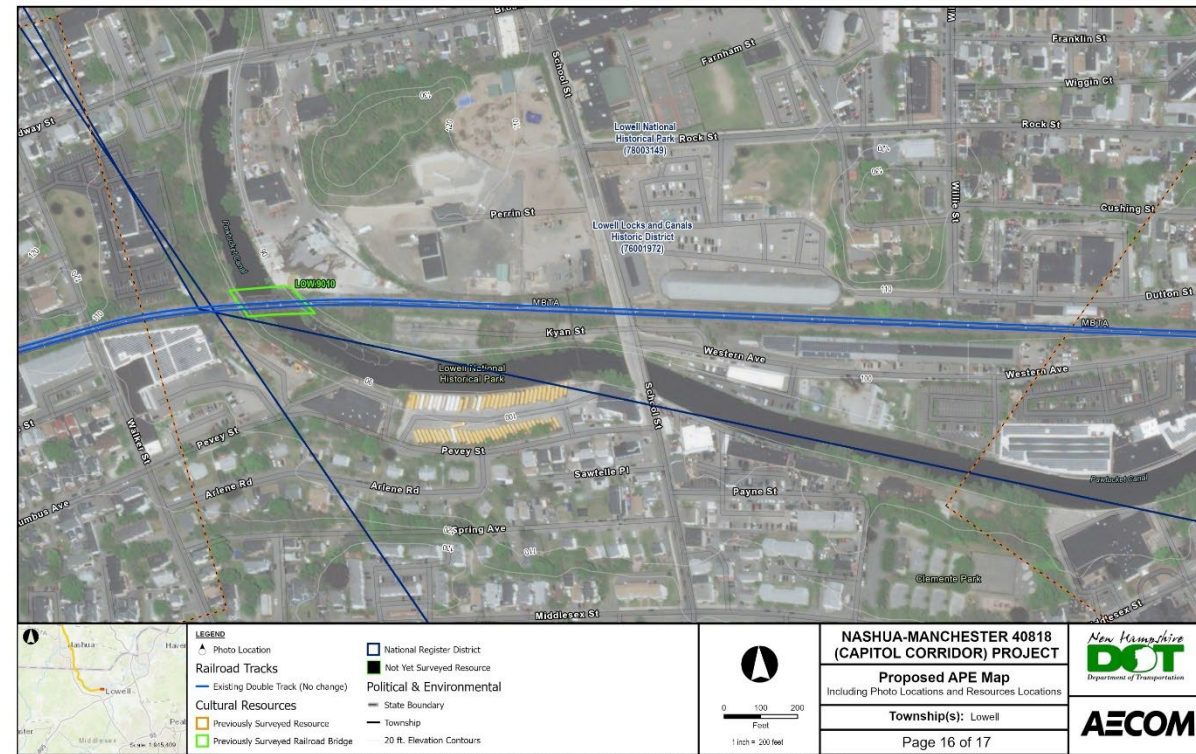
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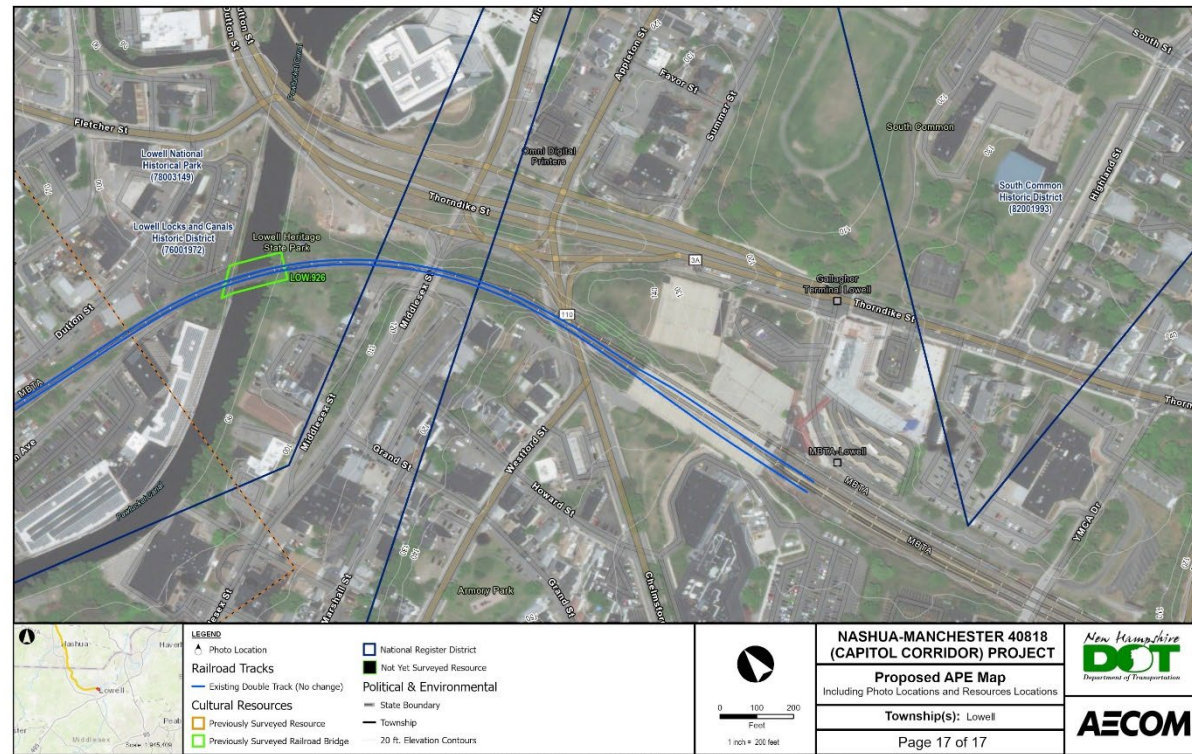
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APPENDIX D-2

Phase IA - Archaeological Assessment:
Massachusetts

Note:

This section contains sensitive archaeological information which is on file at the NH Department of Transportation's Bureau of Environment. For additional information please contact the Bureau of Environment at (603)271-3226.

APPENDIX D-3

Phase IA - Architectural Assessment:
Manchester, Nashua, New Hampshire

Nashua-Manchester 40818 (Capitol Corridor) Project

Phase IA - Architectural Assessment

New Hampshire Department of Transportation (NH DOT)

Project number: 606049862

October 6, 2022

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Project Description

The Nashua-Manchester 40818 (Capitol Corridor) Project (Project) takes its name from the approximately 73-mile rail corridor between Boston, Massachusetts, and Concord, New Hampshire. Increasing transportation demand and growing concerns about mobility, economic development, and quality of life have led the citizens and officials in New Hampshire and Massachusetts to explore options to improve transit service along the northern end of the Capitol Corridor by leveraging existing transportation infrastructure, including CSX Railway. The Federal Transit Administration (FTA), as the lead federal agency for the current undertaking and the New Hampshire Department of Transportation (NH DOT), as project sponsor, are proposing new rail and transit services in the approximately within this corridor to increase the functionality of the transit network connecting New Hampshire and Massachusetts (Appendix A).

While Massachusetts Bay Transportation Authority (MBTA) commuter rail service currently operates between Boston and Lowell, there has not been passenger service north of Lowell since 1967. While the commuter service was discontinued in the 1960s the CSX rail corridor remains in active use and is one of the major transportation resources project designers can leverage to achieve new transit goals. This railroad bed originally was designed to accommodate a set of two or more parallel tracks. Following the discontinuance of passenger rail service much of this second track was removed, and thus the current rail line contains only a single track along most of its length. While only a single track exists at present, the corridor right-of-way (ROW) remains at its initial width and therefore the existing rail bed can accommodate the reintroduction of sections of double track needed to reestablish commuter rail services without needing to establish additional railbed or expand the existing railroad ROW into adjacent properties.

The reestablishment of commuter rail services along the Capitol Corridor is not a wholly new idea. A portion of the current project corridor was previously investigated as part of a previous Request for Project Review (RPR) and Phase IA submittals (RPR6304) for the Boston-Lowell-Nashua-Manchester-Concord Rail and Transit Alternatives Analysis (Parts A & B), (NH DOT 16317 and 63037A) prepared by URS in 2014. Following these initial submittals, the New Hampshire Department of Historical Resources (DHR) issued a response requesting that more information and discussion with the DHR be undertaken regarding concurrence on the proposed Area of Potential Effects (APE), and the initiation of the Section 106 process under the National Historic Preservation Act of 1966 (NHPA) (12/22/2014). Shortly after the issuance of this correspondence, the Project was abandoned, and the additional information was not provided to the DHR and further consultation did not occur. While the current undertaking is distinct from the previous undertaking in scope, it has a similar goal and therefore builds upon the foundation of this previous undertaking.

Proposed Action

The Nashua-Manchester 40818 (Capitol Corridor) Project calls for an as-yet-unspecified amount of area within the existing MBTA railroad ROW to be reoutfitted with double-track to allow trains to pass one another. While new track construction is part of the Project, all planned track work will occur within the confines of the existing railroad bed of the MBTA ROW. Under current design plans, the manner by which the construction contractor will access work areas within the railroad ROW has yet to be determined. As such the layout of temporary access roads has yet to be established. As project plans move forward, the APE will be expanded to encompass any such access roads, which will then be subjected to cultural resource evaluation.

In addition to the proposed double-tracking and track upgrades along the project corridor, the Project calls for the construction of four commuter rail stations and one layover location, all of which will be new construction. These potential station/layover locations (Table 1) occur in Manchester and Nashua adjacent to the existing rail ROW, which runs along the Merrimack River. At present, the limits of disturbance (LOD) and locations for all of the project station locations are fixed, but there are two options still under consideration for layover locations (Pine Grove Cemetery and Pan Am South). As shown in the preliminary construction drawings (Appendix B), the construction of such station locations typically includes the establishment of open passenger rail platforms with ADA ramps and stairs for access, track construction/realignment/turn-outs, maintenance and substation buildings, construction of parking areas, and connecting roads. The table below details the specific impacts for each station/layover location.

Potential Stations and Layovers				
Location Name	City	Type	Proposed Construction	Appendix B
Granite/Valley Street Hybrid	Manchester	Station	<ul style="list-style-type: none"> Construction of pedestrian bridges (overpass) 800-foot-long high-level platform with two 100-foot sections of canopy, one at either end New roadway to allow bus access to southern end via the westward extension of Elm Street Pedestrian trail Parking lots 	<p>Design Plan 1 Design Plan 2</p>
Pan Am South	Manchester	Layover (option)	<ul style="list-style-type: none"> Five lines of rail track for rail sidings Three access roads along and between the sidings Maintenance Building Small parking area for the maintenance building 	Design Plan 3
MHT Airport-Ray Wieczorek Drive	Manchester	Station	<ul style="list-style-type: none"> 800-foot long mini-high platform with a 100-foot-long area covered by a canopy 200-foot-long low platform with 40-foot-long area covered by canopy Large parking lot south of the existing Ray Wieczorek Drive Bridge Extension of Somerville Dr. ADA ramps Drop-off/pick up zone Realignment of existing trail Establish a new retention pond 	Design Plan 4
Crown Street	Nashua	Station	<ul style="list-style-type: none"> 800-foot long mini-high platform with a 100-foot-long area covered by a canopy Construction of pedestrian stairs to neighborhood ADA ramps to the rail platform 	Design Plan 5
Pheasant Lane Mall	Nashua	Station	<ul style="list-style-type: none"> 800-foot-long low-level platform with mini-high and a 100-foot-long area covered by a canopy Location of 14 ADA parking spaces along track with an additional 66 parking spaces along the tracks Drop-off/pick up zone Reuse of existing at-grade parking lot located to the south of the proposed platform 	Design Plan 6

Application of Program Comment

During consultation with the FTA, New Hampshire Department of Transportation (NH DOT), and consulting parties, several of the proposed project related activities were determined to fall under exemptions laid out by the Advisory Council on Historic Preservation's (ACHP) *Program Comment to*

Exempt Consideration at of Effect to Rail Properties within Rail Rights-of-Way as amended on June 10, 2019 (Program Comment).

Relevant exemptions in ACHP's Program Comment applied to proposed improvements in the Capitol Corridor Project include:

- "Track and trackbed maintenance, repair, replacement, and upgrades within the existing footprint. These activities must not include alterations to the trackbed that would result in a substantial visual change (i.e., elevation or alignment) in the relationship between the trackbed and the surrounding landscape or built environment (i.e., existing subgrade, sub-ballast, ballast, and rails and crossties (track))" (ACHP 2019:II.A.1).
- "Reinstallation of double tracking on a currently single-tracked line that had historically been double-tracked" (ACHP 2019:II.A.2).

Applying these exemptions to the Project Area excludes the vast majority of the proposed undertaking from Section 106 review.

Area of Potential Effects

The APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist" (36 CFR §800.16[d], amended 2004). The APE includes all identified areas to be affected by the Project both during construction and following the Project's conclusion. Development of the APE for this Project considered potential visual effects, auditory effects, beneficial and adverse effects, direct and indirect physical effects, and changes in the use of land or historic properties. The delineation of the APE took into consideration the location and appearance of the existing railroad line; the character and condition of the built environment; and the qualities of the natural environment and how it would be affected by the construction of four passenger rail stations, a layover yard, bridge improvements, and upgrades, and the reintroduction of areas of double-tracking along the rail corridor between Lowell, Massachusetts and Manchester, New Hampshire.

Instead of the APE encompassing the area around the entire CSX ROW from Nashua to Manchester as was initially proposed in the Request for Project Review (RPR) filed with the New Hampshire Department of Historical Resources (NH DHR) on December 6, 2021, the post-consultation APE developed using the Program Comment was limited to a 250-foot buffer around the limits of disturbance (LOD) at the proposed station and layover facility locations and around bridges that might require upgrades. These locations fall outside of the existing ROW and therefore are not exempted under the Program Comment and thus are subject to Section 106 review.

The proposed Project is characterized by an approximately 100-foot-wide railroad bed, which is predominantly occupied by a single set of railroad tracks. The corridor runs adjacent to the Merrimack River and is flanked by a vegetative buffer along the majority of its length. In the larger cities of Manchester and Nashua, the corridor extends through areas occupied by dense industrial, commercial, and residential uses and architecture. Around proposed station and layover facility locations and bridges that may require upgrades, the APE expands to include a 250-foot buffer around the planned LOD for those locations.

The reintroduction of a second track will not necessitate new ground disturbance or grading as the work reestablishes a previous use, and all related activities will occur within an existing railroad bed. Furthermore, the majority of these sections of railroad ROW are shielded from view by an established vegetative screen which limits potential visual impact from the proposed improvements. Appendix C presents a detailed mapping of the spatial footprint of the proposed APE.

The APE depicted in Appendix C considers both direct and indirect effects relative to the project impacts. Direct and indirect effects were determined based on the preliminary project plans, renderings, and a field visit. If project plans are modified from those included in Appendix B, the APE will have to be adjusted accordingly. Following the adjustment of the APE, additional research and survey will be necessary to evaluate previously unsurveyed areas and the Project's effects on any potentially significant cultural properties.

Appendix C presents an APE boundary designed to assess potential direct impacts on cultural properties and assess visual/atmospheric impacts to these cultural properties. The assessment of archaeological sensitivity and potential within that APE focuses on the direct impacts or Limit of Disturbance (LOD) of planned construction where ground disturbance occurs. Rail bridge locations may require upgrades or restoration, which might necessitate additional ground disturbance either in the form of direct ground disturbance or actions like tree clearing, creation of temporary laydown yards/staging areas, or establishment of temporary access routes for equipment like cranes. Until impacts for the rail bridge locations can be more clearly defined, and the LOD of the proposed construction related to the rail bridges, the full 250-foot buffer of the APE around such rail bridge locations.

Historical Background

Manchester

The initial influx of European settlers into the region that would become Manchester came via settlers following the extant Native American trails north through the Merrimack Valley from Massachusetts, traveling as far north as Amoskeag Falls, the site of well-known and long-used native fishing grounds. During the late seventeenth century, the first wave of Euro-American settlers were drawn to the area around Amoskeag Falls by the promise of rich fishing grounds. They soon discovered that the Merrimack River's plentiful floodplains and upland terraces offered further agricultural opportunities. The resulting settlement of the region occurred as the area was divided into farmsteads, resulting in the first real permanent settlements in the area around the dawn of the eighteenth century (Willey, 1895). As settlement of the area grew, entrepreneurial settlers also availed themselves of the numerous streams and creeks feeding into the Merrimack River to power small mills. In fact, the region was so rich in resources, it became the subject of numerous land disputes between settlers and the Crown, the local Penacook Native Americans, as well as other colonies, like Massachusetts—all of whom debated ownership though much of the later portion of the seventeenth century and throughout the first half of the eighteenth century (Blood, 1948, p. 35; Browne, 1901, p. 7).

The area that became Manchester was initially dubbed Nutfield because of the great forests of chestnut trees that blanket the eastern bank of the Merrimack River (Hazlett, 1915; Willey, 1896). It was not until 1722, however, that the area received an official land grant from the provincial governor of New Hampshire, who renamed the region Londonderry. This grant was secured by a collective of 16 Scottish families who had arrived in the region as early as 1719 (Londonderry Historical Society, 1961; Browne, 1901; Bunker, 1997, p. 7; Hazlett, 1915). This same year, John Goffe, Jr., and members of his extended family established a settlement near the place where the Cohas Brook joins the Merrimack (Clarke, 1875; Potter, 1856). An additional wave of English settlers populated the area to the north near Amoskeag Falls (Clarke, 1875). The expanse of land between the Cohas Brook and Amoskeag Falls was principally used for grazing cattle and was known as Derry's Field. In 1751, a new town charter was established in this location, and this former pastureland became the town of Derryfield, the forerunner of Manchester City.

During this early period of settlement, the economy of the area was firmly settled around agriculture. However, as settlement increased in the early part of the eighteenth century, the demand for timber and grain processing grew. This new need triggered the creation of a string of saw and gristmills along the

Cohas Brook, the fast-flowing waters of which provided ample waterpower for the mill operations. These milling ventures were spearheaded by settlers like Ephraim Hildreth (circa 1735) and John Goffe (circa 1749) (Potter, 1856, pp. 657-658; Bunker, 1997, p. 9). As these mills grew in importance, roads along the Merrimack River and Cohas Brook were established to help facilitate the flow of finished goods to the community. Additionally, a ferry was established near the mouth of the Cohas Brook, enabling the speedy transfer of goods and people across the Merrimack to the neighboring community of Bedford. This increased mobility opened up larger markets for the mill goods and inspired others to invest in industry. At the dawn of the nineteenth century, the fledgling Middlesex Canal was beginning to provide cheap, efficient river traffic down the Merrimack River to Boston, but the great Amoskeag Falls remained an impediment. In 1807, as discussed above, the visionary Samuel Blodgett removed this final hurdle when he opened the Amoskeag Canal, the first canal lock around Amoskeag Falls (Mower, 1991). These infrastructure improvements led to the creation of large industrial mills in Derryfield. In 1809, Benjamin Pritchard, Robert Stevens, and Ephraim David established a cotton spinning mill along the western bank of the Merrimack, near Amoskeag Falls (Potter, 1856, p. 545). Additional mills soon followed along the eastern bank. After a rocky start, the Amoskeag Cotton Woolen Manufacturing Company (the company started by Pritchard and his associates) changed hands in 1831 and became known as the Amoskeag Manufacturing Company, which quickly improved, diversified, and modernized operations.

In 1810, around the same time as the first mills were being established along the Merrimack, Derryfield was rechristened Manchester after the first industrial town in England, whose model of industrial prosperity the residents of Derryfield (like Samuel Blodgett) hoped to emulate (Potter, 1856, p. 543). As the mills grew, they attracted more people to work in them, mostly from French Canada to the north, and the need for housing boomed. In a few short years following the chartering of the new Amoskeag Manufacturing Company, the town of Manchester had been utterly transformed. The company had created a new wing dam around the falls, increasing its power output, and after purchasing most of the eastern shore near the falls, had built two new canals capable of handling increased river traffic (Potter, 1856, pp. 551-552). In 1838, a new mill corporation, the Stark Mills, established the first cotton mill building on the east bank of the Merrimack (Potter, 1856, p. 565). The mill was a success and its initial building, Stark Mill No. 1, was expanded in 1843. Eventually a second building was added, Stark Mill No. 2, in 1847.

This rapid expansion of Manchester's industry drew even more people to work in the mills, so in 1839, the Amoskeag Manufacturing Company took it upon themselves to create a company town surrounding the mills and centered on the newly created Elm Street, which was to serve as the new main road for the town (Potter, 1856, p. 593). This town was situated on the eastern bank of the Merrimack to the east of the canals. Its placement necessitated a means across the river for the workers to access the mills. Thus, in 1840, the Granite Street Bridge was built. It remained a toll bridge until 1847, when Granite Street was laid out as a public highway (Potter, 1856, p. 711). As industry and settlement in the area continued to grow, so too did Manchester. By 1846, the town of Manchester had grown into a city and was incorporated as such in June of that year (Potter, 1856, p. 629).

In 1815, the completion of the Middlesex Canal system opened the river for barge traffic between Concord and Lowell, Massachusetts. Until its abandonment in 1851, the canal linked the Derryfield area with commercial centers, such as Nashua and the industrial towns of northern Massachusetts, greatly increasing its export capacity and expanding the regional market (Mower, 1991). While the canals were increasing the mobility of freight, newly constructed roads were enhancing the mobility of people. The 1805 charter of the Middlesex Turnpike, which largely paralleled the canal system along the Merrimack, provided road access all the way down to Boston. After a contentious debate over its creation, the people of Manchester finally agreed to the establishment of the Mammoth Road, a stage line that ran daily stages between Concord and Boston (Willey, 1896, pp. 66-67). However, with the establishment of the Concord and Montreal Railroad in 1842, these roads lost all importance and quickly vanished into obscurity (Willey, 1896; Mower, 1991). This initial railway was so successful that additional railways like

the Manchester and Lawrence Railroad (now known as Boston and Maine Railroad) were established just seven years later. The coming of the railway provided fast and efficient transportation of goods and people to metropolitan cities like Boston. These railways proved too efficient for many of the other forms of transportation, completely overshadowing the established roads and canals (Mower, 1991, p. 1991).

The combination of efficient transportation and a strong manufacturing base saw the city of Manchester flourish throughout the nineteenth century and into the first quarter of the twentieth century. In the latter half of the nineteenth century, the Amoskeag Manufacturing Company diversified from textiles to railroad engines, fire trucks, and weapons manufacture with the addition of the Amoskeag Foundry. The 1920s saw the beginning of an economic downturn in response to the end of World War I. During this period, the cotton industry had begun moving to the South. The cost of importing raw material to the mills for northern manufactures was exorbitant compared to those in the South, who had a ready supply on their doorsteps. Southern mills could therefore produce the same product for considerably less than their northern counterparts; as a result, they flooded the market, driving down prices (Hareven & Langenbach, 1995, p. 302). Demand for fabric and linens plummeted and the northern mills began to suffer (Singleton, 1997, p. 132; Hareven & Langenbach, 1995, p. 302). Confronted with the new economic reality, many northern mills could no longer compete and folded (Hareven & Langenbach, 1995, p. 336). To combat the falling profits, the owners of the Amoskeag Manufacturing Company cut the wages and increased the hours of their employees, an action which led to massive labor strikes (Hareven & Langenbach, 1995, p. 336). These events undermined not just management-labor relations, but also alienated customers, further exacerbating the problem. With the stock market crash in 1929, the labor tensions were further enflamed, leading to violent strikes in 1933 and 1934. In the wake of these difficulties, the mills began a gradual decline, and in 1935–1936, the Amoskeag Manufacturing Company, once the heart of the city, went bankrupt and was shuttered.

After the demise of the mills in Manchester, their industrial buildings were carved up and occupied by smaller manufacturing concerns throughout much of the twentieth century. In the second part of the twentieth century, the abandoned mills became the home of electronics manufactures, metal-working facilities, plastics manufacturers, and machine builders, helping to restore the industrial base of Manchester. Today, old mill buildings still remain a key feature of the landscape, but are now home to small businesses, hospitals, universities, and restaurants that provide economic opportunity for the residents of Manchester City.

Nashua

The story of Nashua, New Hampshire, is partly the story of Dunstable, Massachusetts. This may seem like an odd assertion, until it is acknowledged that during the earliest period of European settlement in the region, the section of New Hampshire in question was at the time considered to be Massachusetts, as the colony of New Hampshire had yet to be conceived. Early forays into the region were largely limited to ventures designed to carry on trade with the native populations of the Merrimack Valley. One such venture occurred in 1665 and was executed by John Cromwell, a fur trader who established a trading post along the Merrimack near a small falls. This experiment did not endure and was subsequently abandoned (Fox, 1846, p. 21). In 1673, the land where Nashua now lies was part of a 200-square-mile land grant made to Edward Tyng (Fox, 1846, pp. 16-17). Tyng established the town of Dunstable (named after his native town of Dunstable, England) near the confluence of the Merrimack and Nashua Rivers (the site of modern-day Nashua City).

Starting in 1675, the region was the scene of a bloody conflict between the native peoples of New England and European settlers (Fox, 1846, p. 28). This conflict, which would become known as King Philip's War (King Philip was the European name given to Metacomet, the Grand Sachem of the Wampanoag), raged for three years. During the conflict, Metacomet and his allies destroyed neighboring

settlements, including the towns of Chelmsford and Groton, which were contained within the same 200-square-mile grant (Fox, 1846, p. 28; Peters, 2006, p. 8). The Penacook tribe of the Merrimack Valley had sided with Metacombet initially but made a separate peace with the colonists. By this point, the conflict had greatly reduced their numbers and lost them a great deal of territory, and many fled to Canada (Fox, 1846, p. 21). While the discord had caused many of the Dunstable colonists to flee, the cessation of fighting in 1678 prompted many to return, and the town grew once more (Fox, 1846, p. 37). This resurgence was short lived. Due to competing land claims between the colonial powers in Europe—namely Britain and France—and native populations in the Americas, the region was the stage for an additional two wars: King William's War and Queen Anne's War. (In the Americas, both groups had their native allies, though the French garnered more support from native populations in New England). During the late seventeenth and early eighteenth centuries, Dunstable was a frontier town on the frontlines of these conflicts and was frequently garrisoned (Fox, 1846, pp. 65-66, 82, 103). While the citizens of Dunstable occasionally fell victim to the ravages of such conflicts, the town itself miraculously survived, unlike other similar settlements that were continually attacked and destroyed (Fox, 1846, p. 65). Still, the constant fighting and fear of Indian attack caused the settlement of the area to stagnate until the beginning of the eighteenth century (Fox, 1846, p. 68).

During the latter portion of the seventeenth century and into the early part of the eighteenth century, many land disputes between competing charters and land grants occurred between the established colony of Massachusetts and the newly formed colony of New Hampshire. For much of this time, both colonies laid claim to the town of Dunstable and its surrounding territory, part of the original Tyng grant. This debate continued for well over 50 years—until 1741, when the boundary between the two rival colonies was settled (Stearns, 1986, p. v; Fox, 1846, p. 147; Peters, 2006, p. 8). This decision split the original Tyng grant in half, with the northern portion and town of Dunstable going to New Hampshire, and the southern portion of Dunstable going to Massachusetts (Fox, 1846, p. 147; Peters, 2006, p. 8). It was during this time that Massachusetts created the municipality of Tyngsborough out of part of the southern portion of their new territory. Thus, this boundary settlement led to the creation of Dunstable and Tyngsborough in Massachusetts and the town of Dunstable in New Hampshire, which was formally incorporated in 1746 (Fox, 1846, p. 150).

The second half of the eighteenth century saw two additional wars: the French and Indian War and the American Revolution. Men from New Hampshire participated in these conflicts, but the fighting occurred elsewhere (Fox, 1846, pp. 159-168). The first quarter of the nineteenth century saw the continued growth of Dunstable; the population had rapidly expanded throughout the eighteenth century and was now close to 900 people (Fox, 1846, p. 193). It was during this period that Dunstable established its first post office, got its first stage line (Amherst-Boston), and established several taverns (Fox, 1846, p. 193). By 1804, the town had been connected to Boston via the newly opened Middlesex Canal. This new connection stimulated the fledgling economy of Dunstable (Fox, 1846, p. 196). The variety of industries in the town expanded; new saw and gristmills were built, as well as additional stores and taverns to handle the new flow of goods and travelers brought to the area via the canal (Fox, 1846, p. 198).

The dawn of the nineteenth century, however, brought big changes to the area. In 1802, the Middlesex Canal came through the area, connecting Dunstable to Boston via river and enabling the bulk exchange of goods. Suddenly, subsistence agriculture was not the only way to make a living. The growing city of Boston required raw material that the frontier towns along the Merrimack, including Dunstable, could provide. Timber, foodstuffs, and building materials flowed down to Boston from Dunstable, and finished goods flowed back upriver to Dunstable. The local economy diversified rapidly, as new business ventures emerged to fill the demand for new goods. The town grew and the economy expanded from a local to regional scale. Then, in 1821, in Lowell, Massachusetts, a large cotton mill was established and brought great prosperity to the town. Seeing the success of the operations at Lowell, an environmental setting similar to that of Dunstable, investors began to plan a similar enterprise (Fox, 1846, p. 198). The result of this planning was the Nashua Manufacturing Company, established in 1823 by Daniel Abbot and other

investors from Dunstable (Stienberg, 2004, p. 80; Fox, 1846, p. 199; Peters, 2006, p. 13; Charlton, Ticknor, & New Hampshire, 1856, p. 309). Though not an instant success, the Nashua Manufacturing Company persevered and undertook to harness as much waterpower as they could to provide for the future operations of their mills. The result was the Nashua Power Canal, essentially a giant mill race, which carried high-velocity water three miles downstream from Mine Falls, providing the torrent of waterpower needed to operate the ever-expanding mills (Stienberg, 2004, pp. 78, 81; Fox, 1846, p. 200).

The Indian Head Company, another milling operation, opened downstream in 1826, taking full advantage of the improved waterpower from the Nashua Manufacturing Company (Stienberg, 2004, p. 81; Fox, 1846, p. 200; Charlton, Ticknor, & New Hampshire, 1856, p. 309). This corporation was short-lived and was bought out by investors from Boston just two years later. These investors, known as the Boston Associates, poured capital into the Indian Head Mill, revitalizing and modernizing it. The result was a new company known as the Jackson Manufacturing Company (Stienberg, 2004, p. 82; Fox, 1846, p. 205).

After a rocky start, the Nashua Manufacturing Company found its feet, and by 1836 had built and was operating three large cotton mills (Peters, 2006, p. 12; Stienberg, 2004, p. 80). These new mills created employment opportunities that drew people to Dunstable. This influx of workers drastically increased the population of the town, which by 1830 numbered 2,417 persons (Fox, 1846, p. 206). The draw of the mills was strong; as they expanded, so did the town. In the seven years between 1830 and 1837, the population nearly tripled (Fox, 1846, p. 207). To meet the needs of their workforce, the companies set about planning a town for their workers surrounding the mills, complete with housing, schools, and churches (Peters, 2006, p. 59). This neighborhood became known as Nashua Village (Fox, 1846, pp. 202-203). Having developed a new identity as an industrial town, the citizens of Dunstable elected on the eve of 1837 to rename the town Nashua, a name that has persisted ever since (Fox, 1846, p. 209; Peters, 2006, p. 8).

By the 1830s, Nashua was a booming industrial town where new advances were readily embraced. In 1836, the town embraced a new advance in transportation technology, the railroad; by 1838, it had completed its first line connecting it to Lowell, Massachusetts (Fox, 1846, p. 207; Wallace, Mausolf, & New Hampshire, 2001, p. 19). The success of this rail line prompted the establishment of five more rail connections, making Nashua an important transportation hub (Fox, 1846, p. 208; Peters, 2006, p. 75; Charlton, Ticknor, & New Hampshire, 1856, pp. 311-312). The coming of the rail lines had signed the death warrant of the Middlesex Canal, which could not compete with the speed of the railroads (Mower, 1991; Wallace, Mausolf, & New Hampshire, 2001, p. 19). By the mid-1850s, the canals had been abandoned (Mower, 1991, p. 1991). The success of the railroads opened up even more markets to the already bustling industries in Nashua and created new industrial opportunities. The industries of Nashua diversified again, and while still largely dependent on cotton mills, the city also began to work in iron, paper, leather, and machinery (Fox, 1846, pp. 210-212, 214; Charlton, Ticknor, & New Hampshire, 1856, p. 309). Nashua also developed industries that serviced the railroads, including foundries and repair yards (Wallace, Mausolf, & New Hampshire, 2001, p. 26).

Nashua became not only an industrial powerhouse, but a crucial economic hub. Despite its growth and prosperity, the town of Nashua continued to have boundary problems. In 1842, the north section of the town, situated above the Nashua River, broke away and formed a new town called Nashville as a result of a disagreement over the placement of the town hall (Fox, 1846, p. 213; Peters, 2006, p. 8; Charlton, Ticknor, & New Hampshire, 1856, p. 309). The hurt feelings and division persisted for 11 years, until the two "towns" buried the hatchet and joined together to form the city of Nashua. The charter for the city was created in 1853 (Stienberg, 2004, p. 216; Peters, 2006, p. 8).

The growth of Nashua had prompted many waves of immigration throughout the nineteenth century. The initial immigrants were Irish and French-Canadians (Québécois) who flooded to the area in search of work prior to the Civil War (Trustees of the Hunt Memorial Building 1999; (Federal Writers' Project of the

Works Progress Administration for the State of New Hampshire, 1938, pp. 75-76). Wars and social upheaval in Europe during the second half of the nineteenth century prompted a second wave of immigration. During this time, the established Irish and French-Canadian ethnic communities were joined by waves of mass immigration from the Mediterranean and Eastern Europe (Trustees of the Hunt Memorial Building (Nashua, New Hampshire), 1999; Federal Writers' Project of the Works Progress Administration for the State of New Hampshire, 1938, p. 76). Mill towns like Nashua became much more ethnically diverse, as the waves of immigration enriched the local cultural/ethnic tapestry and new ethnic neighborhoods were established. These new communities included people from Greece, Lithuania, Italy, Poland, Hungary, Austria, Germany, Bohemia, and Russia (Federal Writers' Project of the Works Progress Administration for the State of New Hampshire, 1938, p. 76). These immigrants brought with them their traditions, customs, and food.

During the nineteenth century, other mills had established themselves along the Merrimack in Nashua. However, the Nashua Manufacturing Company outperformed them all, and eventually came to purchase some of its smaller rivals, like the Jackson Company, Indian Head Mills, Tremont Mills, and Suffolk Mills. These acquisitions further expanded the company colossus, firmly ensconcing it as the core of the economy in Nashua. The 1920s saw the beginning of an economic downturn in response to the end of World War I. As discussed in the above section on Manchester's history, the cotton industry had begun moving to the South during this period. The South's ready supply of cotton eliminated the costs of shipping raw material to the north. While producing the same product for considerably less, Southern mills could flood the market and drive down prices (Hareven & Langenbach, 1995, p. 302). Confronted with a significant drop in the demand for fabric and linens, and the new economic reality that went with it, many northern mills closed (Singleton, 1997, p. 132; Hareven & Langenbach, 1995, pp. 302, 336). Remarkably, the Nashua Manufacturing Company persisted through World War II, likely due to its more diversified business model. However, the company was purchased by Textron, Inc., in 1945, and only two years later, the mills of the Nashua Manufacturing Company were shuttered (Chomsky, 2008, p. 104).

The period following the closing of the mills in Nashua was dark, but mercifully short lived. With one of the primary employers in the city suddenly gone, unemployment was rampant for a few years. The Nashua New Hampshire Foundation purchased the abandoned mills from Textron in 1953 and attempted to attract new industries to the area (Chomsky, 2008, p. 104). Luckily for the city of Nashua, their existing infrastructure and available workforce was attractive to burgeoning new industries, including electronics, plastic manufacture, paper production, as well as electric and steel industries (O'Connell, 2013, p. 218).

Perhaps the most important new industry, however, arrived in 1952. In that year, Sanders Associates moved into the vacant Jackson mill complex (Trustees of the Hunt Memorial Building (Nashua, New Hampshire), 1999). This circuit board manufacturer emerged as an important player in the Cold War defense economy and became integral to the development of the defense industry, space program, and early computer industry (O'Connell, 2013, p. 218). Eventually, the Sanders Associates became part of Lockheed Martin, and eventually part of BAE Systems Electronics & Integrated Solutions. As these new industries renewed the city's economy and provided more economic opportunities, the city continued to grow. With the popularization of the automobile in the postwar era, a number of suburbs emerged around Nashua. These new settlements in turn provided new economic opportunities in the form of retail outlets to and shopping centers that further diversified and bolstered the city's economy (Trustees of the Hunt Memorial Building (Nashua, New Hampshire), 1999; O'Connell, 2013, p. 218). Additionally, the construction of major highways over the second half of the twentieth century once again provided economic opportunities that were just a short commute away. The grow of highways drew Nashua closer to other neighboring cities like Lowell and Boston once more (O'Connell, 2013, pp. 217-218). These areas had also been undergoing similar transitions and had developed similar electronics and computer-based industries. Today, Nashua is a powerful player in the nation's northeast electronics industry, as part of the greater Boston high-tech corridor.

Resource Identification

The APE focuses on the locations of proposed station and layover locations as well as the sites of historic railroad bridge and tunnels that may require upgrades as part of the current undertaking and are not excluded from Section 106 review by the application of ACHP's Program Comment. In these locations the APE contains buildings and structures where proposed improvements have a potential for visual and auditory effects. In the APE sections around the railroad bridges, bridges/tunnels, and culverts that cross many of the Merrimack River's tributary watercourses the landscape is predominantly comprised of limited rail infrastructure and vegetation, namely a mature tree-lined rail corridor which runs parallel to the Merrimack River (Photos 17, 19, 20, 39, and 40). By nature of the historic rail corridor, the character of the APE is also industrial in character in places, featuring early-to-mid-20th century warehouse and commercial developments at the southern end (Nashua) of the APE (Photos 30, 31, 32, 33, 34, and 35) and mid-to-late 19th century factory complexes mixed with modern mixed-use developments in the northern end (Manchester) of the APE (Photos 1, 2, 3, 4 and 13).

Previously Recorded Properties

AECOM conducted a search of the DHR's online record access system, EMMIT, in August 2021 and identified 6 properties that had previously been surveyed or listed in the National Register of Historic Places (NR) located within the boundaries of the proposed APE (see **Table 1** for a summary of the previously surveyed and NR-listed properties). This includes one NR-listed resource, four NR-eligible resources, seven NR-not eligible resources, and two properties requiring additional information.

Table 1. Previously Surveyed or Listed Properties							
DHR Inventory Name/Historic District Name	DHR Inventory #	NR Eligibility	Date of determination	NRHP Criteria of Significance	Photo(s)	Map Page	Nearest Station /Layover
Manchester, Amoskeag Millyard	MAN-0AMK	Eligible	04/11/2000	-	4 & 3	1	Granite/Valley Hybrid Station
RR Manchester & Lawrence Railroad	ZMT-MLRR	Eligible	07/22/2009	A, C	12	1	Granite/Valley Hybrid Station
Granite State Packing	MAN-0GSP	Not Eligible	09/09/2008	-		2	Pan Am South
Manchester Railyard Area	MAN-00RR	Not Eligible	05/17/2000	-		1-2	Pan Am South
RR Goffstown Branch Railroad	ZMT-GBRR	Not Eligible	Not Accessible	-			Pan Am South
Goffe's Falls Area	MAN-00GF	Not Eligible	03/01/1995	-	14	6-7	Track, BR#38 #51.84
Merrimack Wastewater Treatment Facility (Mast Road; Parcel #5D-1-0011-0000; Parcel #4D-1-0008-0000)	MER0168	Eligible	12/08/2020	A, C	18, 22, & 23	17, 19, & 22-23	Bridge BR#70 #46.22, CCP-025 (Tunnel), & Track
Merrimack/Souhegan Village Area	MER-0SVA	Not Eligible	07/12/2005	-		17-19	Bridge BR#70 #46.22, CCP-025 (Tunnel), & Track
Nashua Gas Light Company (17 Jackson Street)	NAS0234	Contributes to Eligible District	09/14/2011	A, D	28	29	Bridge BR#71 #39.22

Table 1. Previously Surveyed or Listed Properties							
DHR Inventory Name/Historic District Name	DHR Inventory #	NR Eligibility	Date of determination	NRHP Criteria of Significance	Photo(s)	Map Page	Nearest Station /Layover
Nashua & Lowell Railroad	NAS-NLRR	Eligible	05/08/2002	A, C	32, 40, 41	29-36	Crown Street/Pheasant Lane Mall

Eligible and Listed Properties

- Manchester & Lawrence Railroad (**ZMT-MLRR**, NR Eligible 07/22/2009) – The Manchester & Lawrence Railroad travels from the New Hampshire State line in Salem and ends in Manchester approximately 22.29 miles northwest of the start point, near the corridor of the proposed Project. The railroad was chartered in 1847 and opened for passenger travel in 1849. The ROW retains integrity from its start point to the Londonderry/Manchester line, at the Manchester Airport, where the rail bed is no longer intact. EMMIT has mapped the entire corridor; however, the Determination of Eligibility (DOE form) completed in 2009 states that the district boundaries run only from the starting point in Salem to the point near the southern end of the Manchester Airport. Therefore, the eligible portion of the line does intersect the proposed APE.
- Merrimack Wastewater Treatment Facility (**MER0168**, NR Eligible 12/08/2020) – The Merrimack Wastewater Treatment Facility is a collection of several buildings, structures, and pieces of equipment. It is situated on a 36.58-acre parcel along the Merrimack River and extends to two additional, discontinuous parcels containing the Thornton's Ferry Pump Station and the Souhegan Pump Station. Construction of the facility began in 1969 and originally included three brick buildings and twelve structures. The vast majority of the buildings were designed and constructed as utilitarian structures without architectural embellishment. The facility is situated along the rail corridor but does not have a view of the tracks from most points due to dense tree growth. There is, however, a clear view of the rail line at Mast Road, which is the entrance to the facility and intersects the corridor.
- Nashua Gas Light Company (**NAS0234**, NR Eligible/Contributing 09/14/2011) – The buildings associated with the Nashua Gas Light Company, located at 17 Jackson Street in Nashua, consist of a group of one-and two-story industrial buildings with a nearly rectangular footprint. The buildings were constructed in two time periods, and for two purposes, the buildings on the west side were constructed primarily between ca. 1907 to 1912 when the site was a water gas plant and the second group was constructed between 1955-1965 when the buildings primary uses were small-scale manufacturing and storage. The property at 17 Jackson Street has been determined eligible as contributing to a historic district; however, the district to which the property contributes – the Nashua Gas Light Company Historic District – has not yet been evaluated at this time. The group of buildings is located directly to the west of the rail corridor; however, its view of the tracks is obscured by dense trees and other greenery.
- Nashua & Lowell Railroad (**NAS-NLRR**, NR Eligible 05/08/2002) – The Nashua & Lowell Railroad Historic District travels from Lowell, Massachusetts to Nashua, New Hampshire ending near the proposed Crown Street Station improvements. This was the first railroad constructed in the state of New Hampshire, ca. 1835, and was the foundation of later rail construction in the state. Several buildings, bridges, retaining walls, culverts, and other associated railroad infrastructure are also located within the ROW. The proposed work for the Project will be within the railroad ROW and, therefore, will physically be the same area as the Nashua & Lowell Railroad Historic District along its entire length in New Hampshire.

Field Reconnaissance

After a review of the background research, a field reconnaissance visit was conducted within the APE during September and October of 2021. These field reconnaissance efforts consisted of a windshield and pedestrian survey to assess the general conditions of the built environment in the Project Area and capture digital photographs of previously documented resources and to identify and document previously undocumented historic architectural resources over 50 years of age. Historic architectural resources are defined as aboveground buildings, structures, objects, districts, or landscapes. Prior to the field visit architectural historians and surveyors examined historical maps, aerial photographs, and Google Earth, to identify as yet undocumented historical architectural resources within the APE. These resources were then photo-documented and examined in the field.

Newly Identified Properties

Additional background research was conducted via desktop assessment to identify properties that have not been previously surveyed and that are located within or directly adjacent to the proposed APE. A review of historic maps, atlases, aerial photographs, city property records available on the New Hampshire's GRANITView web mapping application, and previous documentation for associated resources on EMMIT resulted in the identification of 25 properties approximately over 50 years of age at the time of survey, including buildings, structures, and bridges. By virtue of their age, properties that are over 50 years of age are considered potentially eligible for listing in the NRHP and have the potential to be affected by the undertaking. These properties were verified in the field via windshield reconnaissance conducted by a qualified Architectural Historian in September 2021 (see **Table 2** for a summary of all properties 50-years or older not yet surveyed within the proposed APE).

Table 2. Properties within the Area of Potential Effect; Not Yet Surveyed					
Resource Identification (Any locational information that is cross-referenced with both mapping and photos; i.e., address, parcel number, mile marker)	Estimated Construction Date	Basis for date: owner info., visual, municipal records, etc.	Photo(s)	Map Page	Nearest Station /Layover
CCP-001- (Former SC Forsaith Machine Co.)	pre-1885	Fire insurance maps, historic aerials, visual inspection	2	1	Granite/Valley Hybrid Station
CCP-002- (06134-166-9)	pre-1885	Fire insurance maps, historic aerials, visual inspection	5	1	Granite/Valley Hybrid Station
CCP-003- (Former Hutchinson Bros Foundry)	pre-1885	Fire insurance maps, historic aerials, visual inspection	6	1	Granite/Valley Hybrid Station
CCP-004- (06134-166-17)	pre-1947	Historic aerials, visual inspection	7	1	Granite/Valley Hybrid Station
CCP-005- (Former Boston & Maine Switch Tower)	ca. 1915	Fire insurance maps, historic aerials, previous documentation	8	1	Granite/Valley Hybrid Station
CCP-006- (06134-930-1)	ca. 1965	Historic aerials, visual inspection	10	1	Granite/Valley Hybrid Station
CCP-007- (06134-60)	ca. 1960	Historic aerials, visual inspection	9	1	Granite/Valley Hybrid Station
CCP-008- (Former Manchester Gas Light Co./Peoples Gas Light Co. Complex)	pre-1885	Fire insurance maps, historic aerials, visual inspection	11, 12, 13	1	Granite/Valley Hybrid Station
CCP-009- (695-3)	ca. 1960	Historic aerials	15	7	Bridge Br#83 #51.84
CCP-010 (Br#83 #51.84) - (Bridge over the Merrimack River)	1930	Historic aerials, visual inspection	16	7	Bridge Br#83 #51.84

Table 2. Properties within the Area of Potential Effect; Not Yet Surveyed					
Resource Identification (Any locational information that is cross-referenced with both mapping and photos; i.e., address, parcel number, mile marker)	Estimated Construction Date	Basis for date: owner info., visual, municipal records, etc.	Photo(s)	Map Page	Nearest Station /Layover
CCP-011 (Br#79 #46.22) - (Bridge over the Souhegan River)	pre-1947	Date plaque	17	18	Bridge Br#79 #46.22
CCP-012 (Br#78 #44.92)- (Bridge over Naticook Brook)	ca. 1844	Historic photographs, historic aerials	19, 20	20	Bridge Br#78 #44.92
CCP-013- (Bridge over Merrimack Park Way)	ca. 1920	Previous documentation of rail line	21	20	Bridge
CCP-014 (Br#75 #41.77)- (Bridge over Pennichuck Brook)	ca. 1940	Historic aerials, visual inspection	24	25	Bridge Br#75 #41.77
CCP-015 (Br#72 #39.39)	pre-1905; ca. 1940	Historical aerials, visual inspection, USGS maps	25, 26	29	Br#72 #39.39
CCP-016 (Br#71 #39.22)- (Bridge over Nashua River)	ca. 1900	Historic aerials, visual inspection	27	30	Crown Street Station
CCP-017- (Chase Street Streetscape)	ca. 1880	Historic aerials, visual inspection	29	30	Crown Street Station
CCP-018- (00023-000024)	ca. 1900	Fire insurance maps, historic aerials, visual inspection	30	30	Crown Street Station
CCP-019- (00026-000033)	ca. 1900; ca. 1949	Historic aerials, visual inspection	33	30	Crown Street Station
CCP-020- (Former Flather & Co. Machine Shop)	ca. 1875	Fire insurance maps, historic aerials, visual inspection	31, 34	30	Crown Street Station
CCP-021- (Former Gregg and Sons Factory Office and Storehouse)	ca. 1870	Fire insurance maps, historic aerials, visual inspection	35	30	Crown Street Station
CCP-022- (Mill Street Streetscape)	ca. 1965	Historic aerials, visual inspection	36	31	Crown Street Station
CCP-023- (W. A. Gregg Property)	ca. 1870	Fire insurance maps, historic aerials, visual inspection	38	31	Crown Street Station
CCP-024- (Gillis Street Streetscape)	ca. 1945-1965	Fire insurance maps, historic aerials, visual inspection	37	31	Crown Street Station
CCP-025 (Br#70 #37.87) - (Bridge over Salmon Brook (BR70/37.87))	1848-50	Historic aerials	39	32	Bridge Br#70 #37.87

Preliminary Findings and Recommendations

AECOM's desktop research and subsequent windshield reconnaissance indicate that 16 of the 25 newly identified properties listed in **Table 2** have the potential to be eligible for listing in the NR. Potentially eligible resources include seven bridges, six 19th and 20th century industrial properties, a late 19th century residential streetscape, a ca. 1875 single residential property, and the ca. 1975 Boston & Maine Switch Tower. Each of the following properties is preliminarily recommended eligible, pending additional investigation into historic and architectural significance.

- S.C. Forsaith Machine Co. (**CCP-001**, parcel # 06134-149-25) – The former S.C. Forsaith Machine Company (originally known as the Samuel Caldwell Forsaith Machine Co.) property is a pre-1885 industrial building located at 33 Canal Street in Manchester, NH. The building, which contained the manufacture of woodworking machinery (Stansbury, 2019), is a two-story brick industrial property featuring segmentally arched openings with retained 12-over-12, double-hung, steel sash and an original brick smokestack.
- Hutchinson Bros. Foundry (**CCP-003**, parcel # 06134-166-14) – The former Hutchinson Bros. Foundry is a pre-1885 industrial property located at 321 Elm Street in Manchester, NH. The one-story brick building retains its distinctive corbelled brick parapet and distinctive steel sash commercial windows.
- Boston & Maine Switch Tower (**CCP-005**, parcel # 06134-930-9) – The Boston & Maine Switch Tower is a currently vacant building located at 260 Elm Street in Manchester, NH constructed ca. 1915 as a switch tower by the Boston & Maine Railroad. The building is an informal Manchester "community landmark" and has even become a focal point of local transit-oriented development planning in recent years.
- Manchester Gas Light Co./Peoples Gas Light Co. Complex (**CCP-008**, parcel # 06134-752-1) – Located at 130 Elm Street in Manchester, NH, the former Manchester Gas Light Co./Peoples Gas Light Co. Complex is a pre-1885 historic manufacturing property. The distinct, white-colored brick complex retains many character-defining features such as the peaked standing seam metal roof; dentilled detailing around the roofline, decorative molding, and ornamental hoods above original segmentally arched openings.
- Bridge over the Merrimack River (**CCP-010**, parcel NA) – The Bridge over the Merrimack River is a four-span, Warren truss railroad bridge constructed in 1930 that spans the Merrimack River and features two tracks, only one of which remains intact today.
- Bridge over the Souhegan River (**CCP-011**, parcel NA) – The Bridge over the Souhegan River is a pre-1947, single-track railroad bridge over the Souhegan River. The railroad deck features retained wood railroad ties and sits on large concrete piers. It is currently unused and overgrown with natural vegetation.
- Bridge over Naticook Brook (**CCP-012**, parcel NA) – The Bridge over Naticook Brook is a ca. 1844, single-track railroad bridge over the Naticook Brook. The railroad deck features retained wood railroad ties and early wooden deck beams.
- Bridge over Merrimack Park Way (**CCP-013**, parcel NA) – The Bridge over Merrimack Park Way is a ca. 1920, single-track concrete railroad bridge over the Merrimack Park Way, a local road in Merrimack, NH.
- Bridge over Pennichuck Brook (**CCP-014**, parcels # 002E-0000-0000, 00048-000000) – The Bridge over Pennichuck Brook is a ca. 1940, single-track railroad bridge over the Pennichuck Brook. The railroad deck features retained wood railroad ties and heavy rounded concrete abutments.

- Bridge over Nashua River (**CCP-016**, parcel # 00039-000041) – The Bridge over Nashua River is a subdivided Warren truss railroad bridge constructed ca. 1900 that spans the Nashua River and features three distinct tracks, one of which remains in use today.
- Chase Street Streetscape (**CCP-017**, parcels # 00024-000009, 00024-000039, 00024-000010, 00024-000011, 00024—000023, 00024-000024, 00024-000005) – The Chase Street is a largely intact, ca. 1880 residential streetscape located between E. Hollis Street and Crown Street in Nashua, NH. The six buildings which comprise the streetscape are representative of late-19th century single- and multi-family frame dwellings common to this region of New England. The front-gabled, two and two-and-a-half-story buildings are clad in modern siding, but many retain original features such as the two-story covered porches projecting from the primary façade and covered side entries.
- (**CCP-018**, parcel # 00023-000024) – The former industrial property located at 24 Crown Street in Nashua, NH is a ca. 1900 brick building. It features segmentally arched, nine-over-nine and 12-over-12 double-hung steel sash, rusticated stone sills, and an exposed stone foundation.
- (**CCP-019**, parcel # 00026-000033) – Located at 55 Crown Street in Nashua, NH is a ca. 1900 former industrial property. The primary brick building contains steel sash hopper openings, a distinctive corrugated metal pent roof over the original concrete loading dock, and a ca. 1949 concrete block addition extending off the south elevation.
- Flather & Co. Machine Shop (**CCP-020**, parcel # 00023-000020) – The former Flather & Co. Machine Shop is a ca. 1875 industrial complex located adjacent to the railroad tracks at 29 Crown Street in Nashua, NH. The two-story, brick building features segmentally arched openings with stone lintels, twelve-over-twelve, double hung wood sash and historically manufactured a popular lathe known for its “user-friendly design” (Joslin, 2017).
- W.A. Gregg Property (**CCP-023**, parcel # 00025-000008) – The W.A. Gregg Property is a ca. 1870 residential property located at 40 Gillis Street in Nashua, NH. The two-and-a-half-story, Queen Anne-style dwelling was originally the home of one of the owners of the Gregg and Sons Factory; it retains several character-defining features including the carved wooden double-leaf entrance, wooden pedimented entry portico with decorative columns, and decorative fanlights.
- Bridge over Salmon Brook (**CCP-025**, parcel # 00022-000007) – The Bridge over Salmon Brook is a stone-arch, double-rack railroad bridge constructed ca. 1848-1850 that spans Salmon Brook.

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Appendix A – Project Location Map

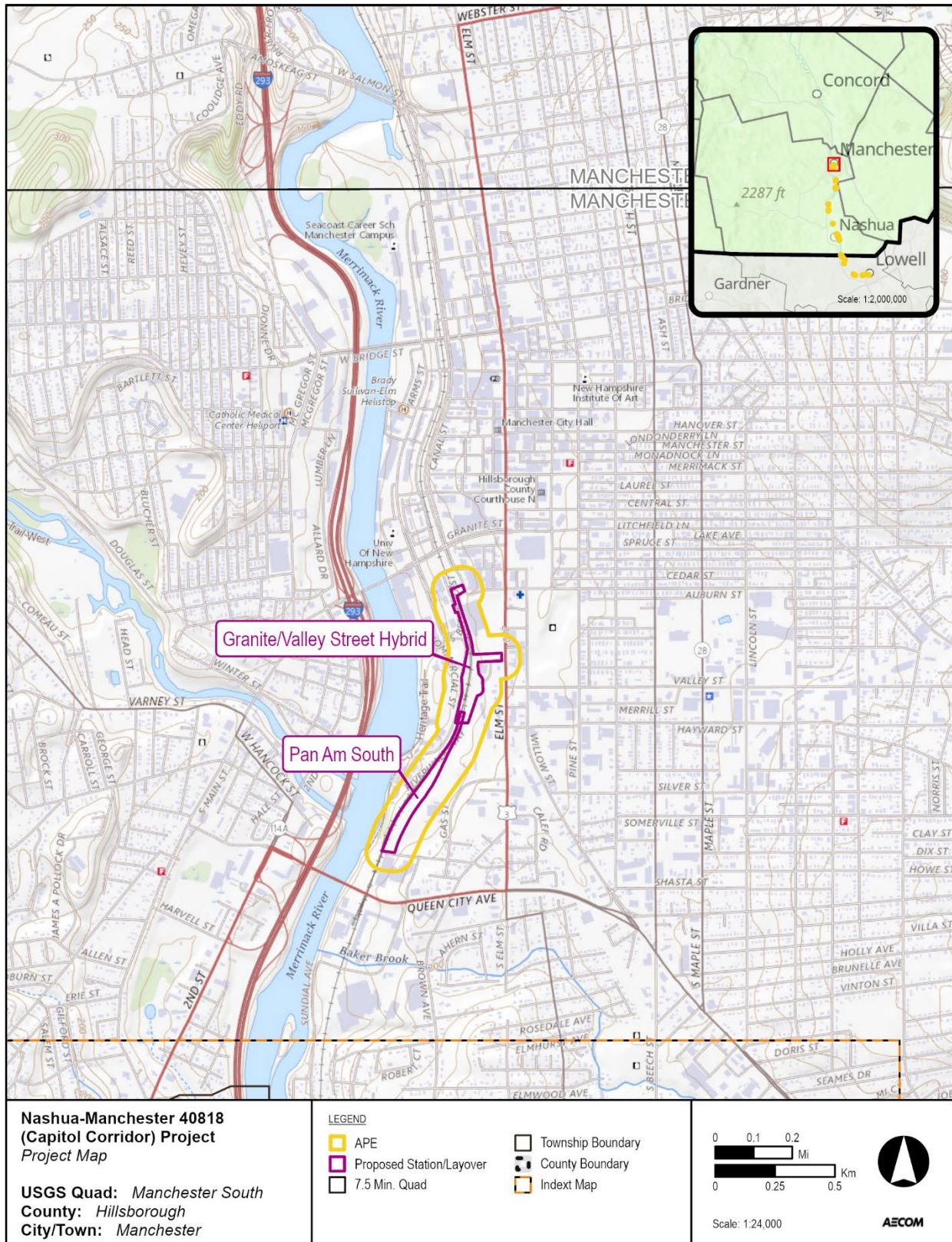


Figure 1. Page 1 of the Project Map showing the APE

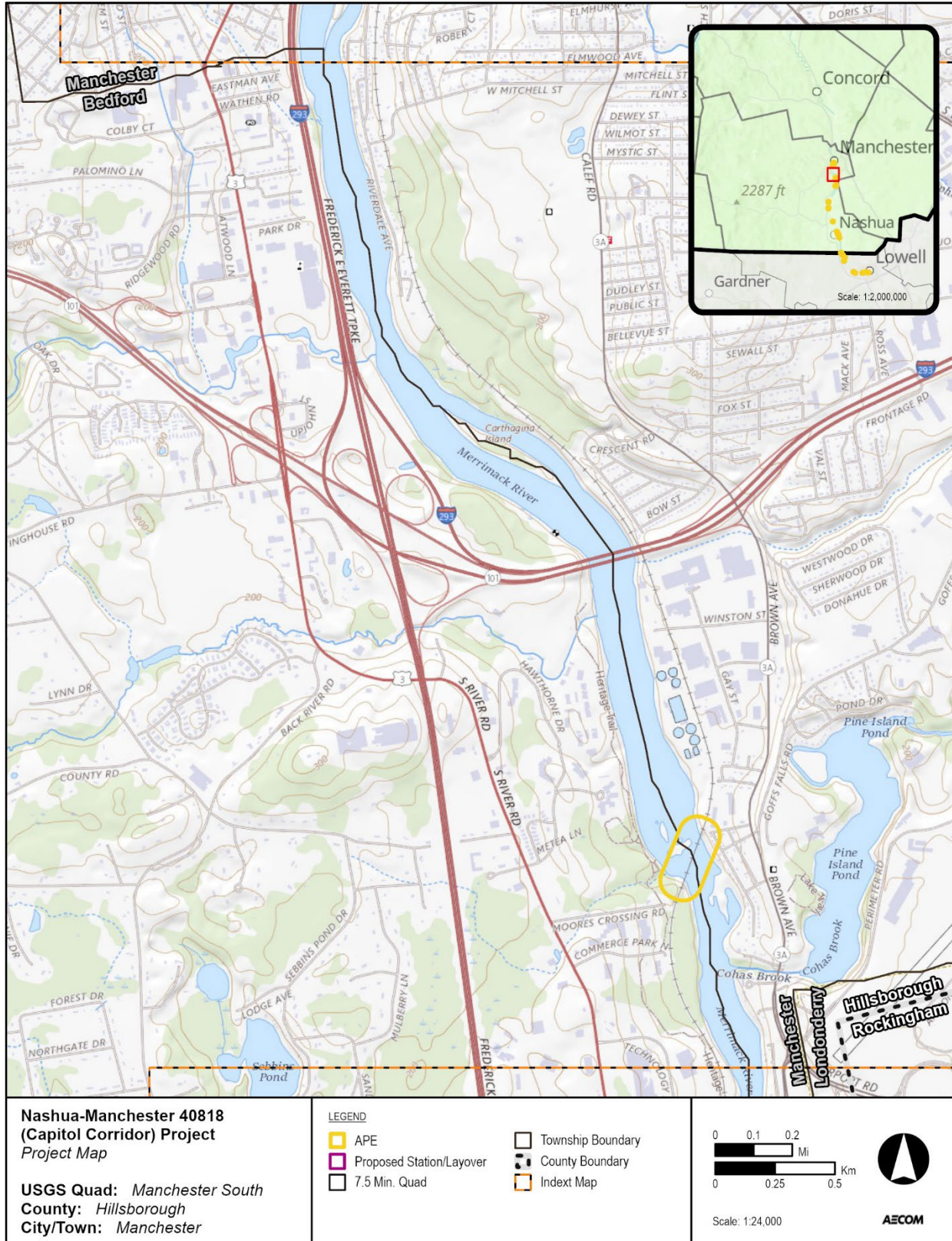


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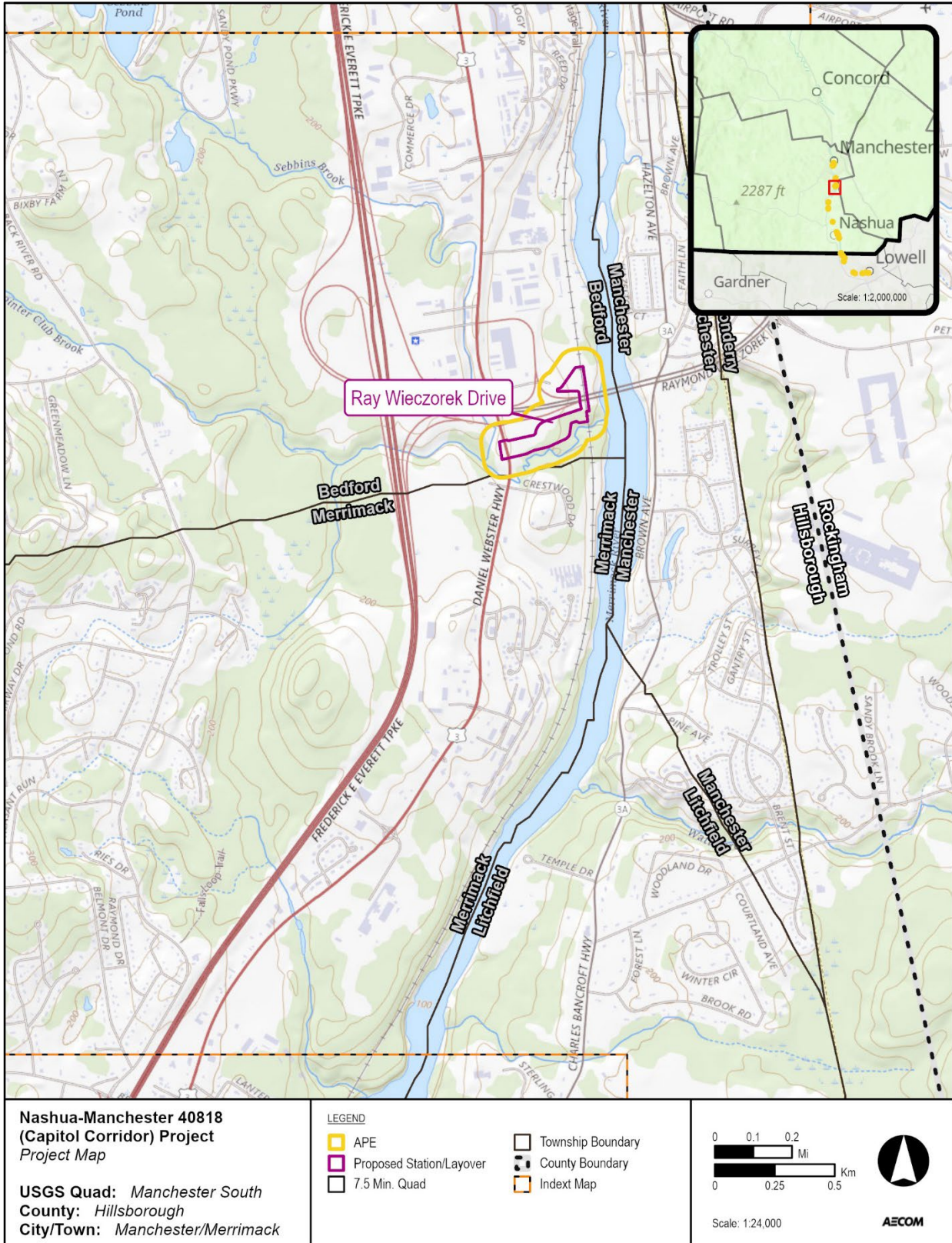


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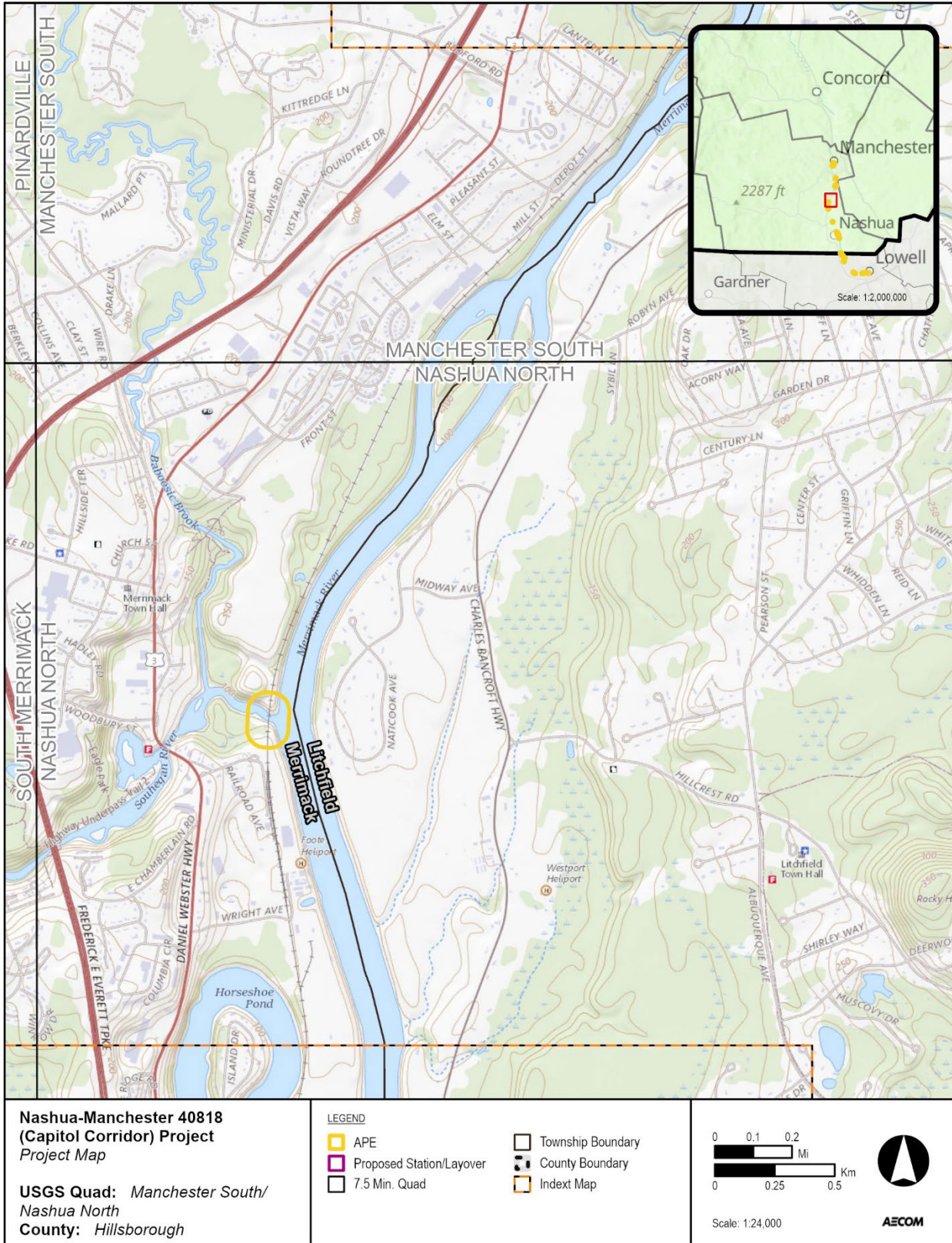


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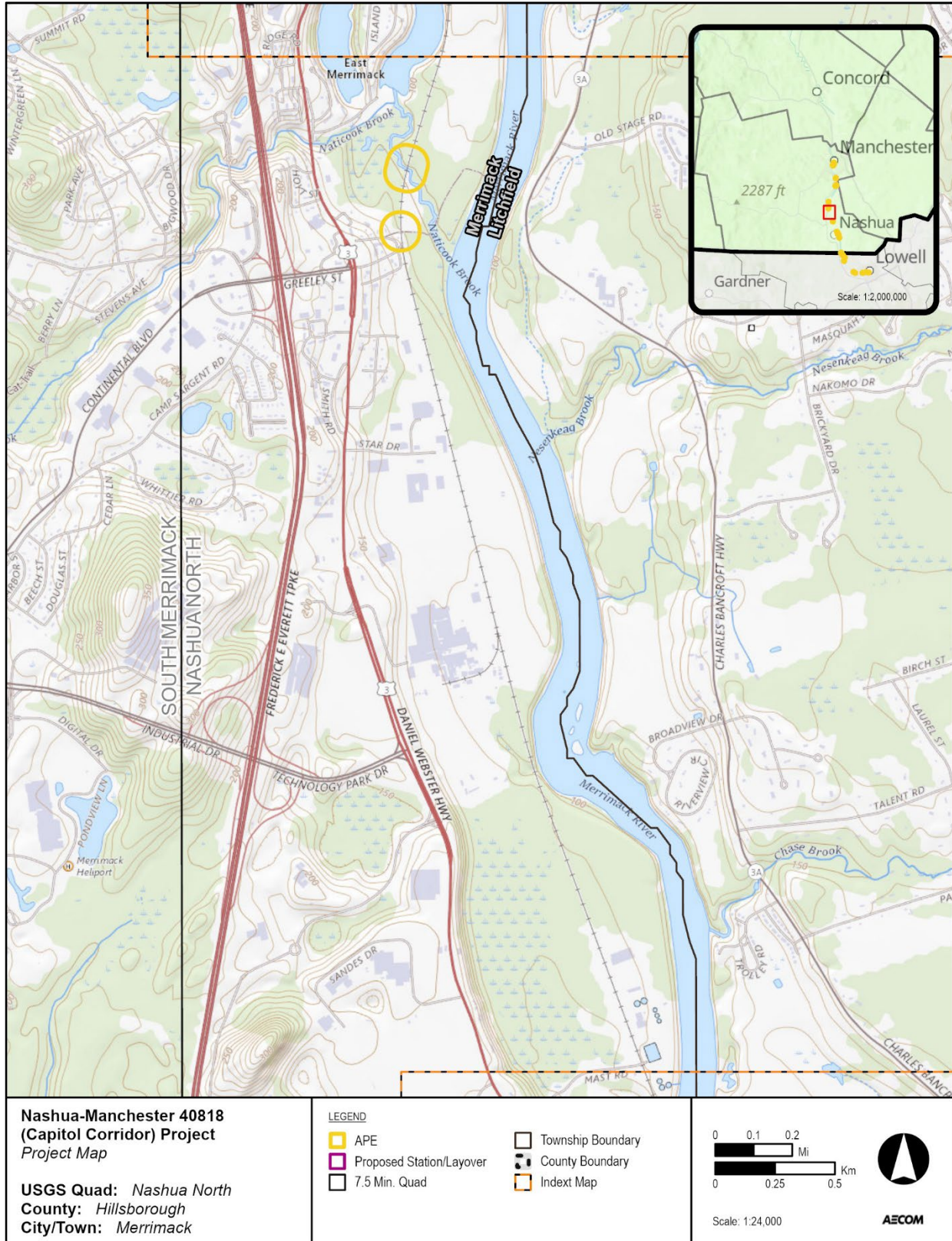


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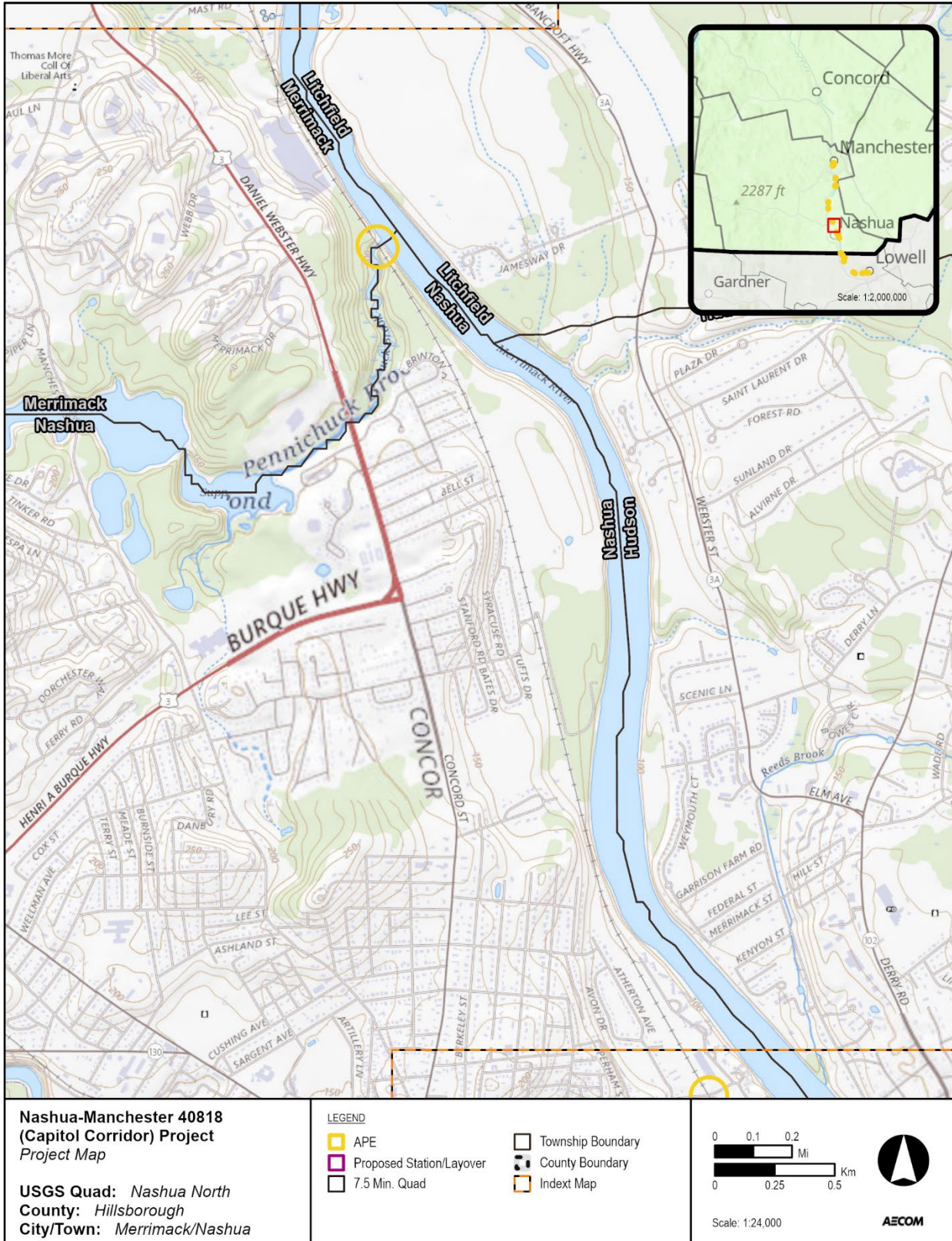


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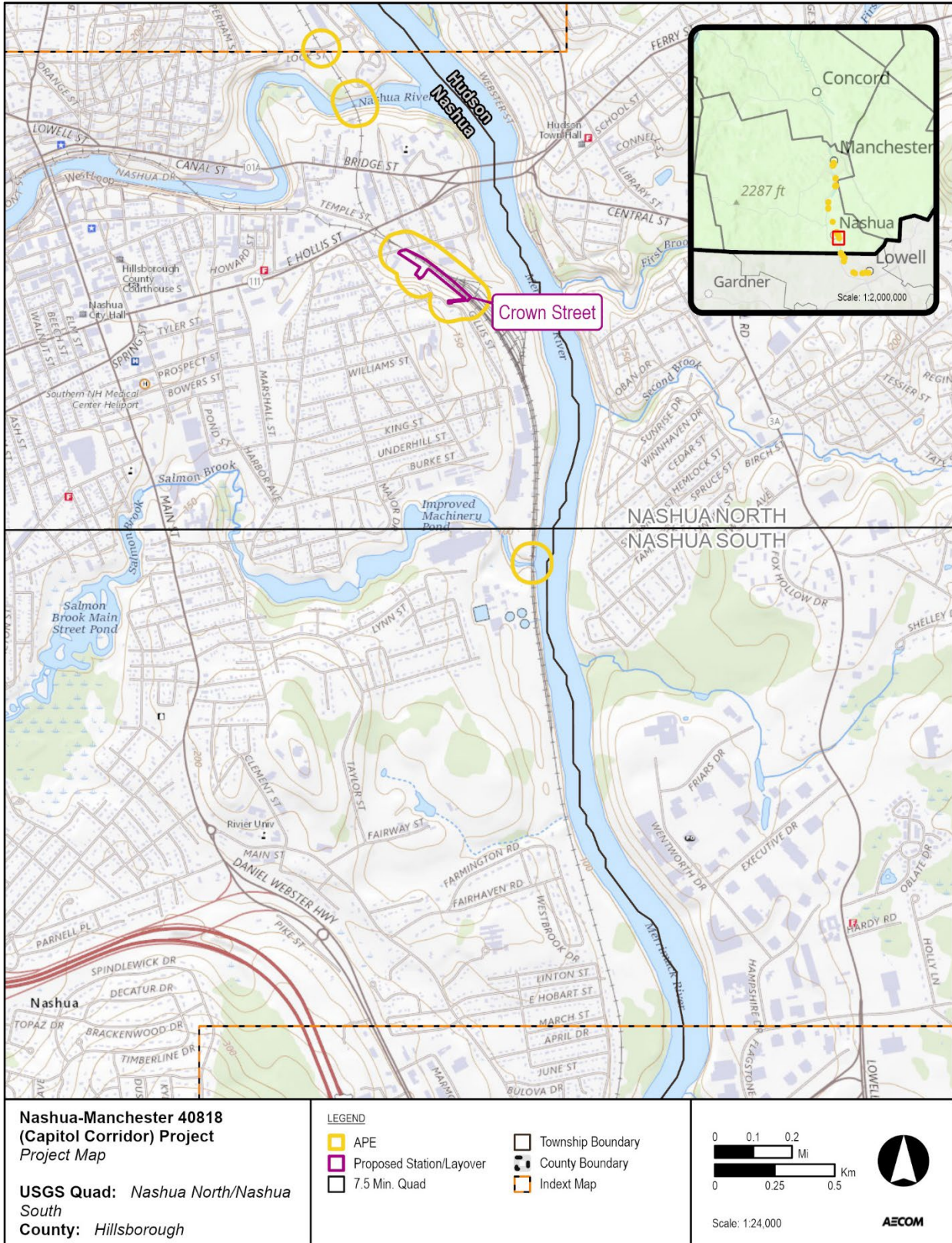


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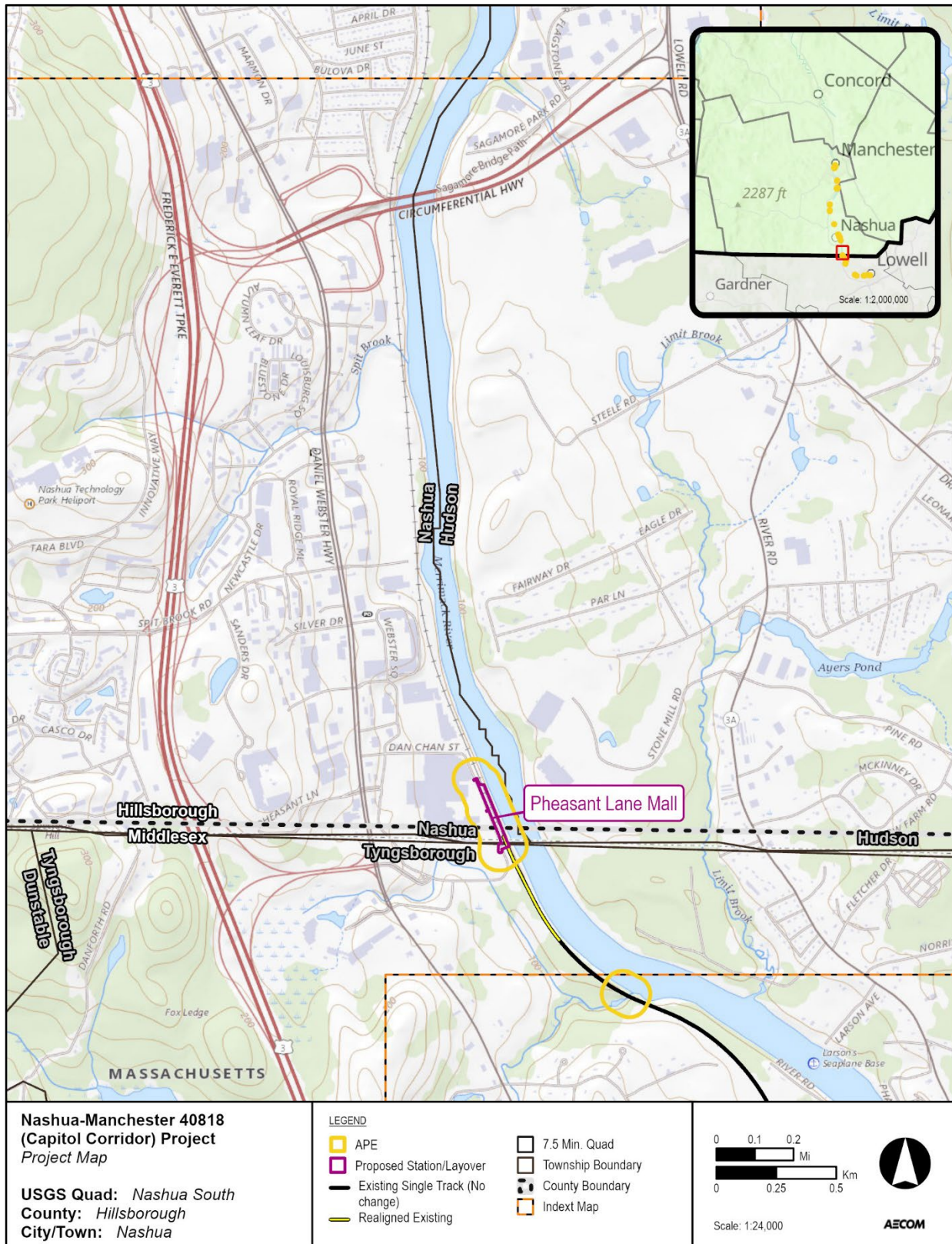


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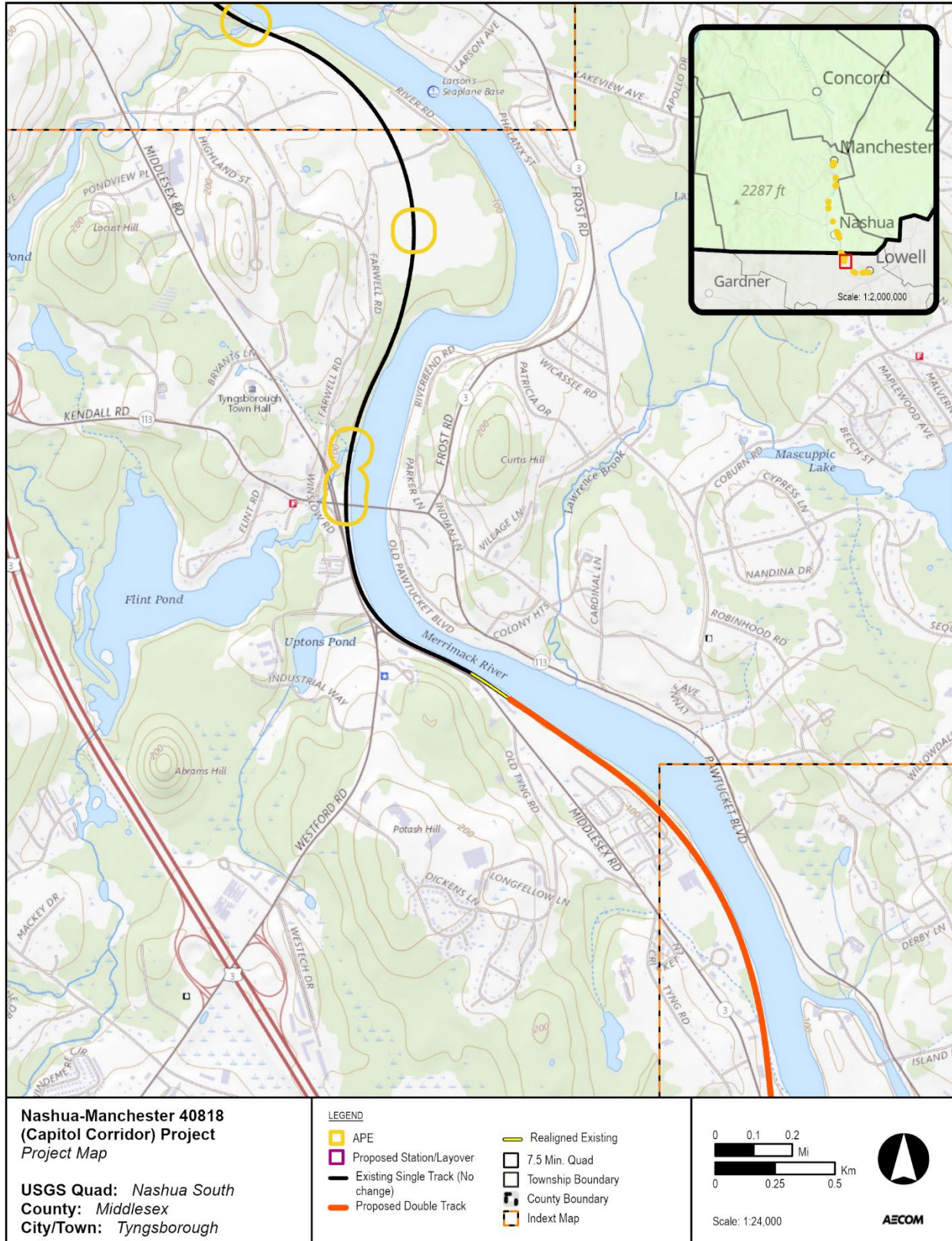


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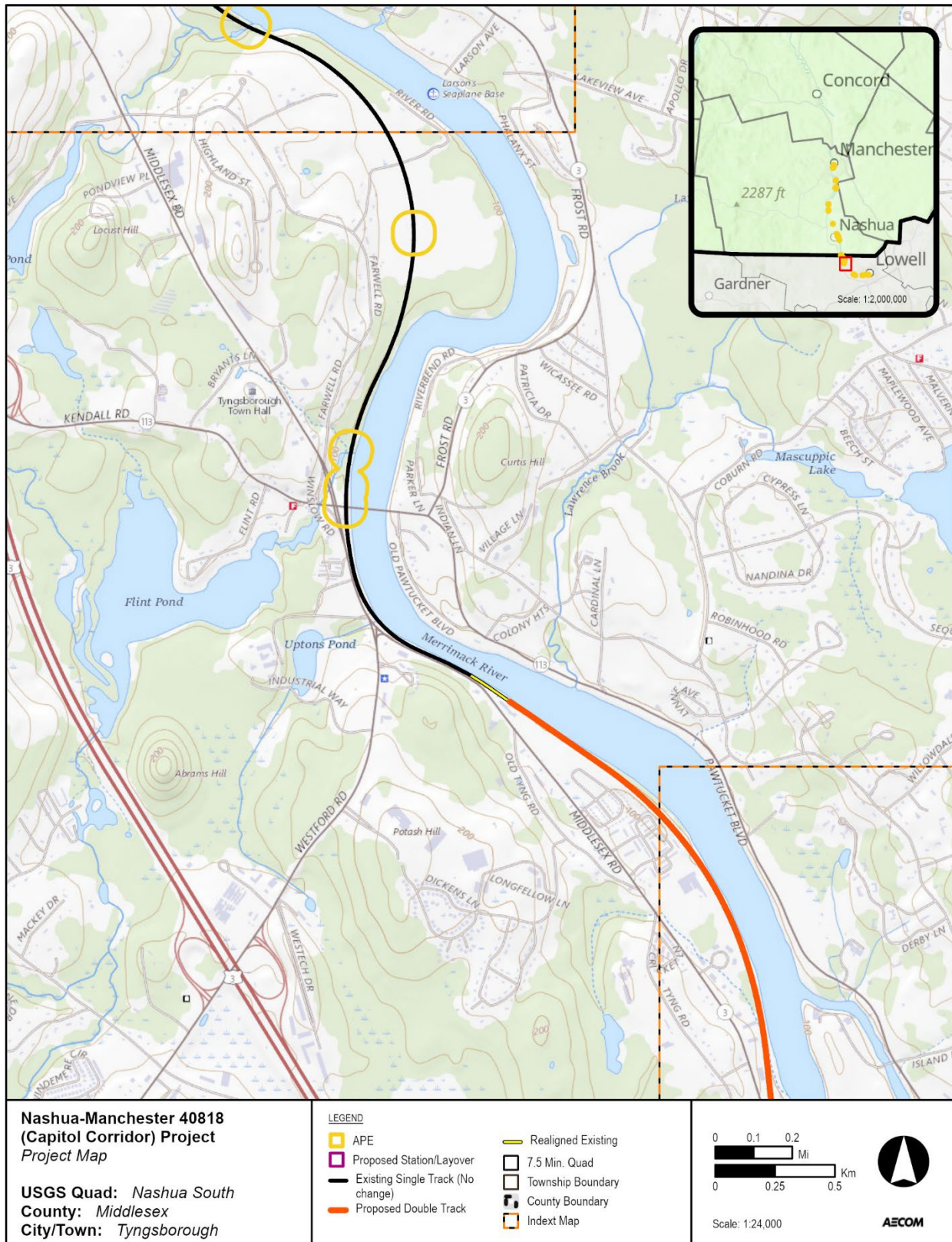


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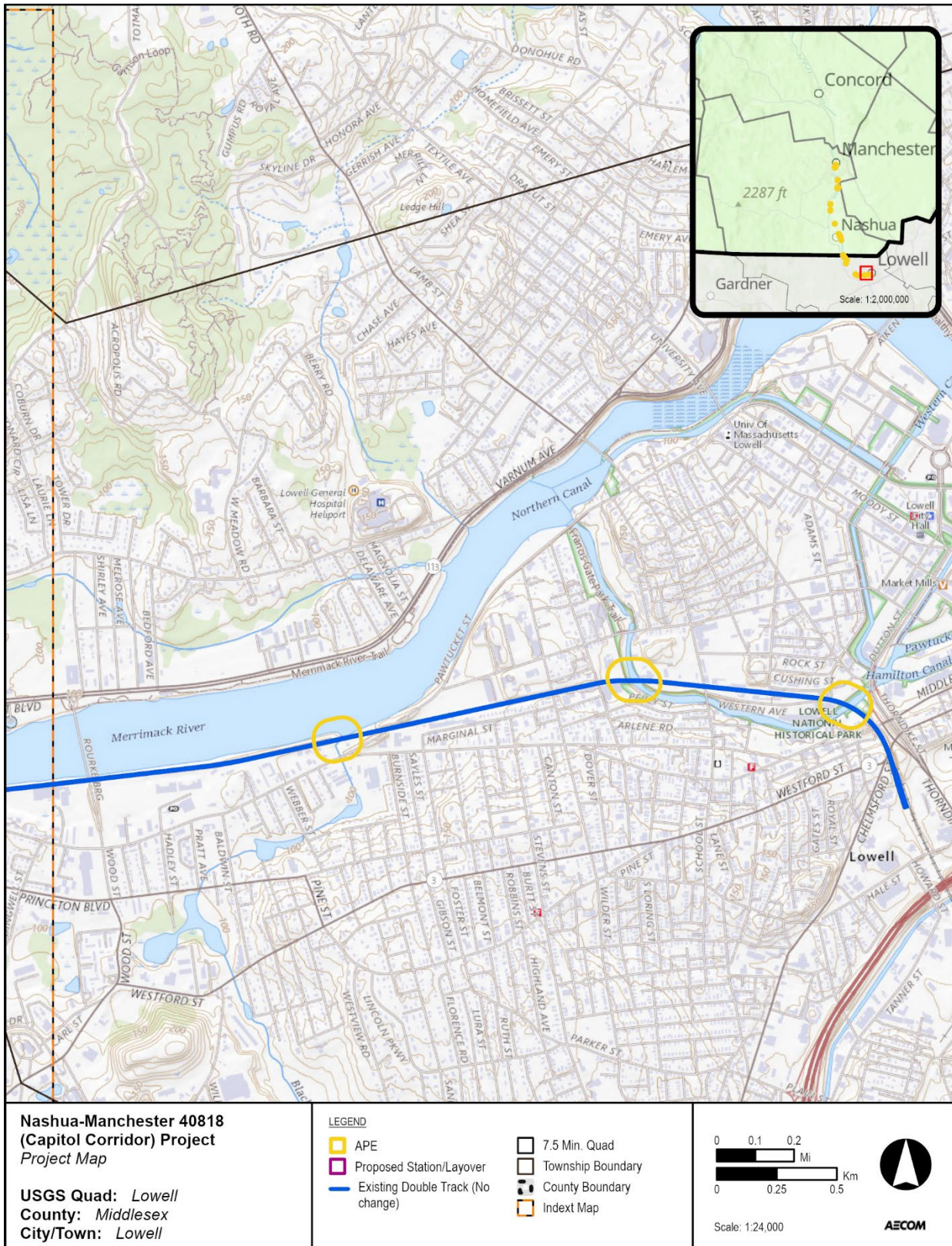
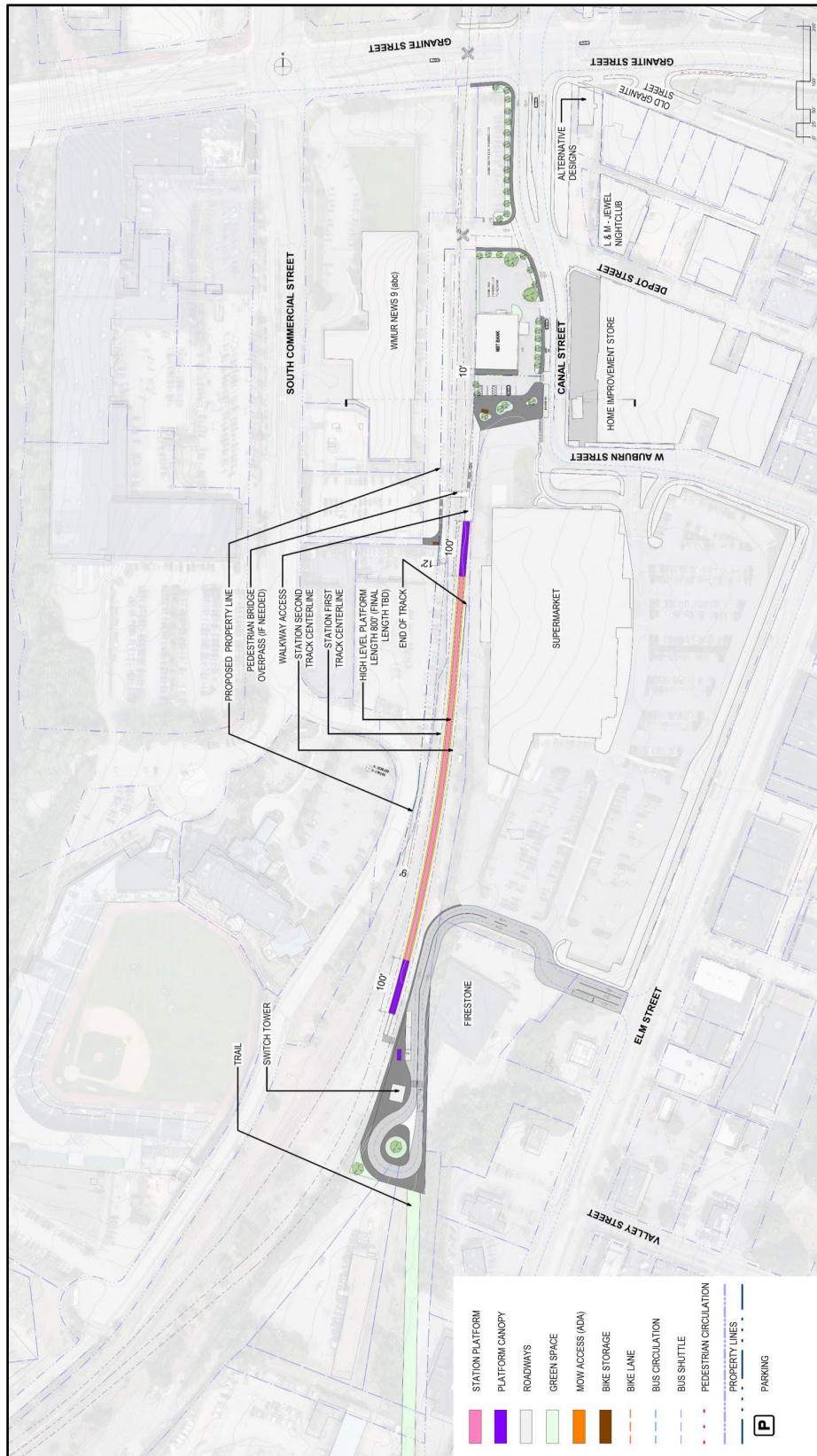
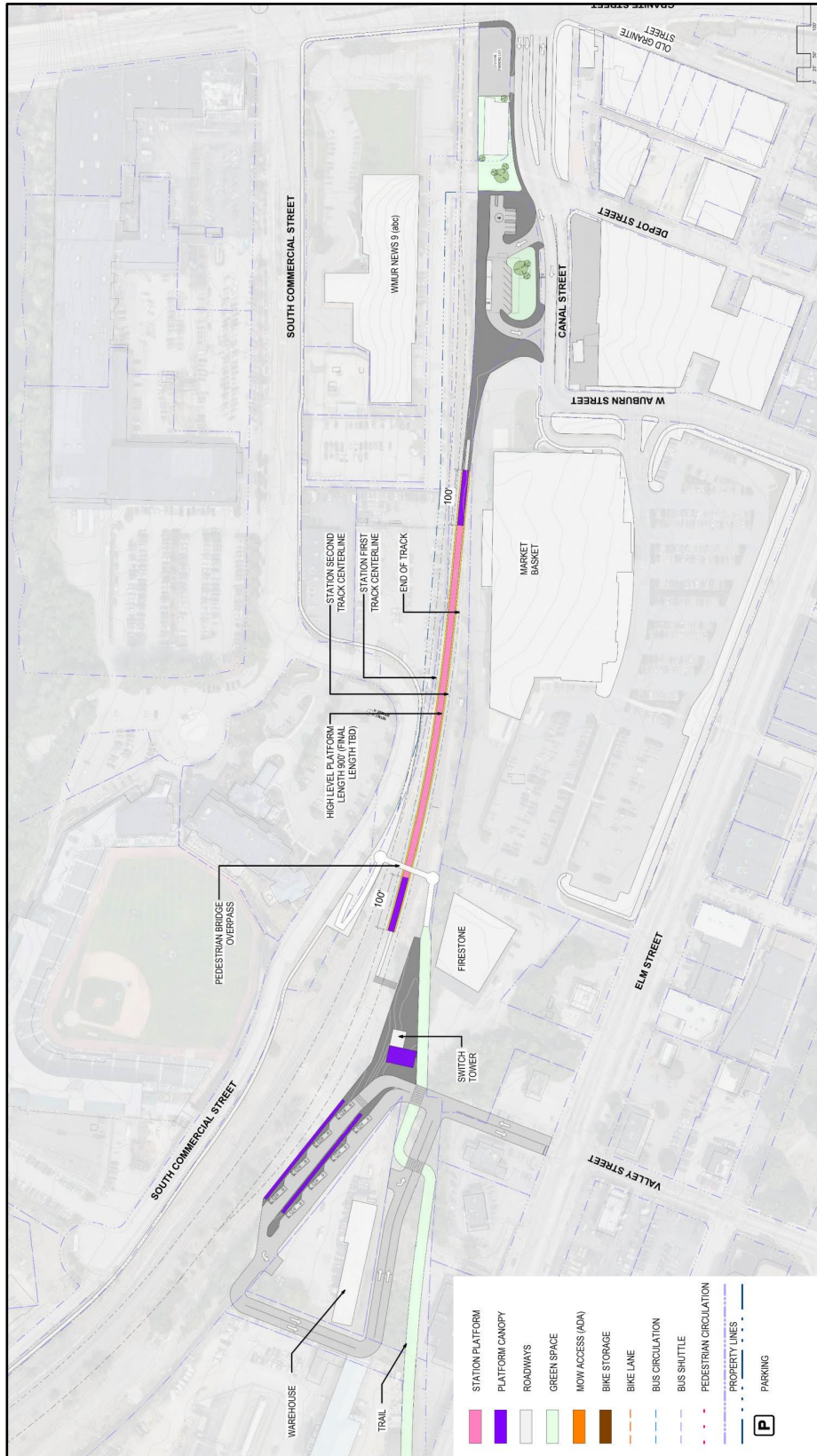


Figure 11. Page 11 of the Project Map showing the APE

Appendix B – Construction Drawings



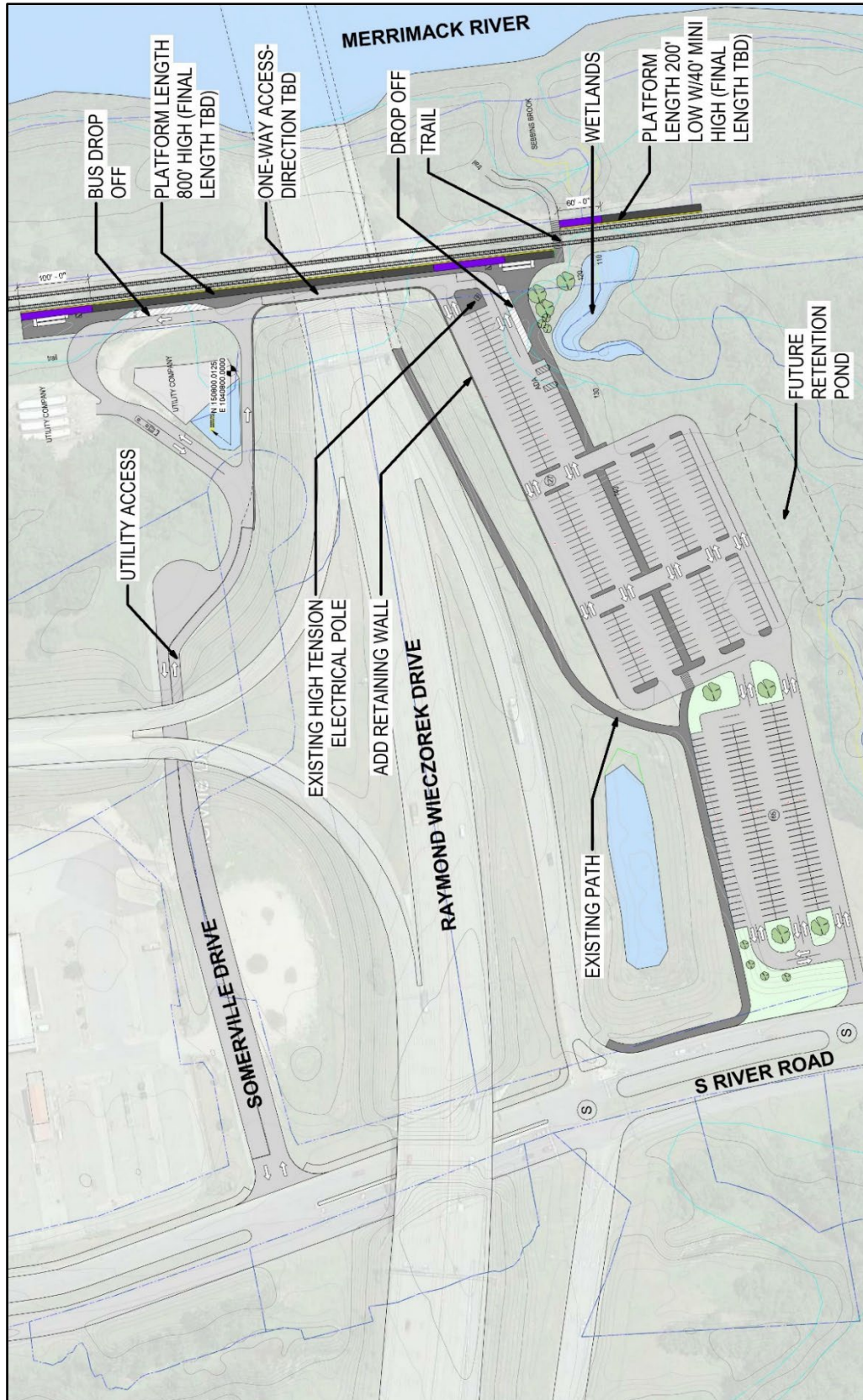
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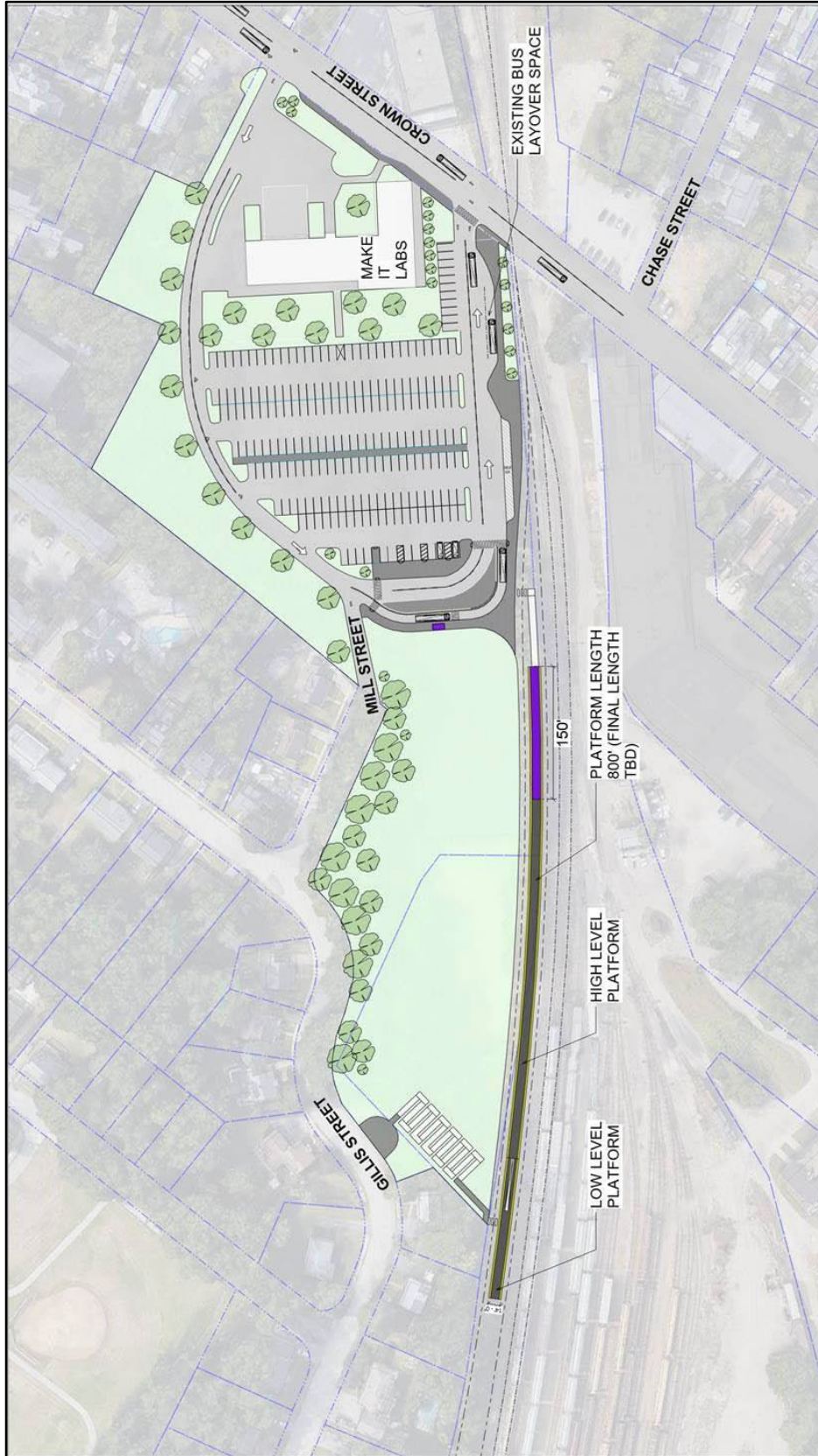
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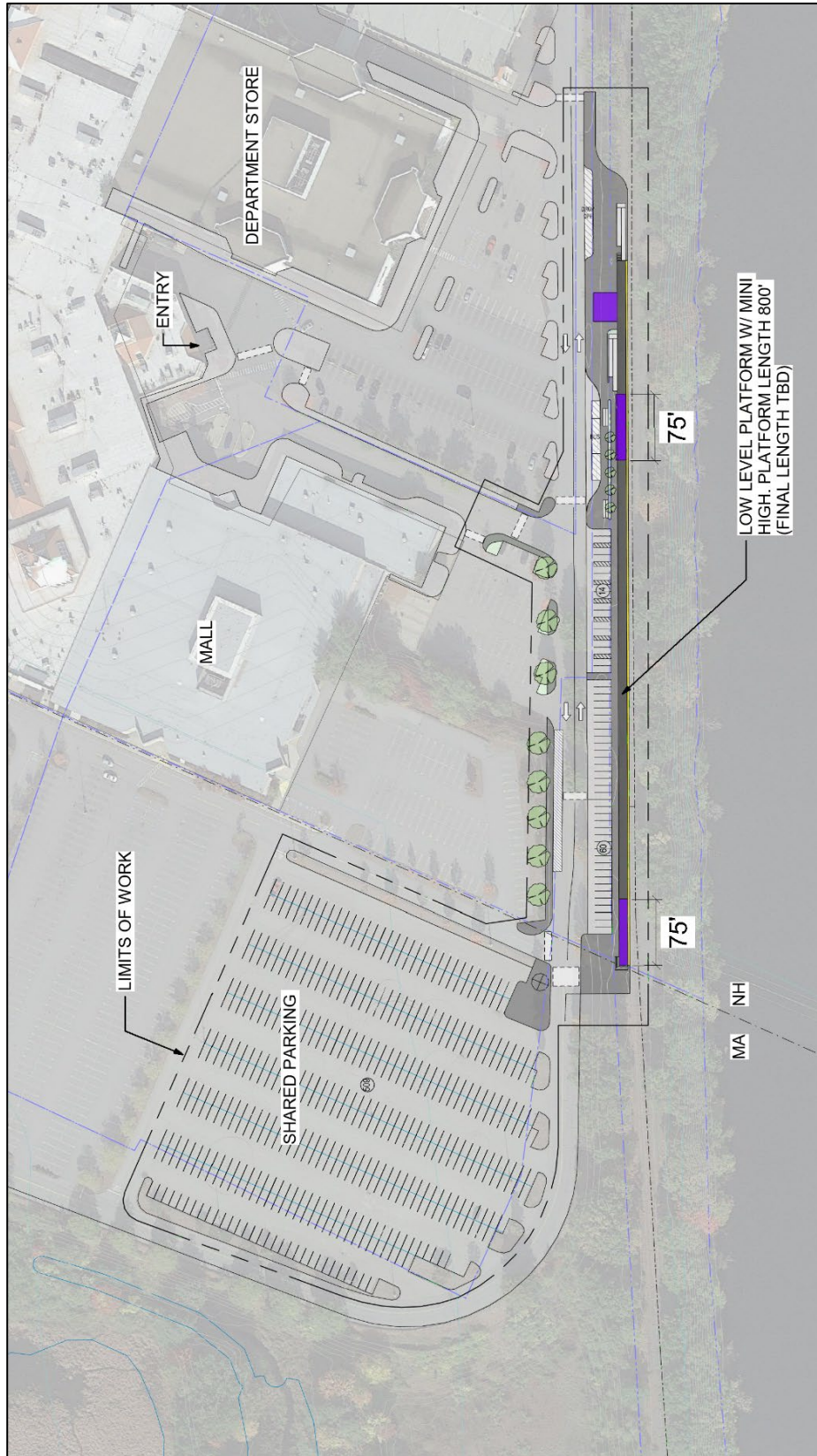
Design Plan 3. Pan Am South Layover Facility (Manchester)



Design Plan 4. Ray Wieczorek Drive Station Facility (Bedford, NH)

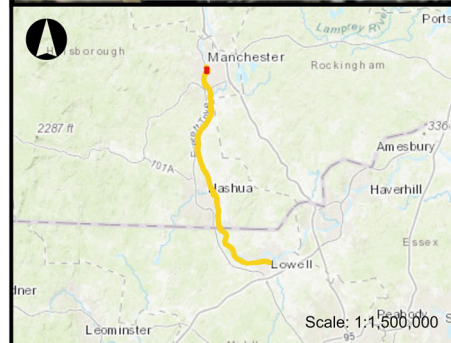
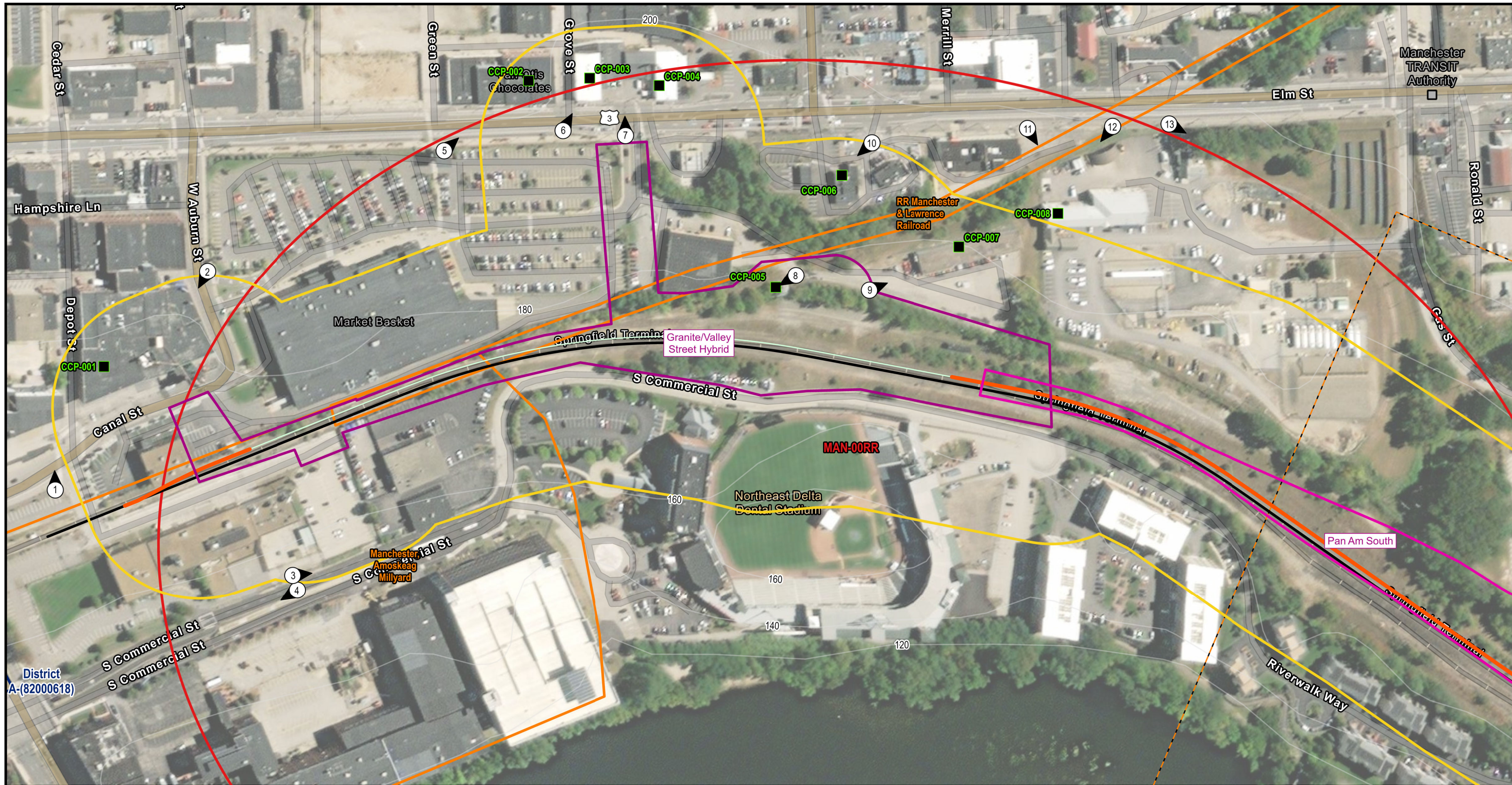


Design Plan 5. Crown Street Station Facility (Nashua)



Design Plan 6. Pheasant Lane Mall Station Facility (Nashua)

Appendix C – Detailed Map of APE



LEGEND

- APE
- Map Page Overlap
- Station
- Layover (LOD)
- Station (LOD)

Railroad Tracks

- Existing Single Track (No change)
- Existing Double Track (No change)
- Proposed Restored Double Track
- Realigned Existing
- Proposed Double Track On Existing Rail

Cultural Resources

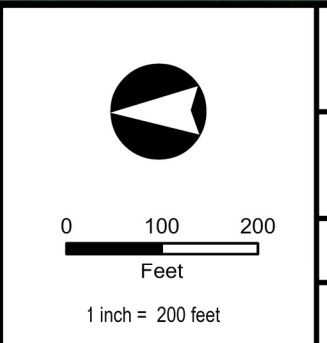
- Previously Surveyed Railroad Bridge
- National Register District
- Historic District
- Historic Area (Project Area Form)
- Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

- Township Boundary
- 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

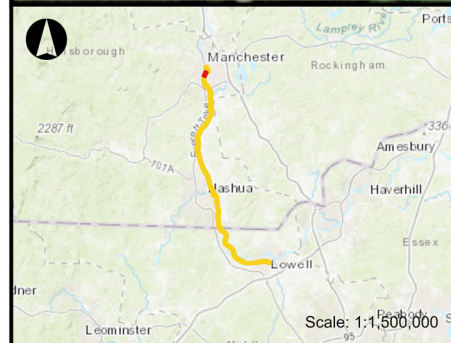
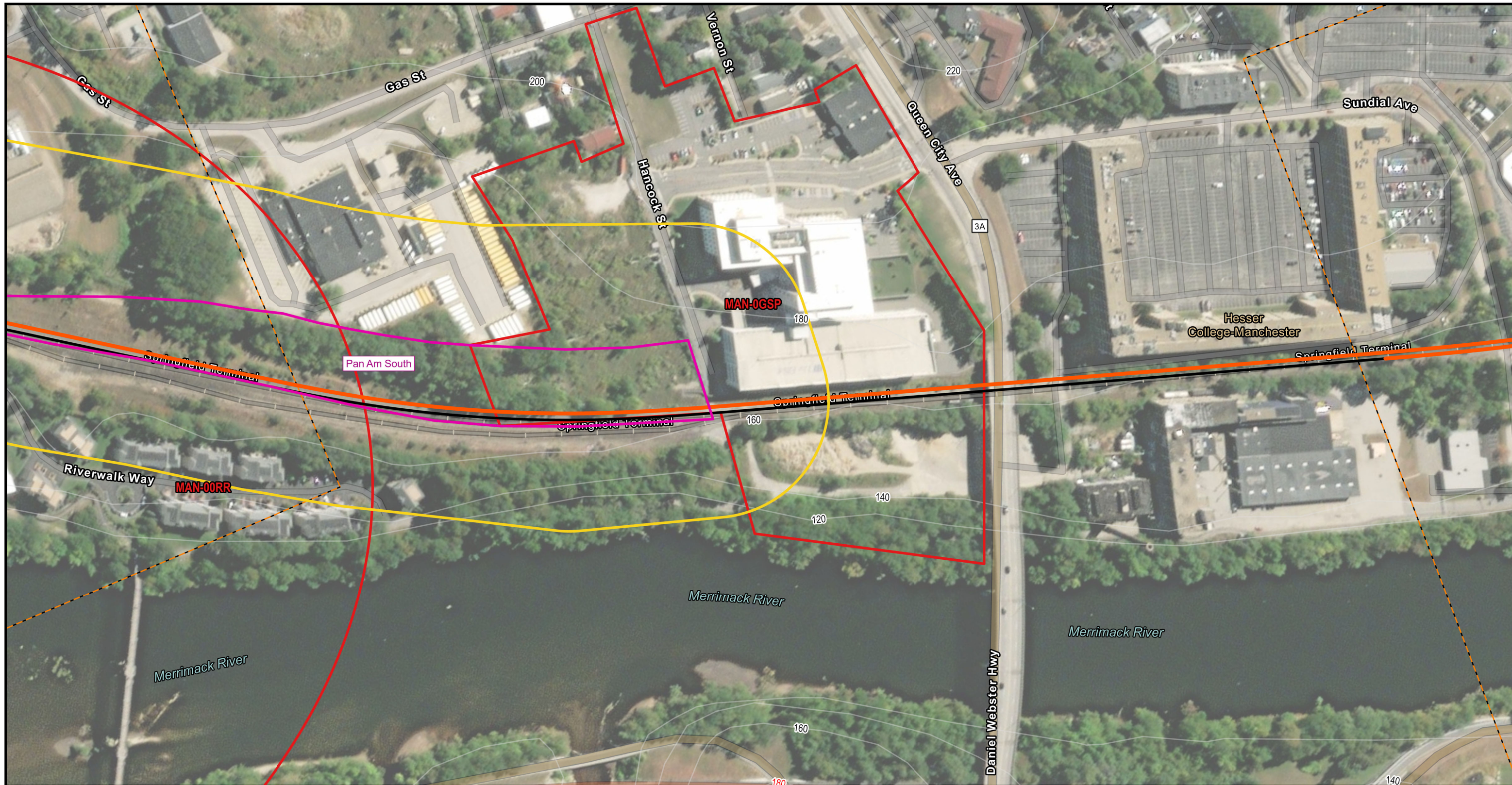
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

Page 1 of 39

New Hampshire
DOT
 Department of Transportation

AECOM



LEGEND

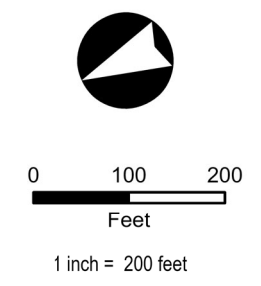
- APE
- Map Page Overlap
- Station**
- Layover (LOD)
- Station (LOD)

- Railroad Tracks**
- Existing Single Track (No change)
 - Existing Double Track (No change)
 - Proposed Restored Double Track
 - Realigned Existing
 - Proposed Double Track On Existing Rail

- Cultural Resources**
- Previously Surveyed Railroad Bridge
 - National Register District
 - Historic Area (Project Area Form)
 - Individual Property < 10 acres

- Not Yet Surveyed Resources
- Photo Location

- Environmental and Political**
- Township Boundary
 - 20 ft. Elevation Contours



**NASHUA-MANCHESTER 40818
(CAPITOL CORRIDOR) PROJECT**

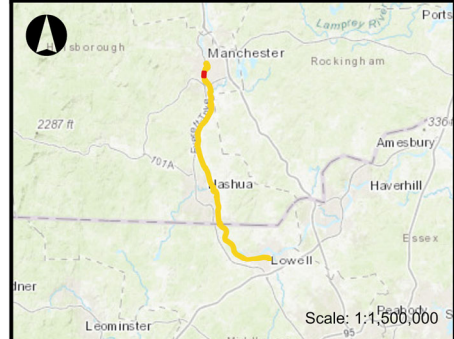
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

Page 2 of 39

New Hampshire
DOT
Department of Transportation

AECOM



LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

	Existing Single Track (No change)
	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

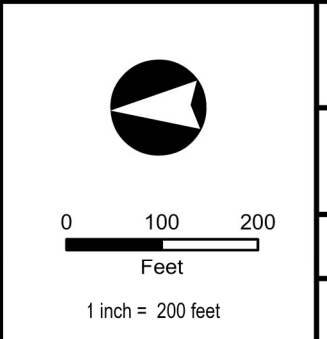
	Previously Surveyed Railroad Bridge
	National Register District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

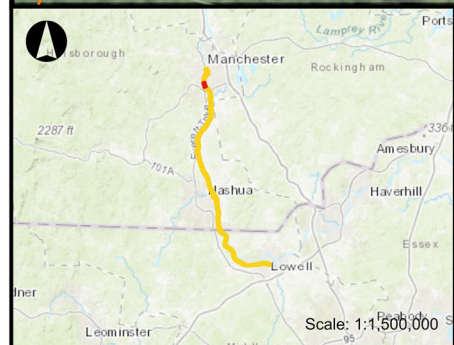
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

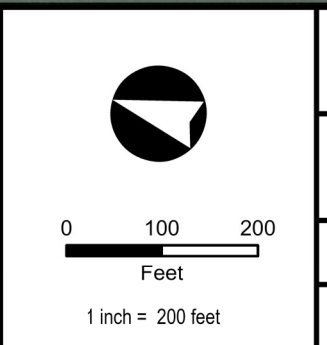
Previously Surveyed Railroad Bridge
National Register District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Not Yet Surveyed Resources
Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours

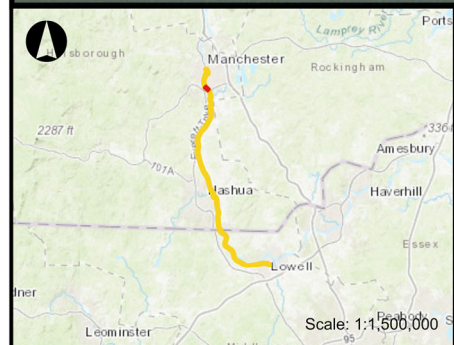


NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

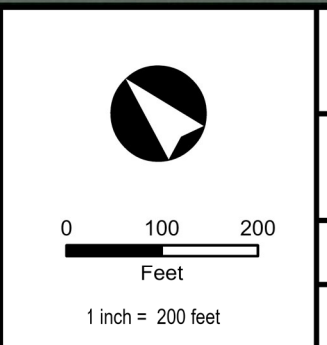
Previously Surveyed Railroad Bridge
National Register District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Not Yet Surveyed Resources
Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

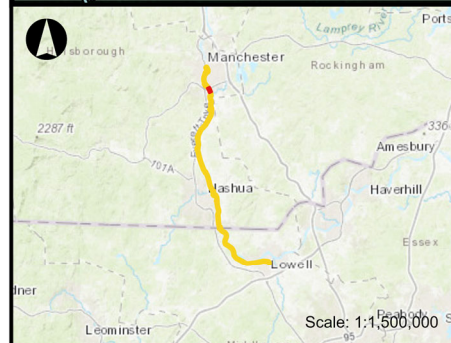
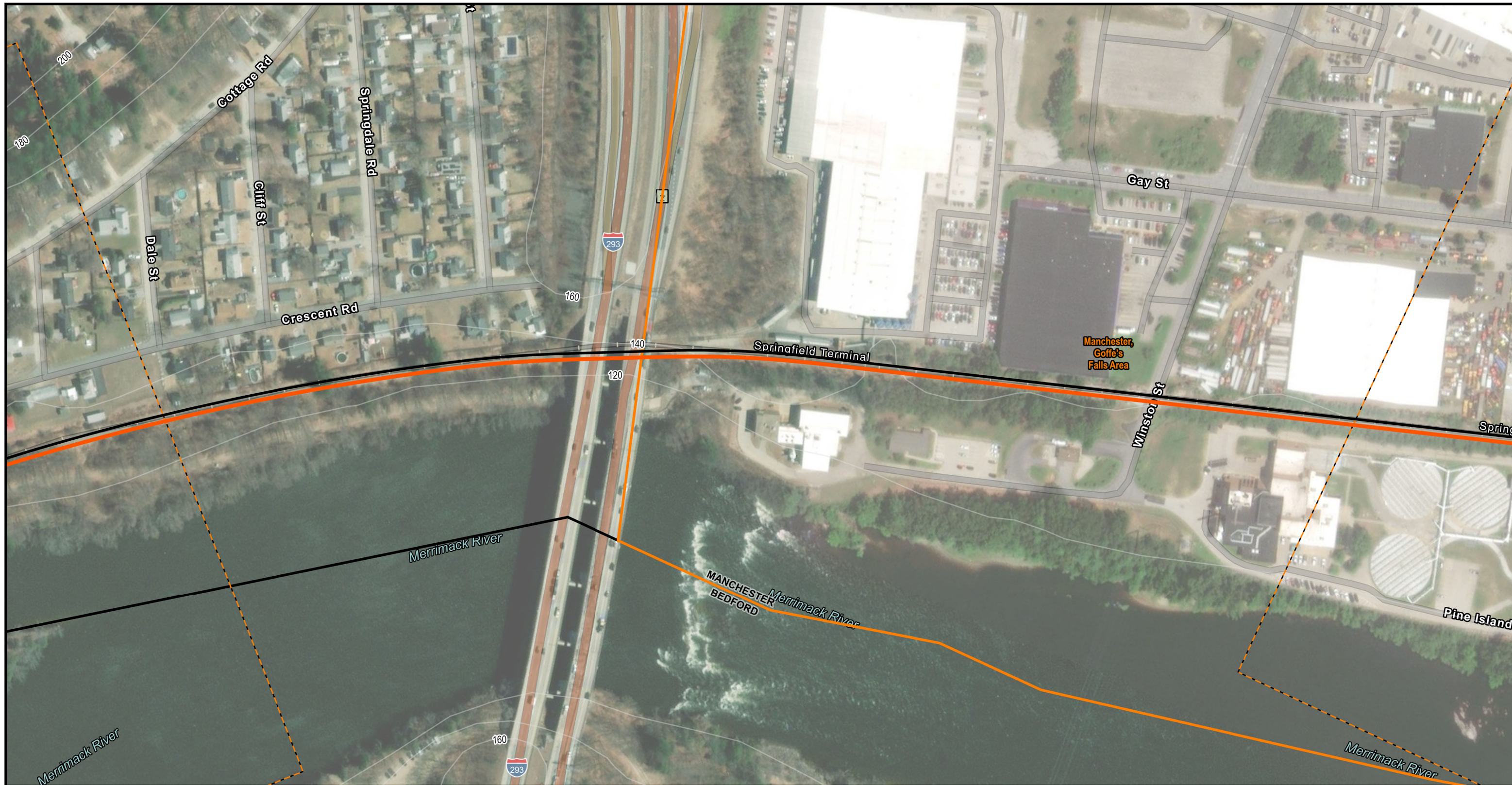
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

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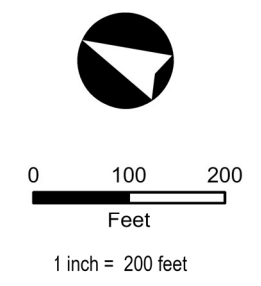
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 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
 Existing Single Track (No change)
 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

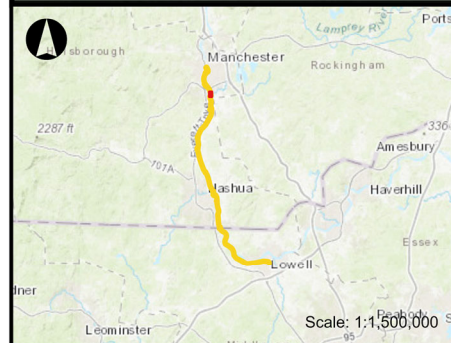
Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
APE Map
 Including Photo Locations and Resources Locations
 Township(s): Manchester
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New Hampshire
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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

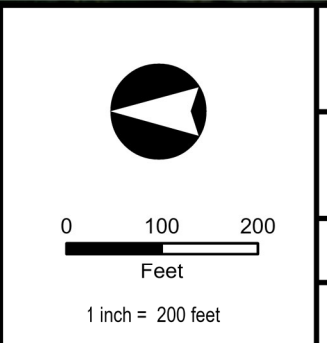
Previously Surveyed Railroad Bridge
National Register District
Historic District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

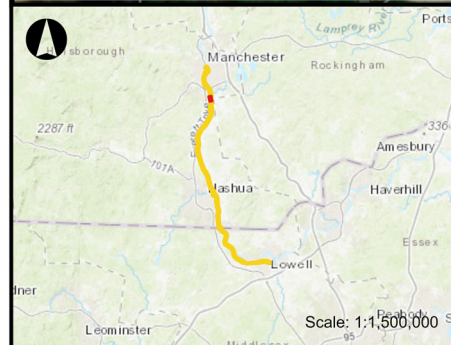
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester

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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

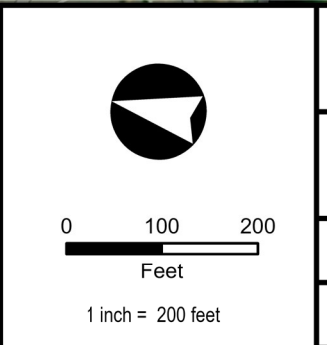
Previously Surveyed Railroad Bridge
National Register District
Historic District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

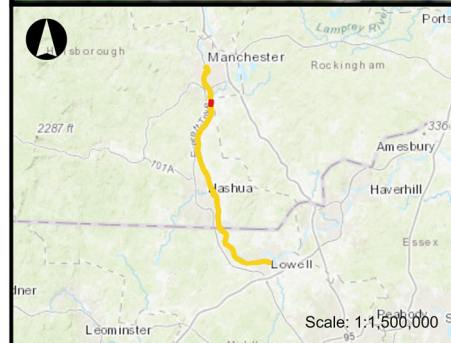
APE Map
Including Photo Locations and Resources Locations

Township(s): Manchester/Bedford

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New Hampshire
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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

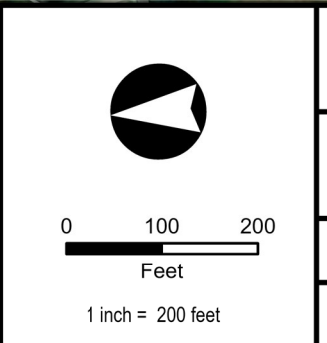
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	National Register District
	Historic District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

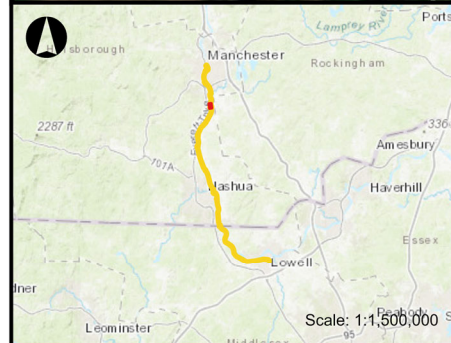
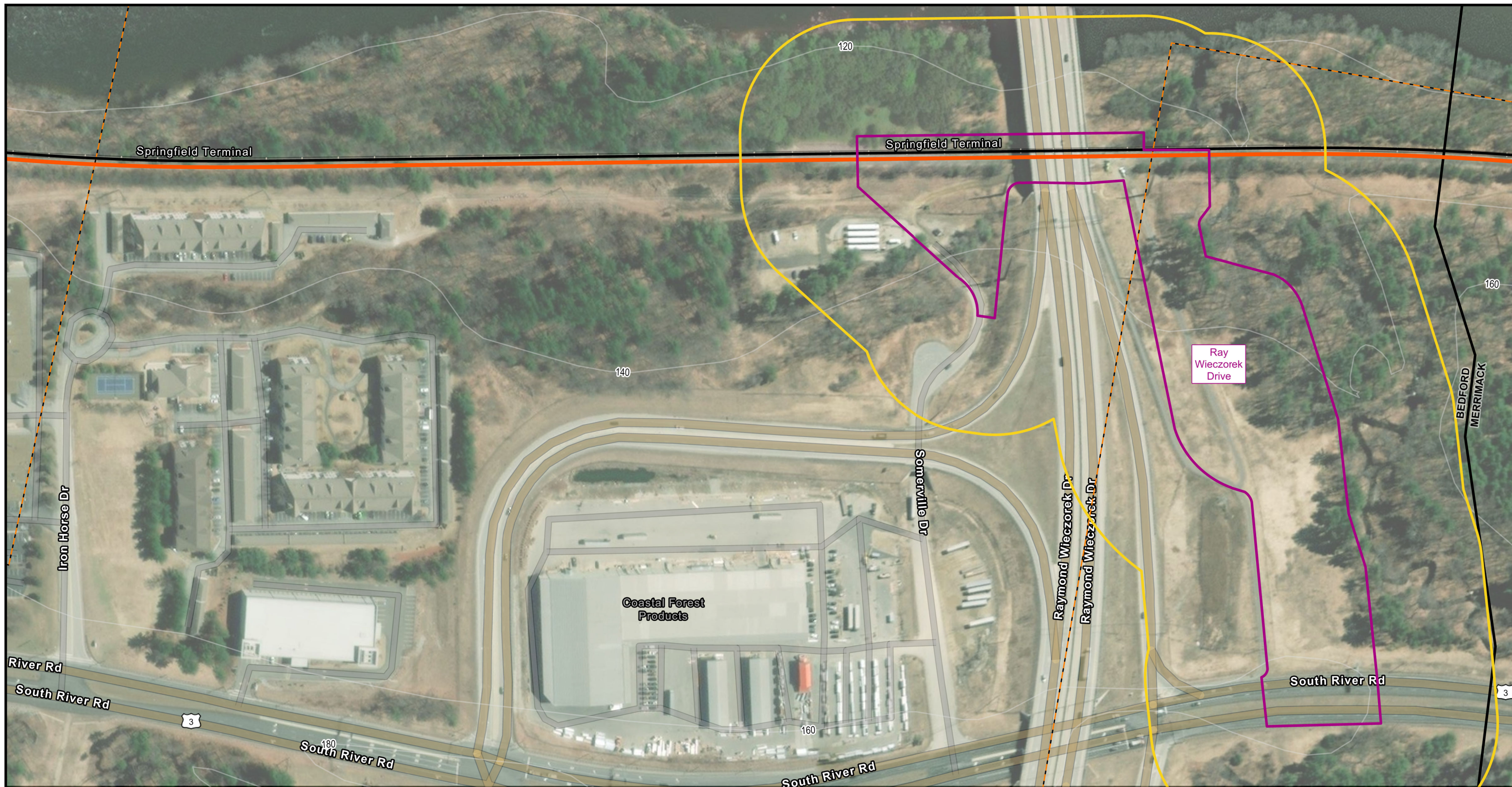
APE Map
Including Photo Locations and Resources Locations

Township(s): Bedford

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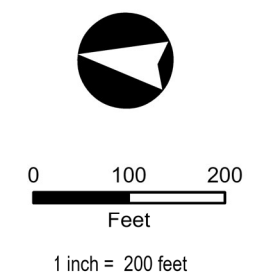
LEGEND
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 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
 Existing Single Track (No change)
 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



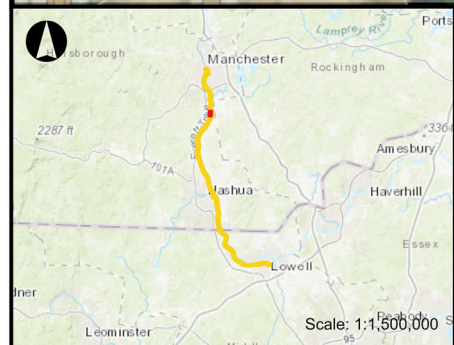
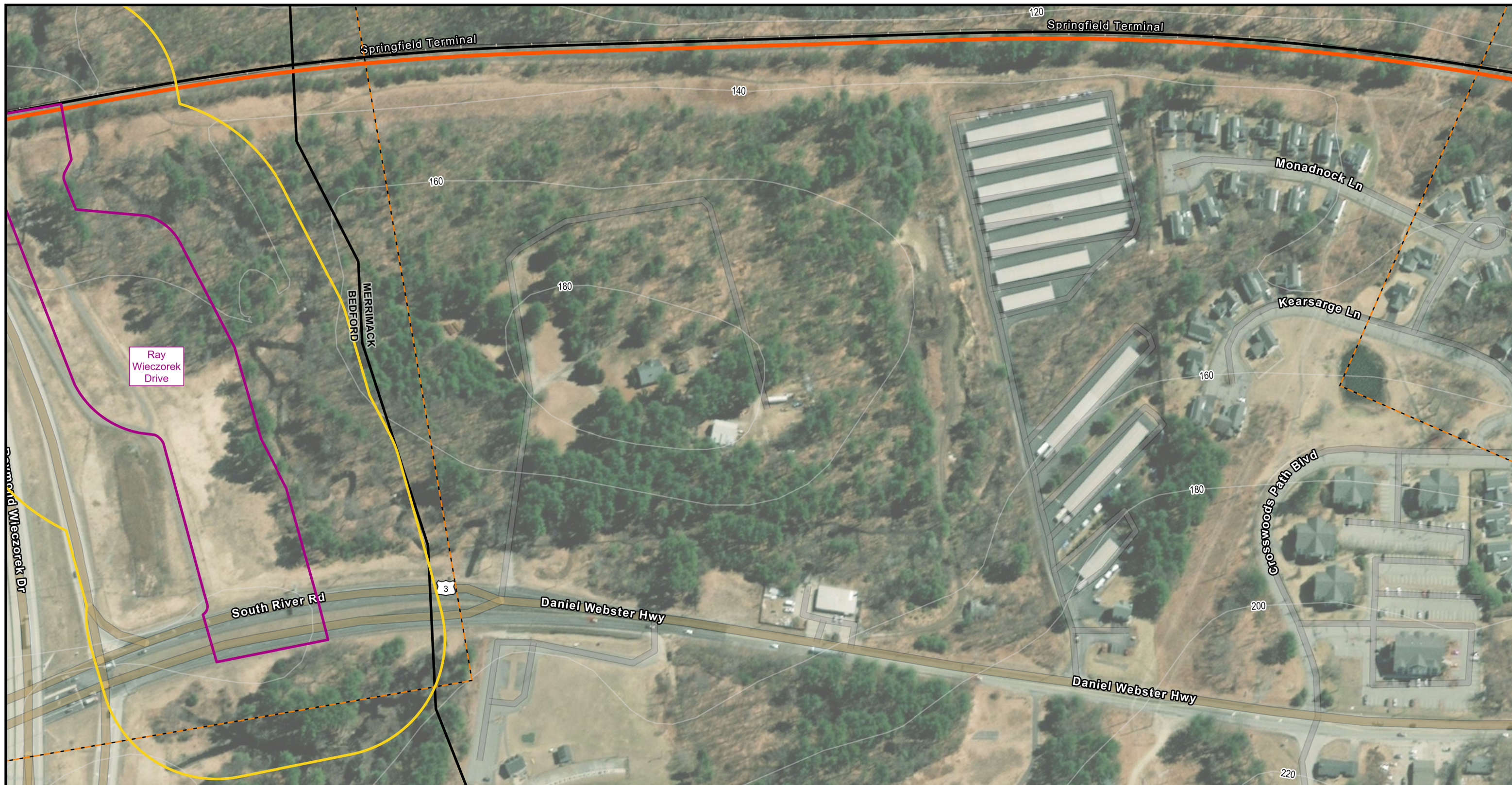
NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
 Including Photo Locations and Resources Locations

Township(s): Bedford

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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

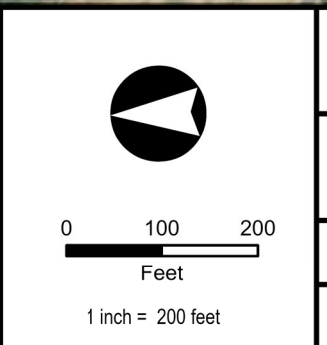
Previously Surveyed Railroad Bridge
National Register District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Not Yet Surveyed Resources
Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

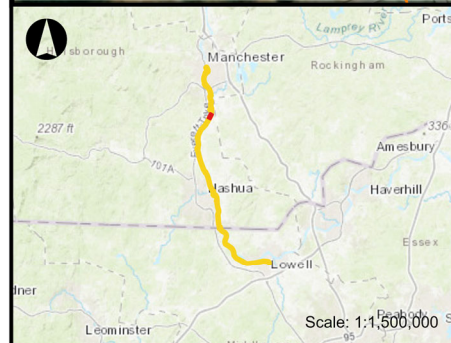
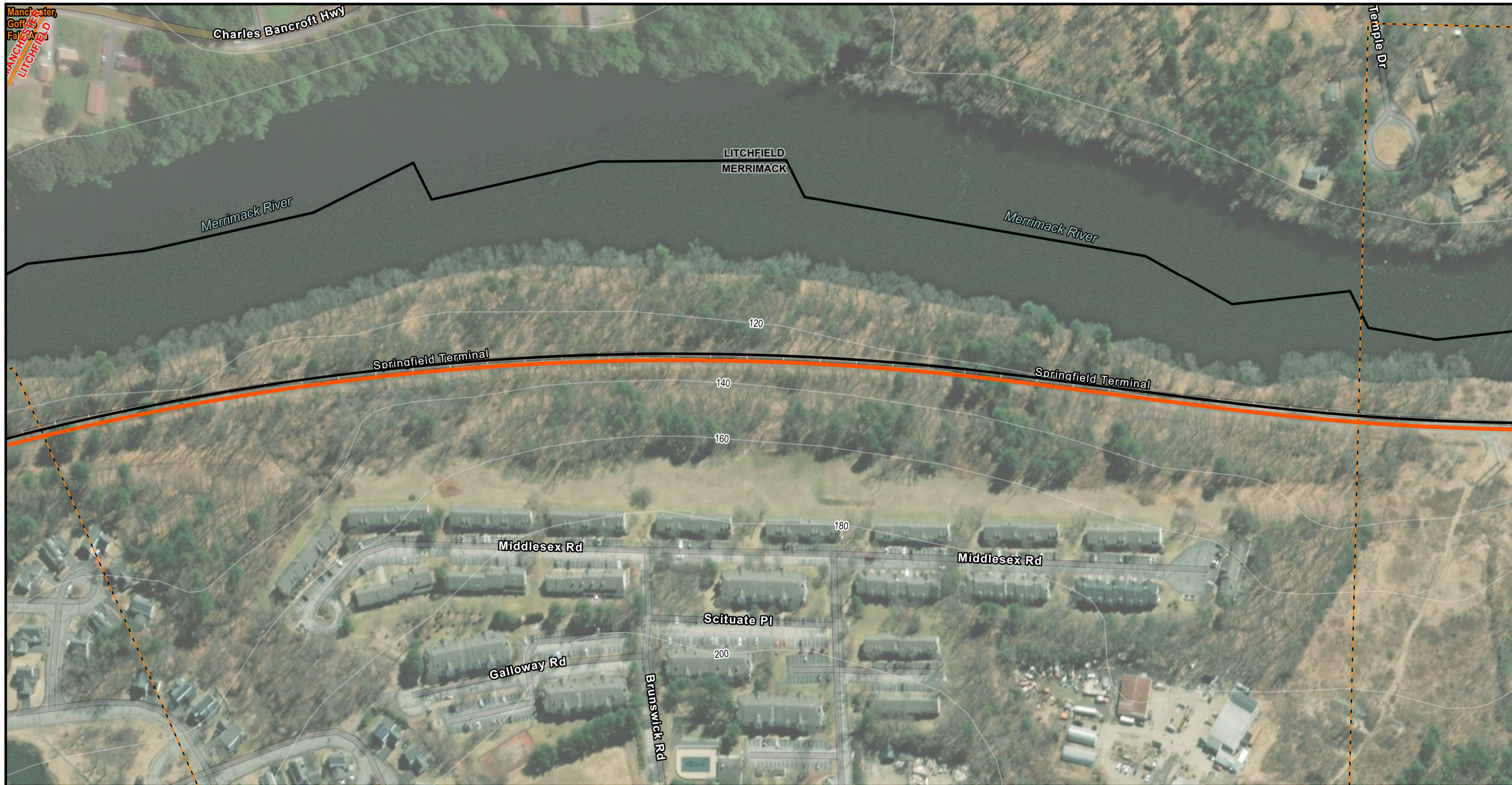
APE Map
Including Photo Locations and Resources Locations

Township(s): Bedford/Merrimack

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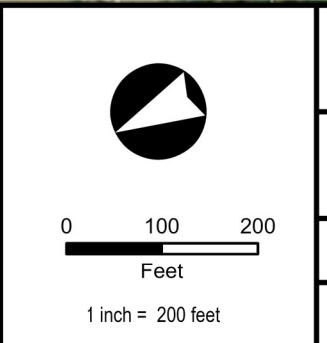
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 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
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 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

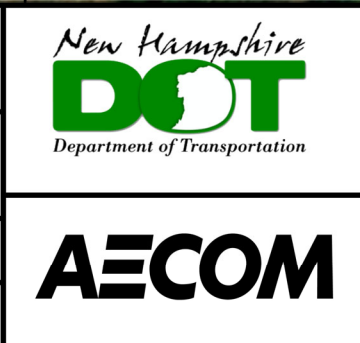
Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

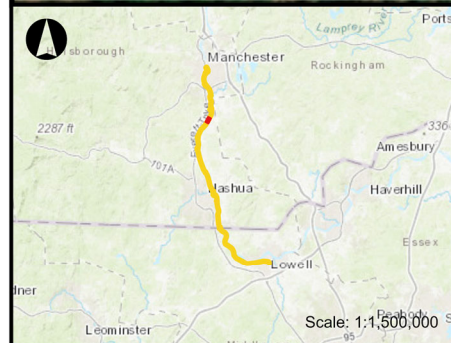
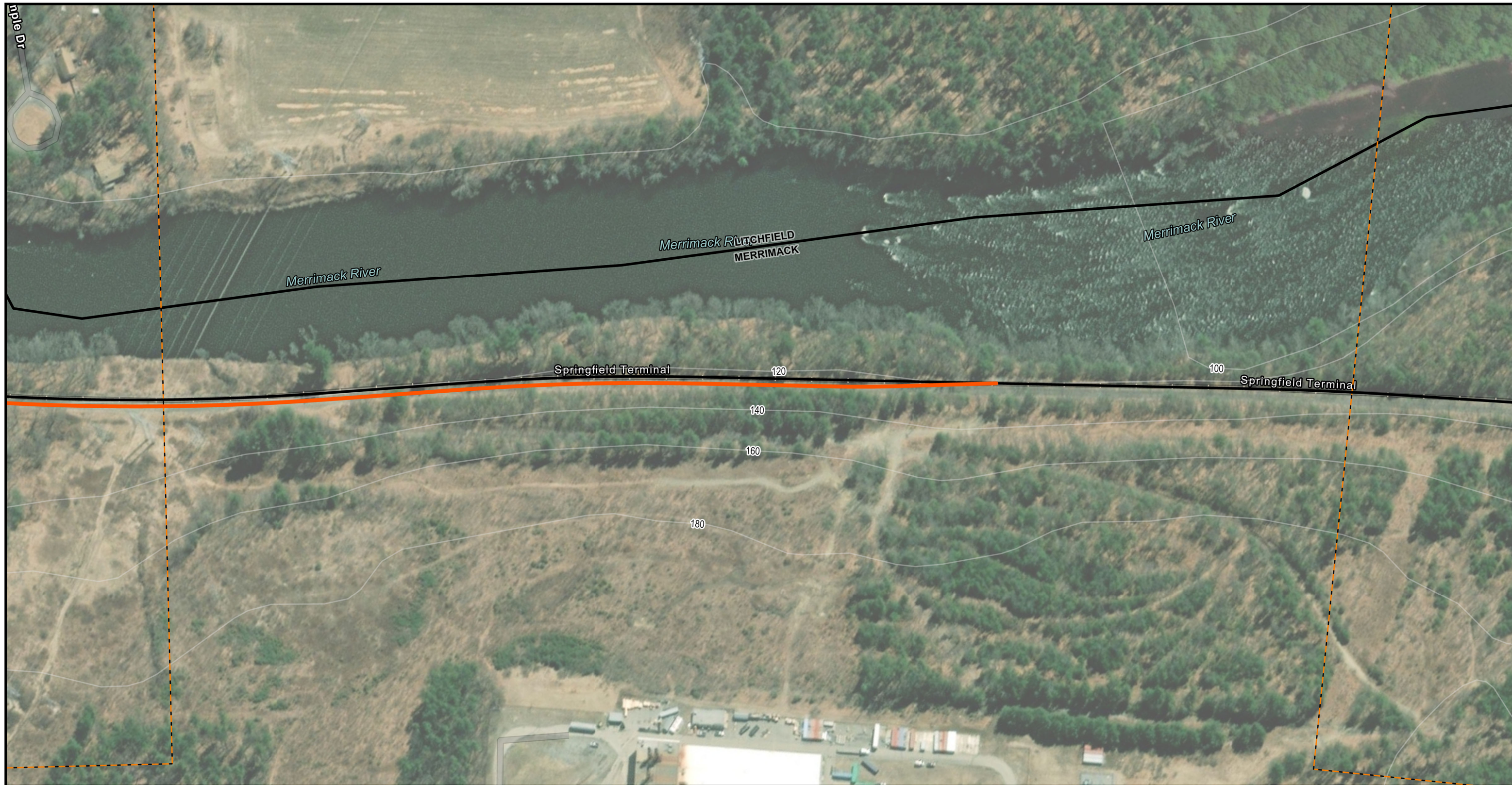
Not Yet Surveyed Resources
 Photo Location

Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
APE Map
 Including Photo Locations and Resources Locations
Township(s): Merrimack
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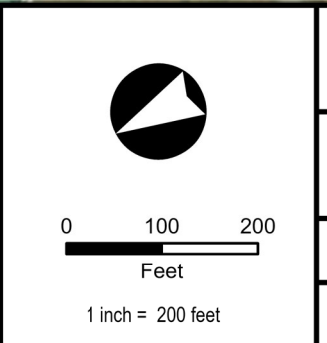
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 APE
 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
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 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

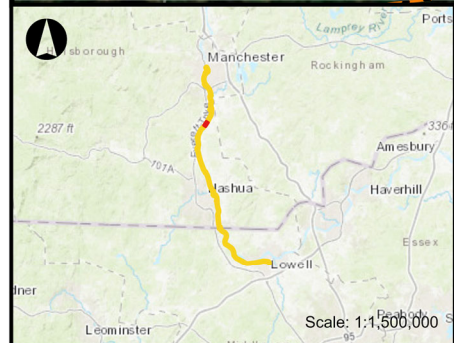
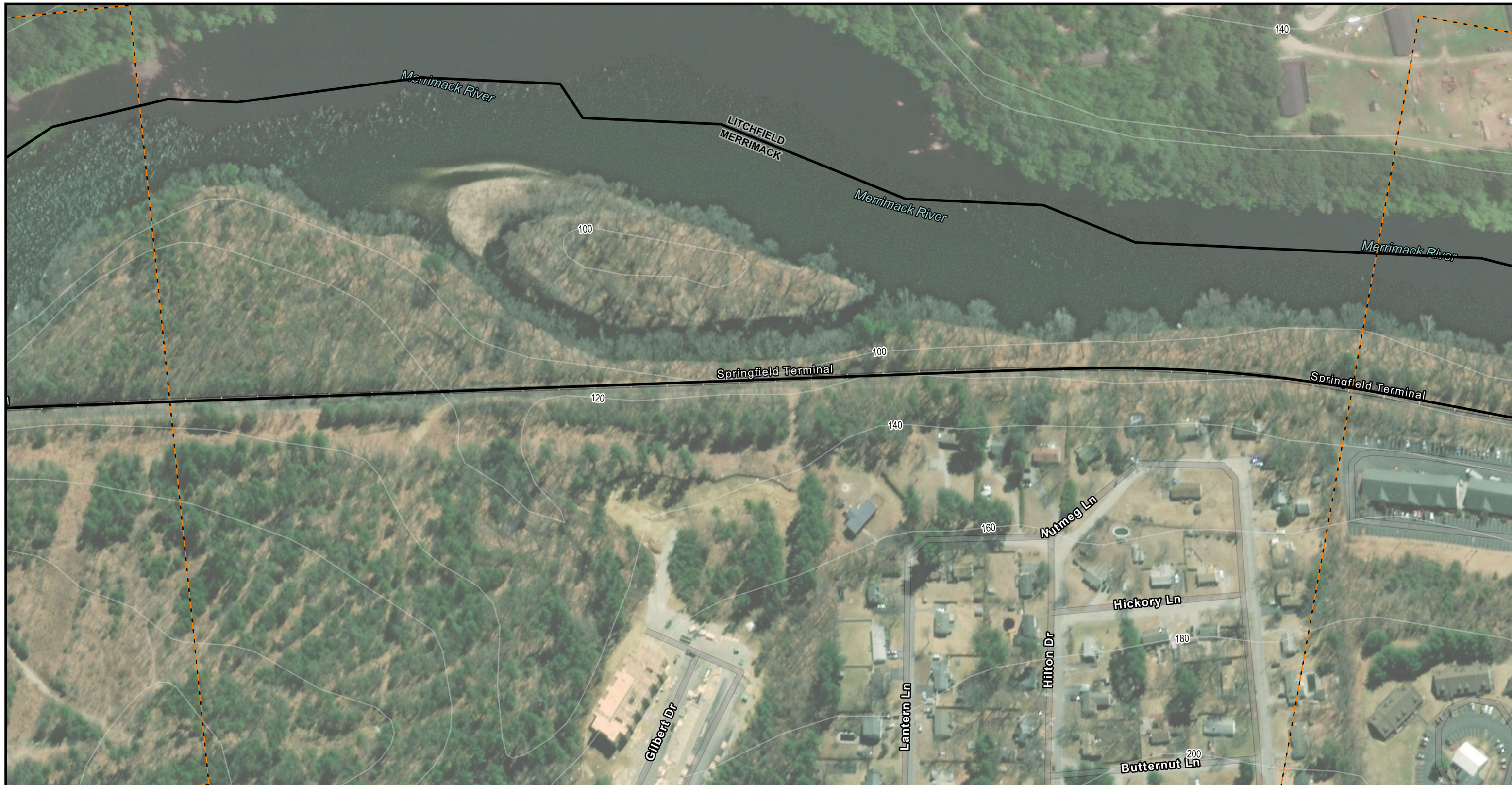
Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
APE Map
 Including Photo Locations and Resources Locations
 Township(s): Merrimack
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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

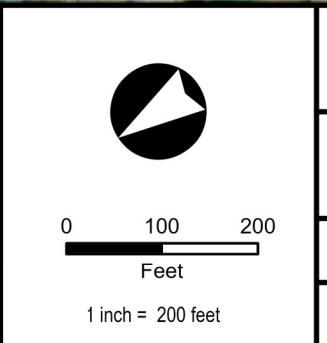
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	National Register District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

- APE
- Map Page Overlap
- Layover (LOD)
- Station (LOD)

Railroad Tracks

- Existing Single Track (No change)
- Existing Double Track (No change)
- Proposed Restored Double Track
- Realigned Existing
- Proposed Double Track On Existing Rail

Cultural Resources

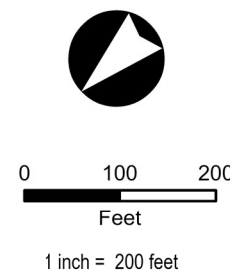
- Previously Surveyed Railroad Bridge
- National Register District
- Historic Area (Project Area Form)
- Individual Property < 10 acres

Not Yet Surveyed Resources

- Not Yet Surveyed Resources
- Photo Location

Environmental and Political

- Township Boundary
- 20 ft. Elevation Contours



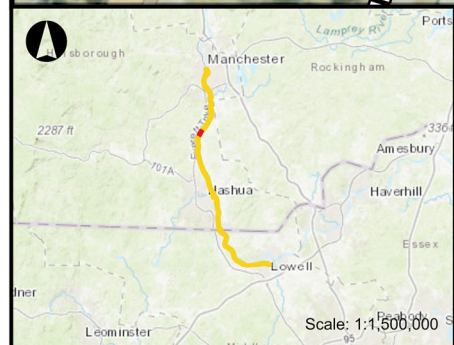
NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

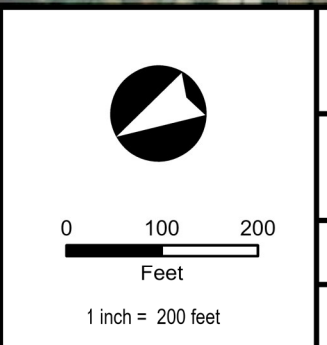
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	National Register District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

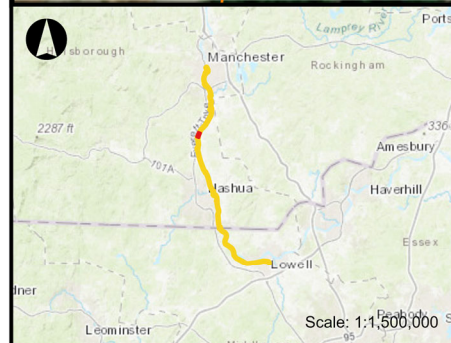
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

	Existing Single Track (No change)
	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

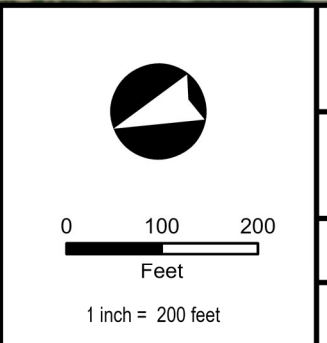
	Previously Surveyed Railroad Bridge
	National Register District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Photo Location
--	----------------

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

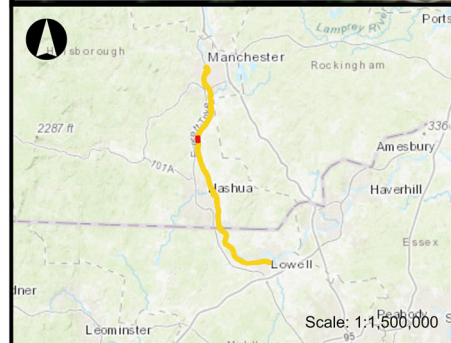
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

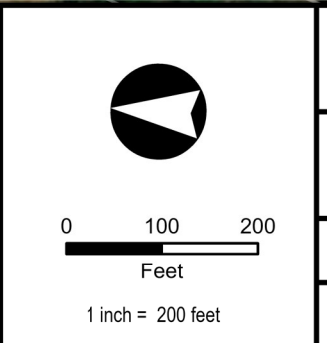
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	National Register District
	Individual Property > 10 acres
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

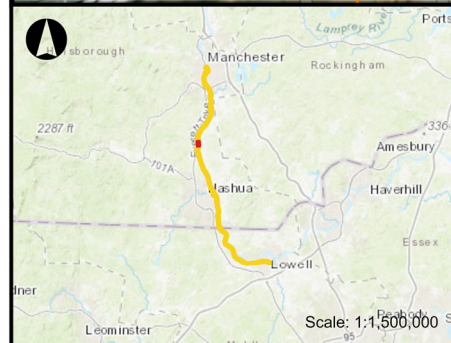
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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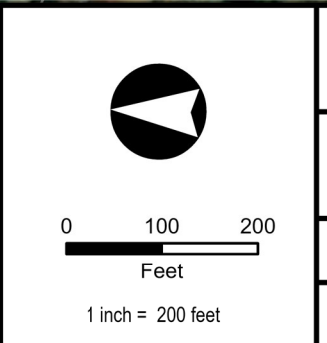
LEGEND
 [Yellow Box] APE
 [Orange Box] Map Page Overlap
Station
 [Pink Box] Layover (LOD)
 [Purple Box] Station (LOD)

Railroad Tracks
 [Black Line] Existing Single Track (No change)
 [Blue Line] Existing Double Track (No change)
 [Orange Line] Proposed Restored Double Track
 [Yellow Line] Realigned Existing
 [Green Line] Proposed Double Track On Existing Rail

Cultural Resources
 [Green Box] Previously Surveyed Railroad Bridge
 [Blue Box] National Register District
 [Red Box] Historic Area (Project Area Form)
 [Light Green Box] Individual Property < 10 acres

[Black Square] Not Yet Surveyed Resources
 [Water Drop Icon] Photo Location

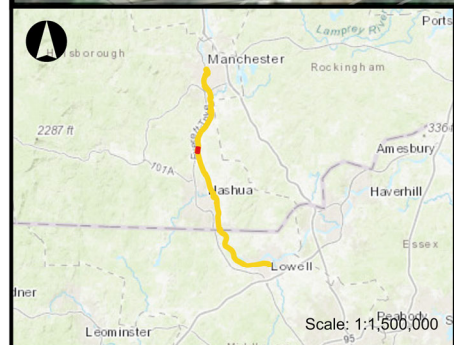
Environmental and Political
 [Black Box] Township Boundary
 [Grey Line] 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
APE Map
 Including Photo Locations and Resources Locations
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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
Proposed Restored Double Track
Realigned Existing
Proposed Double Track On Existing Rail

Cultural Resources

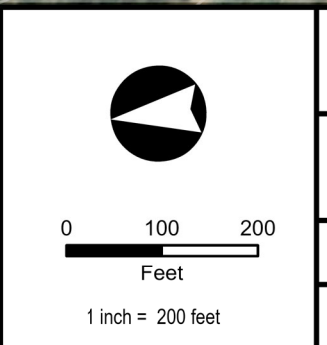
Previously Surveyed Railroad Bridge
National Register District
Individual Property > 10 acres
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Not Yet Surveyed Resources
Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

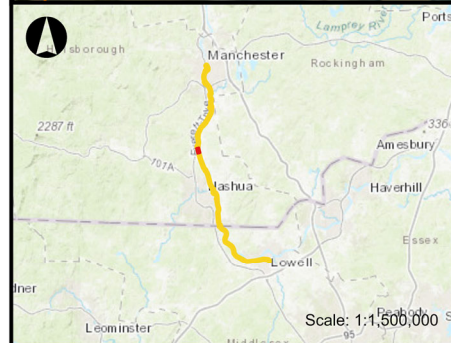
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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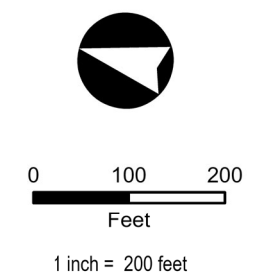
LEGEND
 APE
 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
 Existing Single Track (No change)
 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



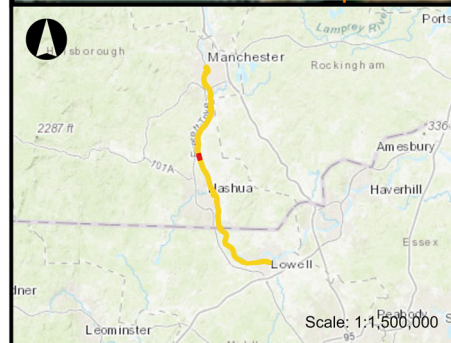
NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
 Including Photo Locations and Resources Locations

Township(s): Merrimack

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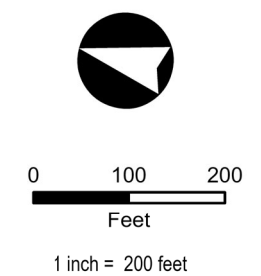
LEGEND
 APE
 Map Page Overlap
Station
 Layover (LOD)
 Station (LOD)

Railroad Tracks
 Existing Single Track (No change)
 Existing Double Track (No change)
 Proposed Restored Double Track
 Realigned Existing
 Proposed Double Track On Existing Rail

Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



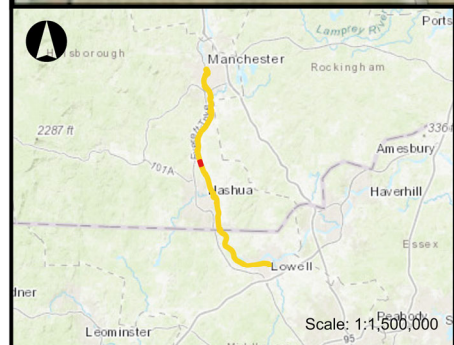
NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

APE Map
 Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

	Existing Single Track (No change)
	Existing Double Track (No change)
	Proposed Restored Double Track
	Realigned Existing
	Proposed Double Track On Existing Rail

Cultural Resources

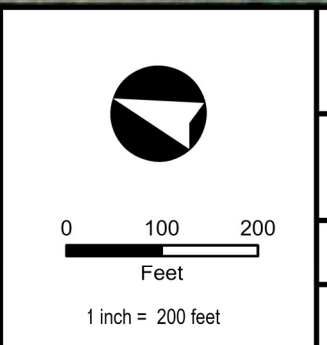
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	National Register District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

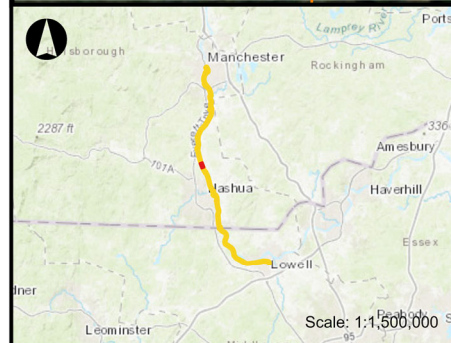
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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	Proposed Double Track On Existing Rail

Cultural Resources

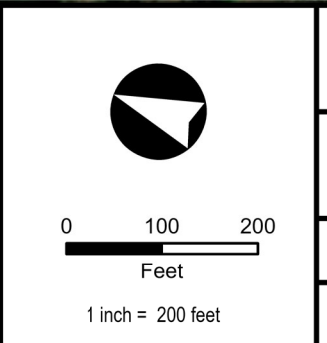
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	Individual Property > 10 acres
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Photo Location
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Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

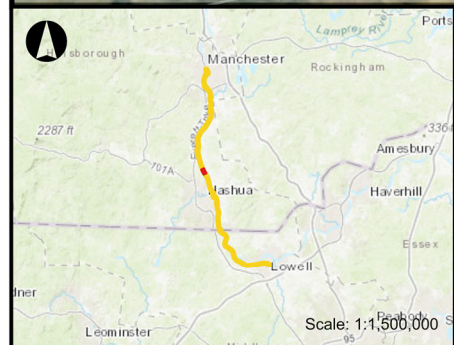
APE Map
Including Photo Locations and Resources Locations

Township(s): Merrimack

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LEGEND

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Station	
	Layover (LOD)
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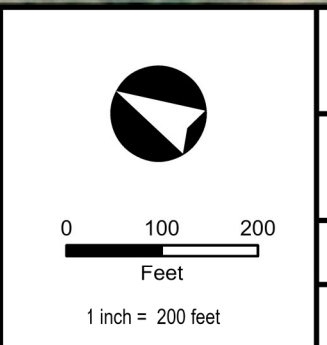
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Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



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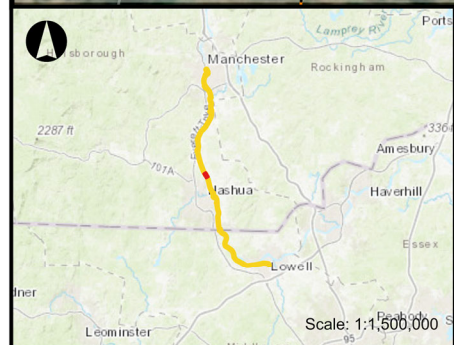
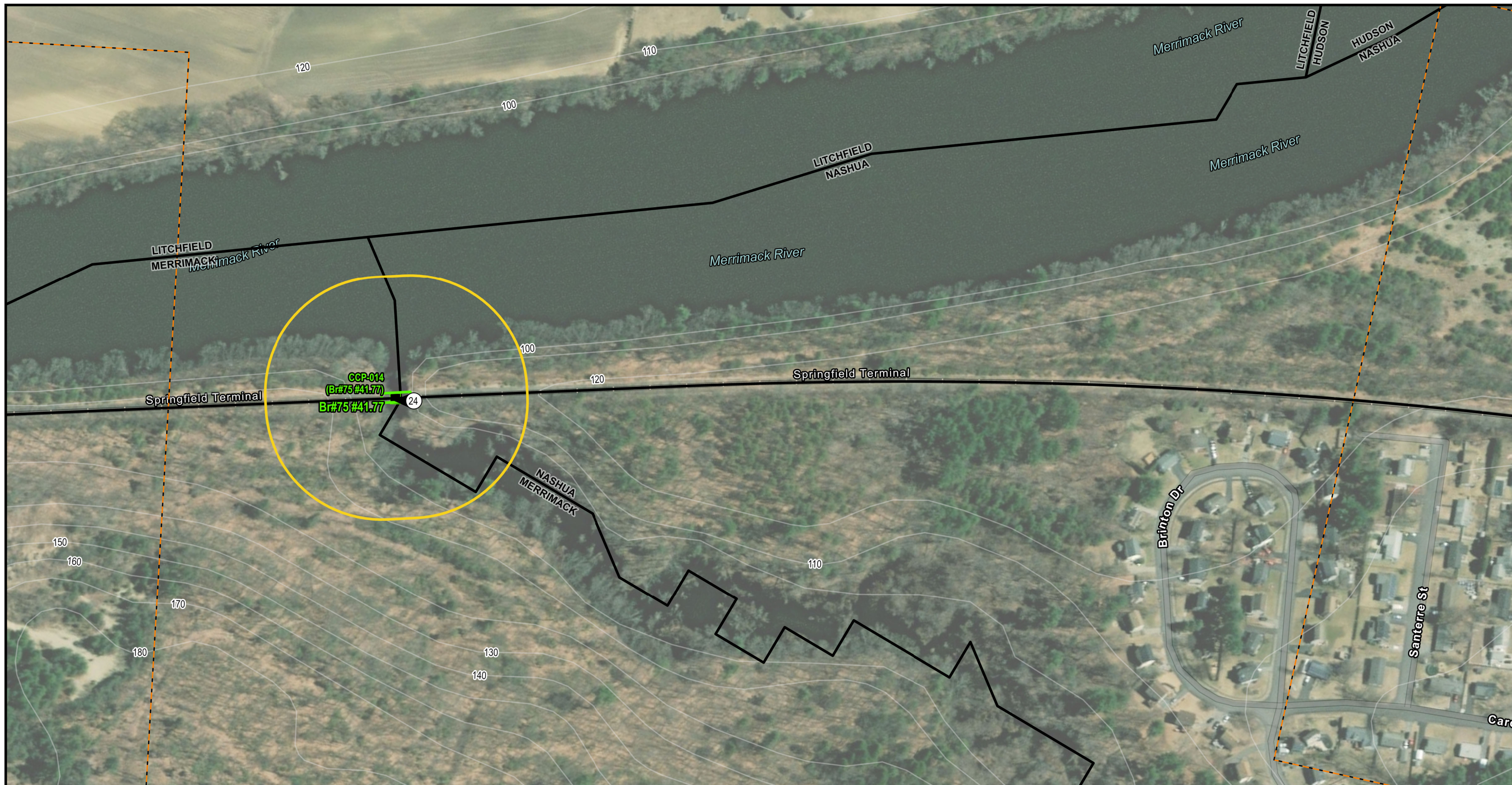
APE Map
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Township(s): Merrimack

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LEGEND

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	Station (LOD)

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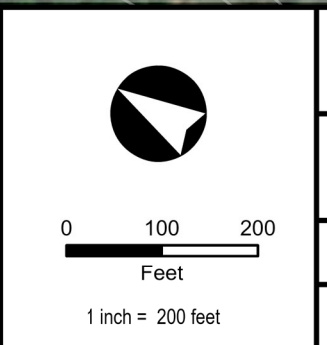
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Not Yet Surveyed Resources

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	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



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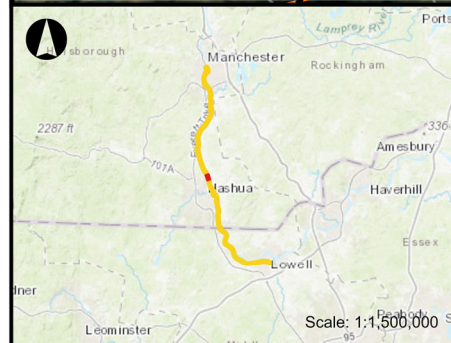
APE Map
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Township(s): Merrimack/Nashua

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LEGEND

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	Map Page Overlap
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	Station (LOD)

Railroad Tracks

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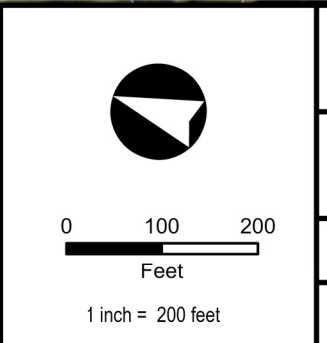
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	Individual Property < 10 acres

Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



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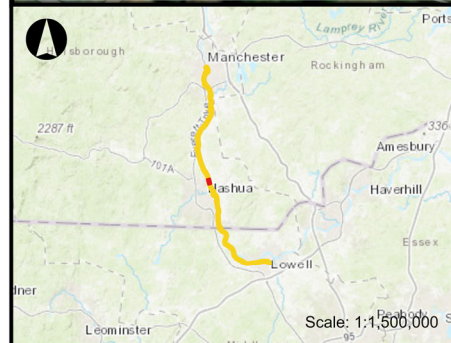
APE Map
Including Photo Locations and Resources Locations

Township(s): Nashua

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LEGEND

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	Station (LOD)

Railroad Tracks

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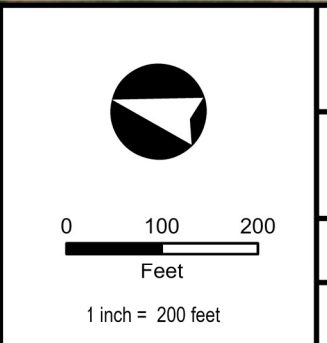
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Not Yet Surveyed Resources

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	Photo Location

Environmental and Political

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	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

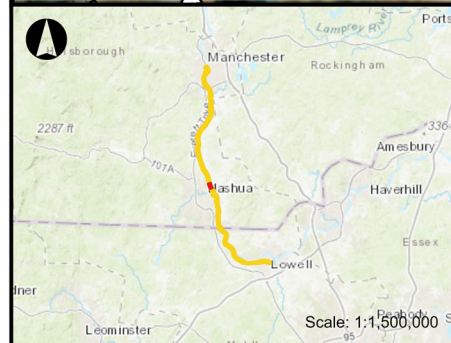
APE Map
Including Photo Locations and Resources Locations

Township(s): Nashua

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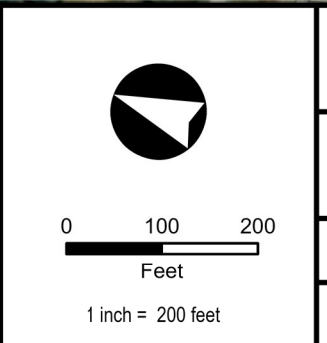
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 Station (LOD)

Railroad Tracks
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Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

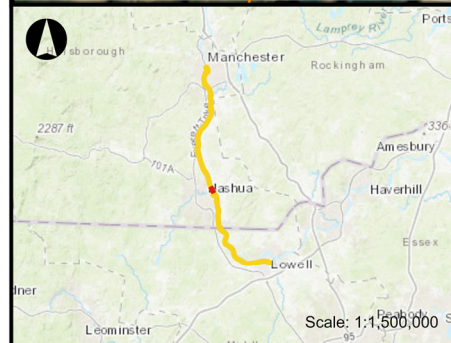
Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
APE Map
 Including Photo Locations and Resources Locations
 Township(s): Nashua
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LEGEND

APE	Map Page Overlap
Station	
Layover (LOD)	
Station (LOD)	

Railroad Tracks

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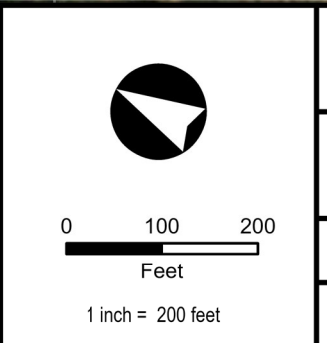
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National Register District
Historic Area (Project Area Form)
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Not Yet Surveyed Resources

Not Yet Surveyed Resources
Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



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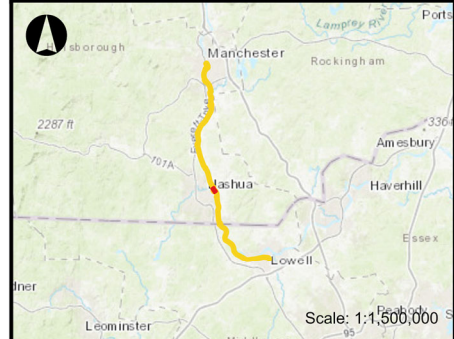
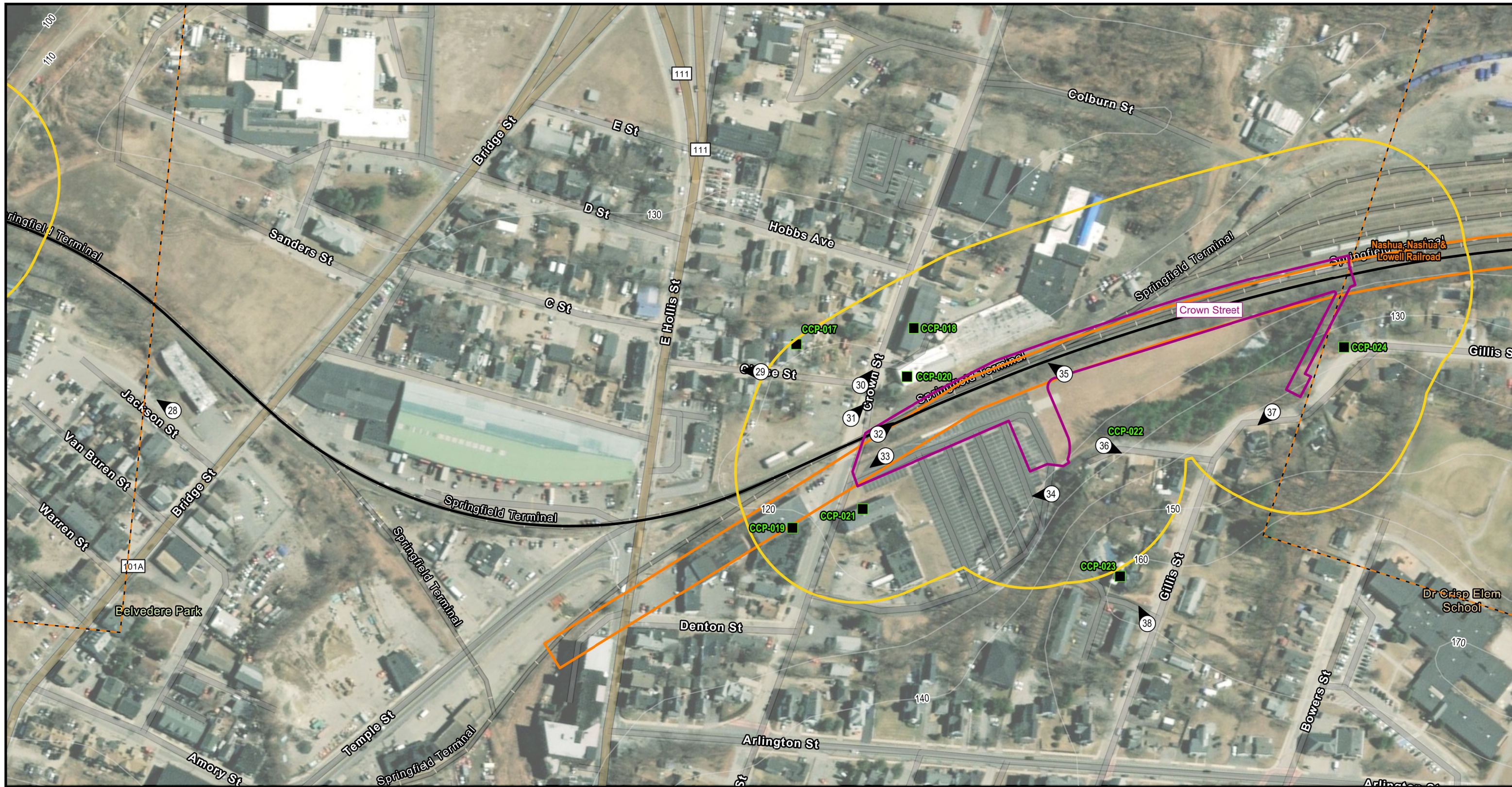
APE Map
Including Photo Locations and Resources Locations

Township(s): Nashua

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LEGEND

APE	Map Page Overlap
Station	
Layover (LOD)	
Station (LOD)	

Railroad Tracks

Existing Single Track (No change)
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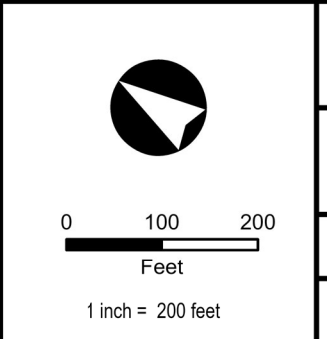
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National Register District
Historic District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



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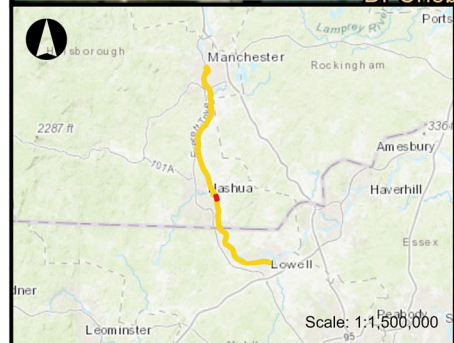
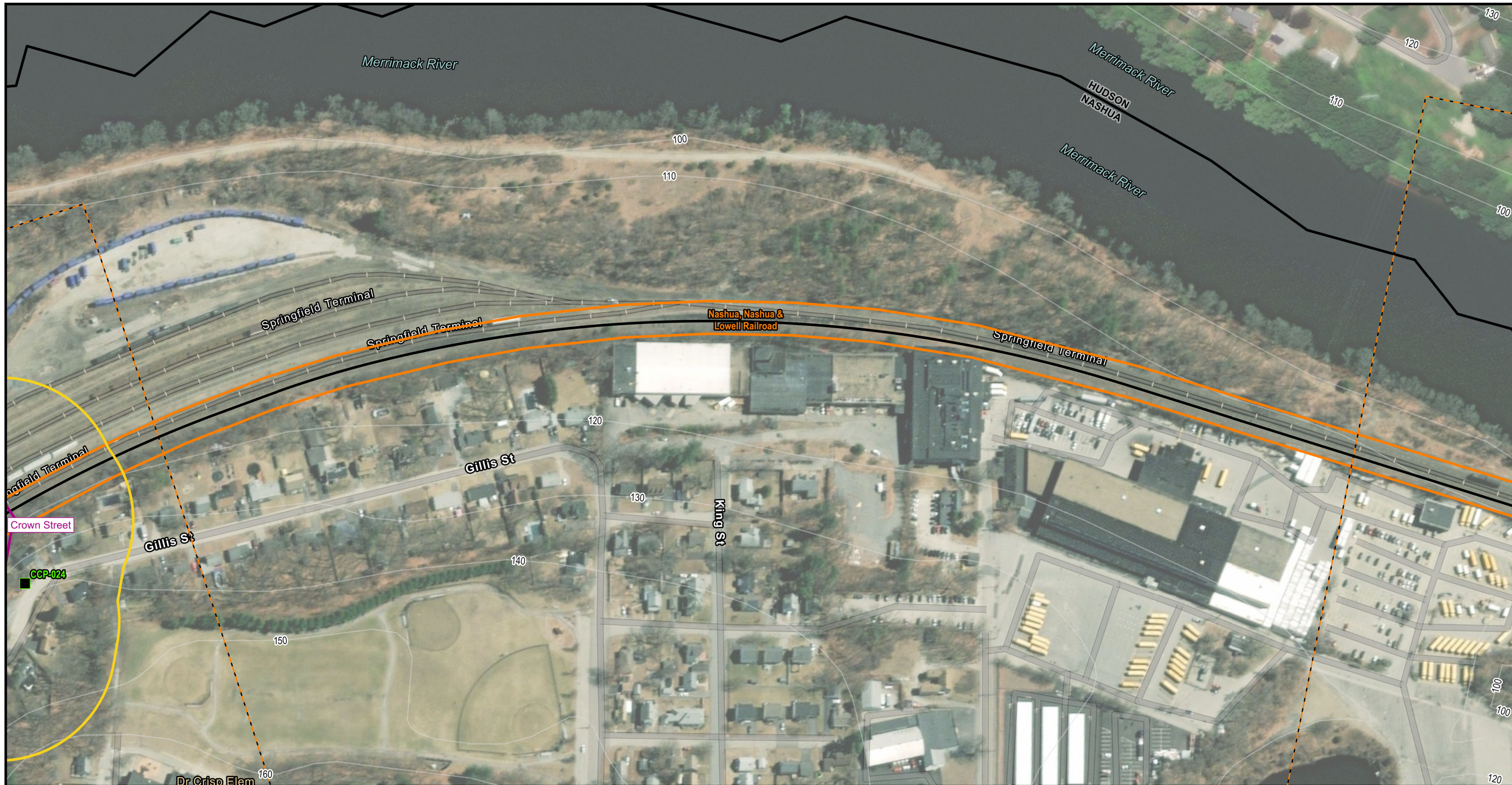
APE Map
Including Photo Locations and Resources Locations

Township(s): Nashua

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LEGEND

APE
Map Page Overlap
Station
Layover (LOD)
Station (LOD)

Railroad Tracks

Existing Single Track (No change)
Existing Double Track (No change)
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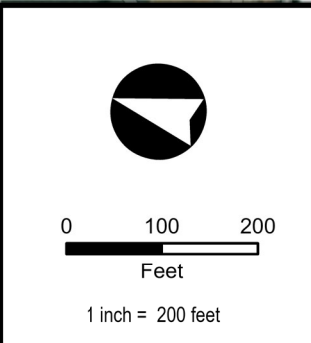
Previously Surveyed Railroad Bridge
National Register District
Historic District
Historic Area (Project Area Form)
Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

Township Boundary
20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

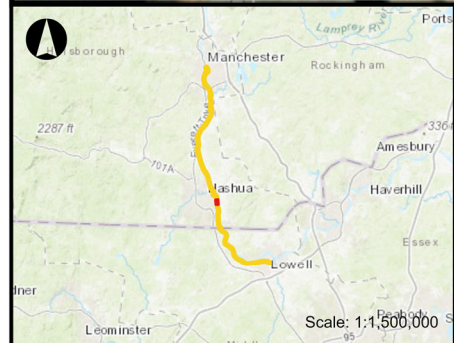
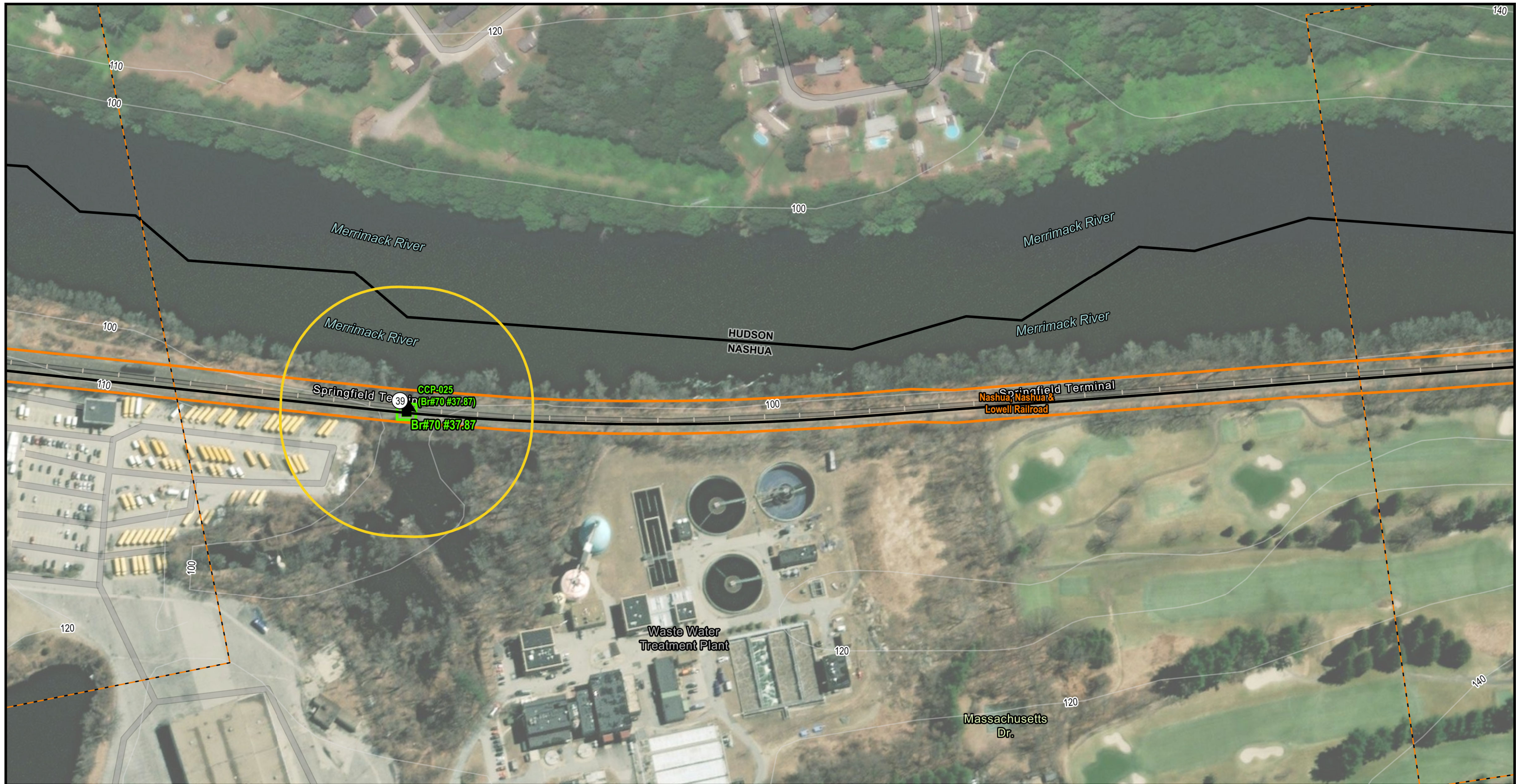
APE Map
Including Photo Locations and Resources Locations

Township(s): Nashua

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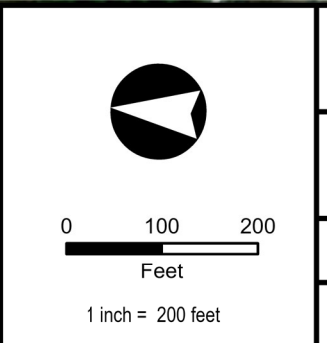
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 Station (LOD)

Railroad Tracks
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Cultural Resources
 Previously Surveyed Railroad Bridge
 National Register District
 Historic District
 Historic Area (Project Area Form)
 Individual Property < 10 acres

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 Photo Location

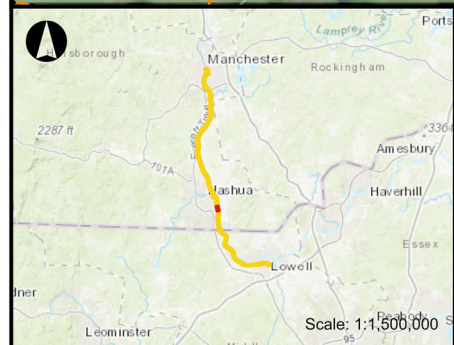
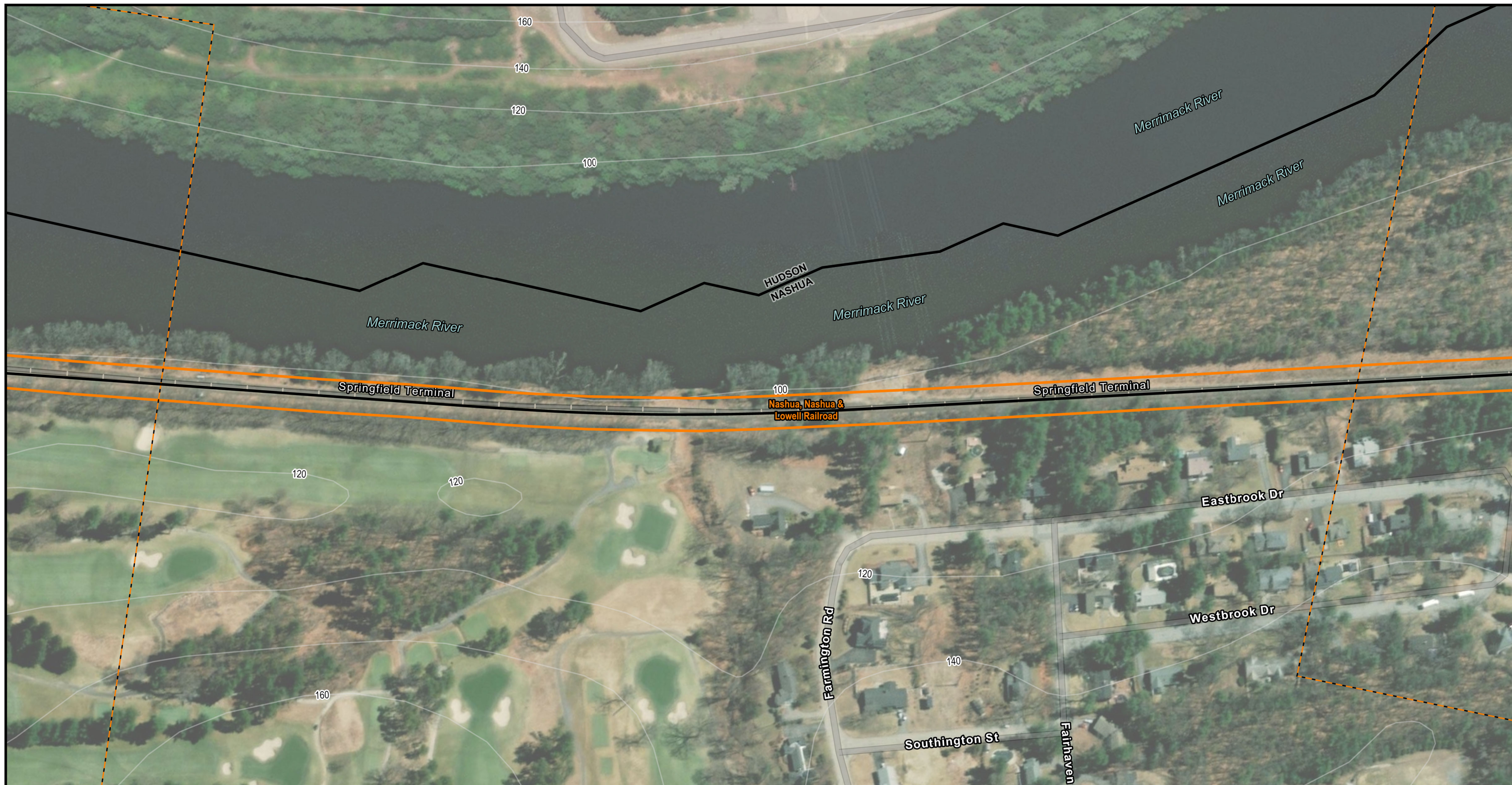
Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
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LEGEND

- APE
- Map Page Overlap
- Station**
- Layover (LOD)
- Station (LOD)

Railroad Tracks

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Cultural Resources


- Previously Surveyed Railroad Bridge
- National Register District
- Historic District
- Historic Area (Project Area Form)
- Individual Property < 10 acres

Not Yet Surveyed Resources

Photo Location

Environmental and Political

- Township Boundary
- 20 ft. Elevation Contours



0 100 200
Feet

1 inch = 200 feet

**NASHUA-MANCHESTER 40818
(CAPITOL CORRIDOR) PROJECT**

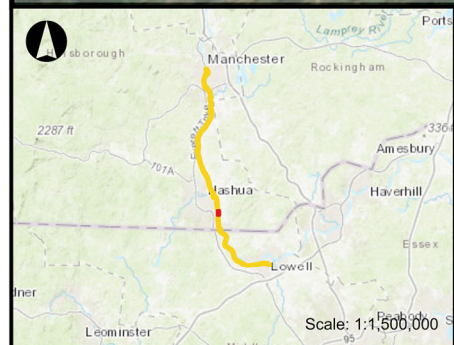
APE Map
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Township(s): Nashua

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LEGEND APE Map Page Overlap Station Layover (LOD) Station (LOD)	Railroad Tracks Existing Single Track (No change) Existing Double Track (No change) Proposed Restored Double Track Realigned Existing Proposed Double Track On Existing Rail	Cultural Resources Previously Surveyed Railroad Bridge National Register District Historic District Historic Area (Project Area Form) Individual Property < 10 acres	Not Yet Surveyed Resources Photo Location	Environmental and Political Township Boundary 20 ft. Elevation Contours
	Scale: 1 inch = 200 feet 0 100 200 Feet			

NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

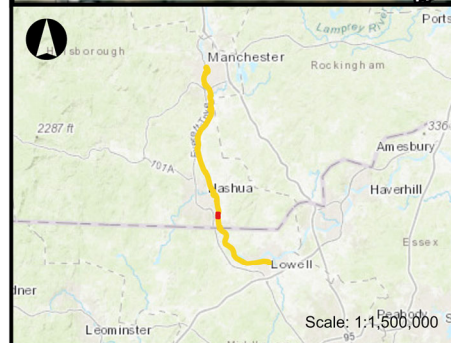
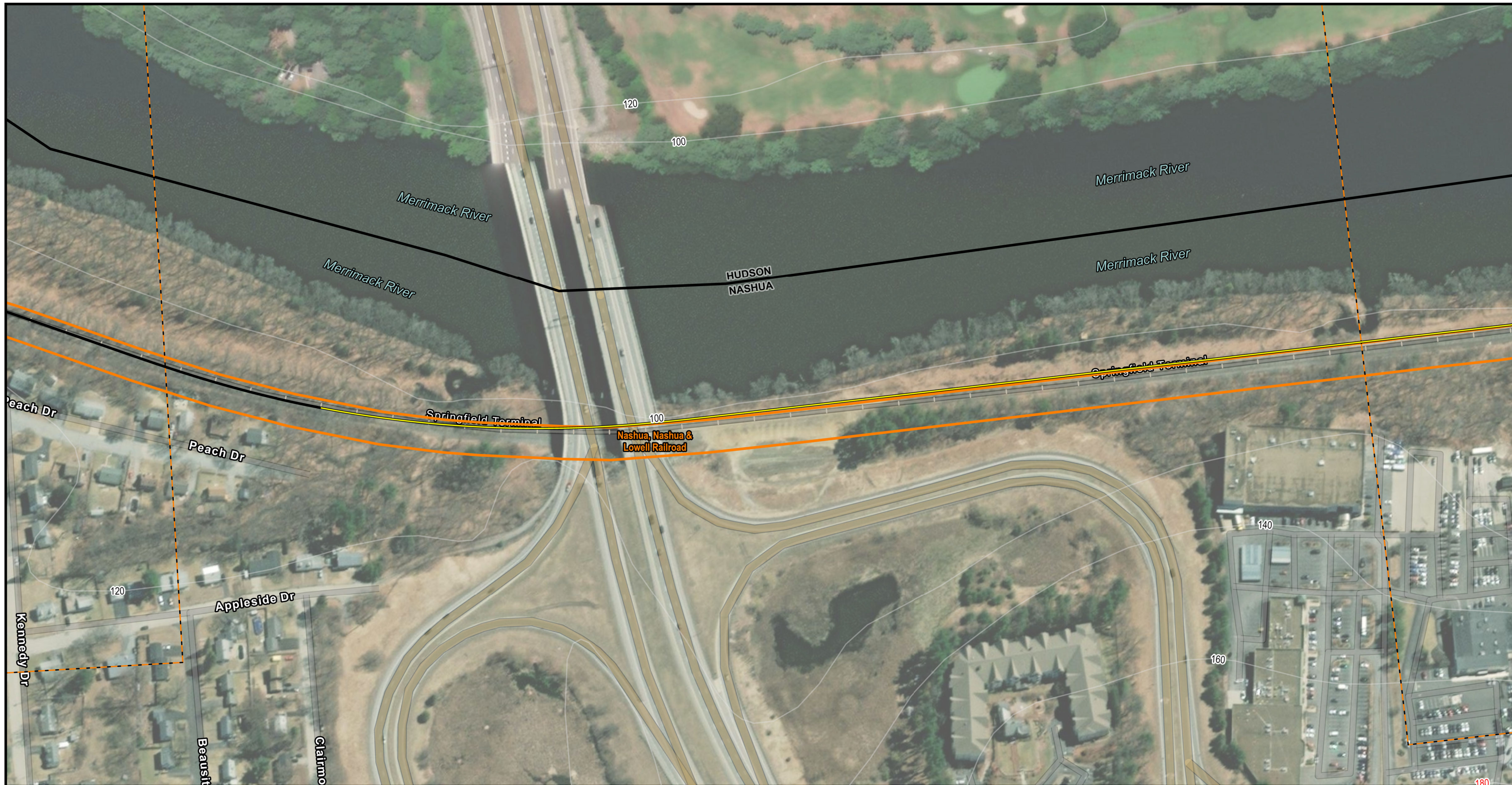
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LEGEND

	APE
	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

Railroad Tracks

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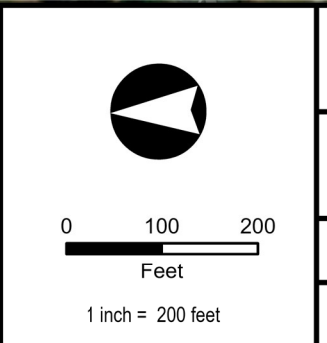
	Previously Surveyed Railroad Bridge
	National Register District
	Historic District
	Historic Area (Project Area Form)
	Individual Property < 10 acres

Not Yet Surveyed Resources

	Photo Location
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Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT

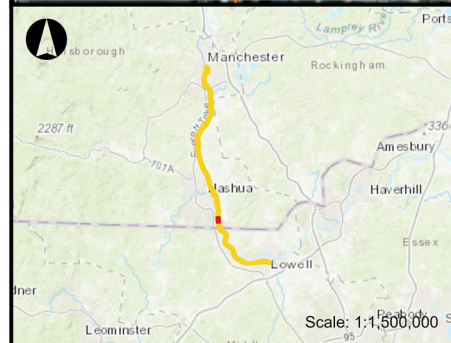
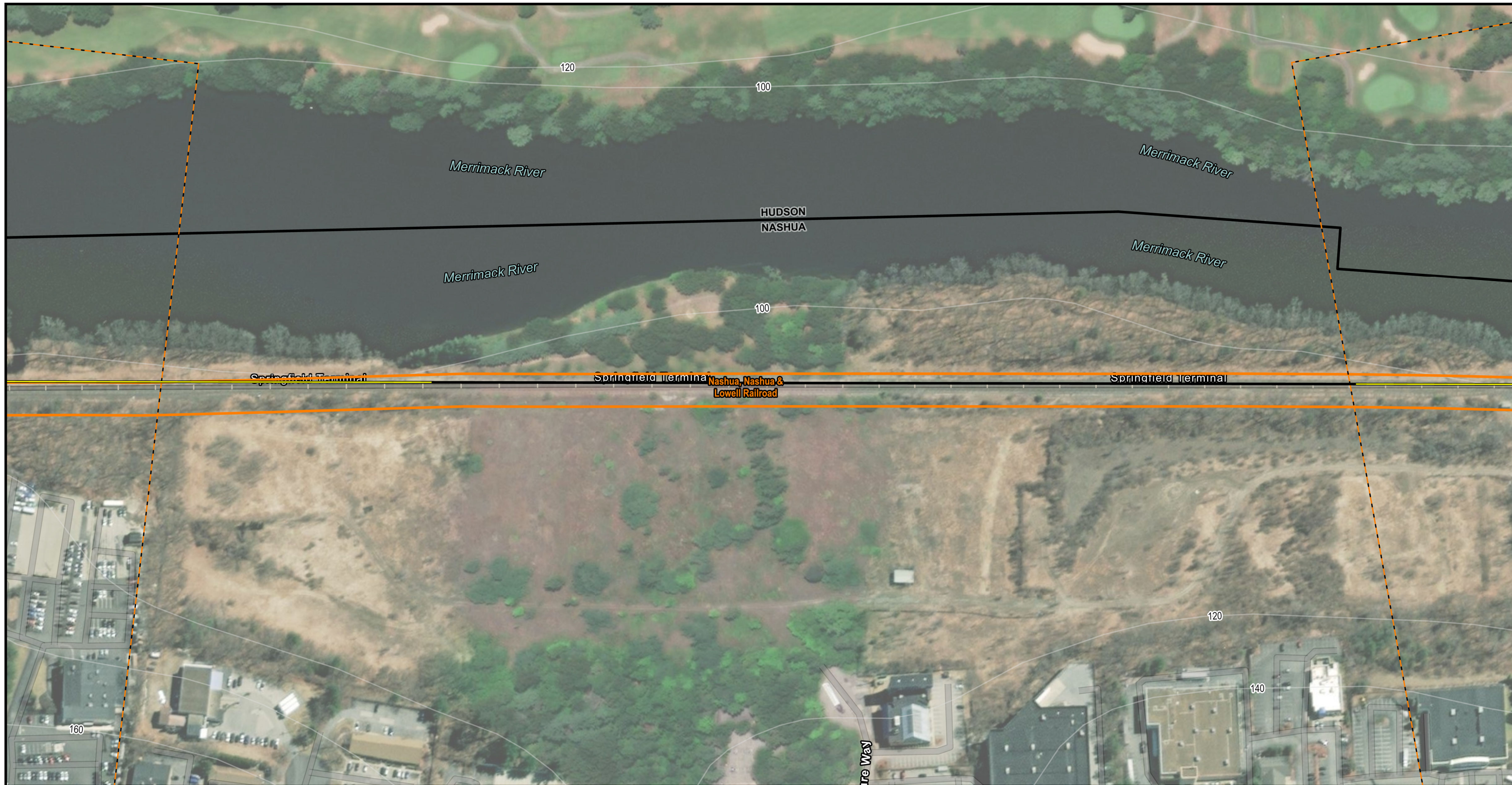
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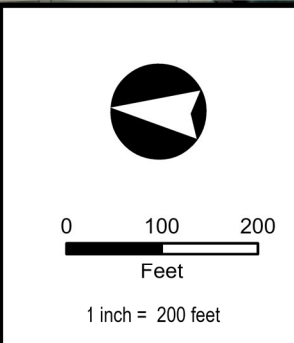
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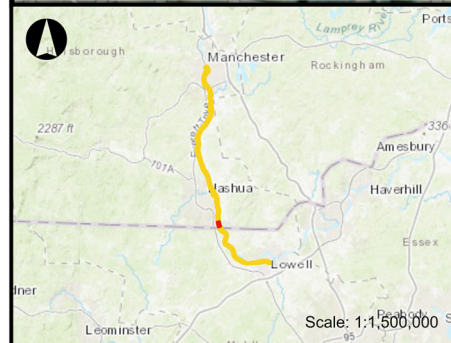
Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



NASHUA-MANCHESTER 40818 (CAPITOL CORRIDOR) PROJECT
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 Township(s): Nashua
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LEGEND

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	Map Page Overlap
Station	
	Layover (LOD)
	Station (LOD)

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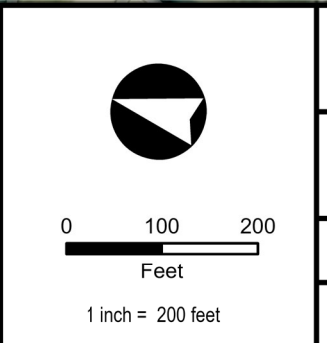
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Not Yet Surveyed Resources

	Not Yet Surveyed Resources
	Photo Location

Environmental and Political

	Township Boundary
	20 ft. Elevation Contours



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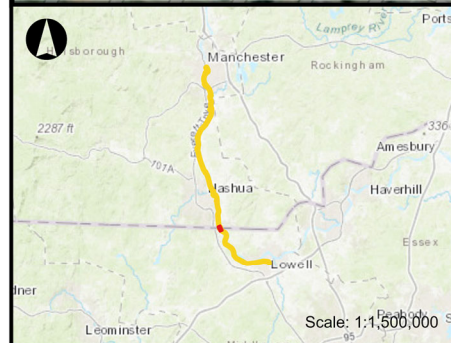
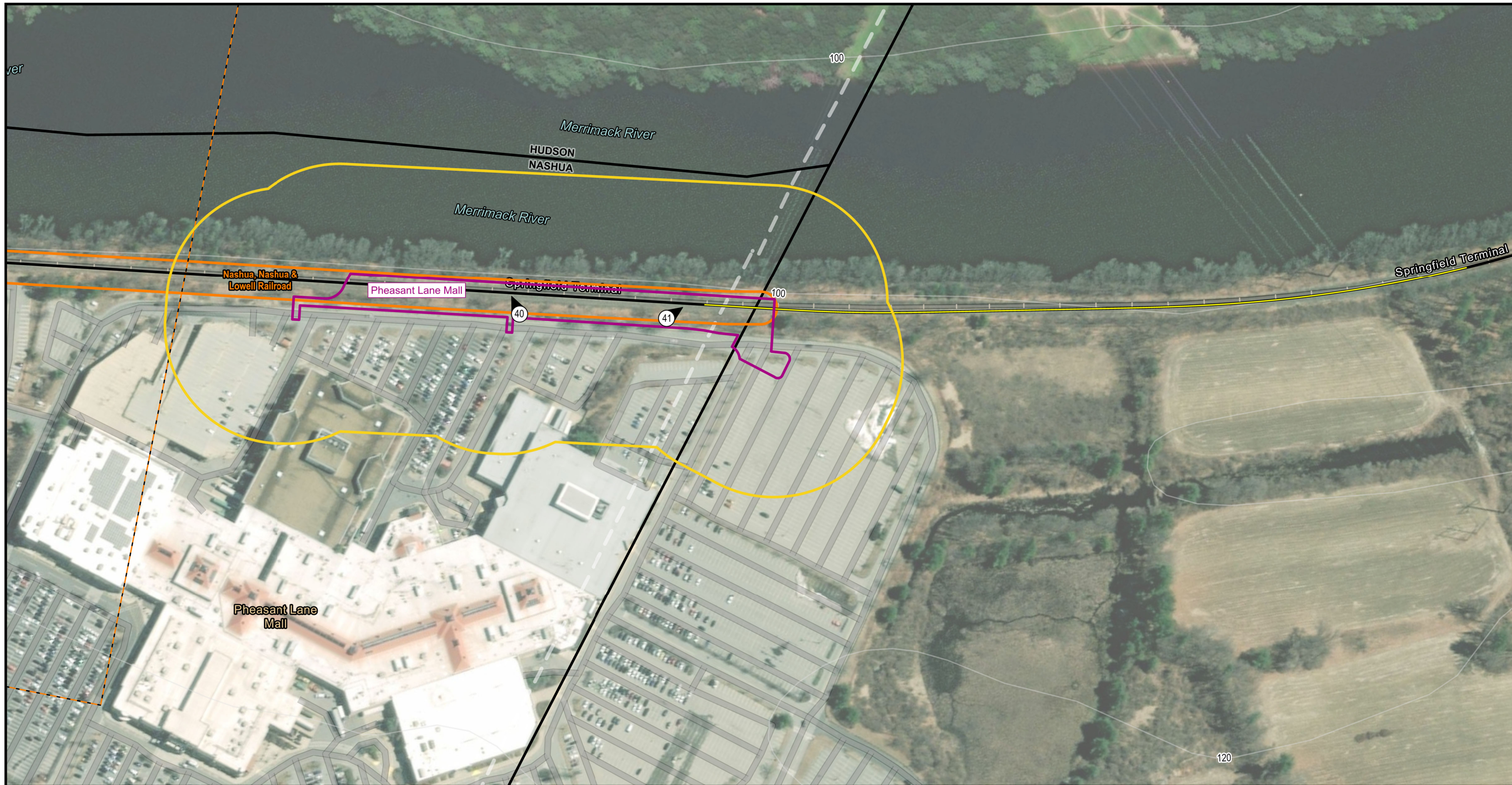
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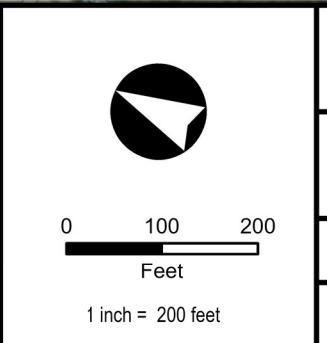
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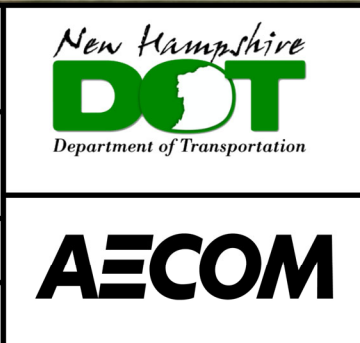
Cultural Resources
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 Individual Property < 10 acres

Not Yet Surveyed Resources
 Photo Location

Environmental and Political
 Township Boundary
 20 ft. Elevation Contours



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Appendix D – Photos taken by AECOM August and September 2021 (Geographic Order North to South)



Photo 1. Looking east across Canal Street in Manchester south of Granite Street toward CCP-003, the pre-1884 former CH Hill & Co Grist Mill and Grain Elevator (right).



Photo 2. View looking north from the entrance to the Market Basket grocery store lot in Manchester across W Auburn Street, showing the south elevation of CCP-001, the pre-1885 former BC Forsaith Machine Co.



Photo 3. Looking north along South Commercial Street.



Photo 4. Looking south along South Commercial Street.



Photo 5. A view of the modified façade of a pre-1885 property in Manchester (CCP-002), looking southeast across Elm Street near its intersection with Green Street.



Photo 6. View looking southeast from the intersection of Elm and Grove Streets in Manchester, showing an oblique view of the pre-1885 Former Hutchinson Bros Foundry building (CCP-003) occupying the southeast corner.



Photo 7. View looking east across Elm Street in Manchester at the façade of a pre-1947 building (CCP-004).



Photo 8. View of the ca. 1915 former Boston and Maine Switch Tower (CCP-005), looking northwest.



Photo 9. A view looking southeast at CCP-007, a building constructed ca. 1960.



Photo 10. View northwest from Elm Street at the ca. 1965 St. Mary's Bank (CCP-006).



Photo 11. View from Elm Street in Manchester looking southwest at the eastern elevation of the pre-1885 former Manchester Gas Light Co./Peoples Gas Light Co. Complex (CCP-008).



Photo 12. View looking northwest from Elm Street in Manchester at the east elevation of the former Manchester Gas Light Co./Peoples Gas Light Co. Complex (CCP-008). The grass strip is the former route of the Manchester & Lawrence Railroad corridor heading to the railyard.



Photo 13. A view looking southwest from Elm Street in Manchester providing a view of the gas plant and former tracks on the Manchester Gas Light Co./Peoples Gas Light Co. Complex (CCP-008) property.



Photo 14. Street view looking southwest along Winston Street in the Goffe's Falls Area.



Photo 15. View looking northwest from Depot Road in Manchester showing an oblique view of a ca. 1960 industrial building (CCP-009).



Photo 16. View from the west bank of the Merrimack River in Bedford looking northeast along bridge BR#83 #51.84 (CCP-010) which was constructed in 1930.



Photo 17. View looking northwest showing the east side of pre-1947 bridge BR#79 #46.22 (CCP-011) where it crosses the Souhegan River in Merrimack.



Photo 18. View looking northwest at a pumping station south of the Souhegan River in Merrimack part of the Merrimack Wastewater Treatment Facility historic district (MER0168).



Photo 19. A view looking south across bridge #78 #44.92 (CCP-012) where it crosses the Naticook Brook in Merrimack.



Photo 20. A view looking north across ca. 1844 bridge #78 #44.92 (CCP-012) where it crosses the Naticook Brook in Merrimack.



Photo 21. A view looking west along Merrimack Park Way continuing under a ca. 1920 railroad bridge (CCP-013).



Photo 22. A view looking northeast across Griffin Street in Merrimack, NH, showing an oblique view of a pumping station that is part of the Merrimack Wastewater Treatment Facility historic district (MER0168).



Photo 23. A view looking northeast at the south elevation and façade of the main building of the Merrimack Wastewater Treatment Facility, which is part of the Merrimack Wastewater Treatment Facility historic district (MER0168) in Merrimack.

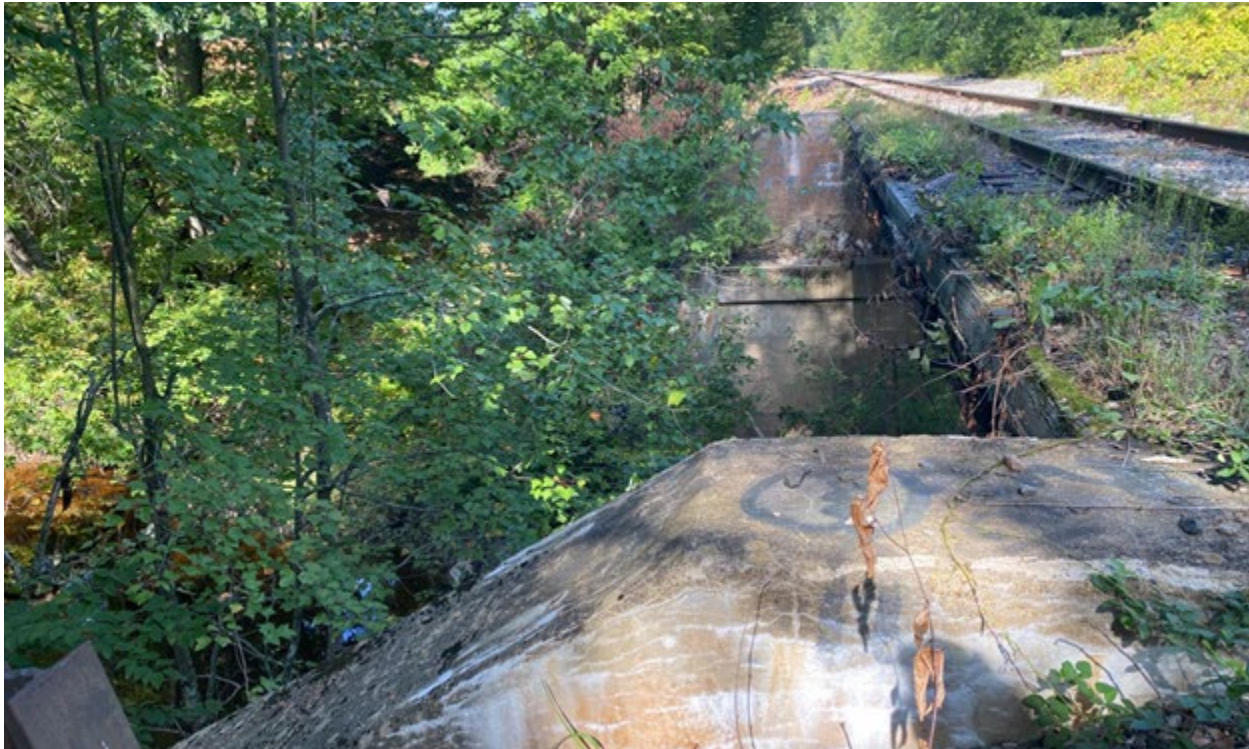


Photo 24. A view looking northwest showing the west side of the ca. 1940 bridge BR#75 #41.77 (CCP-014) where it crosses the Pennichuck Brook in Merrimack.



Photo 25. A view looking east showing a close-up perspective of the bridge tunnel, BR#72 #39.39 (CCP-015).



Photo 26. A supplementary Google Streetview image looking west along Lock Street, showing a close-up perspective of the BR#72 #39.39 (CCP-015) bridge/tunnel. The left side of the bridge appears to have replaced a cut stone precursor which is now visible behind the current concrete support wall.



Photo 27. A view looking northwest showing a close-up perspective of the ca. 1900 bridge BR#71 #39.22 (CCP-016) where it crosses the Nashua River in Nashua.



Photo 28. A view looking north toward the end of Jackson Street in Nashua showing the gate controlling access to the Nashua Gas Light Company (NAS0234) property.



Photo 29. A view looking southeast along the southern end of Chase Street in Nashua showing a streetscape (CCP-017) of ca. 1880 residential dwellings.



Photo 30. A view facing southeast along Crown Street opposite the intersection of Chase and Crown Streets in Nashua showing the façade and north side of the Peabody Supply Co. (CCP-018). This ca. 1900 building is located to the northeast of the proposed Crown Street station.



Photo 31. A view looking southeast across Crown Street showing the northern façade of the former Flather & Co. Machine Shop (CCP-020), constructed ca. 1875. This view only shows the northernmost portion of a long industrial complex that runs along the eastern side of the tracks opposite the proposed Crown Street Station platform.



Photo 32. A view looking southeast from Crown Street in Nashua showing the western edge of the railroad ROW that is the proposed site of the Crown Street Station rail platform. This area is occupied by a broad area of ballast that currently features no rail infrastructure.



Photo 33. A view looking northwest across Crown Street from the parking lot at the northern end proposed Crown Street Station location showing the south side and façade of the ca. 1949 24 Crown Street (CCP-019) building complex.



Photo 34. A view northeast toward the former industrial property of Flather & Co. Machine Shop (CCP-020) as viewed from the opposite side of the tracks at the eastern edge of the Park and Ride facility at Crown Street in Nashua.



Photo 35. A view looking north across the parking lot of the Park and Ride facility associated with the proposed Crown Street station location in Nashua. This view provides a rear view of the ca. 1870-ca. 1990 former office and storehouse of Gregg and Sons Factory (CCP-021), the only surviving building of a historic factory complex (right).



Photo 36. A view looking south along Mill Street in Nashua showing the streetscape of the ca. 1965 residential properties on the west side of the street (CCP-022).



Photo 37. A view looking northwest around the bend in Gillis Street (CCP-024) in Nashua. The streetscape south of the former Gregg and Sons Factory is comprised of ca. 1945-1965 residential properties.



Photo 38. A view looking northeast from Gillis Street in Nashua providing an oblique view of the south and west sides of the CCP-023 dwelling. This structure was built in the 1870s by W. A. Gregg, one of the owners of the factory which stood in the location of the current Park and Ride facility.



Photo 39. A view looking southwest showing the east side of the ca. 1848-1850 stone arched railroad bridge BR#70 #37.87 (CCP-025) where it crosses Salmon Brook in Nashua.



Photo 40. A view looking northeast along the tracks in Nashua showing the proposed Pheasant Lane Mall platform, which is currently characterized by dense foliage running along the berm of ballast that supports the current track alignment within the ROW. This area is representative of the original rail corridor, which comprises part of the Nashua & Lowell Railroad historic district.



Photo 41. A view looking southeast from the parking lot of the Pheasant Lane Mall in Nashua showing a portion of the rail corridor within the footprint of the proposed station location. This area is representative of the original rail corridor, which comprises part of the Nashua & Lowell Railroad historic district.

APPENDIX D-4

Phase IA - Archaeological Assessment:
Hillsborough and Merrimack County,
New Hampshire

Note:

This section contains sensitive archaeological information which is on file at the NH Department of Transportation's Bureau of Environment. For additional information please contact the Bureau of Environment at (603)271-3226.