In accordance with NEPA, NCDOT published a DEIS for the I-26 Connector Project in October 2015. The DEIS described the purpose of and need for the project, identified project alternatives, and evaluated them for potential environmental effects. Since the DEIS was published, a preferred alternative has been chosen based on feedback from the public and environmental regulatory and resource agencies. This FEIS is presented in the same order as the DEIS, with clarification and updates such as changes in the existing environment, updated impacts anticipated from the preferred alternative, and responses to comments received on the DEIS. Some information from the DEIS is summarized, and substantive new information is noted in italics.

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

The probable effects of implementing the proposed project on the human, physical, cultural, and natural environments within the project study area are described in this chapter. The existing conditions for the human, physical, cultural, and natural environments are presented in Chapter 3.

4.1 DIRECT IMPACTS

4.1.1 HUMAN ENVIRONMENT

Community impact assessment is a process to evaluate the effects of a transportation project on a community and its quality of life. The assessment process is an integral part of project planning and development and describes how the proposed project would affect the people within the DCIA. The following sections provide details on direct impacts that would result from the preferred alternative.

4.1.1.1 Community Facilities and Services

Parks and Recreational Facilities

As discussed in Chapter 2, the DEIS reported that the preferred alternative was expected to require the reconstruction of approximately 316 linear feet of the French Broad River Greenway at the western end of the Carrier Park property to allow the reconnection of Old Amboy Road and provide access to several properties west of Carrier Park along the banks of the French Broad River. Since publication of the DEIS and design refinement of the preferred alternative, the configuration at Amboy Road was realigned and avoided any required reconstruction of the greenway.

The preferred alternative would impact approximately 0.82 acre of the existing Amboy Road frontage of Carrier Park for additional right-of-way and construction easements. The Carrier Park property contains a wide paved shoulder along the existing Amboy Road frontage. This unchannelized, wide paved shoulder has provided perpendicular parking for the site since it belonged to the Asheville Motor Speedway. It remains even though the city has created additional parking areas within the park. Almost all the acreage of additional right-of-way required from Carrier Park would be from this paved shoulder area. According to the City of Asheville Parks and

Recreation officials, future plans for the park call for the removal of this parking. More information on the impacts to this facility is included in the Section 4(f) evaluation in Chapter 5.

The preferred alternative in Section B would require placement of bents in the French Broad River, which is designated by the state as a paddle trail, during construction of bridges over the French Broad River. More information on the impacts to this facility is included in the Section 4(f) evaluation in Chapter 5.

Schools

While no schools would be displaced by the preferred alternative, it is anticipated that temporary impacts and changes in access would result for the Isaac Dickson Elementary School located on Hill Street and the Asheville City Schools Preschool located on Haywood Road. The historic Asheville School property would also incur right of way and construction easement impacts in Section C. However, these impacts would not displace the school. Additional discussion regarding the Asheville City Schools Preschool (also referred to as West Asheville/Aycock School) and Asheville School is included in Section 4.1.4.1.

Daycare Facilities, Cemeteries, Public Housing Units, Post Offices, and Hospitals

No daycare facilities, cemeteries, public housing units, post offices, or hospitals would be directly affected by the proposed project.

Churches

While no churches would be displaced by the preferred alternative, it is anticipated that right-of-way and temporary construction impacts would result at the Hill Street Baptist Church, Community Baptist Church in the Burton Street Community, Crossroads Assembly Church on Bear Creek Road, and the Haywood Street Congregation on Haywood Street.

The EIS Relocation Reports indicate that Community Baptist Church in the Burton Street Community would be displaced as a result of Section A (NCDOT 2018). *Design refinements to the preferred alternative have reduced impacts to the Community Baptist Church, which would impact parking behind the church but would not require relocation of the structure.*

Commercial Corridors and Nodes

Impacts from the preferred alternative in Section A would include economic effects associated with the loss of on-street parking, short-term access impacts associated with construction activities, and potential impacts to public transportation in the Haywood Road Commercial Corridor.

Impacts to the Patton Avenue Commercial Corridor from the preferred alternative in Section B would result in economic effects associated with short-term access and mobility impacts during construction activities. Although high negative short-term effects are anticipated during construction of the proposed project, it is anticipated that some of the effects would be tempered by the fact that a few of the businesses are regional destinations and do not rely on

drive-by traffic for patronage. The preferred alternative is expected to enhance the corridor as an urban boulevard due to the removal of interstate traffic from I-240. The separation of local and interstate traffic would provide opportunities for enhanced community connections that are identified in several local plans.

Impacts to the Riverside Drive Commercial Corridor from the preferred alternative in Section B would result in visual impacts related to construction of a bridge structure over the roadway. Impacts to the corridor may result in economic effects associated with short-term access and mobility impacts during construction activities. The exit ramp from US 19-23-70 northbound to Hill Street and from Riverside Drive to US 19-23-70 southbound would be removed, reducing accessibility to the Montford and Houston/Courtland neighborhoods. Hill Street between Riverside Drive and Montford Avenue would become a local roadway without connection to the proposed freeway.

Police, Fire, and Emergency Services

Buncombe County Rescue Squad Station Number 2 and Asheville Fire Station No. 3 are the only emergency services facilities within the DCIA. Approximately 90 percent to 94 percent of the responses from these facilities utilize Patton Avenue, including the Captain Jeff Bowen Bridges and/or existing I-240 south of Patton Avenue.

According to local officials, the proposed project could affect emergency response times. Response times may temporarily increase during construction of the project due to increased congestion resulting from construction activities, potential access restrictions in construction zones, lane closures, and detours. Local officials indicated that alternative access to the Buncombe County Rescue Squad was available but requested that construction phasing details be coordinated with local emergency service providers. This coordination would include Buncombe County Rescue Squad, Department of Emergency Services of Buncombe County, and the City of Asheville Fire Department. Upon completion of the project, it is anticipated that emergency response times along the corridor may decrease, especially during peak hour traffic, due to improved system linkages, interchange modifications, reduced congestion, and greater capacity along the corridor.

4.1.1.2 Relocations

It is NCDOT policy to aid those affected by transportation improvements as required under the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions. This Act is intended to ensure that displaced individuals, families, and businesses receive fair, consistent, and equitable treatment, and are not affected disproportionately by projects that benefit the general public. The NCDOT Relocation Unit provides relocation assistance and benefits to those who are displaced during acquisition for highway projects.

A relocation report was prepared by the NCDOT in August 2018 (included in Appendix D) and the estimated residential, business, and non-profit relocations associated with the preferred alternative of each section, as described in the report, are summarized in Table 4-1.

Table 4-1: Relocations Associated with the Preferred Alternative

Section	*Estimated Total Residential Relocations*	*Estimated Total Business Relocations*	*Estimated Total Non-Profit Relocations*
Section C	*14*	*2*	*0*
Section A	*71*	*14*	*1*
Section B	*29*	*19*	*1*

Source: EIS Relocation Reports for STIP Project I-2513 (NCDOT 2019b).

According to North Carolina General Statute 133-10.1, Authorization for Replacement Housing, as a last resort, if a project cannot proceed to actual construction because of the lack of availability of comparable sale or rental housing, or because federal-aid payments are in excess of those otherwise authorized by this Article, the state or its agencies may provide for the construction and renovation of housing through private contractors, purchase sites and improvements, or sell or lease the premises to the displaced person. Local governments and agencies may also provide assistance authorized under the Federal Uniform Relocation and Real Property Acquisition Policy Act of 1970, as amended, for last resort housing.

4.1.1.3 Community Effects

Effects for the individual communities within the study area were summarized in the DEIS by using FHWA's *Community Impact Assessment: A Quick Reference for Transportation* (USDOT/FHWA 1996) and considered both the positive and negative effects on the community from the proposed project.

Residential and business displacements are anticipated in the Fairfax/Virginia, the Kentucky/Hanover/Pisgah View, Emma Road/Bingham Road, Burton Street, and Westwood Place communities. In general, however, the project is expected to enhance the ability of residents to access neighborhoods and community facilities. The project also includes various greenway and multi-use path connections and includes the construction of these features in various locations as part of the project designs, which will in general increase mobility and pedestrian connectivity.

The following sections include a discussion of the direct and indirect impacts to communities and neighborhoods as a result of the preferred alternative.

Clairmont Crest and Willow Lake Mobile Home Park Communities (Section C)

These communities are not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within these two communities. Overall, the effect of the preferred alternative on the Clairmont Crest Mobile Home Park and Willow Lake Mobile Home Park Communities would be low, as the preferred alternative is the farthest away from these communities of the alternatives studied. The project would aid regional travel for the residents of both communities. Notification letters were sent to residents of the two communities in September 2016 noting that no direct impacts are anticipated to the community as a result of the proposed project designs, but that NCDOT will continue to include

them on the project mailing list and provide updates and notifications of project milestones as they became available.

Morningside Park Community (Section A)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. Overall, the effect of the preferred alternative on the Morningside Park Community would be relatively minor due to the proximity of the community to the project. The proposed modifications between Brevard Road and Amboy Road would result in some benefits to the residents through improved vehicular and pedestrian/bicycle access to some areas east of I-26/I-240, such as Carrier Park. The proposed project would not result in any displacements or physical intrusions in Morningside Park.

Due to its proximity to the Fairfax/Virginia Community, residents of Morningside Park were included in all correspondence and meeting notifications as described below.

Kentucky/Hanover/Pisgah View Area Community (Section A)

This community would incur direct impacts in the form of residential displacements along Kentucky Drive. The preferred alternative would increase mobility and access and provide modest improvements in safety in the Kentucky/Hanover/Pisgah View Area Community. However, the project would include recurring impacts to a residential neighborhood, noise impacts, visual impacts, and potential difficulties finding replacement housing within financial means. In addition, the proposed project is anticipated to displace housing units in the Kentucky/Hanover/Pisgah View Area Community.

This community is part of a larger neighborhood named EWANA (East-West Asheville Neighborhood Association), which is defined as the area between I-240 and the French Broad River. NCDOT held a small group meeting with EWANA on June 5, 2017, to provide an opportunity for residents to ask questions regarding the project, review design concepts at Amboy Road, Brevard Road, and Haywood Road, and get feedback from the community on the impacts and benefits to their community from the project.

Additional information regarding coordination with the Kentucky/Hanover/Pisgah View Area Community can be found in Chapter 8.

Fairfax/Virginia Avenue Community (Section A)

This community would incur direct impacts as a result of the project due to residential relocations and right of way acquisition along the periphery of the neighborhood. Overall, the effect of the preferred alternative on the Fairfax/Virginia Avenue Community is anticipated to provide better local connectivity to and circulation within the Fairfax/Virginia Avenue area, including a direct vehicular and pedestrian connection to Carrier Park. Since publication of the DEIS, NCDOT held meetings with residents of the Fairfax/Virginia Community in March 2017 and September 2017 to discuss the designs of the preferred alternative in this area. As discussed in Chapter 2, this coordination led to design refinements at Amboy Road and Brevard Road. The design of the

preferred alternative replaces the Amboy Road Extension shown in the DEIS with a ramp to reduce the width and minimize impacts, eliminates right-in/right-out access to Fairfax Avenue and Virginia Avenue, and replaces traffic signals at Amboy Road with roundabouts.

A notification letter was sent to residents of the Fairfax/Virginia Community in September 2017 to confirm the refined design would replace the Amboy Extension, as originally shown in the DEIS.

Westwood Place Community (Sections A and B)

This community would incur direct impacts due to proposed right of way acquisition along the northern and western periphery of the community. New pedestrian and bicycle facilities on Patton Avenue may increase the quality of life within the community due to the direct bicycle and pedestrian connection to Patton Avenue and across the French Broad River to downtown Asheville. The community is also anticipated to benefit from improved pedestrian and bicycle safety on Patton Avenue and a decrease in emergency response times following construction of the project. In addition, the project would not change the traffic patterns on the surface streets within the Westwood Place Community.

Like the Kentucky/Hanover/Pisgah View Area Community, this community is part of the EWANA neighborhood and was included in the notification to meet with NCDOT in June 2017.

Burton Street Community (Sections A and B)

This community would incur direct impacts as a result of the project due to residential relocations and right of way acquisition to construct the project. This community was previously impacted by the original construction of I-240 in the 1960s and US 19-23-70 in the 1970s, which severed access and socio-economic connections across these corridors, and would therefore experience unmitigated recurring impacts due to the proposed project. Overall, the effect of the preferred alternative on the Burton Street Community would include recurring impacts to community cohesion, reduction in neighborhood land, loss of community resources, changes in access and connectivity, and relocations. As a low wealth, historically African-American neighborhood experiencing notable property value increases and replacement of small, older houses with larger new structures, minority residents facing relocation will likely be displaced from their neighborhood. Initial designs indicated that a church would be relocated but design refinements will leave it in place. There would also be impacts from the physical aspects of the project, potential difficulties associated with finding replacement housing within financial means in much of Asheville, and anticipated effects to the visual environment within the community. In addition, the preferred alternative is anticipated to displace affordable housing units in the Burton Street Community.

Additional community coordination efforts have taken place to mitigate impacts from the proposed project on the community. Additional discussion regarding this coordination is in Section 4.1.2.1.

West End/Clingman Area Neighborhood (WECAN) (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. Overall, the effect of the preferred alternative on the WECAN community would include enhanced pedestrian connections. The separation of local and interstate traffic would also provide opportunities for enhanced community connections that are identified in several local plans. The WECAN community may also benefit through decreases in emergency response times.

Hillcrest Apartments Community (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. This community is expected to receive project benefits in the form of improved mobility and system linkage, enhanced accessibility, and congestion reduction. Separating local traffic from I-240, particularly in the Patton Avenue area, will result in notable community benefits.

In addition to enhanced access and mobility through transportation options, the additional connectivity would provide social and psychological benefits by reducing the isolation of the community. Some benefit may be experienced by the Hillcrest Apartments Community through decreases in emergency response times along the I-26 Corridor.

In March 2017, NCDOT held a meeting with residents of the Hillcrest Apartments Community to discuss the changes in access as a result of the preferred alternative designs. NCDOT also gave an overview of the potential noise impacts to the community and the process of receiving a noise wall. Overall, the community feels the project would help to bring the Hillcrest community back into the fabric of the City through improved vehicular and pedestrian access.

Houston/Courtland Community (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. This community was previously impacted by the original construction of I-240 in the 1960s and US 19-23-70 in the 1970s and would therefore experience recurring impacts due to the proposed project. It is anticipated that the proposed project may somewhat alter the visual environment for some residents in proximity to the project corridor.

In September 2016, NCDOT was invited to attend the Montford Neighborhood Association to discuss visual and noise impacts to the neighborhood as a result of the project. The Houston/Courtland Community is considered a part of the Montford Neighborhood and was invited to participate in the meeting.

Emma Road/Bingham Road Community (Section B)

The southeastern portion of this community would incur direct impacts as a result of the project due to residential relocations and right of way acquisition to construct the project. Indirect impacts to the community would include noise and visual impacts associated with clearing of

vegetation and alteration of the visual environment. The preferred alternative is anticipated to benefit the community in the form of improved emergency response times.

Murphy Hill Community (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. Although some benefit may be experienced by the community through decreases in emergency response times along the I-26 Corridor, there would be an altered visual environment and an increase in noise for residents in proximity to the project corridor and a potential decrease in property values. In addition, residents may experience inconvenience due to access limitation during construction of the project.

River Arts District (RAD) Community (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations *within this community.* The RAD Community would benefit from the proposed project due to the enhanced pedestrian and bicycle connections and decreases in emergency response times. The separation of local and interstate traffic would also provide opportunities for enhanced community connections that are identified in several local plans.

Montford Community (Section B)

This community would incur direct impacts in the form of residential impacts along the western side of Westover Drive. Although some benefit may be experienced by the community through decreases in emergency response times along the I-26 Corridor, there will be an altered visual environment for Riverside Cemetery and residents in proximity to the project corridor. As discussed in Section 4.1.4, the project would have an "adverse impact" on a local landmark, Riverside Cemetery, within the Montford Area Historic District and a "no adverse effect" on the Montford Hills Historic District. While no construction work or temporary construction easements will impact right-of-way within the district, there are two elevated bridges and a retaining wall that will create visual impacts to this resource.

In September 2016, NCDOT was invited to attend the Montford Neighborhood Association to discuss visual and noise impacts to the neighborhood as a result of the project. NCDOT is working with the newly-formed Asheville Aesthetics Advisory Committee to design appropriate landscaping measures to mitigate for the visual effects of the elevated roadway adjacent to Riverside Cemetery.

UNC-Asheville Community (Section B)

This community is not directly affected by the project, as no property needs to be acquired to construct the project and there are no residential or business relocations within this community. The proposed project is anticipated to benefit the community in the form of more efficient emergency response times. The UNC-Asheville Community would not experience physical impacts such as physical intrusions, increased noise, or displacements.

4.1.1.4 Economic Effects

The economic effects of the proposed project were evaluated in the *Direct Land Use and Economic Effects Assessment* (URS 2014). The summary of economic impacts is based on considering the overall economic impact as a result of constructing the proposed project.

Effect on Tax Base

The effect of the proposed project on property tax receipts for the preferred alternative would not likely be substantial as the combination of alternatives that would result in the greatest right-of-way cost would reduce the property tax base by approximately 0.6 percent. The overall potential range, set by taking the proportional impact as the low end of the range and completely acquiring all affected parcels as the upper end of the range, shows that the effect on property value would be within the range of 0.4 to 0.7 percent of both the tax value and the assessed value. Therefore, even under the worst-case scenario, the effect on the property tax base would be less than 1.0 percent of the tax value. It is also likely that, due to the relocation of residences and businesses, the money paid to the relocatees would be used for new development and the effect on the tax base may be offset to some degree (URS 2014).

In summary, it is not likely that construction of the preferred alternative would result in a substantial adverse effect on the regional or local economy due to a loss in tax revenues.

Effect on Public Expenditures

The proposed project is not likely to notably increase public expenditures within the study area. The proposed project would not likely result in a substantial economic effect on taxing authorities as the construction of the project would not require excessive additional expenditures, such as maintenance operations or extension of public utilities to new land that would be opened for increased development. However, the proposed project may result in local taxing authorities incurring some cost, through joint development of project amenities such as sidewalks and bicycle facilities. NCDOT has established a Bicycle Policy (NCDOT 2009) and a Pedestrian Policy (NCDOT 1993a) that allow for the inclusion of such facilities on projects; however, construction of these facilities would require that the local government share in the cost of including facilities that do not currently exist and assume the cost for maintaining the facilities. Additionally, the proposed project would include additional lighting that may require public expenditures in the form of electrical costs.

Effect on Employment Opportunities

The proposed project would result in the relocation of up 35 businesses. The Relocation Reports evaluate several criteria to determine the potential effect on businesses as a result of the proposed project, including the following (NCDOT 2019b):

- *Will business services still be available after the project?*
- *Are suitable business sites available?*

It was determined in the Relocation Report that business services would still be available after the project and that suitable sites for businesses to relocate are available. Because the project would

not divert traffic away from the existing highway corridor, it is likely that there would not be any negative long-term effects on businesses or employment opportunities as a result of the proposed project. During the construction phase of the project, some local businesses may be negatively affected by the construction activities; however, employment opportunities for construction services would likely increase based on the magnitude of the proposed project.

Effect on Accessibility

In general, the proposed project would result in maintaining or improving the existing accessibility to businesses. Several businesses within the study area may incur a loss of some parking areas due to the proposed project; however, it is not anticipated that this loss would result in a substantial effect to the businesses. Impacts to commercial corridors may result in economic effects associated with short-term access and mobility impacts during construction activities.

Effect on Retail Sales

Because the project is not diverting traffic away from the existing highway corridor, it is likely that there would not be any negative long-term effects on retail sales as a result of the proposed project. It is likely that some negative effects on retail sales may occur during the construction of the proposed project; however, it is not likely that the project would result in a substantial long-term stagnation or decline on retail sales in the area of the proposed project.

Impacts on the Economic Vitality of Highway-Related Businesses

The impacts on the economic vitality of highway-related businesses are related to the availability of access and the change in traffic volumes that are diverted or attracted by the proposed project. The proposed project would not substantially change access to and from the freeway, nor would it divert traffic away from highway-related businesses; therefore, it is not likely to have a substantial adverse effect on highway-related businesses.

Impacts on Established Business Districts

The proposed project would not substantially alter existing access to and from the freeway and is not likely to lead to any large commercial developments outside of the central business district; therefore, it is not likely to have a substantial adverse effect on established business districts.

4.1.2 TITLE VI OF THE 1964 CIVIL RIGHTS ACT

4.1.2.1 Environmental Justice

The USDOT Order on Environmental Justice states that the USDOT shall determine whether programs, policies, and activities for which they are responsible will have an adverse impact on protected minority and low-income populations, and whether that adverse impact will be disproportionately high.

As summarized in Table 4-2, of the 15 communities identified in the study area, 12 include populations that meet or exceed the threshold for low-income and/or minority populations as

described in Section 3.1.5.2. LEP populations are identified and addressed further in Section 4.1.2.2.

Table 4-2: Environmental Justice and LEP Communities

Community	*Meets or Exceeds Minority Threshold*	*Meets or Exceeds Low-Income Threshold*	*LEP Population Present*[1]	*Direct Impacts*
Clairmont Crest Mobile Home Park (Census Tract 12, Block Group 5)	*X*	*X*	*X*	-
Willow Lake Mobile Home Park (Census Tract 12, Block Group 5)	*X*	*X*	*X*	-
Morningside Park (Census Tract 11, Block Group 2)	-	-	*X*	-
Kentucky/Hanover/Pisgah View Area (Census Tract 10, Block Group 2)	*X*	*X*	-	*X*
Fairfax/Virginia (Census Tract 11, Block Groups 2 and 3)	-	-	*X*	*X*
Westwood Place (Census Tract 10, Block Group 1)	-	*X*	-	*X*
Burton Street (Census Tract 11, Block Group 1)	-	*X*	-	*X*
West End/Clingman (Census Tract 9, Block Groups 2 and 3)	*X*	*X*	-	-
Hillcrest Apartments (Census Tract 2, Block Group 1)	*X*	*X*	-	-
Houston/Courtland (Census Tract 2, Block Group 1)	*X*	*X*	-	-
Emma Road/Bingham Road (Census Tract 14, Block Groups 1 and 2)	*X*	*X*	*X*	*X*
Murphy Hill (Census Tract 14, Block Group 1)	*X*	*X*	*X*	-
River Arts District (Census Track 9, Block Groups 2 & 3)	*X*	*X*	-	-
Montford (Census Tracts 2 and 3, Block Groups 1 and 2)	*X*	*X*	-	*X*
UNC-Asheville (Census Tract 4, Block Group 1)	-	-	-	-

*Note: Communities shown in **bold** meet or exceed the threshold for low-income and/or minority populations and are directly impacted by the project.*

Of those communities that include populations that meet or exceed the threshold for low-income and/or minority populations, five are directly impacted and listed below. The following section describes the benefits and burdens to these communities due to the project, as well as additional outreach activities that have taken place with these communities.

- *Kentucky/Hanover/Pisgah View Area*
- *Westwood Place*
- *Burton Street*
- *Emma Road/Bingham Road*
- *Montford*

Kentucky/Hanover/Pisgah View Area and Westwood Place Communities

The effects analysis for the individual communities, as discussed in the DEIS and in Section 4.1.1.3, noted that residential displacements occur due to the proposed project in the Kentucky/Hanover/Pisgah View Area and Westwood Place communities. It is NCDOT policy to provide relocation assistance to those affected by transportation projects as required by the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions.

It is expected the overall burden of the proposed project to both communities would be low. The project would increase mobility and access, as well as provide modest improvements in safety for both communities.

Both communities are part of a larger neighborhood named EWANA (East-West Asheville Neighborhood Association), with which NCDOT held small group meetings. Since publication of the DEIS, the project team met with EWANA on June 5, 2017, to provide an opportunity for residents to ask questions regarding the project and design. The project team also distributed flyers and doorhangers to these communities before the November 2015 Corridor Public Hearing and before the 2018 Design Public Hearing, to ensure these areas were notified of the meetings.

Emma Road/Bingham Road Community

The effects analysis for this community determined the overall burden of the proposed project would be low. Impacts to this community are in the southeastern portion of the project, where 2010 census data do not indicate any minorities at the block level. Block level census data was not available to determine low-income status at the granular level; however, the preferred alternative avoids impacts to the income-restricted Maple Terrace manufactured homes and Woodridge Apartments, which is operated by the City of Asheville Housing Authority. It is NCDOT policy to provide relocation assistance to those affected by transportation projects as required by the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions.

As with the other environmental justice communities identified, additional outreach to this community occurred prior to both public hearings in the form of flyers and doorhangers to ensure these areas were notified of the meetings.

Burton Street Community

The Burton Street Community will experience recurring impacts to community cohesion, reduction in neighborhood land, loss of community resources, changes in access and connectivity, and relocations due to the project. Based on the evaluation of burdens to communities as presented in the DEIS, and additional public outreach and coordination with local officials, NCDOT committed to addressing disproportionately high and adverse effects on the Burton Street community that cannot be avoided or minimized. Therefore, unavoidable impacts on the Burton Street community are being mitigated through additional public outreach with this community throughout the project development process, including development of a neighborhood

mitigation plan. It is NCDOT policy to provide relocation assistance to those affected by transportation projects as required by the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions.

As discussed in Chapter 1, since publication of the 2015 DEIS and selection of the preferred alternative, a series of I-26 Working Group meetings were held with various stakeholders beginning in March 2016. After the first meeting to determine the scope and purpose of the group, a participant from the Burton Street Community Association was added to the working group to ensure perspectives from this community were represented.

NCDOT met with the Burton Street Community Association in October 2016 and February 2017 to provide the Burton Street Community with an update on the project, review the designs under development, and review corresponding potential impacts to the community. NCDOT noted that, in addition to input provided by the community as to how the project team might further refine the designs to lessen the impacts to the community, NCDOT was also interested in receiving input from the community as to what additional transportation improvements might be made in the community to offset or lessen the burden of the overall project impacts.

In October 2017, NCDOT hired Public Participation Partners, LLC (P3), a subconsultant with expertise in Environmental Justice issues and mitigation, to work with the Burton Street Community Association and the City of Asheville Planning and Neighborhood Services Department to develop a community-driven Burton Street Neighborhood Plan for adoption the City of Asheville. To develop the plan, stakeholder group meetings were conducted to obtain input from businesses, community organizations, and religious institutions within the community outreach area. Community meetings were also conducted to obtain input from Burton Street residents.

The plan includes a list of strategies that will be implemented by NCDOT to mitigate impacts from the proposed project. As noted in the plan, included in Appendix E, the following mitigation strategies will be implemented by NCDOT:

- *Improve existing sidewalks to meet ADA design standards*
- *Improve pedestrian connections between community resources by installing a sidewalk on Downing Street per agreement of property owners*
- *Improve sidewalk connections between commercial corridors, and include a pedestrian path from Buffalo Street to Patton Avenue that will connect to future greenway*
- *Evaluate opportunities for new transit stops, such as near Burton Street and Haywood Road*
- *Install a sidewalk along Patton Avenue to connect pedestrian path and transit stop*
- *Install bus shelters and other improvements at transit stops located near Burton Street. Consider neighborhood specific designs if feasible*
- *Incorporate a Burton Street history mural on proposed I-26 Connector sound wall if built*
- *Improve Community Center infrastructure by including additional parking*
- *Construct a new park and community gathering space at Smith Mill Creek that will include an access point to the future greenway*

- *Improve the Florida Avenue and Patton Avenue intersection by adding pavement markings and left turn signals*
- *Increase the tree canopy within the interstate buffer along the Burton Street neighborhood where possible*

The FHWA has made the determination that NCDOT has implemented and/or committed to implementing avoidance, minimization, mitigation, and beneficial measures for the Burton Street Community, thereby reducing adverse impacts to this community. Additional information regarding coordination with the Burton Street Community, including meeting dates and materials can be found in Chapter 8 and in Appendix F.

Montford Community

The effects analysis for the individual communities, as discussed in the DEIS and in Section 4.1.1.3, noted that residential displacements occur due to the proposed project in the Montford community. It is NCDOT policy to provide relocation assistance to those affected by transportation projects as required by the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions.

It is expected the overall burden of the proposed project to the community would be low. The project would increase mobility and access, as well as provide modest improvements in safety for the community.

Since publication of the DEIS, the project team met with the Montford community on September 20, 2016, to provide an opportunity for residents to ask questions regarding the project and design. The project team also distributed flyers and doorhangers to the Klondyke Apartments (identified as low-income housing) before the November 2015 Corridor Public Hearing and before the 2018 Design Public Hearing, to ensure these areas were notified of the meetings. During field visits, the area was visually surveyed for readily identifiable low-income neighborhoods, LEP communities, and minority populations. No readily identifiable communities were noted.

4.1.2.2 Limited English Proficiency Populations

As discussed in Chapter 3, census data indicate four block groups with the presence of a population that may require language assistance. As shown in Table 4-2, these block groups correspond to the following communities that are directly impacted by the proposed project:

- *Emma Road/Bingham Road*
- *Fairfax/Virginia Avenue Community*

As discussed previously, the effects analysis for the Emma Road/Bingham Road community determined the overall burden of the proposed project would be low. According to the Community Impact Assessment (NCDOT 2015), as well as discussions with local planners, the Hispanic population within the Emma Road/Bingham Road community reside in the Woodridge Apartments or the Maple Terrace manufactured homes neighborhood. This area of the block group is not directly impacted by the preferred alternative. Additional outreach to this community

occurred prior to both public hearings in the form of flyers and doorhangers to ensure these areas were notified of the meetings and to determine if any residents needed language assistance.

While direct impacts to the Fairfax/Virginia Avenue Community do occur, they are along the periphery of the neighborhood and are not anticipated to reduce community cohesion or stability. Overall, the effect of the preferred alternative on the Fairfax/Virginia Avenue Community is anticipated to provide better local connectivity to and circulation within the Fairfax/Virginia Avenue area, including a direct vehicular and pedestrian connection to Carrier Park. Several small group meetings have been held with the community, resulting in revised designs to the preferred alternative that significantly reduced the number of relocations in this neighborhood. Additional outreach to this community occurred prior to both public hearings in the form of flyers and doorhangers to ensure these areas were notified of the meetings.

4.1.3 LAND USE AND TRANSPORTATION PLANNING

The compatibility of the project with local land use and transportation planning is assessed in this section. The purpose of and need for the proposed project does not require that the preferred alternative meet the recommendations for any of the plans evaluated. Consistency with local land use plans may not be required, but it is desirable. Lack of consistency with land use plans is a factor when considering the scope and intensity of the preferred alternative's impacts.

4.1.3.1 Land Use Plans

Existing Land Use and Zoning

Since much of the land along the corridor and surrounding interchanges is currently developed, the project would not be likely to result in any major land use conflicts. The general concept for the project is supported by the City of Asheville, Buncombe County, the Town of Woodfin, and FBRMPO, among others.

Compatibility with Future Land Use Plans

Generally, land use plans call for maintaining the concentration of development within previously urbanized areas while redeveloping certain underutilized areas, such as the riverfront and the Haywood Road Commercial Corridor. Land use changes as a result of the proposed project are expected to be minimal within the FLUSA. The pace of infill and redevelopment may be accelerated somewhat as a result of the proposed project; however, commercial, residential, and industrial growth and redevelopment are already occurring in many of the areas within the FLUSA and are expected to continue with or without the proposed project. The likely effects of the project are generally consistent with existing and future land use plans developed for the local agencies within the FLUSA.

Direct Impacts to Land Use

A quantification of land use impacts was developed to determine the area of properties that would be acquired for the preferred alternative beyond the property that is currently utilized as transportation right-of-way.

A summary of the land use impacts for the preferred alternative is included in Table 4-3.

Table 4-3: Land Use Impacts by Zoning Category (in acres)

Zoning Type	Section C	Section A	Section B
Residential Single-Family Districts	*4.1*	*3.5*	*2.7*
Residential Multi-Family Districts	*5.4*	*15.5*	*12.4*
Neighborhood Business District	*0.0*	*0.1*	*0.0*
Industrial	*0.0*	*0.0*	*0.4*
Institutional District	*6.1*	*4.1*	*1.5*
Office	*0.0*	*0.0*	*0.0*
Highway Business District	*0.1*	*2.0*	*2.5*
Regional Business District	*4.1*	*0.0*	*5.8*
Central Business District	*0.0*	*0.0*	*0.1*
Commercial	*5.6*	*1.7*	*0.1*
Resort District	*0.0*	*0.0*	*24.5*
River Arts District	*0.0*	*3.2*	*15.3*
TOTALS	***25.4***	***30.1***	***65.4***

4.1.3.2 Transportation Plans

Compatibility with Highway Plans

French Broad River MPO 2040 Metropolitan Transportation Plan (2015)

As discussed in Chapter 3.2.2.1, the 2040 MTP supersedes the FBRMPO's 2035 Long Range Transportation Plan (2010). The proposed project is consistent with the long-range transportation goals and objectives of the FBRMPO and with project land use and area growth (FBRMPO 2015).

The 2040 MTP identified several other projects within the study area of the proposed project, which include:

- *Bent Creek Greenway-Phase I -- I-26 Interchange at NC 191 (Brevard Road) to I-26 Interchange at NC 146 (Long Shoals Road)*
- *Bent Creek Greenway Phase II -- Hominy Creek River Park to I-26 Interchange at NC 191*
- *I-240 to SR 3214 (Biltmore Avenue) -- Lyman St/Meadow to I-240/reconnection from I-2513C (U-4739)*
- *Clingman Forest and Town Branch Greenways (U-5019A)*
- *Broadway Street Road Diet-- NC 251 Riverside Drive to I-240*
- *Riverside Drive SR 1477 (Wilma Dykeman Riverway PH 4)- NC 251 to Hill Street (U-5868)*
- *NC 251 Multi-use Path -- Broadway to Elk Mountain Road*

Comprehensive Transportation Plan for French Broad River MPO and Rural Areas of Buncombe and Haywood Counties (2008)

The *Comprehensive Transportation Plan for French Broad River MPO and Rural Areas of Buncombe and Haywood Counties* (NCDOT 2008) includes a recommendation for I-240/Future I-26 from I-40 to Broadway and notes that recurring congestion is already a problem along the length of the corridor.

The preferred alternative in Section C would be consistent with the plan, which recommends at least six lanes on I-26 and includes interchanges at I-26/I-40/I-240 and I-40/NC 191.

Section A would be consistent with the plan, which recommends at least six lanes on I-26 and includes interchanges at I-26/I-240 with NC 191, I-26/I-240 with SR 3556 (Amboy Road), and I-26/I-240 with US 19-23 Business (Haywood Road). Through design changes, as discussed in Chapter 2, the revised designs for Section A now include a six-lane freeway throughout the length of the section, as opposed to an eight-lane freeway as shown in the designs for alternatives in the DEIS. The Comprehensive Transportation Plan states that portions of the corridor will be eight lanes. While this section will not have eight through lanes, the typical section would have auxiliary lanes between interchanges due to the close proximity of the interchanges.

Section A would also be mostly consistent with the recommendation for a new roadway from existing Amboy Road to NC 191 (Brevard Road), with the exception that the proposed design includes one lane in each direction and would not provide vehicle access to Fairfax Avenue. This was a design change from the DEIS, which, as discussed in Chapter 2, included an extension of Amboy Road with two lanes in each direction.

Section B would be consistent with the recommendations in the plan for the I-26/I-240 corridor with a six-lane new location extension of I-26 across the French Broad River.

The preferred alternative in Section B would not be completely consistent with the recommendation for an off-road bicycle/pedestrian connector across I-240 in tandem with widening from Hazel Mill Road/Regent Park Boulevard to West Haywood Street. The design for the preferred alternative would allow for the ability to construct bicycle and pedestrian facilities along the existing Captain Jeff Bowen Bridges, which would fulfill the goal of bicycle and pedestrian connectivity across the river.

Compatibility with Transit Plans

Coordinated Public Transportation and Human Services Transportation Plan (2008)

The *FBRMPO Coordinated Public Transportation and Human Services Master Plan* stipulates the need for high frequency local service along major corridors (FBRMPO 2008). The proposed project should help alleviate congestion on local roadways, thereby improving the efficiency of public transportation on arterial roads within the project study area; therefore, all sections of the proposed project would be consistent with the recommendations included in this plan.

City of Asheville Final Transit Master Plan (2009)

The *City of Asheville Final Transit Master Plan* outlines the planned improvements for the transit system (HDR Engineering, Inc. of the Carolinas 2009). The plan highlights opportunities to improve frequency of buses, efficiency of bus routes, and improved pedestrian mobility that would help improve ridership. The proposed project is not specifically addressed by the plan, but it would help improve overall transportation efficiency and reduce congestion; therefore, the preferred alternative would be consistent with the recommendations included in this plan.

Compatibility with Local Bicycle, Pedestrian, and Greenway Plans

The evaluation of multi-modal transportation for the project is based on NCDOT policies for integration of multi-modal elements into transportation projects and includes determining consistency with the following multi-modal plans that were discussed in the DEIS and two additional plans:

- *City of Asheville Pedestrian Plan* (City of Asheville 2005b)
- *City of Asheville Comprehensive Bicycle Plan* (City of Asheville 2008)
- *City of Asheville, North Carolina Parks, Recreation, Cultural Arts, & Greenways Master Plan* (City of Asheville 2013)
- *Blue Ridge Bike Plan* (NCDOT 2013)
- *Asheville in Motion Mobility Plan* (City of Asheville 2016)

After selection of the preferred alternative, the City of Asheville identified potential bicycle and pedestrian accommodations (referred to as betterments) throughout the project study area. The preferred alternative preliminary designs include some of these betterments and/or do not preclude the facilities from being constructed during the construction of the proposed project or in the future. NCDOT is currently coordinating cost-sharing with the City of Asheville for the bicycle and pedestrian facilities. The proposed betterments include the following:

- *Amboy Road*
  - *Five-foot sidewalk on north side of road*
  - *Bicycle lane*
  - *Cycle track and/or multi-use path*
- *Shelburne Road*
  - *Five-foot sidewalk on north side of road*
  - *Widened berms on both sides of road*
  - *Multi-use path along south side of road*
- *Brevard Road*
  - *Multi-use path along west side of road*
- *Haywood Road*
  - *New bridge over I-26 – include sidewalks along both sides of bridge*
- *Patton Avenue*
  - *Five-foot sidewalk along north side of Patton Avenue and multi-use transportation path along the south side of road to Clingman Avenue*

- *Hillcrest Connector*
  - *11-foot berms and sidewalks*
- *Atkinson Street*
  - *11-foot berms and sidewalks*
- *Bear Creek Road*
  - *Sidewalk improvements*
- *Sandhill Road*
  - *Sidewalk improvements*

City of Asheville Pedestrian Plan

The *City of Asheville Pedestrian Plan* includes a section on pedestrian connectivity and the I-26 Corridor, describing opportunities for providing pedestrian access through both the proposed project and NCDOT TIP Project A-10. The Pedestrian Plan denotes Patton Avenue across the French Broad River as a corridor in need of pedestrian linkage.

As a part of the betterments coordination between NCDOT and the City of Asheville, the preferred alternative is proposed to include a 5-foot sidewalk along the north side of Patton Avenue and a multi-use transportation path along the south side of Patton Avenue.

City of Asheville Comprehensive Bicycle Plan (2008)

The City of Asheville completed the *City of Asheville Comprehensive Bicycle Plan* (Bicycle Plan), which was adopted by the Asheville City Council on February 26, 2008. This plan complements the *City of Asheville Pedestrian Plan* (Pedestrian Plan). The Bicycle Plan includes recommendations for bicycle facilities on Pond Road, Sand Hill Road, Brevard Road, Amboy Road, Fairfax Avenue, State Street, Haywood Road, Patton Avenue, Emma Road, Riverside Drive, Hill Street, Pearson Bridge Road, and Broadway. *As a part of the betterments coordination between NCDOT and the City of Asheville, the preferred alternative is proposed to include bicycle and pedestrian accommodations on Haywood Road, Patton Avenue, and Brevard Road.*

City of Asheville, North Carolina Parks, Recreation, Cultural Arts, & Greenways Master Plan (2009, Updated 2013)

This plan is intended to help meet the needs of current and future residents by positioning Asheville to build on the community's unique parks and recreation assets and identify new opportunities. The citizen-driven plan establishes a clear direction to guide city staff, advisory committees, and elected officials in their efforts to enhance the community's parks, recreation, and cultural arts programs, services, and facilities.

The plan identifies two future park sites within the DCIA: Jean Webb Park and Progress Energy Park. *Jean Webb Park has since been constructed.* The 2013 update to the plan specifically mentions the I-26 Connector and that the eventual selected alternative "can impact the proposed greenway network."

Blue Ridge Bike Plan for Buncombe, Haywood, Henderson, Jackson, Madison, Swain, Transylvania Counties – North Carolina (2013)

The purpose of this plan is to identify and define improvements needed to foster a regional bicycle route system in western North Carolina. One Buncombe County Priority Corridor and two Asheville Priority Corridors are identified within the project study area.

- ***Buncombe County Priority Corridor 3: Sand Hill Road to US 19-23**. This route crosses I-40 west of the I-26/I-40 interchange. The preferred alternative is not anticipated to preclude this bicycle route from being constructed in the future. As a part of the betterments discussions, NCDOT and the City agreed upon a minimum 4-foot sidewalk on the bridge structure over I-40.*
- ***Asheville Priority Corridor 3: Patton Avenue to Hazel Mill Road**. This route travels along Patton Avenue within the study area and crosses the Captain Jeff Bowen Bridges. The preferred alternative would include a multi-use transportation path along the southern bridge crossing the French Broad River. As previously noted, NCDOT and the City of Asheville agreed to a multi-use transportation path along the south side of Patton Avenue and a 5-foot sidewalk along the north side. Both of these agreements align with the goals of the corridor.*
- ***Asheville Priority Corridor 4: Haywood Road to Patton Avenue**. This route travels along Haywood Road within the project study area, crossing I-26. As a part of the betterments discussions, NCDOT and the City agreed upon 6-foot back of curb sidewalks along both sides of the Haywood Road bridge over I-240.*

Asheville in Motion: City of Asheville Mobility Plan (2016)

The Asheville in Motion initiative is designed to provide a cohesive strategy and method to prioritize transportation projects, with an aim toward improving multi-modal connections. Within the study area, the Haywood Road Commercial Corridor is identified as a priority corridor to increase bicycle facilities. As noted above, NCDOT and the City of Asheville agreed upon 6-foot sidewalks along both sides of the Haywood Road Bridge over I-240.

Living Asheville, A Comprehensive Plan for Our Future

In 2016, the City of Asheville began updating the Asheville City Development Plan 2025 *with* Living Asheville, A Comprehensive Plan for Our Future *(City of Asheville 2017b). The plan reiterates the themes of the 2025 plan and notes the city should continue to monitor the potential impacts of the I-26 Connector and the potential need to think strategically about development and redevelopment in the nearby vicinity. It cites the I-26 Connector Working Group as an important way to incorporate community visions and goals into the plans for the project.*

4.1.3.3 Other Local Plans

Compatibility with Other Local Plans

The DEIS discussed the level of compatibility the proposed project has with other land use plans. The design changes to the preferred alternative have not drastically changed the project's compatibility with local plans, including:

- *Haywood Road Form District (City of Asheville 2017c)*
- *Asheville City Council Resolution 00-168 – Resolution Supporting the Report and Recommendations of the Community Coordinating Committee Regarding the I-26 Connector Project (2000)*
- *A Strategic Plan for the Sustainable Economic Development of the City of Asheville, North Carolina (City of Asheville 2004)*
- *Broadway Corridor Action Plan (City of Asheville 2002b)*
- *Asheville City Development Plan 2025 (City of Asheville 2002a)*
- *Land of Sky Regional Council "Regional Vision 2010"*
- Wilma Dykeman RiverWay Master Plan (*RiverLink* 2004)
- *Brevard Road Corridor Study (City of Asheville 2005a)*
- *City of Asheville River Redevelopment Plan (City of Asheville 2005c)*
- *Consolidated Strategic Housing and Community Development Plan (City of Asheville 2005c)*
- *West End/Clingman Small Area Plan (City of Asheville 1996)*
- *Asheville Downtown Master Plan (City of Asheville 2009a)*
- *Sustainability Management Plan (City of Asheville 2009d)*

Plans that have been adopted since publication of the DEIS include:

- *Asheville Unified Development Ordinance (updated 2017)*
- *Buncombe County Zoning Ordinance (amended 2017)*
- *GroWNC Regional Plan (2017)*
- *Burton Street Neighborhood Plan (2018)*

The Asheville Unified Development Ordinance (UDO) was discussed in the 2015 DEIS; however, updates to the UDO were added in June 2015 and November 2017. These updates include revisions to Chapter 7 of the UDO to revise the allowances for Accessory Dwelling Units (City of Asheville 2015) and the Haywood Road Form-Based Code (City of Asheville 2017a). The revisions to Chapter 7 of the UDO include updates to the definition of accessory dwelling unit and additional design standards. The purpose of the Haywood Road Form-Based Code is to aid in the implementation of the Haywood Road Corridor Charrette Report and the Haywood Road Vision Plan (ADC 2016). All sections of the preferred alternative would be consistent with the UDO and its updates.

Buncombe County has a zoning ordinance in place as a basis for land development (Buncombe County 2017). The zoning ordinance has several categories of land uses, including four classes of residential districts, a commercial service district, an employment district, a public service district, a neighborhood service district, and an open use district. Each of these districts is found within the FLUSA. The objectives of the zoning ordinance are to guide the appropriate use and development of parcels in a manner in which land uses would be compatible with neighboring parcels, topographic features, natural habitat, and infrastructure. The Buncombe County Zoning Ordinance was last amended October 17, 2017, amendments of which mainly pertained to dimensional requirements and hillside development standards for certain subdivisions. All sections of the preferred alternative would be consistent with the zoning ordinance.

The GroWNC Regional Plan covers a five-county region: Buncombe, Haywood, Henderson, Madison, and Transylvania counties. The planning processes began in 2011 after the region received a $1.6 million grant from the Department of Housing and Urban Development through the Partnership for Sustainable Communities. The purpose of the plan is to offer recommendations for planning efforts along the lines of land use, economic development, workforce development, transportation, and other infrastructure investments through the Southern Appalachian region. The land use policies put forth in the plan promote growth strictly within consensus growth areas, which are defined as places within towns and cities that already have infrastructure and services. The FLUSA is located within one of these consensus growth areas. Improving the I-26 Connector complies with the goal of connecting the region as well as promoting growth in areas with critical infrastructure and services. The GroWNC Regional Plan was adopted in 2017.

The Burton Street Neighborhood Plan was developed by NCDOT and the Burton Street Community Association to address, among other topics, anticipated impacts resulting from the I-26 Connector project. The Plan notes potential impacts associated with the project, including residential, business, and religious institution relocations as well as increased noise levels, temporary construction impacts, and potential recurring impacts. The Plan lists the mitigation strategies that will be implemented by NCDOT to remedy the anticipated impacts. These include (as stated in the Plan):

- *Improve existing sidewalks to meet ADA design standards*
- *Improve pedestrian connections between community resources by installing a sidewalk on Downing Street per agreement of property owners*
- *Improve sidewalk connections between commercial corridors, and include a pedestrian path from Buffalo Street to Patton Avenue that will connect to future greenway*
- *Evaluate opportunities for new transit stops, such as near Burton Street and Haywood Road*
- *Install a sidewalk along Patton Avenue to connect pedestrian path and transit stop*
- *Install bus shelters and other improvements at transit stops located near Burton Street. Consider neighborhood specific designs if feasible*
- *Incorporate a Burton Street history mural on proposed I-26 Connector sound wall if built*
- *Construct a new park and community gathering space at Smith Mill Creek that will include an access point to the future greenway*
- *Improve the Florida Avenue and Patton Avenue intersection by adding pavement markings and left turn signals*
- *Increase the tree canopy within the interstate buffer along the Burton Street neighborhood where possible*

4.1.4 PHYSICAL ENVIRONMENT

4.1.4.1 Noise

In accordance with Title 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the North Carolina Department of Transportation Traffic Noise Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects for construction of a highway or interchange on new location, improvements of an existing highway which substantially change the horizontal or vertical alignment or add new through lanes, or projects that involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM®) approved by the Federal Highway Administration (FHWA) and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Policy and the NCDOT Traffic Noise Manual. When traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Construction noise impacts may occur if noise-sensitive receptors are in close proximity to project construction activities. All reasonable efforts should be made to minimize exposure of noise sensitive areas to construction noise impacts.

The source of this traffic noise information is the STIP Project I-2513 *Traffic Noise Report, I-26 Connector from I-40 to US 19-23-70 North of Asheville* prepared by AECOM in August 2019 (NCDOT 2019a).

Traffic Noise Impacts and Noise Contours

The maximum number of receptors in each project alternative predicted to become impacted by future traffic noise is shown in Table 4-4. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy.

Table 4-4: Predicted Traffic Noise Impacts by Section*

	Traffic Noise Impacts			
Section	**Residential (NAC B)**	**Places of Worship/Schools, Parks, etc. (NAC C & D)**	**Businesses (NAC E)**	**Total**
Section C	160	11	0	171
Section A	110	2	0	112
Section B	99	6	28	134

*Per TNM 2.5 and in accordance with 23 CFR Part 772

Predicted build-condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts. Although FHWA regulation prohibits the use of noise level

contours for traffic noise impact prediction, noise level contours can aid in future land use planning efforts in presently undeveloped areas (NAC G).

Table 4-5 presents the approximate distance from the edge of the nearest travel lane reached by noise level contours correlating to the traffic noise impact thresholds for land uses for undeveloped areas. A 71 dB(A) hourly-equivalent noise level correlates to the NCDOT impact threshold for a NAC E land use. An hourly-equivalent noise level of 66 dB(A) correlates to the NCDOT impact threshold for NAC B and C land uses. The distances at which 71 dB(A) and 66 dB(A) hourly-equivalent traffic noise levels are predicted to occur vary depending on traffic conditions throughout the project area and were derived via modeling results.

According to 23 CFR 772.9(c) and the NCDOT Traffic Noise Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 71 dB(A) and 66 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, to avoid development of incompatible activities in the vicinity of the I-26 Connector project.

Table 4-5: Predicted Build-Condition Noise Contours by Section

Section	Location	71 dB(A) (FT from EOT[1])	66 dB(A) (FT from EOT[1])
Section C	Along ramp from I-40 eastbound to I-26 eastbound between W Oakview Rd and McIntosh Rd	Within Proposed ROW	Within Proposed ROW
Section A	Along I-240/I-26 eastbound between Virginia Avenue and Fairfax Avenue	Within Proposed ROW	205
Section B	Along ramp from I-240/I-26 westbound to Patton Avenue	Within Proposed ROW	Within Proposed ROW

[1]Feet from the edge of the traveled way.

Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers and noise insulation (NAC D only). For each of these measures, benefits versus allowable abatement quantity (reasonableness), engineering feasibility, effectiveness and practicability and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and level of service of the proposed roadway. Costs to acquire buffer zones for impacted receptors will exceed the NCDOT base dollar value of $22,500 per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Manual, causing this abatement measure to be unreasonable.

Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb and reflect highway traffic noise. For this project, earthen berms are not found to be a viable abatement measure because the additional right of way, materials and construction costs are estimated to exceed the NCDOT maximum allowable base quantity of 4,200 cubic yards per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Policy.

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. Table 4-6 summarizes the results of the evaluation.

Table 4-6: Preliminary Noise Barrier Evaluation Results

Section NSA	Noise Barrier Name & Location	Approx. Length Height[4] (feet)	Approx. Area (sq ft)	Number of Impacted Receptors Benefited	Total Number of Benefits	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[1]
Section A NSA A-1.2	NWA-1.2.1 Along I-40 WB east of Brevard Road	1,000 12	12,000	0.29	0.38	31,579 1,500	No[2]
Section A NSA A-1.2	NWA-1.2.2 Along Amboy Road between I-26 and Short Michigan Ave	800 14	11,200	0.33	0.33	33,939 1,500	No[2]
Section A NSA A-1, A-2, A-4	NWA-124 Along I-26 EB between Haywood Road and Brevard Road	6,300 23	144,000	48	109	1,321 1,500	Yes
Section A NSA A-3, A-5	NWA-35 Along I-26 WB between Haywood Road and Wilmington Street	3,150 20	63,000	38	78	808 1,500	Yes

Section NSA	Noise Barrier Name & Location	Approx. Length Height[4] (feet)	Approx. Area (sq ft)	Number of Impacted Receptors Benefited	Total Number of Benefits	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[1]
Section A NSA A-7	NWA-7 Along I-26 WB between Haywood Road and Wilmington Street	850 16	13,600	9	14	983 1,500	Yes
Section B NSA B-1	NWB-1 Along I-26 EB between Haywood Road and Edgar Street	2,800 22	61,400	24	43	1,428 1,500	Yes
Section B NSA B-2	NWB-2 Along I-26 WB between Wilmington Street and Hazel Mill Road	2,450 22	54,400	12	31	1,755 1,500	No[3]
Section B NSA B-3	NWB-3.1 Along I-240 WB to I-26/I-240/Patton Avenue interchanges	1,000 24	24,000	6.14	6.86	3,499 2,500	No[3]
	NWB-3.2 Along I-240 WB to I-26 EB	2,000 24	48,000	12	12	4,000 2,500	No[3]
Section B NSA B-4	NWB-4 Along the Patton Avenue to I-240 EB ramp	1,100 20	22,000	5	5	4,400 2,500	No[3]
Section B NSA B-5	NWB-5 Along Atkinson Street near Hillcrest Apartments	350 16	5,600	7	13	431 1,500	Yes

Section NSA	Noise Barrier Name & Location	Approx. Length Height[4] (feet)	Approx. Area (sq ft)	Number of Impacted Receptors Benefited	Total Number of Benefits	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[1]
Section B NSA B-5.1	NWB-5.1 Along the I-26 SB ramp to Patton Ave between Hill Street and Atkinson Street	650 24	15,600	3	3	5,200 1,500	No[3]
Section B NSA B-6	NWB-6 Along Hill Street and the I-240 WB to I-26 WB ramp between Courtland Avenue and Westover Drive	2,350 24	56,400	0	3	18,800 2,000	No[2]
Section B NSA B-6.1	NWB-6.1 Between I-26 WB and Courtland Place, north of the I-26/I-240/US 19-23-74 Alt interchange	519 10	5,190	4	4	1,298 2,000	Yes
Section B NSA B-8	NWB-8 Along I-26 WB between Courtland Place and Pearson Drive	2,450 22	53900	6	14	3,828 2,000	No[3]
Section B NSA B-9	NWB-9 Along I-26 WB between Hibriten Drive and Broadway Street	1,850 24	44,400	7	18	2,467 1,500	No[3]

Section NSA	Noise Barrier Name & Location	Approx. Length Height[4] (feet)	Approx. Area (sq ft)	Number of Impacted Receptors Benefited	Total Number of Benefits	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[1]
Section B NSA B-10	NWB-10 Along I-240 WB south of Hill Street	650 24	15,600	0	0	N/A 1,500	No[2]
Section C NSA C-1	NWC-1 Along I-240 EB between Grandview Road and Sand Hill Road	4,050 24	97,200	40	51	1,906 2,000	Yes
Section C NSA C-2	NWC-2 Along I-40 WB south of Montgomery Street	1150 20	23,000	5	5	4,600 1,500	No[3]
Section C NSA C-3	NWC-3 Along the I-26 EB to I-40 WB ramp between South Bear Creek Road and Sand Hill Road	4,250 24	102,000	59	71	1,437 1,500	Yes
Section C NSA C-4	NWC-4 Along the I-40 EB to I-26 EB ramp between Sand Hill Road and Pond Road	5,200 24	124,800	21	22	5,673 1,500	No[3]
	NWC-4.1 Along the I-40 EB to I-26 EB ramp between Sand Hill Road and West Oakview Road	1,800 24	43,200	10	10	4,320 1,500	No[3]

Section NSA	Noise Barrier Name & Location	Approx. Length Height[4] (feet)	Approx. Area (sq ft)	Number of Impacted Receptors Benefited	Total Number of Benefits	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[1]
	NWC-4.2 Along the I-40 EB to I-26 EB ramp between Sand Hill Road and Pond Road	650 / 20	13,000	5	5	2,600 / 1,500	No[3]
	NWC-4.3 Along the I-40 EB to I-26 EB ramp between West Oakview Road and Pond Road	1,350 / 24	32,400	6	7	4,629 / 1,500	No[3]
Section C NSA C-5	NWC-5 Along the I-40 WB to I-26 WB ramp between Brevard Road and South Bear Creek Road	800 / 24	19,200	10	10	1,920 / 1,500	No[3]
Section C NSA C-6	NWC-6 Along the I-26 WB to I-40 EB ramp from near Oakview Road	1,300 / 24	31,200	4	6	5,200 / 1,500	No[3]

[1] The likelihood for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.
[2] Barrier is not feasible due to an inability to achieve at least 5 dB(A) of noise reduction for at least two impacted receptors.
[3] Barrier is not reasonable due to the quantity per benefited receptor exceeding the allowable quantity per benefited receptor OR Barrier is not reasonable due to an inability to achieve at least 7-dBA noise reduction for at least one benefited receptor.
[4] Average wall height. Actual wall height at any given location may be higher or lower.

Summary

A traffic noise evaluation was performed that identified 8 noise barriers that preliminarily meet feasibility and reasonableness criteria found in the NCDOT Traffic Noise Policy. A more detailed analysis will be completed during project final design. Noise barriers preliminarily found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and

reasonable during the final design noise analysis due to changes in proposed project alignment and other design considerations, surrounding land use development, or utility conflicts, among other factors. Conversely, noise barriers that preliminarily were not considered feasible and reasonable may meet the established criteria and be recommended for construction.

In accordance with NCDOT Traffic Noise Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the Record of Decision (ROD). NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourages its practice among planners, building officials, developers and others.

4.1.4.2 Air Quality

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects". Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for

lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (https://www.epa.gov/iris)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

The Traffic Forecast Report (July 2016) indicates No-Build VMT of 401,768 and a Build VMT of 444,362, an increase of 10.6 percent. For the build alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that

localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the expanded roadway sections involving construction on new location with Section B. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under the build alternative in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to EPA's MSAT reduction programs.

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The proposed project is located in Buncombe County, which complies with the NAAQS. The proposed project is located within an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. Therefore, the project is not anticipated to create any adverse effects on the air quality of this attainment area. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process. No additional reports are necessary.

4.1.4.3 Farmlands

In accordance with the FPPA and state EO 96, the impact of the project on prime, unique, and statewide important farmlands was assessed. Due to the urban setting of the project, this project is in compliance with the FPPA and the Farmland Conversion Impact Rating Form (United States Department of Agriculture [USDA] Form AD-1006) for federally funded projects was not required.

4.1.4.4 Utilities

Electric

The preferred alternative would cross electric distribution and transmission lines owned by Duke Energy. It is anticipated distribution poles and transmission towers would need to be either adjusted or relocated due to the construction of the project. NCDOT would work with Duke Energy in efforts to minimize impacts to the electric lines and to coordinate the adjustments or relocations required while trying to minimize disruption in service.

Sewer Facilities

Most development within the study area uses sanitary sewer facilities. Thus, the preferred alternative would require relocation of municipal sewer lines. The preferred alternative would

not impact City of Asheville or Buncombe County water or wastewater treatment plants or private treatment facilities within the project study area; however, the Metropolitan Sewer District of Buncombe County has identified multiple sewer lines that would need to be relocated or adjusted. NCDOT would also work with sewer authorities in the area to minimize any impacts to sewer lines and to coordinate their relocation, as necessary.

Water Service

Project construction would require relocation of water lines owned by the City of Asheville. Wells within the right-of-way of the preferred alternative will be surveyed prior to project construction. NCDOT will purchase these wells and cap and abandon them in accordance with North Carolina well construction standards. Any subsurface contamination will be reported to the Asheville Regional Office of NCDEQ. During the final design phase of the project, NCDOT will also identify wells adjacent to the project right-of-way that could be impacted by roadway construction. Mitigation for these wells will be provided through land purchase, compensation for damages, or the provision of new wells. NCDOT will also work with water and sewer authorities in the area to minimize any impacts to water lines and to coordinate their relocation, as necessary.

Gas

Multiple gas lines owned by the Public Service Company exist within the study area. Gas lines ranging from 2 inch to 12 inch in diameter have been identified that would require adjustment or relocation. NCDOT will work with Public Service Company to minimize any impacts to gas lines and to coordinate their relocation, as necessary.

Phone/Fiber Optics

AT&T owns phone lines and fiber optic routes within the study area. NCDOT will work with AT&T to minimize any impacts to phone lines/fiber optic routes and to coordinate their relocation, as necessary. The Section B preferred alternative would impact the fiber optic routes, which would require relocation.

4.1.4.5 Visual Quality

This section describes the potential effects of the project on visual quality within the project study area. As indicated in Section 3.3.5, visual and aesthetic effects are a concern for both users of the transportation facility and those that view the facility from afar. Construction of the proposed project would have a visual impact on adjacent areas. One of the problems inherent in designing a controlled access freeway involves providing sufficient right-of-way to comply with design criteria while minimizing disruption to the surrounding area.

In Section C, the preferred alternative would maintain the existing configuration and would not change the viewshed substantially from the existing condition. Section C would be consistent with the existing viewshed, which includes the existing I-40/I-26 interchange.

Construction of Section A would have a visual impact on adjacent areas. The project would be designed and constructed as a multi-lane, divided, controlled access freeway, which would be

consistent with the context of the existing viewshed of which I-240 is a prominent feature. Widening of the highway would, however, increase its visual prominence for people traveling the freeway, and those viewing the freeway from afar. Visual impacts would occur in this section of the project but are not anticipated to be adverse.

Visual impacts of Section B would generally be enhanced or improved for those using the facility and degraded for those viewing the freeway from off the road. The preferred alternative would include two additional flyover bridges across the French Broad River; one approximately 285 feet south and one approximately 550 feet to the north of the I-26 crossing. The three new bridges across the French Broad River would introduce new prominent features that would be out of context with the existing viewshed. Conversely, opportunities for views and new vistas of Asheville, the French Broad River, and surrounding mountains and hills would exist for motorists using the new roadway. The proposed design that would reconfigure the I-240 interchange with US 19-23-70/Patton Avenue would generally be consistent with the existing visual environment.

Mitigation

Future highway-oriented development that may be constructed adjacent to the proposed roadway could be designed to reduce the visual impacts of the freeway. The inclusion of treatments such as coloring of structural elements, buffer areas, and landscape screening into a new development's design can lessen the visual impacts of the freeway. In addition, it is NCDOT policy to include aesthetic features in its roadway designs. NCDOT will consider incorporating the following principals in the roadway design in order to create an aesthetically acceptable and functional roadway and to minimize visual impacts:

- Integrate landscaping into the project design to promote visual continuity of the highway and to blend it into the natural landscape as much as possible
- Minimize the loss of vegetation, especially during construction when equipment and material access, storage, and staging are required
- Design noise attenuation features, if reasonable and feasible, to be compatible with surrounding natural features and development

In response to a comment by the City of Asheville on the DEIS, an Aesthetics Advisory Committee (AAC) will be re-established by the City of Asheville to work with NCDOT and the city to address aesthetic issues throughout the planning and design of the project. Activities of the AAC to date are presented in Section 8.2.2.

4.1.4.6 Hazardous Material

One site is anticipated to have a high severity of impact and is located within the alternative corridor as summarized in Table 4-7. Additional sites are located within the proposed right-of-way limits of the preferred alternative; however, the anticipated severity of the sites have been identified as low or low to moderate and therefore are not included in the table below (NCDOT 2014c).

Table 4-7: Impacts to USTs, Landfills, and Other Potentially Contaminated Sites

Site#	Type	Location	UST Facility ID	Anticipated Impacts	Anticipated Severity
45	Landfill	Along the Bank of the French Broad River	N/A	Landfill materials of unknown composition	High

Source: *Revised Geotechnical Pre-Scoping Report* (NCDOT 2014c).

Although the *Geotechnical Pre-Scoping Report* prepared in 2006 notes that no obvious contamination or hazardous materials were observed during previous site analysis, sampling was not conducted and avoidance of the landfill (site #45) is also recommended (NCDOT 2006a). A work plan will be developed based on the final design to address any contaminated material that may be encountered during construction.

4.1.4.7 Mineral Resources

As discussed in Chapter 3.3.7, there are no mines or quarries located within or near the project study area. As such, the preferred alternative would not directly impact the production of mineral resources. Construction of the project may temporarily increase the demand for locally crushed stone and sand. However, such an increase in demand would not adversely impact mineral resources.

4.1.4.8 Floodplains/Floodways

An amendment to the hydraulic technical report (TGS Engineers 2010) was prepared for the DEIS in 2015 (URS 2015b), which re-evaluated crossings that changed or were added since the original TGS report. An addendum was then prepared for the preferred alternative (AECOM 2018b). The proposed project was mapped showing the established limits of the 100-year floodways and floodplains and the major stream crossing sites for the project.

It has been determined that, due to the linear nature of the project and existing roadway configuration, no practicable alternative exists to completely avoid impacts to floodplains. Efforts will be made to minimize the impacts to floodplains and to diminish the risk to human safety associated with the encroachments.

The construction of the project would encroach in several areas on the designated floodplain associated with several local stream systems. Table 4-8 includes a summary of the impacts to floodplains and floodways within the project study area from the preferred alternative.

Table 4-8: FEMA Floodplain and Floodway Impacts (in acres)

Section	Impacts to 100-year Floodplain		Impacts to Floodway		Total Impact	
	DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
Section C	16.63	*14.00*	2.00	*1.74*	18.63	*15.74*
Section A	8.36	*8.57*	1.94	*1.04*	10.3	*9.61*
Section B	3.91	*2.78*	0.38	*0.57*	4.29	*3.35*

Sources: *Hydraulic Technical Report for I-2513 the I-26 Asheville Connector* (TGS Engineers 2010); *Final Hydraulic Aspects Report Addendum to the I-2513 Hydraulic Technical Report* (URS 2015b); *Hydraulic Aspects Report Addendum to I-2513 Hydraulic Technical Report* (April 2010 and August 2015) (AECOM 2018b)

A description of streams and the proposed hydraulic crossings is provided in the following sections.

Section C

Section C includes 15 existing and proposed hydraulic crossing sites. These crossings would impact 14.00 acres in the 100-year floodplain and 1.74 acres in the floodway.

The hydraulic crossing sites in Section C are shown on Figure 4-1 and summarized in Table 4-9.

Table 4-9: Proposed Hydraulic Crossings – Section C

Site	Location	Facilities on Structure	Feature Under Structure	Comments
1	I-40 and WBCD Over French Broad River	I-40 EB and WB; WBCD; Ramp E; Ramp H	French Broad River	Bridge
2A	I-40 and WBCD Over Hominy Creek	I-40 EB and WB; WBCD	Hominy Creek	Bridge
2B	Ramp E Over Hominy Creek	Ramp E	Hominy Creek	New Bridge
3B	Ramp BD Over Hominy Creek	Ramp D	Hominy Creek	Bridge
3D	Ramp AC Over Hominy Creek	Ramp AC	Hominy Creek	Bridge
4A	I-26 Over Hominy Creek	I-26 NB and SB	Hominy Creek	Bridge
4C	WBCD Over Hominy Creek	WBCD	Hominy Creek	New Bridge
5	SR 3412 (Sand Hill Road) Over Ragsdale Creek	SR 3412	Ragsdale Creek	Raise Headwall on Existing 2 @ 8'wX8'h RC Box Culvert
6	I-26 Over UT	I-26 NB and SB; Ramp BD	UT to Hominy Creek	Extend 48" CMP
21	Ramp DB Over UT	Ramp DB	UT to Ragsdale Creek	Extend Existing 1 @ 6'wX9'h RC Box Culvert
28	WBCD, EBCD Over Ragsdale Creek	WBCD, EBCD	Ragsdale Creek	Extend Existing Triple 7'x9' RC Box Culvert
29	WBCD, EBCD Over Ragsdale Creek	WBCD, EBCD	Ragsdale Creek	Extend Existing Triple 8'x8' RC Box Culvert
30	WBCD, EBCD Over UT	WBCD, EBCD	UT to Ragsdale Creek	Extend Existing Triple 48" RCP

Site	Location	Facilities on Structure	Feature Under Structure	Comments
31	US 19/23 (Smokey Park Hwy) over Ragsdale Creek	Y1; Y1B; RP1D	Ragsdale Creek	Maintain existing structure
32	I-26 Over UT to Hominy Creek	LC_NB; LC_SB; RP2C; RP2D; RP2DB	UT to Hominy Creek	Maintain existing structure

Sources: *Hydraulic Technical Report for I-2513 the I-26 Asheville Connector* (TGS Engineers 2010); *Final Hydraulic Aspects Report Addendum to the I-2513 Hydraulic Technical Report* (URS 2015b); *Hydraulic Aspects Report Addendum to I-2513 Hydraulic Technical Report* (April 2010 and August 2015) (AECOM 2018b).

Section A

Section A would include four hydraulic crossing sites. These crossings would impact 8.57 acres in the 100-year floodplain and 1.04 acres in the floodway.

The hydraulic crossing sites in Section A are shown on Figure 4-2 and summarized in Table 4-10.

Table 4-10: Proposed Hydraulic Crossings – Section A

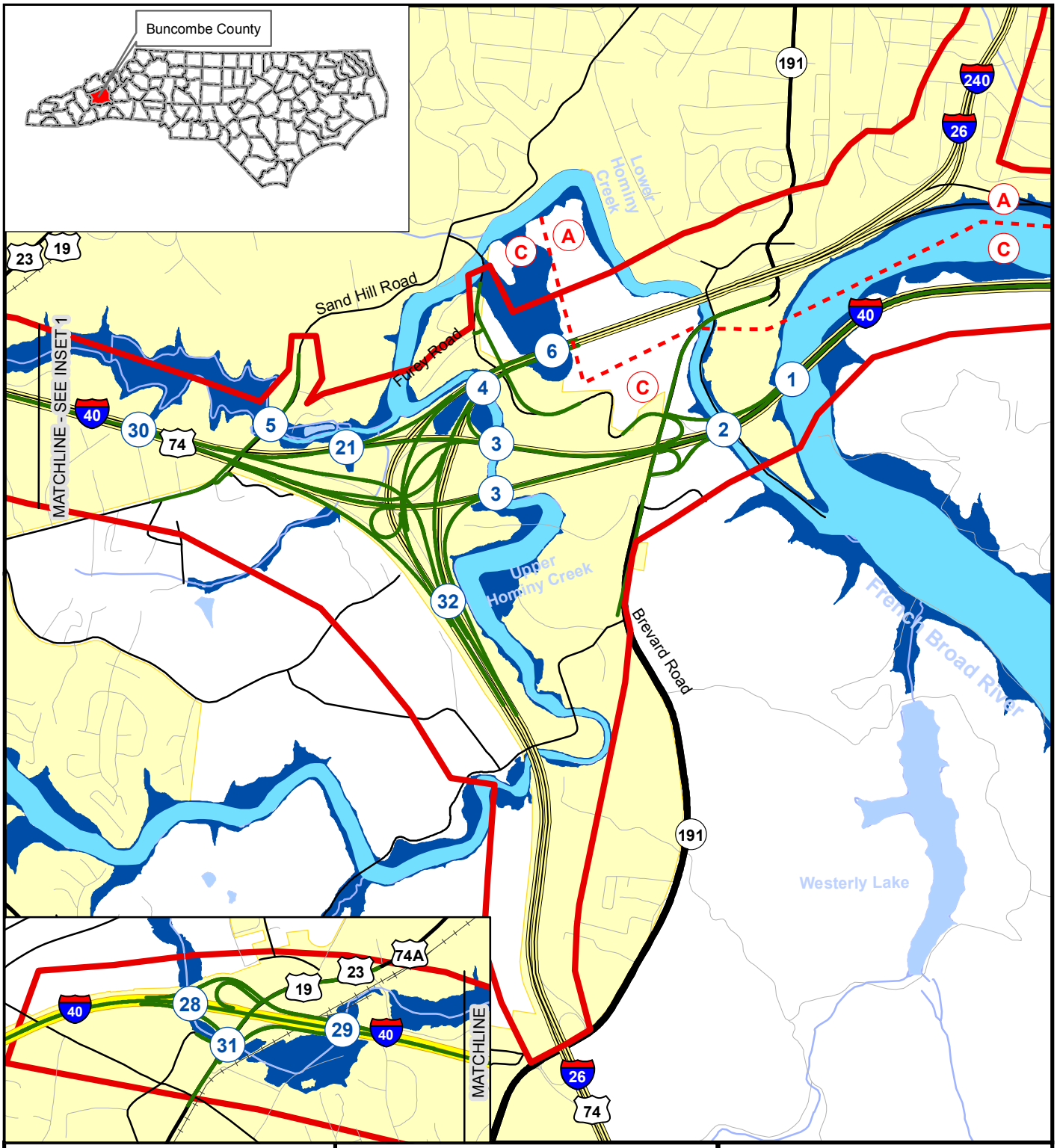
Site	Location	Facilities on Structure	Feature Under Structure	Comments
8	I-26/I-240 and Ramps Over Hominy Creek	I-26/I-240: Ramp 3B; Ramp 3C	Hominy Creek; SR 3620; Greenway Bridge	Bridge
18	I-26/I-240 and Amboy Road Over UT	I-26/I-240; Ramp 3D; Amboy Road	UT to French Broad River	Replace Existing CM Pipe with 2 @ 66” CM Pipe.
19	I-26/I-240 over Moore Branch	I-26/I-240	Moore Branch	Replace Existing 66” CM Pipe with 2 @ 60” CM Pipe.
26	I-26 over the French Broad River	I-26	French Broad River	Fill into floodplain adjacent to I-26

Sources: *Hydraulic Technical Report for I-2513 the I-26 Asheville Connector* (TGS Engineers 2010); Fin*al Hydraulic Aspects Report Addendum to the I-2513 Hydraulic Technical Report* (URS 2015b). *Hydraulic Aspects Report Addendum to I-2513 Hydraulic Technical Report* (April 2010 and August 2015) (AECOM 2018b).

Section B

Section B would include 12 hydraulic crossing sites. These crossings would have a total floodway impact of 2.78 acres in the 100-year floodplain, and 0.57 acres in the floodway.

The hydraulic crossings are shown on Figure 4-2 and summarized in Table 4-11.



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
- Streams (non-delineat...
- Water
- Floodway
- 100 Year Floodplain
- Project Study Area
- Municipal Boundary
- (7) Crossing Site Number

Date: April 2018

N W E S

0 1,000 2,000 3,000 Feet

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

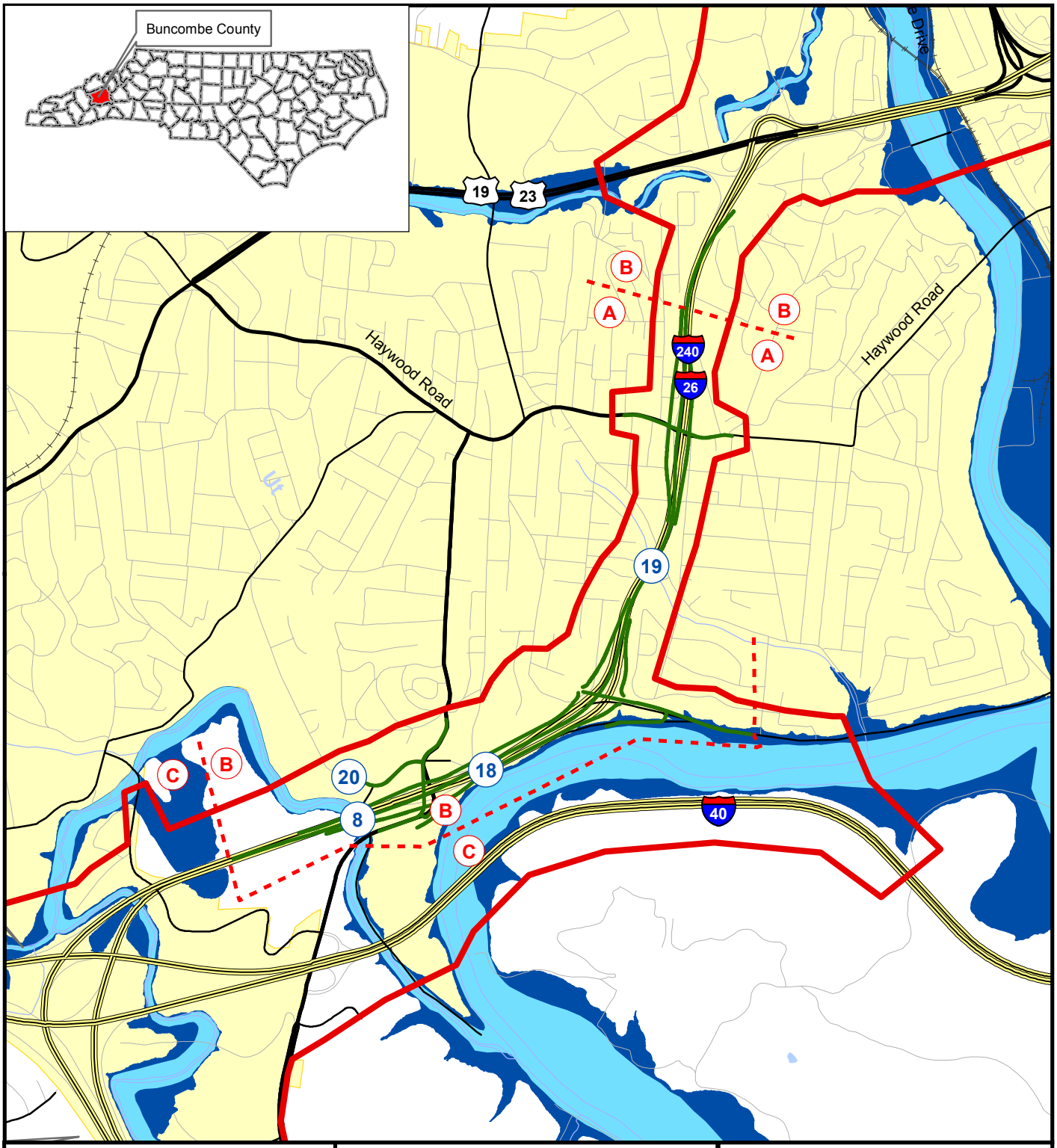
Figure 4-1

Section C
Proposed Hydraulic Crossings

Table 4-11: Proposed Hydraulic Crossings –Section B

Site	Location	Facilities on Structure	Feature Under Structure	Comments
10	I-26 and Ramps Over Smith Mill Creek	I-26 NB; I-26 SB; Ramp A; Ramp D	Smith Mill Creek	New Bridge
11	I-240 EB Over French Broad River	I-240 EB	Smith Mill Creek; Emma Road; Southern RR (4 Tracks); French Broad River; Riverside Drive; US 19-23 SB	New Bridge
12	I-240 WB Over French Broad River	I-240 WB	Southern RR (3 Tracks); French Broad River; Riverside Drive; US 19-23 SB	New Bridge
13	Patton Avenue Over French Broad River	Patton Avenue Dual Bridges	Westgate Access Road; Emma Road; French Broad River; 3 RR Tracks; Riverside Drive	No Impacts
14	I-26 over Smith Mill Creek	I-26	Smith Mill Creek	New Bridge
16	Ramp AC over Reed Creek	Ramp D2	Reed Creek	No Impacts
17	Patton Avenue Over Smith Mill Creek	Patton Avenue EB; Patton Avenue WB; Y7l	Smith Mill Creek	Extend Existing 3 @ 8'wX11'h RC Box Culvert approx. 300'
23	I-240 WB Over Tributary to Smith Mill Creek	I-240 WB	Tributary to Smith Mill Creek; I-26 EB; I-26 WB	New Bridge
24	US 19-23 and Riverside Drive Over Tributary to French Broad River	US 19-23NB; US 19-23 SB; Riverside Drive	Tributary to French Broad River	No Impacts
25	Y31 Over Tributary to French Broad River	I-240EB; I-240WB; US 19-23 SB; Riverside Drive	Tributary to French Broad River	No Impacts
33	US 19-23 Over UT to French Broad River	US 19-23NB; US 19-23SB; Riverside Drive	UT to French Broad River	Retain existing
99	Y32 (Hill Street) Over UT to French Broad River	Y32	UT to French Broad River	Retain existing

Sources: *Hydraulic Technical Report for I-2513 the I-26 Asheville Connector* (TGS Engineers 2010); *Final Hydraulic Aspects Report Addendum to the I-2513 Hydraulic Technical Report* (URS 2015b); *Hydraulic Aspects Report Addendum to I-2513 Hydraulic Technical Report* (April 2010 and August 2015) (AECOM 2018b).



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
- Streams (non-delineat...
- Water
- Floodway
- 100 Year Floodplain
- Project Study Area
- Municipal Boundary
- (7) Crossing Site Number

Date: May 2018

N W E S

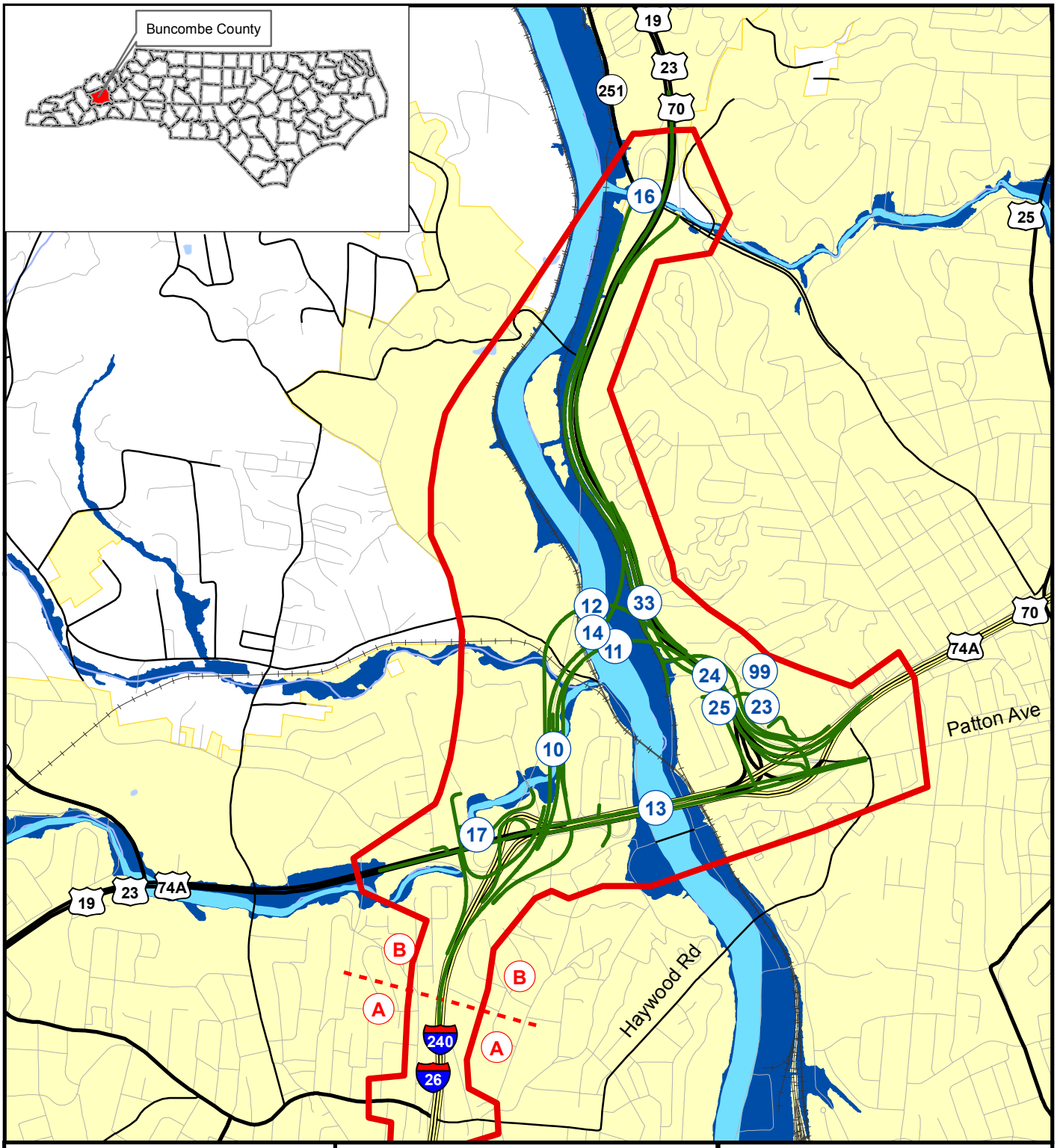
0 0.25 0.5 Miles

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

Figure 4-2

Section A
Proposed Hydraulic Crossings



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
- Streams (non-delineat...
- Water
- Floodway
- 100 Year Floodplain
- Project Study Area
- Municipal Boundary
- (7) Crossing Site Number

Date: May 2018

N W E S

0 0.25 0.5 Miles

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

Figure 4-3

Section B
Proposed Hydraulic Crossings

Buncombe County and the City of Asheville are participants in the National Flood Insurance Program. Coordination with local authorities and FEMA will occur during the final design if floodway modifications are required to ensure compliance with applicable floodplain management ordinances.

The 100-year flood would be accommodated by new bridge crossings without a significant increase in flood elevation. The project parallels the French Broad River in the vicinity of river milepost 150.5 near Amboy Road and crosses the river along new location between river mileposts 146 and 147. As such, filling in the floodway for roadway construction may occur near Amboy Road. With improvements to existing I-240 over Hominy Creek, the French Broad River could be impacted up to river milepost 151.5, at the mouth of Hominy Creek. However, as previously noted, any floodway modifications will be conducted in accordance with FEMA and City of Asheville regulations.

Due to the proposed placement of structures (including the bridge piers) within the floodplain, the potential exists for the floodplain elevation to rise above the existing level. If the floodplain level rises and affects an insurable structure within the floodplain, the structure would have to be relocated. The detailed evaluation of floodplain impacts will not be completed until the final design plans are developed.

The overall effect of the project due to the encroachment on floodplains is anticipated to be minor and is not likely to be significant, as the project would increase the bridge lengths for most crossings allowing for increased passage of water. The encroachments on the floodplain would also not present an increased danger to human safety as a result of the construction, nor would it promote development within the floodplain for the preferred alternative.

4.1.4.9 Protected Lands

The project would not impact federal-designated wild and scenic rivers, state or national forests, gamelands, or preservation areas.

4.1.5 CULTURAL RESOURCES

4.1.5.1 Historic Architectural Resources

Prior to completion of the 2015 DEIS, the potential effect of the preferred alternative on historic architectural resources was evaluated in accordance with Section 106 of the NHPA. The SHPO concurred with the effects determinations at a meeting held on May 24, 2015, and these determinations were summarized in Table 4-22 of the 2015 DEIS.

Since publication of the 2015 DEIS, the project team has coordinated with the owners of the West Asheville/Aycock Historic School District, William Worley House, Freeman House, and Montford Area Historic District.

The effect for each historic architectural resource is described in the following sections and summarized in Table 4-12. The expected property takings from historic architectural resources for the preferred alternative are listed in Table 4-13.

Table 4-12: Determination of Effect to Historic Resources According to Section 106

Property	Section C	Section A	Section B
Biltmore Estate	No adverse effect	N/A	N/A
Asheville School	No adverse effect	N/A	N/A
Buncombe County Bridge 216	N/A	No adverse effect	N/A
Calvary Baptist Church	N/A	No effect	N/A
Baker Building	N/A	No adverse effect	N/A
West Asheville/Aycock School Historic District	N/A	No adverse effect	N/A
William Worley House	N/A	N/A	No adverse effect
Freeman House	N/A	N/A	No adverse effect
Buncombe County Bridge 323	N/A	N/A	No effect
Southern Railroad Bridge	N/A	N/A	No effect
Montford Area Historic District	N/A	N/A	**Adverse effect**
Montford Hills Historic District	N/A	N/A	No adverse effect
Montford Hills/Hibriten Drive Boundary	N/A	N/A	No effect
Mrs. Minnie Alexander Cottage	N/A	N/A	No effect
Whiteford G. Smith House	N/A	N/A	No effect
Haywood Street United Methodist Church	N/A	N/A	No adverse effect

Table 4-13: Property Takings (in acres) of Historic Architectural Resources by the Preferred Alternative (Right-of-way/Easement)

Property	Section C		Section A		Section B	
	DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
Asheville School	2.79/0.58	*0.51/1.48*	N/A	N/A	N/A	N/A
Biltmore Estate	0/0	*0/0*	N/A	N/A	N/A	N/A
Buncombe County Bridge 216	N/A	N/A	0/0	*0/0*	N/A	N/A
Calvary Baptist Church	N/A	N/A	0/0	*0/0*	N/A	N/A
Baker Building	N/A	N/A	0/0	*0/0*	N/A	N/A
West Asheville/Aycock School Historic District and Boundary Increase	N/A	N/A	0.35/0.25	*0.15/0.10*	N/A	N/A
William Worley House	N/A	N/A	N/A	N/A	0.1/0.22	*0.05/0.26*
Freeman House	N/A	N/A	N/A	N/A	0/0	*0/0*
Buncombe County Bridge 323	N/A	N/A	N/A	N/A	0/0	*0/0*

Property	Section C		Section A		Section B	
	DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
Southern Railroad Bridge	N/A	N/A	N/A	N/A	0/0	*0/0*
Montford Area Historic District	N/A	N/A	N/A	N/A	0/0	*0/0*
Montford Hills Historic District	N/A	N/A	N/A	N/A	0/0.03	*0/0*
Montford Hills and Hibriten Drive Expansion	N/A	N/A	N/A	N/A	0/0	*0/0*
Mrs. Minnie Alexander Cottage	N/A	N/A	N/A	N/A	0/0	*0/0*
Whiteford G. Smith House	N/A	N/A	N/A	N/A	0/0	*0/0*
Haywood Street United Methodist Church	N/A	N/A	N/A	N/A	0/0	*>0.01/>0.01*

Biltmore Estate

Pursuant to Section 106 of the NHPA, the SHPO concurred with the determination that the Section C preferred alternative would have "no adverse effect" on the Biltmore Estate property and would avoid taking additional right-of-way from the property without the use of retaining walls.

Asheville School

The preferred alternative would require taking approximately 0.51 acre of right-of-way from this resource. Pursuant to Section 106, the SHPO concurred with a determination of "no adverse effect" because there are minimal right-of-way acquisitions and, taken as a whole, they would not substantially diminish the integrity or significance of the property. However, to the greatest extent possible, NCDOT has implemented efforts to avoid and minimize impacts to this resource during preliminary design of the project alternatives. Avoidance and minimization efforts will continue through subsequent phases of the project development and construction process.

The DEIS reported 2.79 acres of right-of-way impacts and 0.58 acre of construction easement impacts to the Asheville School. Revised designs for the preferred alternative reduced the amount of right-of-way impacts to 0.51 acre. The amount of construction easement required for this property increased from 0.58 acre to 1.48 acres for the reconstruction of a path/driveway near the corner of I-40 and Sand Hill Road.

Further coordination regarding mitigation opportunities for this resource will occur during development of the Section 106 Memorandum of Agreement (MOA), according to 36 CFR 800.6(b)(1)(i-iv) of the NHPA, which will detail measures to be implemented to resolve adverse effects through avoidance, minimization, or mitigation.

Buncombe County Bridge 216

Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no adverse effect" on this historic resource from Section A because the bridge would remain in place and protective measures would be utilized during construction.

Calvary Baptist Church

Section A designs will not require right-of-way from this property. Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no effect" on this historic resource because no construction activities would directly impact the property.

Baker Building

Section A designs show a small easement to modify the sidewalks in front of the Baker Building to accommodate the revised grade of Haywood Road. Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no adverse effect" on this historic resource. This resource was previously referred to as the Friendly Grocery Store.

West Asheville/Aycock School Historic District

Pursuant to Section 106, the SHPO concurred with the determination that there would be an "no adverse effect" on this resource associated with Section A due to the mitigation measures associated with the environmental commitments made by NCDOT. Approximately 0.15 acre of right-of-way would need to be acquired within the historic district's boundaries; however, with regard to the existing stone wall, arrowhead monument, and several trees at the school, protective measures will be utilized during construction.

The DEIS reported 0.35 acre of right-of-way impacts and 0.25 acre of construction easement impacts to the Aycock Primary School. Revised designs for the preferred alternative reduced the amount of right of way impacts to 0.15 acre and increased the need for temporary construction easement to 0.10 acre. After speaking with school administration, redesign of the school's traffic pattern and purchase of a vacant lot on Argyle Lane could recoup the 25 parking spaces impacted and alleviate the access issues. Construction easements would increase with this scenario but NCDOT is investigating the constructability and design details for the new parking lot in consultation with the school and HPO. In addition to recouping the 25 parking spaces, NCDOT commitments include the:

- *Preservation of screening trees along the west side of classrooms*
- *Installation of fencing (six feet in height at a minimum and the school's chosen material) between the greenway and the school yard*
- *Protection of the trees and Arrowhead monument on school grounds during construction*

Further coordination regarding mitigation opportunities for this resource will occur during development of the Section 106 MOA.

William Worley House

The Section B preferred alternative would permanently incorporate less than 0.05 acre from the 3-acre property and require an underground easement for anchoring the proposed retaining wall. Pursuant to Section 106, the SHPO concurred with the determination that there would be "no adverse effect" because the proposed effects would not degrade the historic character of the house and the house would be screened by existing wooded area that lies between the house and the proposed right-of-way. This resource was previously referred to as the C.G. Worley House.

After publication of the DEIS and selection of the preferred alternative, NCDOT met with the property owner of the William Worley House, at the residence located at 1 Worley Place on September 19, 2016. The purpose of the meeting was to explain proposed impacts resulting from the project and potential noise abatement measures such as installation by NCDOT of insulation and central air and any other actions that would reduce noise. NCDOT will continue to coordinate with the property owner to determine the appropriate mitigation measures.

Additional coordination occurred with IRA LLC via letter (attempts to set up a meeting were unsuccessful), the property owner of the parcel of land adjoined to the property containing the home that would be physically impacted by the project due to the underground easement.

The DEIS reported 0.10 acre of right-of-way impacts and 0.22 acre of construction easement impacts to the William Worley House property. Revised designs for the preferred alternative reduced the amount of right-of-way impacts to 0.05 acre and increased the amount of permanent underground easement slightly to 0.26 acre to construct the retaining wall. NCDOT committed to provide funding for the property owner to install central heat and air conditioning, storm windows, and insulation.

Freeman House

No right-of-way would be required from this resource. Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no adverse effect" on this historic resource.

After publication of the DEIS, NCDOT contacted the property owner to explain proposed audible and visual impacts resulting from the project and potential abatement measures. The property owner indicated that they would like NCDOT to provide funding for appropriate mitigation measures. NCDOT committed to provide funding for the installation of central heat and air conditioning, storm windows, and insulation as well as landscaping along the edges of their property facing the new facility.

Further coordination regarding mitigation opportunities for this resource will occur during development of the Section 106 MOA.

Buncombe County Bridge 323 (Formerly Great Smoky Mountains Park Bridge)

Pursuant to Section 106, the SHPO concurred with NCDOT's determination that the project would have "no effect" on this historic resource because there would be no construction activities that directly impact this bridge. This resource is the northern span of the Captain Jeff Bowen Bridges.

Southern Railroad Bridge

Pursuant to Section 106, the SHPO concurred with NCDOT's determination that the project would have "no effect" on this historic resource because there would be no construction activities that directly impact this bridge.

Montford Area Historic District

Pursuant to Section 106, the SHPO concurred with NCDOT's determination that the preferred alternative would have an "adverse impact" on a local landmark, Riverside Cemetery, within the Montford Area Historic District. While no construction work or temporary construction easements will impact right-of-way within the district, there are two elevated bridges and a retaining wall that will create visual impacts to this resource.

NCDOT is working with the newly-formed Asheville Aesthetics Advisory Committee to design appropriate landscaping measures mitigate for the visual effects of the elevated roadway adjacent to Riverside Cemetery.

Further coordination regarding mitigation opportunities for this resource will occur during development of the Section 106 MOA.

Montford Hills Historic District

Pursuant to Section 106, the SHPO concurred with NCDOT's determination that the preferred alternative in Section B would have "no adverse effect."

The DEIS reported the project would not degrade the character of the historic resource but would require an underground easement to anchor a proposed retaining wall at this location; however, the revised designs of the preferred alternative do not require the underground easement to accommodate the retaining wall, which allows all easement impacts to be eliminated.

Montford Hills/Hibriten Drive Boundary Expansion

Pursuant to Section 106, the SHPO concurred with NCDOT's determination that the preferred alternative would have "no effect" on this historic resource because there would be no physical impacts to the site.

Mrs. Minnie Alexander Cottage

Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no effect" on this historic resource because no construction activities would directly impact the property.

Whiteford G. Smith House

Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no effect" on this historic resource because no construction activities would directly impact the property.

Haywood Street United Methodist Church

Pursuant to Section 106, the SHPO concurred with the determination that the project would have "no adverse effect."

Originally, no construction work or temporary construction easements would impact the church or its parking. However, the construction of a sidewalk in front of the church is currently proposed and supported by the congregation.

4.1.5.2 Archaeological Resources

In order to comply with Section 106 of the NHPA (1966, as amended), FHWA and NCDOT must evaluate the project's impact on archaeological resources and determine whether additional measures would be necessary to mitigate any adverse effects of the project on any archaeological sites.

Archaeological site 31BN826 is NRHP-eligible under Criterion D and would be adversely affected by the preferred alternative. Impacts to this site will be mitigated through the development and execution of an archaeological data recovery plan. Site 31BN828 and 31BN825, which are recommended NRHP-eligible under Criterion D, will not be affected by the project. These sites will be avoided during the construction phase of the project and preserved in place. Five unassessed sites (31BN823, 31BN868, 31BN870, 31BN871, and 31BN873) are located within the existing right-of-way and will be evaluated during deep testing. Deep testing is also required in five locations covering approximately 22 acres to search for previously-unidentified sites. If any of these sites are determined eligible, FHWA and NCDOT will coordinate with SHPO and other consulting parties on appropriate mitigation measures to compensate for archaeological site impacts caused by construction. Deep testing and data recovery will occur once right-of-way has been acquired. While site 31BN623 will be impacted with the placement of fill, it was determined that this action would be a no adverse effect with the commitment that iron markers are placed at either end of the wall to mark its extent prior to the placement of fill.

Further documentation of the mitigation for archaeological resources will occur during development of the Section 106 MOA.

4.1.6 NATURAL ENVIRONMENT

Impacts to the existing natural environment in the project study area are presented in this section. Unless otherwise cited, impact information regarding these topics was obtained from the NRTR prepared for the proposed project and its associated addendum on the preferred alternative (Atkins Engineering 2015, AECOM 2018e).

4.1.6.1 Soils/Topographical/Geological

Properties of the soils within the corridor of the preferred alternative can affect the final engineering design of the new roadway alignment. Soil limitations include erosion hazard, shrink/swell potential, differential settlement, low strength, corrosivity, and flood hazard.

A detailed geotechnical investigation is currently being conducted for the preferred alternative; however, preliminary analysis from the Geotechnical Pre-Scoping Report (NCDOT 2006a) does not anticipate rock cuts, nor was it determined acidic rock formations are likely to be encountered along the corridor.

Mitigation

The soil limitations will be overcome through proper engineering design, incorporating techniques such as soil modification, appropriate choice of fill material, use of non-corrosive subgrade materials, and design of drainage structures capable of conveying estimated peak flows. If there is indication of the presence of acidic rock formations, the actual amount of treatment required will determine the various levels of mitigation. These may include (1) treatment in place, (2) treatment of rock that has been excavated and used in fill or backfill areas, and (3) treatment of very acidic material that would require fully separate and contained areas.

4.1.6.2 Biotic Resources

Terrestrial Communities

Potential impacts to plant communities resulting from highway construction reflect the relative abundance of communities within the project study area. Much of the project study area is within residential and commercial/industrial regions of Asheville, and as such, urban/disturbed land is the dominant mapped community. Areas mapped as alluvial hardwood forest and mesic mixed forests are considered to be the only natural areas present within the project study area. Since this project would involve some construction on new location, fragmentation of these forested natural plant communities would be expected. Impacts to plant communities are expected to be limited to cut or fill sections and additional 10-foot clearing limits required for construction purposes. Anticipated impacts to vegetative communities by the preferred alternative are shown in Table 4-14.

Table 4-14: Anticipated Vegetative Community Impacts of the Preferred Alternative

Vegetative Community	Coverage (acres)					
	Section C		Section A		Section B	
	DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
Maintained/Disturbed	171.93	*156.05*	91.08	*83.61*	124.82	*120.58*
Mesic Mixed Forest	111.26	*105.11*	47.41	*44.64*	40.67	*32.81*
Alluvial Hardwood Forest	6.55	*3.68*	1.50	*1.54*	3.88	*2.14*
Total	289.74	*264.84*	139.99	*129.79*	169.37	*155.53*

Terrestrial Wildlife

The proposed project is not expected to result in adverse impacts to wildlife due to the existing urbanized nature of the project study area. Short-term displacement of local wildlife populations would occur during initial construction. Most local species are habituated to human-related disturbances and are expected to return to the vicinity after construction. Movement through the area would become more dangerous for many transient species due to the increase in width of the new facility.

No economically important game species are expected to be adversely affected by the project due to the primarily urban and suburban setting.

Some wildlife species that occur within the project study area may be displaced through a permanent change in location of community boundaries. Local large mammal populations, such as deer, fox, and bobcat, may experience disruptions in mating, feeding, or migratory patterns as a result of construction. Increased urbanization has already resulted in diminished habitat opportunities as woodlands and adjacent agricultural lands are committed to development. Migratory and resident bird species that require forest interiors for nesting may be displaced by a reduction in community tract size.

NCDOT has evaluated the proposed project study area for potential crossings of large and small wildlife. Along the corridor, potential crossings include replacing existing bridge structures with new structures that include under passage of sufficient height and width to allow to movement of large mammals, including black bears. Additionally, NCDOT will continue to coordinate with the NCWRC and the USFWS on wildlife issues, including potential "hotspot" crossing areas. Existing natural corridors of the preferred alternative appear to be in the following locations in each section:

Section C

Existing natural corridors appear to be located along I-40 east of Exit #44 and south of the Asheville School. However, the existing interstate infrastructure currently serves as a barrier.

Within the interchange of I-26/I-40/I-240, there are four existing bridges proposed to be replaced. The areas along Upper Hominy Creek may serve as a natural corridor. Alternative F-1 proposes to replace these four structures with new bridges at the same location. The designs associated with the 2015 DEIS proposed 1 additional crossing and approximately 1100' of structure running

parallel to the bank of Upper Hominy Creek that have been eliminated as a result of design refinements undertaken following the 2015 DEIS.

East of Exit #47, there appears to be a natural corridor at Lower Hominy Creek. There are two existing bridges carrying I-40 (eastbound and westbound) across the stream. Alternative F-1 proposes three bridge crossings at this location. Two of these crossings will replace the existing bridges carrying I-40 over Lower Hominy Creek; the third crossing is a new structure that carries the I-40 WB exit ramp over Lower Hominy Creek.

Further east of Exit #47, the I-40 bridge crossings over the French Broad River will be removed and replaced with new structures.

Section A

An existing natural corridor appears to exist along I-26/I-240 under the bridges over Lower Hominy Creek. These two bridge crossings are proposed to be removed and replaced. The remainder of the study area in Section A is relatively urban.

Section B

Section B includes mostly urban development; therefore, natural corridors are not as prevalent. There are five existing bridge crossings of the French Broad River; these crossings consist of one bridge for Craven Street, two bridges for Patton Avenue, one railroad bridge, and one bridge located on Pearson Bridge Road. None of these existing crossings will be impacted or altered due to the proposed improvements associated with this project. Alternative 4-B proposes three new bridge crossings over the French Broad River. Each of the proposed structures are expected to have substantially long span lengths so as not to impede existing wildlife movement, thus allowing for wildlife to continue to cross under the proposed alignments.

Aquatic Communities and Wildlife

Impacts to water resources in the project study area may result from activities associated with the construction of the project. Activities that would result in impacts include clearing and grubbing on streambanks, riparian canopy removal, in-stream construction, fertilizers and pesticides used in revegetation, and pavement/culvert installation. The following impacts to surface water resources could result from the construction activities mentioned above:

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project study area
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal
- Changes in and destabilization of water temperature due to vegetation removal
- Alteration of water levels and flows due to interruptions and/or additions to surface and groundwater flow from construction

- Increased nutrient loading during construction via runoff from exposed areas
- Increased concentrations of toxic compounds in roadway runoff
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of best management practices (BMPs).

Long-term impacts to streams along the project corridor would be limited to stream reaches within the road facility footprint only. Impacts to stream reaches adjacent to the facility footprint would be temporary and localized during construction. Long-term impacts to adjacent reaches resulting from construction are expected to be negligible.

Invasive Species

Invasive species are species that are non-native to the ecosystem under consideration whose introduction causes or is likely to cause economic or environmental harm or harm to human health. EO 13112 was signed in 1999 and requires that federal agencies shall use relevant programs and authorities to:

- Prevent the introduction of invasive species
- Detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner
- Monitor invasive species populations accurately and reliably
- Provide for restoration of native species and habitat conditions in ecosystems that have been invaded
- Conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species
- Promote public education on invasive species and the means to address them

FHWA has developed guidance on addressing the potential problems associated with roadside invasive plants. Additionally, the proposed project will comply with the requirements set forth in EO 13112 and the *Federal Highway Administration Guidance on Invasive Species* (FHWA 1999).

4.1.6.3 Natural Heritage Program Identified Priority Areas

No Identified Priority Areas were identified in the project study area; therefore, impacts are not anticipated.

4.1.6.4 Water Resources

Groundwater

Any wells within the project's right-of-way will be surveyed prior to project construction. NCDOT will purchase these wells and cap and abandon them in accordance with North Carolina Well Construction Standards. Any subsurface contamination will be reported to the Asheville Regional

Office of the NCDEQ. During the final design phase of the project, NCDOT will also identify wells adjacent to the project right-of-way that could be impacted by roadway construction. Mitigation for these wells will be provided through land purchase, compensation for damages, or the provision of new wells.

A roadway alignment is in a cut section if the elevation of the roadway is below the original ground elevation. Well drawdown (reduced yield) may occur around areas of cut sections. Construction of the project would contribute to a cumulative decrease in available recharge area for the Piedmont and Blue Ridge crystalline-rock aquifers. However, due to the already urban/disturbed land areas in the vicinity, the proposed project is not expected to substantially impact aquifer recharge volumes.

Pollutants associated with highway construction and use could potentially affect aquifer groundwater quality in localized areas. Possible pollutants include pesticides, herbicides, fertilizers, petrochemicals, oil, grease, heavy metals, and hazardous materials. Note that no sole or principal drinking water aquifers are present in the project study area (EPA 2007). The majority of the drinking water in the project study area is supplied by reservoirs. Impacts to these reservoirs are not anticipated.

Surface Water

Significant impacts on drainage patterns and groundwater are not anticipated for the preferred alternative; however, the amount of impervious surface would be increased by the project. The effects on surface water would likely be proportional to the increase in impervious surface and are included in Table 4-15.

Table 4-15: Impervious Surface Area

Alternative	Existing Impervious Area (acres)		Increase in Impervious Area (acres)		Percent increase in Impervious Area	
	DEIS	FEIS	DEIS	FEIS	DEIS	FEIS
Section C Alternative F-1	77.45	*66.59*	134.57	*98.15*	74%	*47%*
Section A I-240 Widening Alternative	36.36	*40.03*	63.81	*61.91*	75%	*55%*
Section B Alternative 4-B	59.28	*80.45*	99.73	*101.62*	68%	*26%*

Source: *Updated Impervious Surface Calculations Memorandum* (AECOM 2018h).

Due to the proximity to the French Broad River and Smith Mill Creek, mitigation measures to minimize any impacts to water quality are needed. The increase in impervious surface area would have minimal impact on the French Broad River basin as a whole but would increase both the peak and total volume of runoff to the tributaries and smaller drainage basins within the project study area. These impacts would be reviewed and addressed during the final design stage of the project. The smaller receiving streams feed directly into the larger streams (Hominy Creek, Smith Mill Creek, and the French Broad River), so the impacts on downstream properties would be minimal. There are no high-quality receiving waters in the watershed that would be degraded by runoff from the project.

The following pollutants may be contained in the stormwater runoff:

- Sediment eroded during construction activity
- Pesticides, herbicides, and fertilizers used to plant and maintain highway landscaping
- Petrochemicals, oil, grease, and heavy metals associated with operation of vehicles
- Trash and debris discarded by highway users
- Chemicals and hazardous materials accidentally spilled during transport

The project has the potential to temporarily degrade the quality of water in the surrounding streams by means of soil erosion during construction. Construction impacts are presented in Section 4.1.6.

Mitigation

As part of the Highway Stormwater Program, NCDOT will develop and implement numerous programs on a statewide basis to protect and promote stormwater quality impacted by NCDOT discharges. Programs will be developed to ensure compliance with the National Pollutant Discharge Elimination System (NPDES) permit. NCDOT will incorporate measures to control nonpoint source water quality impacts as described in *Best Management Practices for Protection of Surface Waters* (NCDOT 1997) and in *NCDOT Stormwater Best Management Practices* (NCDOT 2014d). The goal of these BMPs is to prevent degradation of the state's waters through the location, construction, or operation of the highway system. The *NCDOT Stormwater Best Management* Practices presents information about BMPs, basic hydrologic and hydraulic design principles, and design considerations that impact BMPs construction and maintenance. These measures will be incorporated into the final engineering design of the project and will be detailed in an erosion and sedimentation control plan. This plan will be prepared in accordance with the guidelines and requirements of the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B.0101 0130).

During construction, BMPs for in-water and over-water construction will be implemented, which will incorporate monitoring and enforcement of operational standards. A list of BMPs and NCDOT standards is included in Section 4.1.7.6.

BMPs to control stormwater runoff include directing sheet flow over grassed shoulder slopes and shallow flat slope ditches, using stone-lined ditches in lieu of rigid concrete pavement, and using storage where necessary and practicable to reduce discharge of roadway runoff into sensitive receiving waters (NCDOT 1991). In flat areas, such as the project site, long-term stormwater drainage is typically provided through grass swales parallel to the roadway. Vegetated swales will reduce water quality impacts to surface water by catching oil, grease, and other pollutants and preventing them from draining to the area streams and rivers.

Stormwater runoff from the project will be contained as part of the project. NCDOT has no jurisdiction to impose land use and development controls. However, local government has the ability to control development through zoning, issuance of permits, and water quality objectives. State stormwater certification (15A NCAC-2H.1000) will be required. Requirements for this certification vary by the classifications of waters to which the project would drain.

Specific stormwater management devices for treating the runoff from the project will be determined during the final design phases of the project. Both quality and quantity management will be addressed, with particular attention paid to the increased impervious area and to the runoff collected from the extensive bridge structures. Possible devices include vegetated swales, wet and/or dry detention basins, infiltration basins, filtration basins, and stormwater wetlands. Numerous opportunities for these devices exist within the footprint of the proposed project. Potential locations include the following:

Section C

Section C, with its characteristically spread footprint due to the nature of a directional interchange, would create large areas in the ramp infields that may be readily used for stormwater management devices.

Emergency oil and chemical spill response plans are in effect for Buncombe County. The state of North Carolina has organized a system of Hazardous Materials Regional Response Teams strategically located in the state to provide hazardous materials response services. The City of Asheville Fire and Rescue serves Buncombe County and 19 other counties in western North Carolina and provides hazardous materials emergency response.

The project would impact stream systems for which permitting will be required. Permits required for impacts to streams are discussed in Section 4.4.1.

Section A

Section A is the most urban and the most site constrained section of the project and thus contains the fewest opportunities for stormwater management devices. Still, the infield areas of the Brevard Road interchange and the Amboy Road interchange offer opportunities for stormwater management devices. Locating opportunities for stormwater treatment will be challenging in the Haywood Road interchange area and at the northern terminus of the section.

Section B

The area beneath the structures west of the French Broad River in the vicinity of the existing Crowne Plaza Resort golf course offers numerous opportunities for stormwater management devices in Section B. In addition, the areas east of the French Broad River and west of the existing railroad under the proposed bridges offer ample opportunities for stormwater treatment. Finally, there would be areas created around the interchange ramp infield that may also be utilized if needed.

Navigable Waterways

Navigable waterways associated with existing bridges within the project study area would not be affected by the proposed project. New bridges are proposed for the preferred alternative in Section B, and include a proposed bridge carrying I-26 over the French Broad River and two new flyover bridges north of the existing Patton Avenue carrying I-240 traffic over the river. These bridges would not affect navigation of the French Broad River and would meet or exceed existing

upstream and downstream navigational clearances. Coordination with the United States Army Corps of Engineers (USACE) and the United States Coast Guard (USCG) is ongoing and will continue throughout the project.

4.1.6.5 Jurisdictional Issues

Wetlands and Streams

The crossing of jurisdictional features, including streams and wetlands, is unavoidable for the proposed project; however, all practicable efforts have been taken during the preliminary design to minimize these impacts. The area impacted for jurisdictional features is comprised of the cut and fill limits plus a 25-foot buffer.

The impacts to jurisdictional features from the preferred alternative are shown on Figure 4-4 through Figure 4-6, with impacts to wetlands included in Table 4-16 and stream impacts included in Table 4-17.

Mitigation

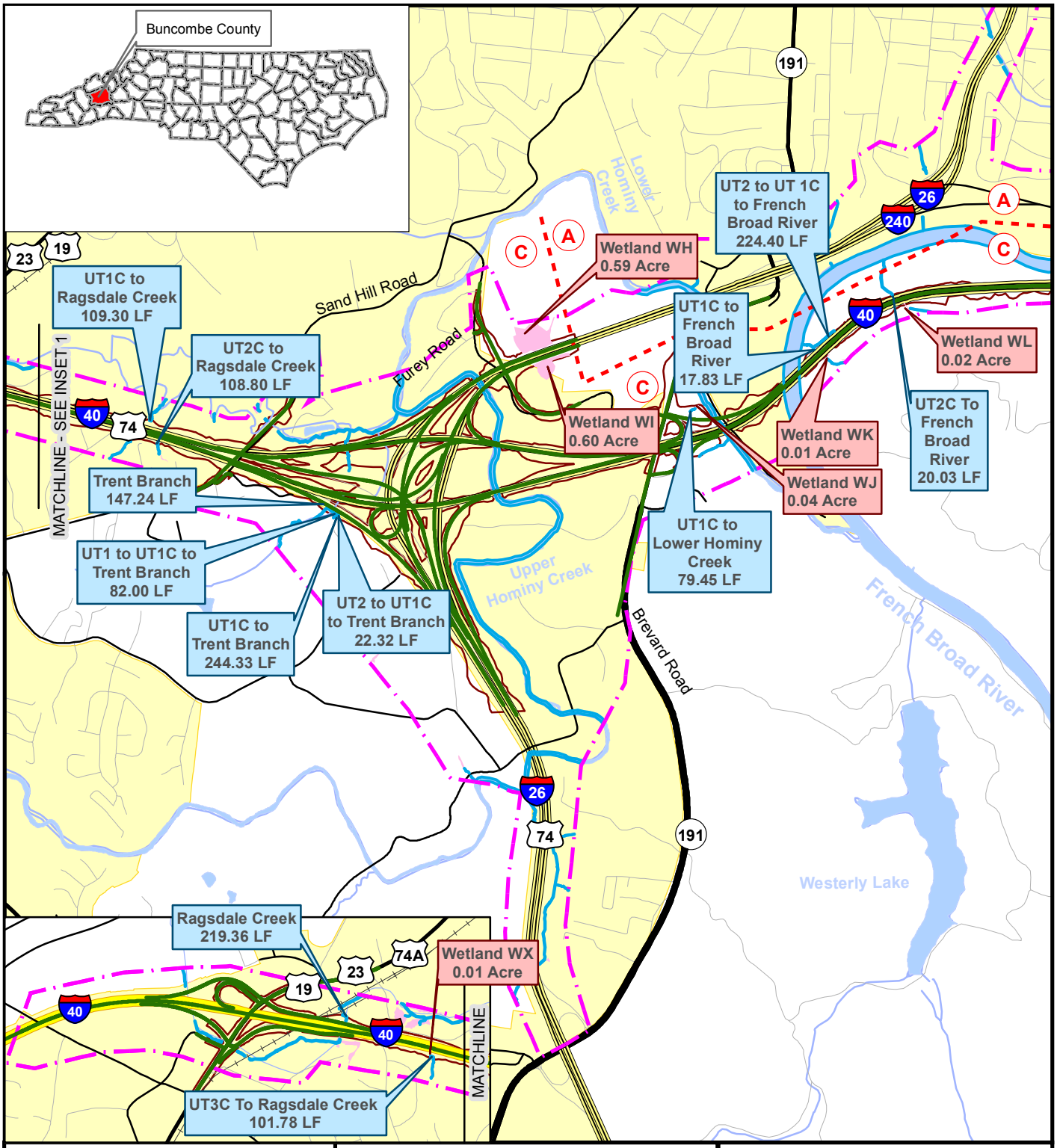
USACE has adopted, through CEQ, a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the United States, and specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance

Avoidance mitigation examines appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 MOA between EPA and USACE (EPA 1990), in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. Impacts to streams are expected due to the nature of the project. Not all sediment can be prevented from entering waters of the United States.

Minimization

Minimization includes the examination of appropriate and practicable steps to reduce adverse impacts to waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. As work on I-40 and I-240 will involve widening the existing roadway, multiple opportunities will occur to minimize the lengths of culvert extensions and fill slopes. Efforts will be made to decrease impacts to surface waters.



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section C Slope Stakes
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
- Natural Resources Study Area
- Streams (non-delineated)
- Jurisdictional Stream Impacts
- Water
- Jurisdictional Wetlands
- Municipal Boundary

Date: May 2018

N W E S

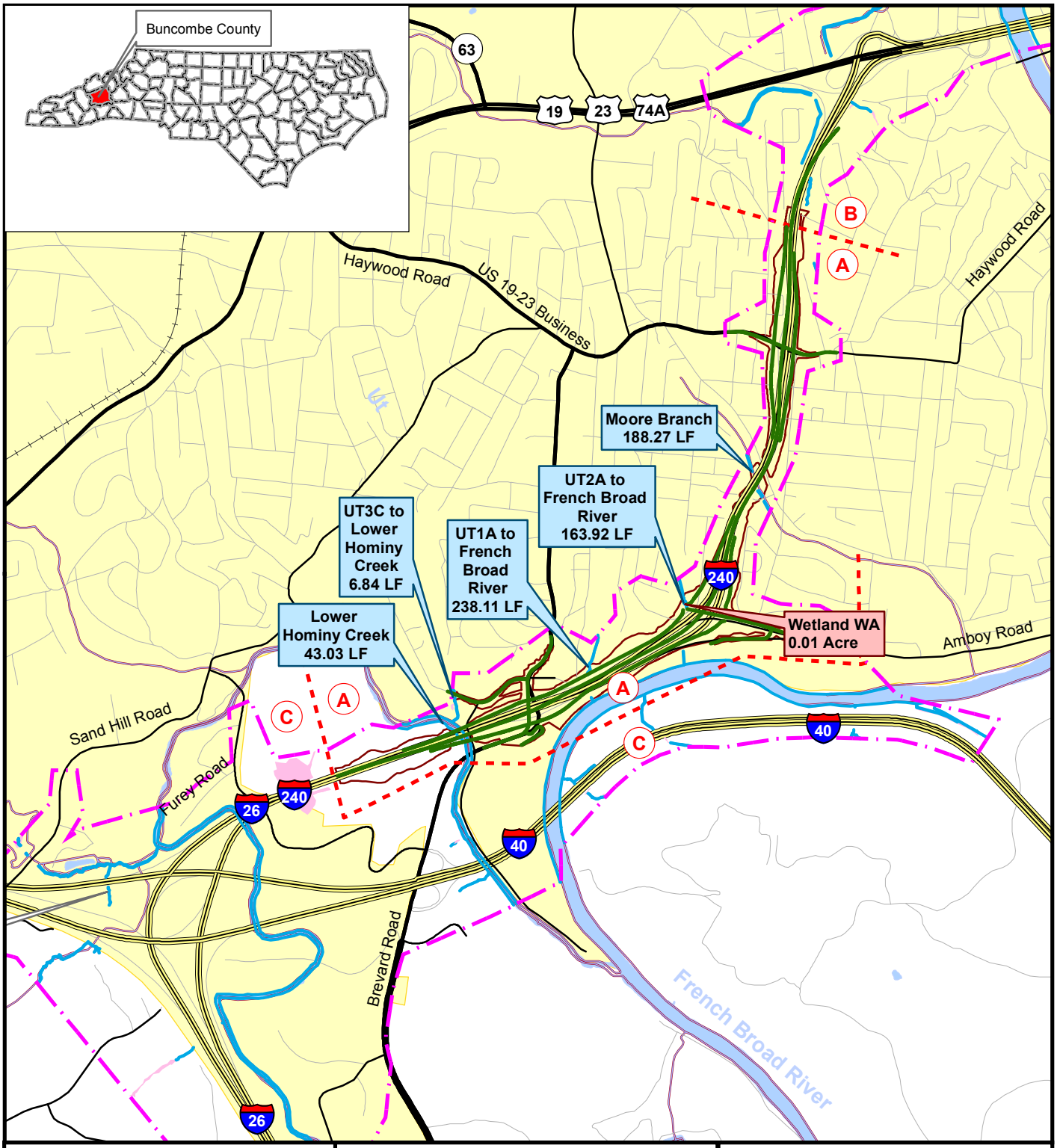
0 0.25 0.5 Miles

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

Figure 4-4

Section C Jurisdictional Impacts



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section A Slope Stakes
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
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- Jurisdictional Streams
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- Jurisdictional Wetlands
- Municipal Boundary

Date: May 2018

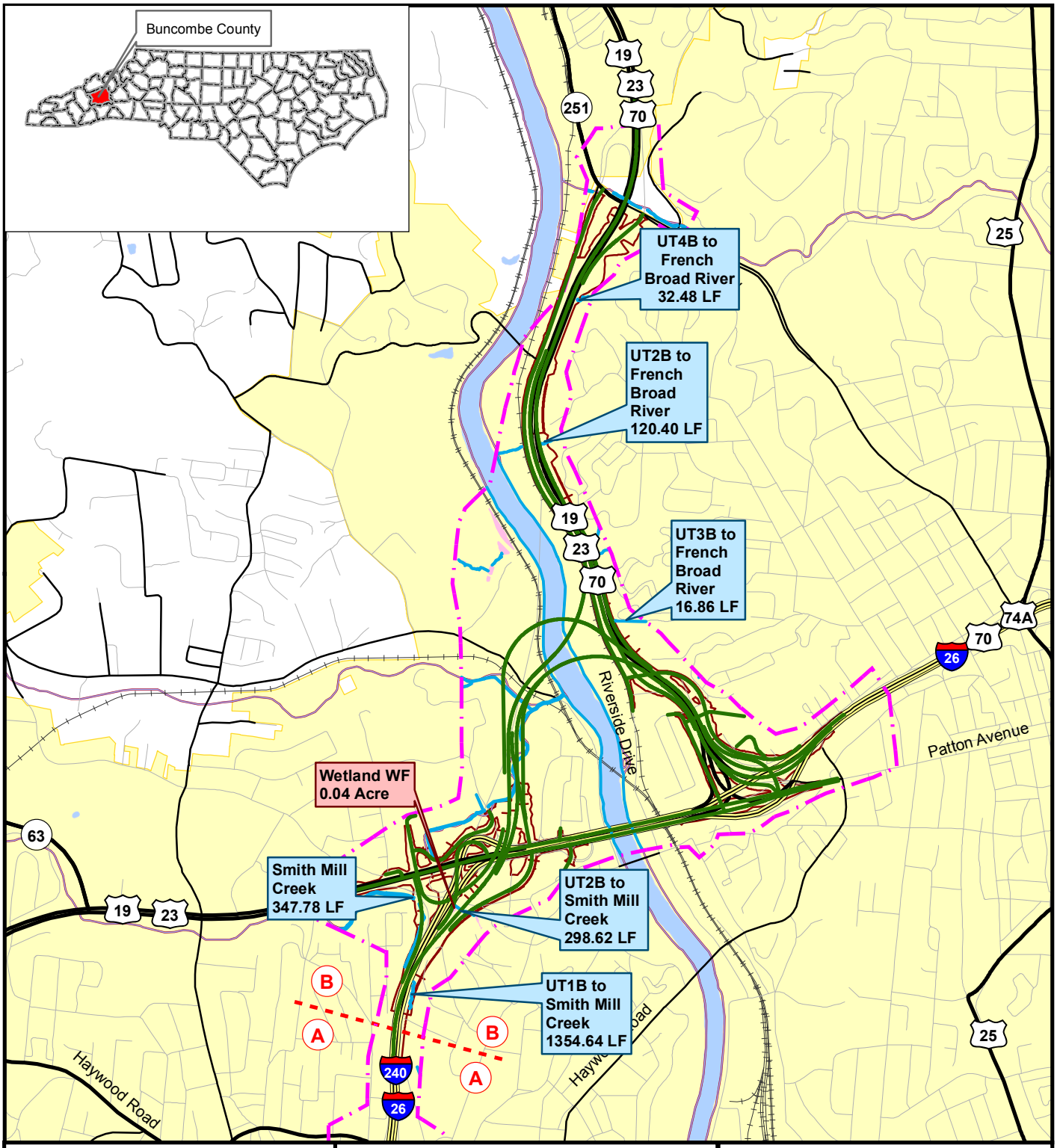
0 0.25 0.5 Miles

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

Figure 4-5

Section A Jurisdictional Impacts



North Carolina Department of Transportation

Legend

- Proposed Roadway Alignment
- Section B Slope Stakes
- Section Boundaries
- Interstate
- US Highway
- State Highway
- State Route
- Local Roads
- Railroad
- Natural Resources Study Area
- Streams (non-delineated)
- Jurisdictional Streams
- Water
- Jurisdictional Wetlands
- Municipal Boundary

Date: May 2018

0 0.25 0.5 Miles

I-26 Asheville Connector
Buncombe County

STIP Project No. I-2513

Figure 4-6

Section B Jurisdictional Impacts

Table 4-16: Wetlands Impacts of the Preferred Alternative

Wetland ID	NCDWR Rating [a]	Wetland Impacts (acres)					
		Section C		Section A		Section B	
		DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
WL	35	0.01	*0.02*	N/A	*N/A*	N/A	*N/A*
WK	35	0.03	*0.01*	N/A	*N/A*	N/A	*N/A*
WH	71	0.74	*0.59*	N/A	*N/A*	N/A	*N/A*
WI	71	0.60	*0.60*	N/A	*N/A*	N/A	*N/A*
WAC	59	0.33	*0.00*	N/A	*N/A*	N/A	*N/A*
WX	46	0.06	*0.01*	N/A	*N/A*	N/A	*N/A*
WZ	40	0.05	*0.00*	N/A	*N/A*	N/A	*N/A*
WJ	43	0.04	*0.04*	N/A	*N/A*	N/A	*N/A*
WAF	39	<0.01	*0.00*	N/A	*N/A*	N/A	*N/A*
WAG	39	0.01	*0.00*	N/A	*N/A*	N/A	*N/A*
WV	54	<0.01	*0.00*	N/A	*N/A*	N/A	*N/A*
WQ	Unknown	0.00	*0.00*	N/A	*N/A*	N/A	*N/A*
WY	40	<0.01	*0.00*	N/A	*N/A*	N/A	*N/A*
WA	40	N/A	*N/A*	0.01	*0.01*	N/A	*N/A*
WC	43	N/A	*N/A*	N/A	*N/A*	0.06	*0.00*
WF	29	N/A	*N/A*	N/A	*N/A*	0.04	*0.04*
WD	33	N/A	*N/A*	N/A	*N/A*	0.00	*0.00*
WG	20	N/A	*N/A*	N/A	*N/A*	0.00	*0.00*
Total	N/A	1.86	*1.28*	0.01	*0.01*	0.10	*0.04*

[a] Wetland rating procedure from *A Field Guide to North Carolina Wetlands* (NCDNR 1996). Wetlands are rated on a scale of 1 to 100, with 100 indicating the highest quality.

Table 4-17: Stream Impacts of the Preferred Alternative

Description	Map ID	Classification[a]	Stream Impacts (linear feet)					
			Section C		Section A		Section B	
			DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
French Broad River	SA	P	0	*0*	N/A	*N/A*	N/A	*N/A*
Ragsdale Creek	SV	P	253	*200*	N/A	*N/A*	N/A	*N/A*
Trent Branch	SW	P	191	*146*	N/A	*N/A*	N/A	*N/A*
Upper Hominy Creek	SX	P	0	*0*	N/A	*N/A*	N/A	*N/A*
UT1C to French Broad River	SAB	I	14	*18*	N/A	*N/A*	N/A	*N/A*
UT1C to Lower Hominy Creek	SAC	I	79	*79*	N/A	*N/A*	N/A	*N/A*
UT1C to Ragsdale Creek	SAD	P	236	*109*	N/A	*N/A*	N/A	*N/A*

Description	Map ID	Classification[a]	Stream Impacts (linear feet)					
			Section C		Section A		Section B	
			DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
UT1C to Upper Hominy Creek	SAF	P	43	*34*	N/A	*N/A*	N/A	*N/A*
UT2 to UT 1C to French Broad River	SAG	I	278	*224*	N/A	*N/A*	N/A	*N/A*
UT2 to UT2C to Upper Hominy Creek	SAI	P	6	*0*	N/A	*N/A*	N/A	*N/A*
UT2C To French Broad River	SE	P	22	*20*	N/A	*N/A*	N/A	*N/A*
UT2C to Lower Hominy Creek	SAJ	P	0	*0*	N/A	*N/A*	N/A	*N/A*
UT2C to Ragsdale Creek	SAK	I	165	*109*	N/A	*N/A*	N/A	*N/A*
UT2C to Upper Hominy Creek	SAL	P	543	*0*	N/A	*N/A*	N/A	*N/A*
UT3C To Ragsdale Creek	SAN	P	154	*102*	N/A	*N/A*	N/A	*N/A*
UT1 to UT1C to Trent Branch	SY	P	-	*82*	N/A	*N/A*	N/A	*N/A*
UT1C to Trent Branch	SAE	P	-	*242*	N/A	*N/A*	N/A	*N/A*
UT2 to UT1C to Trent Branch	SAH	P	-	*22*	N/A	*N/A*	N/A	*N/A*
UT1A to French Broad River	SD	P	N/A	*N/A*	290	*263*	N/A	*N/A*
UT2A to French Broad River	SF	P	N/A	*N/A*	282	*227*	N/A	*N/A*
UT3C to Lower Hominy Creek	SH	P	N/A	*N/A*	6	*43*	N/A	*N/A*
Moore Branch	SC	P	N/A	*N/A*	220	*188*	N/A	*N/A*
Lower Hominy Creek	SB	P	N/A	*N/A*	-	*41*	N/A	*N/A*
Smith Mill Creek	SR	P	N/A	*N/A*	N/A	*N/A*	254	*372*
UT1B to Smith Mill Creek	SG	I	N/A	*N/A*	N/A	*N/A*	1,348	*668*
UT2B to Smith Mill Creek	SU	P	N/A	*N/A*	N/A	*N/A*	300	*299*
UT3B to Smith Mill Creek	SS	P	N/A	*N/A*	N/A	*N/A*	0	*172*
UT1B to French Broad River	SN	I	N/A	*N/A*	N/A	*N/A*	0	*0*
UT2B to French Broad River	SI	I	N/A	*N/A*	N/A	*N/A*	130	*120*

Description	Map ID	Classification[a]	Stream Impacts (linear feet)					
			Section C		Section A		Section B	
			DEIS	*FEIS*	DEIS	*FEIS*	DEIS	*FEIS*
UT3B to French Broad River	SO	P	N/A	*N/A*	N/A	*N/A*	31	*17*
UT4B to French Broad River	SK	P	N/A	*N/A*	N/A	*N/A*	65	*32*
UT6B to French Broad River	SM	I	N/A	*N/A*	N/A	*N/A*	0	*0*
Total		**N/A**	**1,984**	***1,389***	**798**	***762***	**2,128**	***1,680***

[a] P=Perennial stream (typically contains permanent, flowing water), I=Intermittent stream (characterized by temporal flow interruptions).

Compensatory

Compensatory mitigation is not normally considered until anticipated impacts to waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. In accordance with 67 FR 2020, 2092; January 15, 2002, USACE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of the proposed project impact and the function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, preservation and enhancement, and creation of waters of the United States. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

In July 2010, a new legal document (or instrument) for the operation and use of the Ecosystem Enhancement Program's (EEP) In-Lieu Fee programs for stream and wetland mitigation was signed by USACE and NCDEQ.

The instrument complies with federal rules governing compensatory mitigation that became effective in June 2008, and supersedes the 2003 MOA among USACE, NCDEQ, and NCDOT (EPA 2003) governing EEP operations, as well as a 1998 Memorandum of Understanding between NCDEQ and USACE (NCDNR and USACE 1998).

EEP worked with USACE, EPA, and other state and federal regulatory and resource agencies to develop the new instrument.

Opportunities for compensatory mitigation are limited within the project study area. Existing downcutting, eroded drainages can be improved with streambank grading and planting or more comprehensive restoration strategies. Almost all stream and wetland areas in the project study area are invaded by exotic, invasive plant species including Chinese privet, Japanese honeysuckle, multiflora rose, and Oriental bittersweet (*Celastrus orbiculatus*). Removal of these invaders, along with riparian buffer enhancements, may constitute further mitigation opportunities.

Protected Species

Federally listed endangered and threatened species are legally protected under the provisions of Section 7 of the ESA of 1973, as amended, and any action likely to adversely affect a species afforded federal protection is subject to review by USFWS and/or NMFS. Species classified as FSC are not protected under the provisions of Section 7 of the ESA but are defined as species under consideration for listing as threatened or endangered. North Carolina provides limited protection to "at risk" species under the North Carolina Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. NCWRC and the North Carolina Department of Agriculture are responsible for enforcing and administering species protection. The federally protected species found in Buncombe County (USFWS 2018) and the biological conclusions regarding the potential effects of the project are summarized in Table 4-18.

Table 4-18: Federally Protected Species listed for Buncombe County

Scientific Name	Common Name	Federal Status [a]	Habitat Present	Biological Conclusion [a]
Clemmys muhlenbergii	Bog turtle	T(S/A)	Yes	Not required
Glaucomys sabrinus coloratus	Carolina northern flying squirrel	E	No	No effect
Myotis grisescens	Gray bat	E	Yes	MA-LAA
Myotis septentrionalis	Northern Long-eared Bat	T	Yes	MA-NLAA
Hybopsis monacha	Spotfin chub [b]	T	Yes	No effect
Alasmidonta raveneliana	Appalachian elktoe	E	Yes	MA-LAA
Bombus affinis	*Rusty-patched bumble bee* [c]	*E*	*Unknown* [c]	*Not required*
Microhexura montivaga	Spruce-fir moss spider	E	No	No effect
Epioblasma florentina walker	Tan riffleshell [b, d]	E	Yes	*No effect*
Solidago spithamaea	Blue Ridge goldenrod [b]	E	No	No effect
Sagittaria fasciculata	Bunched arrowhead [b]	E	Yes	No effect
Sarracenia jonesii	Mountain sweet pitcher plant	E	No	No effect
Geum radiatum	Spreading avens	E	No	No effect
Spiraea virginiana	Virginia spiraea [b]	T	Yes	No effect
Gymnoderma lineare	Rock gnome lichen	E	No	No effect

Source: Atkins Engineering 2015, AECOM 2018e

[a] E = Endangered, T = Threatened, T(S/A) = Threatened due to similarity of appearance, MA-LAA – May Affect-Likely to Adversely Affect, MA-NLAA – May Affect-Not Likely to Adversely Affect

[b] Historic record (the species was last observed in the county more than 50 years ago).

[c] *No Section 7 survey or conclusion is required at this time.*

[d] Obscure record (the date and/or location of observation is uncertain).

The DEIS stated a biological conclusion of “no effect” for the Carolina northern flying squirrel, spotfin chub, spruce-fir moss spider, Blue Ridge goldenrod, bunched arrowhead, mountain sweet pitcher plant, spreading avens, Virginia spiraea, and the rock gnome lichen. Additional surveys for these species are not required. A biological conclusion is not required for the bog turtle as noted in the DEIS.

Gray bat

*The 2015 NRTR presented the biological conclusion of "unresolved" for the federally-endangered gray bat (*Myotis grisescens*). However, gray bats have been detected in multiple locations in Buncombe County since 2015.*

All bridges/overpasses and culverts that met minimum size requirements (5 feet by 200 feet) within the project study area were checked for evidence of bat use. This included checks of bridges that span the French Broad River including the I-40 dual bridges, and bridges on Amboy Road, Haywood Road, and Pearson Bridge Road, among others. Two culverts showed evidence of bat use. In September 2017, NCWRC and USFWS identified a gray bat inside of a culvert in the vicinity of Hill Street. In December 2017, CALYX Engineers and Consultants, Inc. determined that no gray bats were present, but staining was found on the vertical surfaces of the culvert. Based on the staining patterns, it was determined that the bats are likely roosting at scattered locations along the entire length of the culvert. An acoustic detector has been deployed at the culvert entrance since fall of 2017 to monitor bat activity. Emergence counts and trapping were conducted multiple times in 2018 to determine the number, age, and reproductive status of bats using the culvert. This information will aid in determining whether the culvert is being used as a maternity roost. In September 2019, gray bats were found roosting in the culvert under US 19/23 within the interchange for Patton Avenue/I-240 in Asheville.

The culverts are within the proposed roadway construction limits of the I-26 project. The culvert at Hill Street was inspected for structural integrity in February 2018. The culvert was deemed sufficient for hydraulic capacity and in structurally "fair-good" condition. The culvert under US 19/23 was inspected in November 2018. Repairs to this culvert are not anticipated at this time.

NCDOT will continue to coordinate with NCWRC and USFWS regarding avoidance and minimization for the gray bat per Section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). Section 7 compliance will be sought and secured prior to signing the ROD.

Northern Long-eared Bat

*The 2015 DEIS presented the biological conclusion of "unresolved" for the federally-threatened Northern long-eared bat (*Myotis septentrionalis*); however, the biological conclusion has been updated to "May Affect – Not Likely to Adversely Affect" due to the presence of suitable habitat within the study area. Therefore, NCDOT is coordinating with the USFWS to determine whether formal consultation will be required per Section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). Section 7 compliance will be sought and secured prior to signing the ROD.*

Appalachian elktoe

*The 2015 DEIS presented the biological conclusion of "may affect-not likely to adversely affect" for the Appalachian elktoe (*Alasmidonta raveneliana*). The* Freshwater Mussel Survey Report *evaluated the presence of freshwater mussels within the project study area and noted the Appalachian elktoe was not found at any sites within the project study area (Three Oaks Engineering 2018). The study did indicate, however, that Appalachian elktoe are present in the*

mainstream French Broad River upstream of surveyed sites, approximately 1.5 river miles from the project study area boundary. Based on this information, NCDOT is assuming presence and will comply with Section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 et seq.) and information will be sought and secured prior to signing the ROD. Therefore, the biological conclusion will be "may affect- likely to adversely affect".

Rusty-patched bumble bee

*Since publication of the DEIS, the rusty patched bumble bee (*Bombus affinis*), a species that occurs in the eastern and Midwestern United States and Ontario, Canada, was listed as an endangered species for Buncombe County under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). No Section 7 survey or conclusion is required due to the species "historic" record status.*

Tan riffleshell

*The 2015 DEIS presented the biological conclusion of "may affect-not likely to adversely affect" for the Tan riffleshell (*Epioblasma florentina walkeri*). The Freshwater Mussel Survey report completed in January 2018 noted the species was not found at any sites within the project study area, and records of this species in this portion of the French Broad River Basin are historic. Based on these survey results, the updated biological conclusion of the tan riffleshell is "no effect."*

4.1.7 CONSTRUCTION

The construction activities associated with development of the project would create environmental impacts. These impacts are generally short-term in nature and can be controlled, minimized, or mitigated through conformance with BMPs and standard NCDOT procedures. For detailed information concerning BMPs, refer to the NCDOT guide, *Best Management Practices for Construction and Maintenance Activities* (NCDOT 2003a). The potential construction impacts of the project are presented in this section.

4.1.7.1 Energy

Construction of the project is expected to result in less total energy utilization than the No-Build Alternative. Although construction of the project would initially require the consumption of energy and resources that would not be used if the project were not built, operation of the facility would compensate for the energy lost during construction by increasing the efficiency of the region's roadway system.

Increased energy efficiency from roadway improvements would be attributed to its controlled access features and would result in (1) decreased vehicle delays, (2) more efficient vehicle operating speeds, and (3) diversion of traffic away from less convenient and less efficient roadways. Furthermore, the project is consistent with the Federal Energy Policy Act of 2005.

4.1.7.2 Visual

Short-term visual impacts are expected to occur due to construction activities and equipment. To reduce the potential for visual impacts, construction activities would be contained within as minimal an area as practical. Construction easements on parcels outside the alignment, where

required, would be managed to minimize potential visual impact. Following construction, ground cover, landscaping, or related materials may be utilized to restore or enhance areas to preconstruction conditions or better.

4.1.7.3 Noise

Construction of the project would result in temporary increases in noise levels within the vicinity of the project. Noise would be generated primarily from heavy equipment used to transport materials and construction. Sensitive receivers located close to the construction activities may temporarily experience increased noise levels.

Construction noise can be controlled by regulating the hours of construction and equipping machinery with noise reduction devices. Certain construction activities could also be limited during the evening, weekends, and holidays. Storage and staging areas would be located as far from noise sensitive areas as practicable. NCDOT specifications require the contractor to limit noise levels to 80 dBA Leq in noise sensitive areas adjacent to the project. NCDOT also reserves the right to monitor construction noise and to require noise abatement where limits are exceeded. NCDOT can also limit work that produces objectionable noise during normal sleeping hours.

4.1.7.4 Air

Construction activities could have a short-term impact on air quality, primarily during site preparation. Dust is the pollutant of primary concern during the construction period. Dust would be generated during earth moving activities; handling of cement, asphalt, or aggregate; and equipment travel over unpaved haul roads. Wind erosion of exposed areas and material stockpiles would also generate dust.

The amount of dust generated would vary, depending on the construction activity and local weather conditions. Where excess dust is anticipated to be a problem, effective dust control measures would be implemented in accordance with standard NCDOT procedures. Dust control would be the responsibility of the contractor and could include the following:

- Minimizing exposed earth surface
- Temporary and permanent seeding and mulching
- Watering working and haul areas during dry periods
- Covering, shielding, or stabilizing material stockpiles
- Using covered haul trucks

Emissions from construction equipment are regulated by federal standards. Any burning of cleared materials would be conducted in accordance with applicable state and local laws, regulations, and ordinances. Specifically, a Burning Permit from the North Carolina Division of Forest Resources must be obtained for burning within woodlands or 500 feet of woodlands under the protection of the Division of Forest Resources.

4.1.7.5 Utilities

Construction of the project would require some adjustment, relocation, or modification to existing public utilities such as natural gas pipelines, power transmission/distribution lines, water and sewer lines, and telephone and cable television lines. The impacts to these utilities are described in Section 4.1.3.4. Any disruptions to utility service during construction would be minimized by phased adjustments to the utility lines.

It is anticipated that the construction techniques to be used in the relocation of buried utilities would include a combination of trenching and boring. Utility relocation impacts would be more succinctly defined and minimized at Concurrence Points 4B and 4C of the Section 404/NEPA Merger Process as a result of utility relocation design in the final design phase of the project. All modifications, adjustments, or relocations would be coordinated with the affected utility.

4.1.7.6 Water Quality

Runoff from the project construction site could impact water quality by the transport of sediment, nutrients, or hazardous materials. In accordance with the North Carolina Sedimentation and Pollution Control Act (15A NCAC 4B.0001.0027), an erosion and sedimentation control plan must be prepared for land disturbing activities that cover one or more acres to protect against runoff from a 10-year storm. Thus, prior to the start of project construction activities, an erosion and sedimentation control plan will be prepared in accordance with the NCDOT guidelines in *Best Management Practices for Protection of Surface Waters* (NCDOT 1997) and *NCDOT Stormwater Best Management Practices Toolbox* (NCDOT 2014d). BMPs to minimize sedimentation and erosion impacts during construction include, but are not limited to, the following:

- Scheduling construction activities to minimize exposed area and duration of exposure
- Clearing only minimal distances ahead of grading
- Temporary seeding, sodding, and/or mulching of disturbed areas
- Using gravel or straw on exposed surfaces prior to revegetation
- Revegetating as soon as possible after construction
- Using energy dissipators at outfalls
- Constructing temporary sediment traps
- Using silt fences
- Covering stockpiled materials
- Wetting exposed areas during windy conditions

In addition, NCDOT's standard practices will be adhered to during construction of the project. The standard practices require the proper use and handling of construction materials. Every precaution should be taken by the contractor to avoid erosion and discharge of wastewater, bitumen, or hazardous materials, including fuel, lubricants, solvents, or other chemicals, to ground or surface waters.

4.1.7.7 Erosion Control

In accordance with the North Carolina Sedimentation and Pollution Control Act (15A NCAC 4B.0001.0027), an erosion and sedimentation control plan must be prepared for land disturbing activities that cover one or more acres to protect against runoff from a 10-year storm. Thus, prior to the start of project construction activities, an erosion and sedimentation control plan will be prepared in accordance with the NCDNR publication *Erosion and Sediment Control Planning and Design Manual* (NCDNR 1993) and the NCDOT sediment and erosion control program. The plan will identify BMPs to be used to reduce erosion and sedimentation. BMPs would include, but are not limited to, the following:

- Minimizing exposed earth surface
- Installing silt fencing
- Temporary and permanent seeding and mulching
- Watering working and haul areas during dry periods
- Covering, shielding, or stabilizing material stockpiles

4.1.7.8 Borrow and Disposal Sites

Construction waste material generated during clearing, grubbing, and other construction phases would be removed from the project site and burned or disposed of by the contractor in accordance with state and local regulations. Litter and other general trash would be collected and disposed of at local landfill locations. Construction waste and barrow with regard to wetlands would not be allowed unless properly permitted by USACE. Specific locations of barrow and disposal sites will be determined during the final design phase of the project.

4.1.7.9 Construction Waste

Construction waste material generated during clearing, grubbing, and other construction phases will be removed from the project site and burned or disposed of by the contractor in accordance with state and local regulations. Disposal of construction waste in wetlands will not be allowed unless properly permitted by USACE. Litter and other general trash will be collected and disposed of at local landfill locations.

NCDOT will require contractors to conduct historic, archaeological, wetland, and threatened and endangered species surveys prior to approval, and use of construction waste disposal and/or barrow sites identified for the proposed project.

4.1.8 Irretrievable and Irreversible Commitment of Resources

As with any new roadway project, construction of the project would require certain irreversible and irretrievable commitments of natural resources, manpower, materials, and fiscal resources. Lands within the right-of-way would be converted from their present use to transportation use. Use of these lands is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land, or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be expended to complete the project. In addition, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, while demand has increased, they are not in short supply and their use would not have an adverse effect on the availability of these resources. Any construction would also require a substantial one-time expenditure of state and federal funds that are not retrievable.

Construction of the project would, however, improve a critical link in the long-range transportation system for the region. The project is consistent with the long-range transportation goals and objectives of the NCDOT STIP and the FBRMPO. It is anticipated that the proposed project would provide a freeway-to-freeway connection between I-26 south of Asheville and US 19-23 north of Asheville, improve the capacity of existing I-240 west of Asheville, and reduce traffic delays and congestion. It is also anticipated that the improved roadway would enhance long-term access opportunities around and through the Asheville area, and would support local and regional commitments to transportation improvement and economic viability. Benefits of the project would include improved mobility and system linkage.

In summary, the anticipated beneficial effects would balance the irretrievable commitment of resources caused by the project. The project is consistent with state and local goals of improving transportation service in the region and strengthening the area's economic base.

4.1.9 Relationship between Long-Term and Short-Term Uses/Benefits

The most disruptive local short-term impacts associated with the project would occur during project construction. Existing homes and businesses would be displaced. However, adequate replacement housing, land, and space are available for homeowners, tenants, and business owners within the project area. Improved mobility and access to and from the study area could stimulate economic and business growth and viability as well as long-term residential interest.

Construction activities could create short-term air quality, noise, and visual impacts for nearby residents and businesses. Normal traffic patterns would also be disrupted. Implementation of BMPs and NCDOT standard construction procedures would help minimize these impacts.

Specifically, increased turbidity levels in creeks and streams adjacent to construction activities could temporarily affect localized water quality. BMPs, as described in Section 4.1.7.6, would minimize potential water quality impacts. In addition, NCDOT will consult with USACE in order to determine measures that will minimize impact to waterways and wetlands.

The local short-term impacts and use of resources by the proposed action would be consistent with the maintenance and enhancement of long-term productivity. Completion of the project would, over the long term, be consistent with local, county, regional, and state transportation plans.

4.2 INDIRECT AND CUMULATIVE EFFECTS

Indirect and cumulative effects of the project were studied for both the proposed project and for a larger regional area that encompasses the reasonable and foreseeable projects along the I-26 Corridor. The indirect and cumulative effects for the project study area are included primarily in the ILUS/LUSA (URS 2015d) *and the 2018 LUSA Addendum (AECOM 2018a)*. Supporting information is also provided in the *Community Impact Assessment Update* (URS 2015a) *and the Community Impact Assessment Addendum (AECOM 2018c)* conducted for the project.

The FLUSA was established as the area within which the proposed project has the potential to induce land use change. This study area encompasses areas examined for potential increases in development pressure as a result of project construction.

The time horizon for the 2010 report was 2030, which was consistent with the FBRMPO *Transportation 2030: A Multi Modal, Long Range Transportation Plan for Buncombe, Haywood and Henderson Counties* (FBRMPO 2005). While the FBRMPO report still maintains the 2030 date, the design year for I-2513 is currently 2035, and therefore the horizon year for this validation will be 2035.

Based on available information, notable features within the FLUSA include numerous NRHP sites and districts, including the Biltmore Estate. Also within the FLUSA are several conservation properties, several hazardous disposal sites, a portion of the Pisgah National Forest, UNC-Asheville, and the North Carolina Western Farmers Market.

As part of this assessment, an Indirect Land Use Effects Screening Matrix was developed, which qualitatively assesses factors that influence land development decisions. Each factor receives a rating from high concern for indirect effects to less concern for indirect effects. Based on the information gathered, the factors in the screening tool indicate a lower concern for indirect and cumulative effects as a result of the project. The result of the Indirect and Cumulative Land Use Effects Screening Matrix suggests “Possible Indirect Effects.” Given the scope of the proposed project and concerns about cumulative effects associated with all of the I-26 improvement projects (including A-0010A and I-4400/I-4700), an *Indirect Screening and Land Use Scenario Assessment* (URS 2015g) was also completed to identify possible areas potentially subject to change in land use and whether indirect (secondary) and cumulative effects are anticipated, both with and without the project.

Seven subareas within the FLUSA are identified as "probable development areas.” Probable development areas are those identified in Indirect and Cumulative Effects Land Use Scenario Assessment studies where the screening indirect and cumulative effects indicate likely or probable changes in land use as a result of the project. The probable development areas include the following:

- US 19-23/I-40 interchange area
- Sand Hill Road/Oakview Road/Sardis Road area
- Brevard Road corridor

- Haywood Road/I-240 interchange area
- I-240/Patton Avenue/Westgate Shopping Plaza area
- I-240/Patton Avenue/Clingman Avenue/RAD area
- US 19-23 /Broadway interchange area

Based on a close examination of these seven probable development areas, land use changes as a result of the proposed project are expected to be minimal within the FLUSA. The pace of infill and redevelopment may be accelerated somewhat as a result of the project; however, commercial, residential, and industrial growth and redevelopment is already occurring in many of these areas and is expected to continue with or without the proposed project. *Since the 2015 ISLUSA, developable land within the FLUSA has decreased 13 percent.*

The construction of the proposed project is not expected to substantially influence regional population growth. Most of the project is a widening project, with no new access being provided to properties. However, though West Asheville is experiencing somewhat of a renaissance, the restoration of Patton Avenue to a local street, along with associated streetscape improvements, could modestly increase interest in this area that does not already exist. Nonetheless, any potential effects to water quality as a result of this planned development would be tempered by existing land use controls and development regulations covering watershed protection, stream buffers, erosion and sedimentation control, and post-construction runoff.

Given the minimal indirect effects of the project, any contribution of the project to cumulative effects resulting from current and planned development patterns should be minimal. For these reasons, potential indirect and cumulative effects to downstream water quality should be minimal.

Much of the future growth within the overall FLUSA could likely be attributed to the proximity of I-26, I-40, and the City of Asheville. Growth is restricted within the project FLUSA by the presence of the Biltmore Estate, lack of existing or planned public sewer, steep topography, and the predominantly built up nature of much of the FLUSA. Because of these development constraints, new development, redevelopment, or infill related to the proposed project would likely be limited to specific areas of the FLUSA. Commercial development or redevelopment would likely occur along the French Broad River (RiverLink areas), surrounding or near existing interchanges (including the US 19-23/I-40, I-240/Patton Avenue, and I-26/Broadway interchanges), and along the built-up Haywood Road, Patton Avenue, Brevard Road, and Broadway corridors.

In Section B, I-240 access to US 19-23-70 would be shifted slightly north from its current location, but a new interchange would not be created. The two proposed I-240 bridges across the French Broad River would connect to the new section of I-26 west of the river, but access would be fully controlled. Some infill development may take place, despite the presence of steep topography and an existing urban environment. The preferred alternative would include the construction of new interstate access points close to underutilized areas along the French Broad River associated with RiverLink. Since plans are already in place for these areas (i.e., *Wilma Dykeman RiverWay Master Plan*), the preferred alternatives is not expected to induce development in these areas; however, the project may accelerate these already planned developments.

Generally, the widening of existing I-240 (Section A) and the creation of a new location I-26 Connector should provide better connectivity in the interstate network throughout this portion of Asheville and Buncombe County, as well as address forecasted traffic deficiencies, reduce congestion and traffic delays along the existing I-240 French Broad River crossing, and increase the remaining useful service of the existing I-240/Patton Avenue bridge by diverting traffic to a new crossing.

Overall, the preferred alternative has a low to moderate potential to indirectly cause land use changes or accelerate previously planned development throughout the identified probable development areas in the FLUSA.

4.3 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Estimated environmental impacts associated with the preferred alternative are provided in Table 4-19.

Table 4-19: Summary of Project Impacts by Section

Resource	Section C (I-26/I-40/I-240 Interchange)		Section A		Section B (New Location across French Broad)	
	Alternative F-1		I-240 Widening		Alternative 4-B	
	Draft EIS	Final EIS	Draft EIS	Final EIS	Draft EIS	Final EIS
Project Features						
Length (miles)						
I-26	2.2	*2.2*	2.0	*2.0*	2.5	*2.5*
I-40/I-240	2.8	*2.8*	0.0	*0.0*	1.5	*1.5*
Total Length	5.0	*5.0*	2.0	*2.0*	4.0	*4.0*
Interchanges	3	*3*	3	*3*	3	*3*
Railroad Crossings	2	*2*	0	*0*	5	*5*
Navigable Waterway Crossings	1	*1*	0	*0*	4	*4*
Construction Cost	$203,300,000	*$200,570,000*	$105,700,000	*$152,903,000*	$291,300,000	*$448,193,000*
Right-of-Way Cost	$17,100,000	*$12,423,000*	$29,400,000	*$44,502,000*	$36,800,000	*$95,374,000*
Utilities Cost	$2,100,000	*$4,464,000*	$3,400,000	*$2,036,000*	$3,900,000	*$13,576,000*
Total Cost	$222,500,000	*$217,457,000*	$138,500,000	*$199,441,000*	$332,000,000	*$564,943,000*
Socioeconomic Features						
Relocations						
Residential	31	*14*	81	*71*	33	*29*
Business	5	*2*	17	*14*	34	*19*
Nonprofit	0	*0*	1	*1*	1	*1*
Total	**36**	***16***	**99**	***86***	**68**	***50***
Schools Relocated	0	*0*	1	*0*	0	*0*
Churches Relocated	1	*0*	1	*0*	1	*0*
Parks and Recreational Areas Impacted	1	*0*	2	*1*	0	*0*
Cemeteries Impacted	0	*0*	0	*0*	0	*0*

Resource	Section C (I-26/I-40/I-240 Interchange)		Section A		Section B (New Location across French Broad)	
	Alternative F-1		I-240 Widening		Alternative 4-B	
	Draft EIS	Final EIS	Draft EIS	Final EIS	Draft EIS	Final EIS
Physical Environment						
Noise Impacts (No-Build)	193	*140*	181	*131*	243	*123*
Noise Impacts (before abatement)	304	*171*	198	*112*	224	*134*
Noise Impacts (after abatement)	274	*72*	94	*17*	89	*99*
Hazardous Material Sites (moderate or high) Impacted	1	*0*	0	*0*	1	*1*
Floodplain Impacts (acres)	16.63	*14.23*	8.36	*6.75*	3.91	*2.57*
Floodway Impacts (acres)	2.00	*1.72*	1.94	*1.02*	0.38	*0.36*
Land Use Impacts by Zoning Category (acres)						
Residential Single-Family Districts	12.5	*5.4*	8.4	*3.5*	7.5	*3.9*
Residential Multifamily Districts	16.0	*5.4*	26.5	*16.8*	17.0	*8.9*
Neighborhood Business District	0	*0.0*	0	*0.1*	0.1	*0.1*
Community Business Districts	0.0	*0.0*	4.9	*0.0*	0.0	*0.0*
Industrial	0	*0.0*	0	*0.0*	0.4	*0.4*
Institutional District	34.5	*9.5*	13.6	*4.1*	0.4	*0.1*
Office	0.0	*0.0*	0.0	*0.0*	0.0	*0.0*
Highway Business District	7.8	*0.1*	1.9	*2.0*	14.3	*2.0*
Regional Business District	27.1	*0.3*	0.0	*0.0*	10.5	*6.9*
Central Business District	0.0	*0.0*	0.4	*0.0*	0.3	*0.1*
Commercial	24.8	*4.9*	2.7	*1.8*	0.0	*0.0*
Resort District	0.0	*0.0*	0.0	*0.0*	19.6	*16.9*
River District	0.0	*0.0*	6.3	*3.2*	22.3	*15.3*
Haywood Road	--	*0.0*	--	*4.8*	--	*0.0*
Total	**122.6**	***25.7***	**64.7**	***36.1***	**92.5**	***54.5***
Cultural Resources						
Historic Properties – Section 106 Effects	0	*0*	1 Adverse Effect	*0*	1 Adverse Effect	*1 Adverse Effect*
Historic Properties Impacted	1	*1*	2	*1*	2	*1*
Archeological Sites Impacted	6	*4*	2	*2*	0	*0*
Natural Environment						
Biotic Resources (acres)						

Resource	Section C (I-26/I-40/I-240 Interchange)		Section A		Section B (New Location across French Broad)	
	Alternative F-1		I-240 Widening		Alternative 4-B	
	Draft EIS	Final EIS	Draft EIS	Final EIS	Draft EIS	Final EIS
Maintained/ disturbed	171.93	*157.1*	91.08	*81.3*	124.82	*121.8*
Mesic Mixed Forest	111.26	*105.4*	47.41	*42.7*	40.67	*32.7*
Alluvial Hardwood Forest	6.55	*3.7*	1.50	*1.4*	3.88	*3.8*
Open Water	0.17	*0.20*	0	*0*	0.00	*0*
Total	**289.90**	*266.40*	**139.99**	*125.40*	**169.37**	*158.30*
Increase in Impervious Area (acres)	134.6	*98.2*	63.8	*61.9*	99.7	*101.6*
Stream Crossing Impacts (#)	12	*12*	4	*5*	7	*7*
Stream Impacts (linear feet)	1,984	*1,376*	798	*640*	2,128	*2,171*
Wetland Impacts (#)	12	*6*	1	*1*	2	*1*
Wetland Impacts (acres)	1.86	*1.27*	0.01	*0.01*	0.10	*0.04*
Pond Impacts (#)	0	*0*	0	*0*	0	*0*
Pond Impacts(acres)	0	*0*	0	*0*	0	*0*
Protected Species Adversely Affected	0	*2*	0	*2*	0	*2*

[a] Stream, wetland, and pond impacts calculated using design slope stakes plus 25-foot buffer. All other impacts calculated using right-of-way.

4.4 REQUIRED PERMITS AND ACTIONS

4.4.1 NORTH CAROLINA DIVISION OF WATER RESOURCES

Section 401 Certification. Any activity that may result in discharge to navigable waters and that requires a federal permit must obtain a certification that such discharge will be in compliance with applicable state water quality standards.

Authority. North Carolina General Statute 143, Article 21, Part 1. Regulations promulgated in 15A NCAC-2H and 2B.

Stormwater Certification. The NPDES stormwater permit addresses stormwater discharges that impair water quality. NCDOT construction activities are covered under NCDOT's Phase I stormwater permit, which is administered through the Department's sediment and erosion control program. Specific requirements vary and are affected by the classifications of the water to which the project would drain. NCDOT was granted its current permit on March 18, 2005.

Authority. North Carolina General Statute 143, Article 215, Part 1. Regulations promulgated in 15A NCAC-2H.1000 and 2B.0200.

4.4.2 NORTH CAROLINA DIVISION OF FOREST RESOURCES

Burning Permit. A permit is required to start a fire in woodlands or within 500 feet of woodlands under the protection of the Division of Forest Resources. Thirty-day permits can be issued for highway construction.

Authority. North Carolina General Statute 113, Article 4C, Subsection 60.21 60.31. Regulations promulgated in 14 NCAC 9C.0200 .0203.

4.4.3 UNITED STATES ARMY CORPS OF ENGINEERS

Section 404 Permit. A permit from USACE is required for any activity in water or wetlands that would discharge dredged or fill materials into waters of the United States and adjacent wetlands. To obtain permit approval, impacts to wetlands must be mitigated through avoidance, minimization, and compensation measures in accordance with the "Memorandum of Agreement (MOA) between the Department of the Army and the Environmental Protection Agency: Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" (EPA 1990).

Authority. Federal Water Pollution Control Act Amendments of 1972 and Section 404 of the CWA of 1977. Regulations promulgated in 33 CFR 323.

Section 10 Permit. A permit is required for construction of structures such as piers and jetties and excavation and placement of fill material in or affecting navigable waterways, including the French Broad River.

Authority. Rivers and Harbor Act of 1899, Section 10.

4.4.4 UNITED STATES COAST GUARD

The USCG concurred in a letter dated January 4, 2017 (Appendix C) that the project will not require a bridge permit under 23 U.S.C. 144(h) for the I-240 bridges across the French Broad River. The requirement to display navigational lighting is waived per 33 CFR 118.40(b).

4.4.5 UNITED STATES FISH AND WILDLIFE SERVICE

Section 404 and Section 10 Permit Review. The USFWS' responsibilities include review of Section 404 and Section 10 permits to determine a project's impact on public fish and wildlife resources. USFWS provides recommendations to USACE on how the proposed project could avoid or minimize impacts to existing fish and wildlife resources and their habitats, including wetlands.

Authority. Fish and Wildlife Coordination Act, as amended.

Section 7 Consultation. Consultation with USFWS is required for any project that may impact endangered or threatened plants and animals and their Designated Critical Habitat. The proposed project is expected to potentially affect Appalachian elktoe habitat due to the placement of bridge supports in the French Broad River bed. Habitat for the tan riffleshell is found in the river;

however, recent surveys did not find the presence of the species in the area. The biological conclusion for both species is may affect, but not likely to affect.

Authority. ESA of 1973, Section 7.

4.4.6 NC FLOODPLAIN MAPPING PROGRAM (FMP)

In accordance with Executive Order 11988, the Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), the delegated state agency for administering FEMA's National Flood Insurance Program, to determine the status of the project with regard to applicability of NCDOT's Memorandum of Agreement with FMP, or approval of a Conditional Letter of Map Revisions (CLOMR) and subsequent final Letter of Map Revision (LOMR).