



DRAFT

Cumulative Effects Technical Report

ArDOT JOB NO. CA0602

I-30 (From I-530/I-440 to I-40) and
I-40 (From Hwy. 365/MacArthur Dr. to Hwy. 67)
Pulaski County, Arkansas
April 2018



U.S. Department
of Transportation
**Federal Highway
Administration**



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1.0 PROJECT DESCRIPTION

Approved by Arkansas voters, the Arkansas Department of Transportation (ArDOT) is implementing an accelerated State Highway Construction and Improvement Program named the Connecting Arkansas Program (CAP).

A major component of the CAP is to implement a project to improve a portion of Interstate 30 (I-30) from Interstate 530 (I-530) and Interstate 440 (I-440) to Interstate 40 (I-40), including the Arkansas River Bridge, and a portion of I-40 from Highway (Hwy.) 365 (MacArthur Drive [Dr.]) to Hwy. 67. This project is CA0602: I-530 - Hwy. 67 (Widening & Reconstruction) (I-30 & I-40), commonly known as the 30 Crossing project. **Figure 1** illustrates the proposed 7.3-mile project limits.

1.1 Existing Facility

I-30 is one of the critical links of the Central Arkansas Freeway System. It connects communities within the Central Arkansas Region and serves local, regional and national travelers with varied destinations and trip purposes.

The I-30 corridor generally consists of three main lanes in each direction with parallel one-way discontinuous frontage roads on each side of the interstate. In the northern portion of the project limits, the I-40 corridor consists of three to four main lanes in each direction with parallel one-way frontage roads on each side of the interstate between the I-30/I-40 interchange and North Hills Boulevard (Blvd.). Within the 7.3-mile corridor, four system interchanges are located:

- I-30 with I-530 and I-440
- I-30 with I-630
- I-30 with I-40
- I-40 with Highways 67/167

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Figure 1: Project Limits Map



Source: Project Team, 2017.

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1.2 Proposed Alternatives

1.2.1 No-Action Alternative

The No-Action Alternative represents the case in which the proposed project is not constructed, but could include future projects identified through the long-range planning process for maintaining a state of good repair as funding becomes available.

1.2.2 Action Alternatives

Two different main lane configurations are under consideration. Both would include the replacement of the Arkansas River Bridge.

- Eight-Lane General Purpose (GP) Alternative would provide four main lanes in each direction with no Collector Distributor (C/D) lanes.
- Six-Lane with C/D Lanes Alternative would reconstruct the existing six-lane (three in each direction) roadway while adding two decision lanes on each side that ultimately feed into a C/D system located at the Arkansas River Bridge.

The current Hwy. 10 (Cantrell Road [Rd.]) interchange provides direct access to the downtown business district of Little Rock. Its proximity to the Arkansas River Bridge and the I-30 interchange with I-630 creates a unique level of complexity. In order to balance various project goals, two interchange concepts are being considered for replacement of this interchange:

- An elevated Single Point Urban Interchange (SPUI) constructed in the same location as the current interchange;
- A Split Diamond Interchange (SDI) constructed south of the existing interchange at 4th and 9th Streets.

Combining the two main lane configurations with the two Hwy. 10 (Cantrell Rd.) interchange concepts results in the four Action Alternatives as follows:

- Alternative 1A: 8-Lane GP with SPUI Alternative
- Alternative 1B: 8-Lane GP with SDI Alternative
- Alternative 2A: 6-Lane with C/D Lanes with SPUI Alternative
- Alternative 2B: 6-Lane with C/D Lanes with SDI Alternative

For detailed information on the Action Alternatives, refer to the **30 Crossing Environmental Assessment (EA)** for the proposed project.

2.0 CUMULATIVE EFFECTS

The Council on Environmental Quality (CEQ) regulations (40 CFR § 1508.7) defines cumulative impacts (i.e., effects) as “the impact on the environment which results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions.” The purpose of a cumulative effects analysis is to assess the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. This approach evaluates the incremental impacts of the proposed project in respect to the overall health and abundance of selected resources. The evaluation process for each resource to be considered may be expressed as follows:

BASELINE CONDITION + FUTURE EFFECTS + PROJECT IMPACTS = CUMULATIVE
(historical and current) (expected projects) (direct and indirect) EFFECTS

The following five-step approach¹ was utilized to assess the potential cumulative effects of the past, present, and reasonably foreseeable actions to the resources in the study area:

1. Resource Study Area, Conditions and Trends;
2. Direct and Indirect Effects on Each Resource from the Proposed Project;
3. Other Actions – Past, Present, and Reasonably Foreseeable – and their Effect on Each Resource;
4. The Overall Effects of the Proposed Project Combined with other Actions; and
5. Mitigation of Cumulative Effects.

Cumulative impacts are analyzed in terms of the specific resource being affected. The key resources of the analysis are identified using resources discussed in the Environmental Assessment. FHWA's Guidance states: “If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource.” CEQ guidance recommends focusing on key resource issues of national, regional, or local significance. To identify potential issues, the resource is considered whether it is protected by legislation or resource management plans; ecologically important; culturally important; economically important; or important to the well-being of a human community.

Applying the above criteria, the resources or environmental issues considered for the cumulative effects analysis are listed in **Table 2-1**. As recommended by CEQ guidance, specific indicators of each resource's condition are identified and shown. The use of indicators of a resource's health, abundance, and/or integrity are helpful tools in formulating quantitative or qualitative metrics for characterizing overall impacts to resources. These indicators are also key aspects of each resource that have already been evaluated in terms of the project's direct and indirect impacts and facilitate greater consistency and objectivity in the analysis of cumulative effects.

¹ The five-step approach is described in the Cumulative Impacts Methodology approved by ArDOT.

1 **Table 2-1: Resources and Topics Considered for the Cumulative Impacts Analysis**

Resource	Would Proposed Project Potentially Result in Adverse Direct or Indirect Impacts?	Is Resource/ Issue at Risk or in Poor or Declining Health?	Is Resource/ Issue Included in Cumulative Impacts Analysis?	Reason for Including or Excluding Key Issues for Cumulative Impacts Analysis
Land Resources and Uses	No	Yes. Undeveloped land is rare within the city boundaries and would be at risk for additional development.	No	No direct or indirect impacts are anticipated from the proposed project. Resources not directly or indirectly affected are not included in the cumulative impacts analysis.
Community Resources	Yes	Yes. Most neighborhoods are currently stable but could experience conflict from development.	Yes	The potential direct and indirect impacts would warrant a cumulative impacts analysis.
Air Quality	No	No. The area is in attainment for air quality standards under the Clean Air Act.	No	No direct or indirect impacts are anticipated from the proposed project. Resources not directly or indirectly affected are not included in the cumulative impacts analysis.
Water Resources	Yes	Yes. The total area of waters and wetlands is in decline or at risk from development.	Yes	The potential direct and indirect impacts to waters and wetlands would warrant a cumulative impacts analysis. Direct impacts to floodplains and impaired waters are not substantial to warrant a cumulative impacts analysis.
Ecological Resources	No	Yes. The populations of certain species and their habitat are in decline or at risk. However, wildlife habitat and vegetation is minimal within the RSA.	No	No direct or indirect impacts are anticipated from the proposed project. Resources not directly or indirectly affected are not included in the cumulative impacts analysis.
Traffic Noise	Yes	No. Traffic noise is not considered a declining or at-risk resource.	No	Traffic noise is not included in the cumulative impacts analysis; however, community resources affected by potential noise impacts are included in the cumulative impacts analysis.
Historic Resources	Yes	NRHP listed or eligible for listing sites and Historic Districts are at risk	Yes	The potential adverse impacts would warrant a cumulative impacts analysis.

2 *Source: Project Team, August 2017.*

Although several resources and issues were identified to have direct or indirect impacts (floodplains, impaired waters and traffic noise), the effects would not warrant a cumulative impacts analysis on these resources. Runoff impacts to impaired waters as a result of the proposed project are not considered substantial and no induced growth effects are anticipated. Furthermore, appropriate storm water best management practices would be utilized to minimize potential impacts to impaired waters. Direct impacts to floodplains as a result of bridge and culvert construction are anticipated; however, they would not be substantial, would be mitigated, and would not warrant a cumulative impacts analysis. Although traffic noise is not a resource to be moved forward into a separate cumulative impacts analysis, traffic noise impacts would be considered as part of the overall evaluation of community resources in the cumulative analysis process.

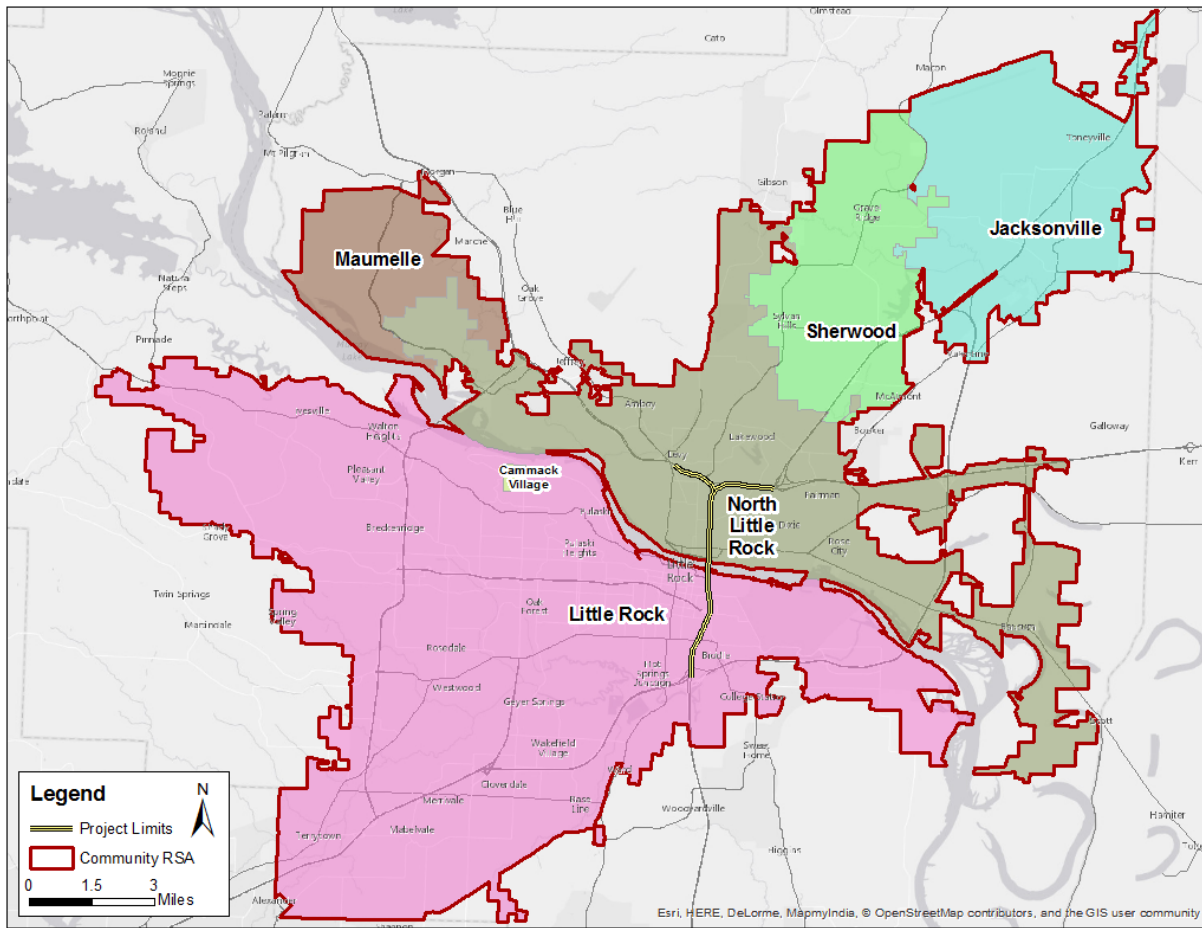
Resources eligible for a cumulative impacts analysis are community, water and historic resources. The following sections apply the five-step approach for each eligible resource for the cumulative impacts analysis. **Section 2.1** discusses community resources, **Section 2.2** discusses water resources and **Section 2.3** discusses historic resources.

2.1 Community Resources

2.1.1 Step 1: Resource Study Area, Conditions and Trends

The Resource Study Area (RSA) is delineated using the city boundaries. As shown in **Figure 2**, the RSA boundary encompasses both centrally located cities of North Little Rock and Little Rock as well as nearby communities including Sherwood, Jacksonville, and Maumelle. These areas within Pulaski County are to be the most affected by the proposed project. The temporal study period is from 1985 to 2041. The temporal start date of 1985 was selected to follow the year when the last section of I-630 was completed and open to the public. The construction of I-630 was a major project affecting communities in this area. The ending temporal boundary of 2041 is selected to correlate with the design year of the proposed project.

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Figure 2: Community Resource RSA Map

Source: ArcGIS, 2016.

According to the U.S. Census Bureau (USCB), there were approximately 330,878 people within the RSA in 2010. **Table 2-2** shows the total population and percent change for Pulaski County, Little Rock, North Little Rock, Jacksonville, Sherwood and Maumelle.

Table 2-2: Total Populations and Percent Change from 1980 to 2017

Area	1980	1990	2000	2010	2017	1980-1990 Percent Change	1990-2000 Percent Change	2000-2010 Percent Change	2010-2017 Percent Change
Pulaski County	340,597	349,660	361,474	382,748	394,977	2.7%	3.4%	5.9%	3.2%
Little Rock	158,915	175,795	183,133	193,524	198,842	10.6%	4.2%	5.7%	2.7%
North Little Rock	64,388	61,741	60,433	62,304	65,004	-4.1%	-2.1%	3.1%	4.3%
Jacksonville	27,589	29,101	29,916	28,364	28,712	5.5%	2.8%	-5.2%	1.2%
Sherwood	10,306	18,893	21,511	29,523	31,257	83.3%	13.9%	37.2%	5.9%
Maumelle	1,368	6,714	10,557	17,163	18,965	390.8%	57.2%	62.6%	10.5%

Source: Decennial Census 1980-2010 (USCB) and Metrotrends Demographic Review and Outlook 2017 (Metroplan).

The most percent change is experienced in Maumelle with 10.5 percent change from 2010 to 2017. Jacksonville has the least percent change at 1.2 percent. Sherwood and North Little Rock have similar numbers of 5.9 and 4.3 percent respectively and Little Rock slightly lower at 2.7 percent. The trend is for areas outside of the cities and commuting from outer areas to these city centers is increasing over time and expected to increase further in the future. North Little Rock shows steady growth since 1980 whereas Jacksonville has been in decline until 2010 with a slight positive percent change from 2010 to 2017. All other areas showed a decline between 1990 to 2000, an increase to 2010, but down again to 2017. The 2010 to 2017 percent changes overall show population growth but not at a rate as high as in past decades.

2.1.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

Communities would be impacted by the proposed project through ROW acquisitions, displacements, traffic noise, access and travel changes. Three alternatives would result in six residential displacements and five commercial displacements. The exception is the 8-Lane GP with SDI Alternative with six residential displacements, but only four commercial displacements. No public or community facilities would be displaced with any of the alternatives. Ramp modifications (removal and replacement) within the proposed project limits would be within EJ populated census blocks for each alternative. Access would not be eliminated in any of the areas within the proposed project limits. The proposed project would result in no disproportionately high or adverse effects to Environmental Justice (EJ) populations due to improved access in the proposed project limits through enhanced bicycle and pedestrian accommodations which also provide positive impacts to the communities adjacent to the proposed project. Further information on direct impacts to community resources is included in the **Community Impacts Technical Report**.

As a result of the SDI alternatives, moderate visual and access impacts to the downtown Little Rock neighborhoods would result from the additional traffic anticipated along the city streets of 2nd Street (St.), 3rd St., and 4th St. Further detailed information on traffic noise impacts is included in the **Traffic Noise Technical Report**; additional historic information is included in the **Built Environment Resources Effects Analysis Technical Report**; and, detailed information on the parking removal and other direct community impacts are included in the **Community Impacts Technical Report**.

Indirect impacts of community resources include some induced growth and encroachment effects. Further detailed information on indirect impacts is included in the **Indirect Impacts Technical Report**.

2.1.3 Step 3: Other Actions – Past, Present, and Reasonably Foreseeable – and their Effect on the Resource

Past actions are evaluated for community impacts. Past actions include developments in Little Rock east of I-30 from the Arkansas River south to 6th St. including the William J. Clinton Presidential Library and Museum (Clinton Library) in 2004 and Heifer International

Headquarters in 2006. These two large facilities did change the landscape of this area by replacing railroad tracks and industrial facilities. In addition, the Clinton Library spurred growth and development with the Heifer headquarters following its construction as well as the River Market area west of I-30. As a result, there are concentrations of commercial developments in and around the downtown areas, with more residential communities radiating out from these city centers. Within the last few years, more high density residential facilities and mixed-use developments within and near the city centers have developed; however, the growth trends of cities, like Maumelle and Sherwood, show that more residential areas are still occurring outside of the Little Rock and North Little Rock city centers. All these past actions and trends have influenced the current state of the community resources.

Present actions include various transportation and developments under construction or recently completed. Activities include the Big Rock Interchange at I-630 and I-430 and the completion of the Broadway Bridge construction across the Arkansas River and connecting to the Riverwalk Trail. Some smaller developments are occurring within downtown Little Rock and North Little Rock and pockets of redevelopment throughout the RSA. Reasonably foreseeable actions include future developments. Per the indirect analysis, interviews with planners were held to gather information on future developments in North Little Rock and Little Rock. As a result, several future developments were identified and discussed in the **Indirect Impacts Technical Report**. The following five general development areas were identified by the planners: East Little Rock, Downtown Little Rock, Marina, Downtown North Little Rock and Rockwater Areas. Although not dependent upon the construction of the proposed project, these future developments would potentially affect community resources. Transportation projects are also anticipated as reasonably foreseeable actions. ArDOT projects include widening of Hwy. 67 north of the Hwy.67/I-440 interchange in Jacksonville which plans to have to have construction complete by the end of 2018. Another project is the widening of I-630 from Baptist Hospital to University Ave. which plans construction to be completed in 2020. Other transportation projects within the RSA identified in the 2016-2020 Transportation Improvement Plan (TIP) are as follows:

- I-40/Hwy 391 interchange improvements in eastern North Little Rock,
- I-30 at 65th Street reconstruction in southern Little Rock,
- I-440 Arkansas River Bridge reconstruction in eastern Little Rock, and
- Various intersection and signal improvements.

With these projects, analysis of impacts to communities would be individually evaluated. Types of impacts could include displacements, ROW acquisitions and access and travel pattern alterations. These transportation projects are collectively to provide enhanced mobility, reduce congestion and provide safer roadways and connectivity for the users of these facilities. In turn, the communities in which these roadways are located or serve would generally benefit from these improvements.

2.1.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

In the context of the entire RSA, the proposed project would provide new connectivity to help reverse past actions that impacted the local communities. Providing added bicycle and pedestrian accommodations and removing the Hwy. 10 (Cantrell Rd.) interchange circular ramps would result in potential green spaces that local neighborhoods could use to improve the east-west connectivity and revitalize the area of Little Rock east of I-30. Furthermore, proposed improvements are anticipated to provide traffic congestion relief, improve safety, and improve mobility within the RSA.

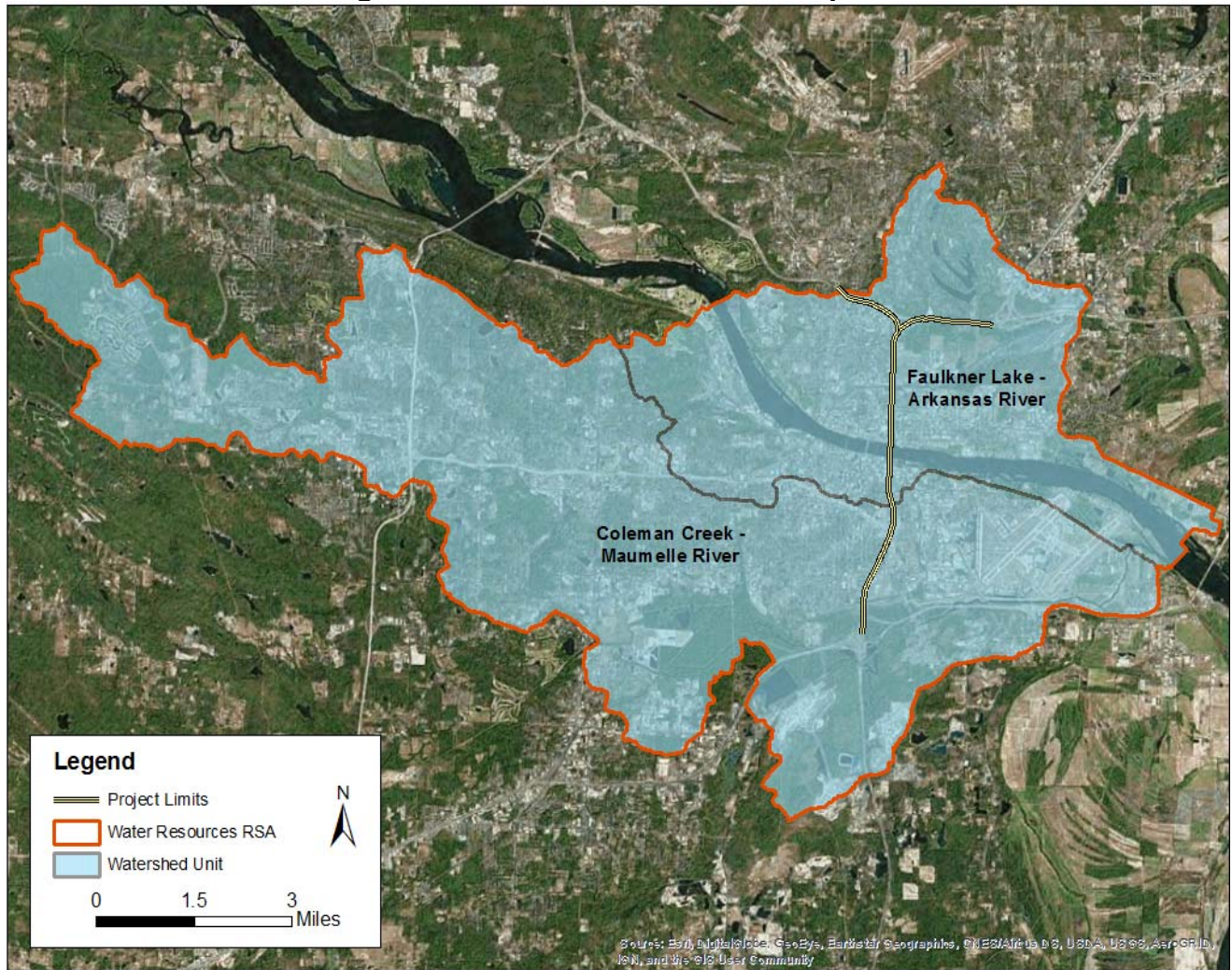
2.1.5 Step 5: Mitigation of Cumulative Effects

Efforts would be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities. City, county or local plans could help avoid and minimize impacts to community resources from future developments or activities. Additional protection from historic preservation groups and historic districts commissions would also avoid and minimize potential future impacts to historically significant community neighborhoods and properties. Any impacts associated with future developments would be the responsibility of developers in coordination with the local municipalities and local agencies.

2.2 Water Resources

2.2.1 Step 1: Resource Study Area, Conditions and Trends

The RSA for the cumulative analysis for water resources was delineated using the watershed units. As shown in **Figure 3**, the RSA includes the Coleman Creek – Maumelle River and the Faulkner Lake – Arkansas River watershed units and encompasses approximately 46,982 acres. The RSA contains water resources, specifically wetlands, evaluated for this cumulative analysis. The same temporal limits (1985 to 2041) used for the cumulative analysis on community resources is applied for this analysis for the same reasons as discussed in **Section 2.1.1**.

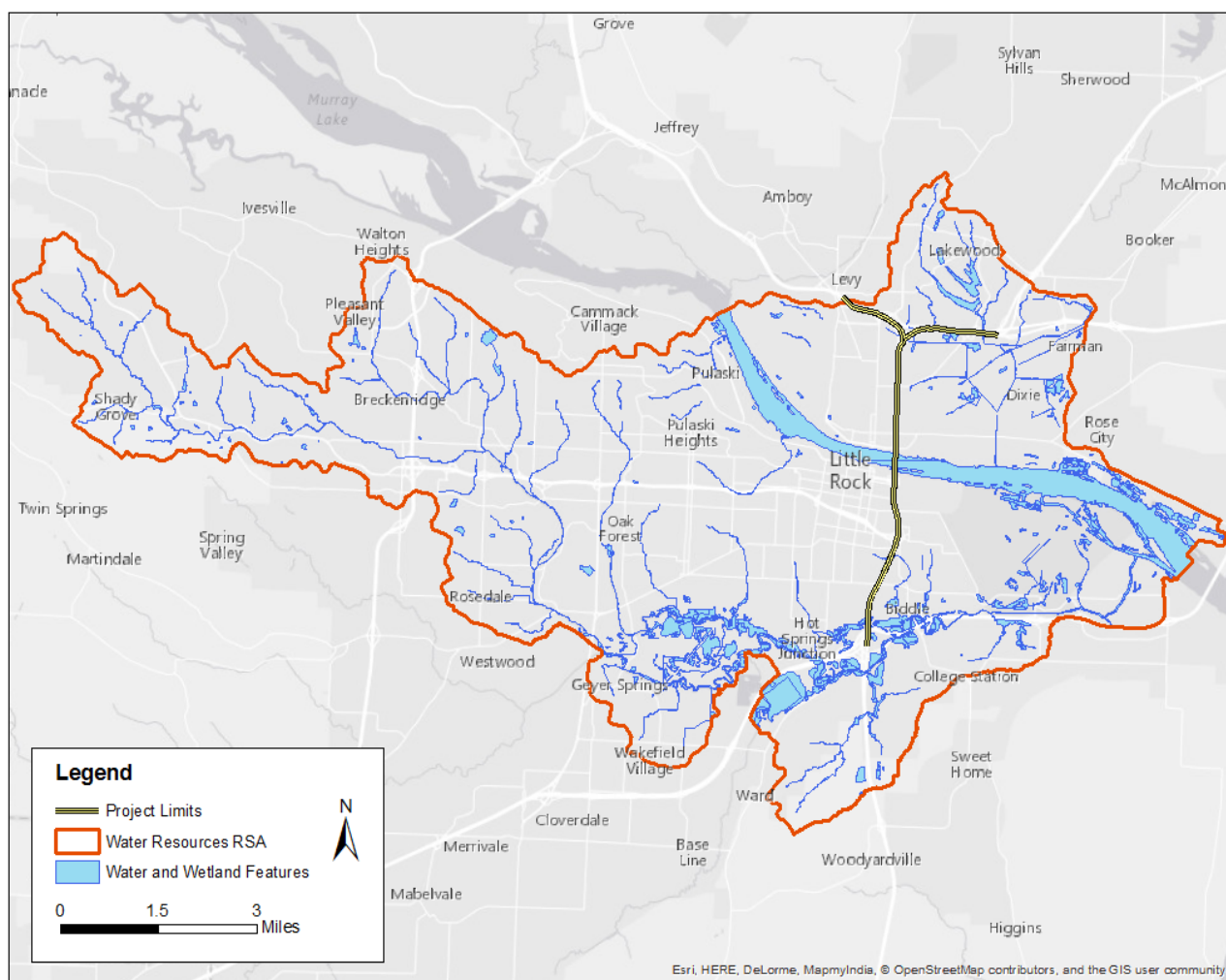
Figure 3: Water Resources RSA Map

Source: Natural Resources Conservation Service 2013 Watershed Boundary Dataset.

Wetlands and streams identified within the RSA are shown in **Figure 4**. Water resources within the RSA were analyzed using a variety of methods, including a review of aerial imagery, topographic maps, and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps. Although not field verified due to the size of the RSA, these three data sources showed similar attributes in relation to water features and the NWI data was specifically used to determine the approximate acreage of water features within the RSA.

Using the NWI data, approximately 3,717 acres of wetlands are within the RSA. This constitutes approximately eight percent of the entire RSA. Historical trends also available through the USFWS, show a decrease of up to 5 percent overall nationally. Data is not available to quantify changes in acreage of wetlands previous to current conditions; however, it is likely to assume that the amount of wetland acreage has steadily decreased over time due to increased development and changes in land use.

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Figure 4: Water and Wetland Features Within the RSA2
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Source: NWI data, May 2017.

4 2.2.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed 5 Project

6 Permanent fill impacts to wetlands from the proposed project are approximately 6.4 acres
7 for the 8-Lane GP alternatives and 6.6 acres for the 6-Lane with C/D alternatives. Fill
8 material would be placed in the wetlands for the construction of items such as roads,
9 bridge abutments, and bridge columns. Forested wetlands associated with the proposed
10 bridge structures would be permanently altered with the removal of trees. Depending on
11 the grading necessary for construction, these areas may return as herbaceous wetlands.
12 Other areas would be filled and would result in a complete loss of wetland areas.

13
14 Permanent fill impacts to streams from the proposed project are approximately 3,353
15 linear feet of streams for the 8-Lane GP alternatives and 3,529 linear feet for the 6-Lane
16 with C/D alternatives. Fill material would be placed in streams for the construction of
17 items such as culvert extensions, bridge columns, and roadway widening.

1 The water and wetland impacts would require Section 404 permitting through the U.S.
2 Army Corps of Engineers (USACE). Mitigation would be required for the impacts;
3 however, a permanent loss of function and habitat associated with the waters and
4 wetlands within the proposed project limits would occur.

5
6 Minimal indirect impacts were determined from the proposed project. Five areas of
7 potential future development were identified in the indirect impacts analysis, the
8 Downtown Little Rock, East Little Rock, Downtown North Little Rock, Marina and
9 Rockwater Areas. These developments would occur independent of the proposed
10 project; however, the proposed project would affect the rate of the development.

11
12 No water features were identified within or adjacent to the Downtown Little Rock, East
13 Little Rock and Downtown North Little Rock areas. The Arkansas River is adjacent to both
14 the Rockwater Area and the Marina Areas. Construction of these facilities could present
15 minor adverse impacts to the river. For the Marina Area, fill impacts could result from
16 potential piers driven into the river bottom to support marina structures such as docks. A
17 boat ramp, if constructed, would result in the placement of concrete fill material within the
18 river limits. These changes, however, would result in minimal impacts that would be
19 authorized by a Section 404 nationwide permit with the USACE. For the Rockwater Area,
20 residential and mixed-use development is anticipated to continue and a marina area has
21 already been constructed. Using the NWI data, only one water feature was identified
22 within this potential development area. An approximately 0.25 acre freshwater pond is
23 located within the Rockwater Area. After further analysis of aerial imagery of the location,
24 the pond is an isolated water feature located adjacent to an existing local road and
25 impacts are not anticipated to affect this feature.

26 2.2.3 Step 3: Other Actions – Past, Present, and Reasonably Foreseeable –
27 and their Effect on the Resource

28 Historical data was not available to determine specific areas of affected wetlands from
29 past actions. In addition, it would be difficult to quantify specific water feature impacts
30 from reasonable foreseeable actions. The same reasonable foreseeable actions used in
31 the community resources cumulative analysis were considered for the waters and
32 wetlands cumulative analysis; however, delineation of future impacted waters and
33 wetland areas are difficult to quantify for these actions. It is anticipated that the identified
34 transportation projects would not impact waters and wetlands because they would
35 generally stay within existing ROW. To conservatively determine potential impacts from
36 reasonable foreseeable actions, trends from USFWS studies were used to calculate the
37 potential areas of wetlands that would be present by 2041. Using the five-year 2004-2009
38 study from USFWS, a 2 percent decline was determined for that time period. If this trend
39 continues, the amount of wetlands would decline by approximately 8 percent. Although
40 this percentage does not seem staggering, if applied to the amount of water and wetland
41 features within the RSA, this 8 percent represents approximately 300 acres which can be
42 a substantial amount of habitat loss for species that depend on these areas. The
43 cumulative effects of losses in freshwater systems can have consequences for hydrologic
44 and ecosystem connectivity. Substantial reductions in wetland extent can result in habitat

loss and fragmentation, and may limit the ability to reconstruct and repair wetlands (Dahl 2011).

2.2.4 Step 4: Overall Effects of the Proposed Project Combined with other Actions

As stated in the previous section, cumulative effects of freshwater system reductions can have hydrologic and ecological consequences. The direct impacts of approximately 6.4 and 6.6 acres of wetlands equates to approximately 0.2 percent of the total acreage for water resources (approximately 3,717 acres) found within the RSA. Although an additional 8 percent reduction is anticipated on the amount of water resources within the RSA, a combined acreage of approximately 312 would be considered minor in the context of the entire RSA. Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative impacts to the water resources in the RSA.

2.2.5 Step 5: Mitigation of Cumulative Effects

Several standards and regulations are in place by ArDOT and other agencies to mitigate for water and wetland impacts. Because wetland abundance and distribution affect wetland biodiversity, reestablishment and mitigation actions could improve ecological interactions if wetland type (diversity) and geospatial interspersions were considered during these actions (Dahl 2011). Efforts should be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities and include these considerations. Any impacts associated with future developments would be the responsibility of developers in coordination with the local municipalities and local agencies.

2.3 Historic Resources

2.3.1 Step 1: Resource Study Area, Conditions and Trends

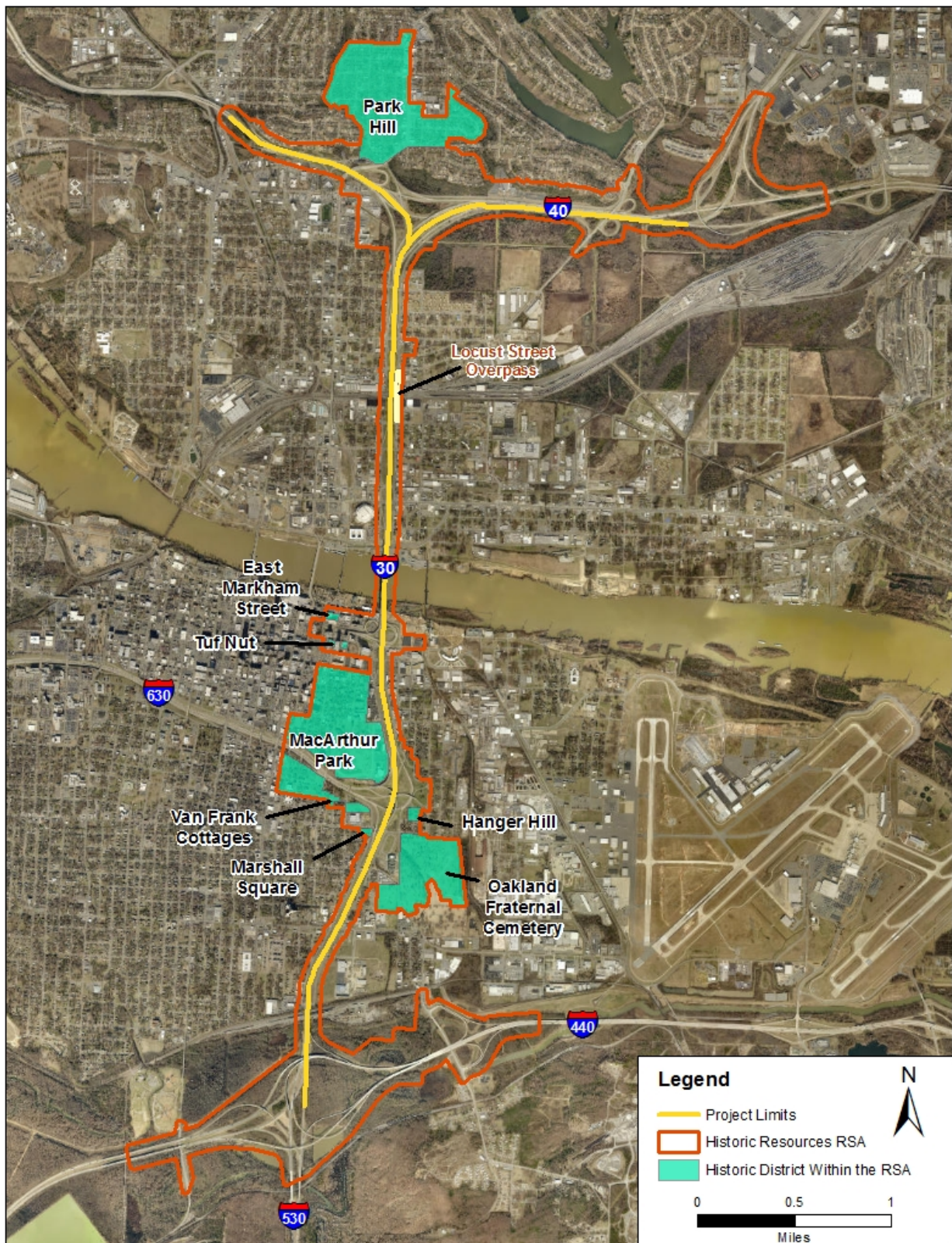
The RSA for the cumulative analysis for historic resources was delineated using historic district boundaries and locations of known historic properties. As shown in **Figure 5**, the RSA boundary generally follows the area of potential effects (APE) and expanded APE used in the Section 106 process for the proposed project. Portions of the RSA deviate from the APE to include entire boundaries of the NRHP listed historic districts surrounding the proposed project limits. The historic districts within the RSA and the year they were listed in the NRHP are Park Hill (2000), East Markham St. (1999), Tuff Nut (2003), MacArthur Park (1977), Hanger Hill (2008), Van Frank Cottages (1985), Oakland Fraternal Cemetery (2010), and Marshall Square (1979). Portions of all these historic districts, except for the East Markham St. Historic District, are included in the expanded APE for the Section 106 process. The temporal study period is from 1966 to 2041. The temporal start date of 1966 was selected to correspond with the year when Congress passed the National Historic Preservation Act (16 United States Code [U.S.C.] 470[f]) and the Department of Transportation Act which includes a special provision for Section 4(f) (49 U.S.C. 303). The ending temporal boundary of 2041 is selected to correlate with the

1 design year for the proposed project.

2
3 The City of North Little Rock has experienced small, but steady growth since 1980. In
4 contrast, Little Rock has experienced slight growth with intermittent declines between
5 2000 to 2010. According to the *2010 Census*, the total population for North Little Rock
6 and Little Rock was 62,304 and 193,524 respectively. The most recent estimates
7 produced by the USCB, show that North Little Rock and Little Rock have a total population
8 of 66,273 and 198,546 respectively, for 2016. This is approximately a 6 percent change
9 for North Little Rock and approximately a 3 percent change for Little Rock from 2010 to
10 2016.

11
12 At this time, there are currently 47 listed sites and 8 historic districts listed in the National
13 Register of Historic Places (NRHP) within the RSA. Within the last few years, more high
14 density residential facilities and mixed-use developments within and near the downtown
15 areas have developed which has resulted in historical buildings and structures being
16 replaced and more preservation programs put in place to protect historic districts.
17 Although many important historic resources have been lost through the years, many
18 remain. This is true for the many historic districts still actively preserved and maintained.
19 The recognized need to preserve these resources is evident in the regulatory controls
20 and other preservation programs enacted through the years. The Quapaw Quarter
21 Association (QQA) was created in 1968 to advocate the merits of the downtown historic
22 areas and to aid people interested in restoring historic properties. Little Rock nominated
23 districts to the National Register of Historic Places (MacArthur Park, Governor's Mansion,
24 Marshall Square, Hillcrest, Boyle Park, South Main Street Apartments, Central High,
25 Railroad Call, East Markham Street, Philander Smith, South Scott Street, Capitol View,
26 Tuf-Nut, Stifft Station, Hanger Hill, South Main Commercial, South Main Residential, West
27 Seventh Street, Main Street, Capitol Main, and Dunbar) and, in 1981, the City established
28 a Historic District Commission, with authority over Local Ordinance Historic Districts. In
29 addition, the Department of Arkansas Heritage (DAH) was created in 1975 to preserve
30 and promote Arkansas' natural and cultural heritage. The DAH consists of eight agencies
31 including the Arkansas Historic Preservation Program (AHPP) which manages the state's
32 historic and cultural resources. The cities of Little Rock and North Little Rock have
33 demonstrated their commitment through development and participation in extensive
34 preservation efforts (e.g., restoration and neighborhood revitalization). Both Little Rock
35 and North Little Rock have been part of the certified local government program since 1986
36 and 1994 respectively, which promote historic preservation at the community level in
37 cooperation with the National Park Service and AHPP. It has been demonstrated that
38 preserving the rich history of central Arkansas is important to residents, and this
39 preservation trend can be expected to continue in the future. All these past actions and
40 trends have influenced the current state of the historic resources within the RSA.

1

Figure 5: Historic Resources RSA Map2
3*Source: Project team, 2018.*

2.3.2 Step 2: Direct and Indirect Effects on the Resource from the Proposed Project

All four Action Alternatives would directly impact one historic structure, the Locust Street Overpass (AHPP Resource Number 81). No other buildings, structures or historic districts were identified to experience direct adverse effects as a result of the Action Alternatives. The direct impacts analysis on historic resources is discussed in more detail in the **Built Environment Resources Effects Analysis Technical Report**.

Indirect effects from the proposed project would be induced growth from an increased rate of development. Induced growth areas that would have an increased rate of development influenced by the proposed project are discussed further in the **Indirect Impacts Technical Report**. Five potential development areas were identified during the analysis. One of the five areas, the Downtown Little Rock area, is within the RSA. This potential development area has historic sites and also includes the following historic districts: East Markham St.; Tuff Nut; and a portion of MacArthur Park. Two other historic districts are within this development area, Main St. and Capitol Main, but these historic districts are not within the RSA. The Downtown Little Rock area is anticipated to have development independent of the proposed project; however, the rate of development could be increased. Potential developments within this area are anticipated to be limited to individual parcels and unlikely to impact NRHP listed properties or impact the setting or feeling or integrity of any NRHP listed properties or historic districts. Any development would be required to comply with local ordinances governed by the Historic District Commission.

In summary, the only direct impact anticipated from the proposed project is the demolition of the Locus Street Overpass. No other historic properties are anticipated to be adversely affected by the proposed project. No indirect impacts are anticipated to affect historic properties from the proposed project.

2.3.3 Step 3: Other Actions – Past, Present, and Reasonably Foreseeable – and their Effect on the Resource

Other past, present, and reasonable foreseeable actions evaluated for historic resource effects include transportation and development projects. Several past transportation projects have occurred since 1965 and the most notable projects within the RSA include the following:

- Shoulder safety improvements along I-30 from North Terminal to South Terminal in 1970;
- Construction of I-630 from 1969 to 1985;
- In 1979, construction of I-440 to improve mobility and relieve traffic on I-30;
- Addition of the I-630/I-30 interchange to improve safety and roadway operations in 1983; and,
- In 1986, widening improvements from I-30 to Hwy. 67 including Dark Hollow to improve safety and mobility.

1 These past transportation actions also resulted in urbanization as well as changes to
2 historic properties and districts. When I-630 was first being constructed in 1970, it divided
3 the MacArthur Park Historic District and some of the most important areas along either
4 side of the current I-630 area just west of the I-30/I-630 interchange. The majority of I-630
5 was constructed before the MacArthur Park Historic District was listed as a NRHP historic
6 district in 1977. However, the divisions resulting from the I-630 project likely led to efforts
7 by the community to protect the historic and cultural integrity of the remaining areas,
8 including the MacArthur Park Historic District, and establish agencies such as the DAH.

9
10 Between 1965 and 1980, urban renewal within North Little Rock modernized the city's
11 poorest neighborhoods. Unfortunately, it displaced many residents, slowed population
12 growth, and razed most of the city's historic downtown south of Broadway St. Downtown
13 revitalization that began in the early 1990s has led to the restoration of historic properties
14 and construction in older areas within the city. Likewise, development and redevelopment
15 occurred within downtown Little Rock in the 1980's and 1990's. In the same year that the
16 I-630/I-30 interchange was added in 1983, the Julius Breckling Riverfront Park opened
17 followed by the River Market District development that began in the 1990s.
18 Developments in Little Rock east of I-30 include the Clinton Library in 2004 and Heifer
19 International Headquarters in 2006. These two large facilities changed the landscape of
20 this area by converting railroad tracks and industrial facilities to an urbanized area with
21 restaurant and brewery developments which continued into the 2010s for the areas east
22 of I-30. The completion of the River Market development in 1996, the Clinton Library,
23 and the Heifer headquarters spurred growth and development and added onto the
24 revitalization of downtown Little Rock. Some other notable developments in Little Rock
25 include the Main Post Office on 4th St. and the River Cities Travel Center in 2000, and in
26 North Little Rock, the Verizon Arena in 1999. As a result, there are concentrations of
27 commercial, retail and hotel developments in and around the downtown areas, with more
28 residential communities radiating out from these city centers. Within the last few years,
29 more high density residential facilities and mixed-use developments have been
30 developed within and near the downtown areas of Little Rock and North Little Rock.

31
32 Meanwhile, recognizing the need to document and preserve the important tangible
33 remains of our past, both the federal and local governments passed laws to protect
34 important historic structures and archeological sites from damage due to growth and
35 development. The National Historic Preservation Act was signed into law in 1966 which
36 also established the Advisory Council on Historic Preservation (ACHP). The City of Little
37 Rock adopted an ordinance (No. 14,042) in 1981 which requires a certificate of
38 appropriateness for exterior alterations to historic buildings within the MacArthur Park
39 Historic District to protect the cultural value and preserve the aesthetic character of
40 historic buildings. The City of Little Rock also adopted the Little Rock Citywide
41 Preservation Plan in 2009. The establishment of Historic District Commissions, DAH and
42 the QQA, as mentioned in **Section 2.3.1**, also assisted and continues to work in the
43 protection and preservation of historic properties.

44
45 Present actions include various transportation and development projects under
46 construction or recently completed. Minor transportation improvements and

1 developments with pockets of redevelopment projects are occurring within Little Rock and
2 North Little Rock; however, no major developments are presently underway within the
3 RSA.

4
5 Reasonably foreseeable actions include future developments. Per the indirect analysis,
6 interviews with planners were held to gather information on future developments in North
7 Little Rock and Little Rock. As a result, several future developments were identified and
8 discussed in the **Indirect Impacts Technical Report**. The following five general
9 development areas were identified by the planners: East Little Rock, Downtown Little
10 Rock, Marina, Downtown North Little Rock and Rockwater Areas. Although not
11 dependent upon the construction of the proposed project, one of these future
12 development areas (downtown Little Rock) could potentially result in effects to historic
13 resources where many historic sites are located in the RSA; however, due to regulations
14 and ordinances in place to protect the integrity of historic resources and of the historic
15 district, no adverse impacts to historic properties are anticipated in this development area.

16
17 Transportation projects are also anticipated as reasonably foreseeable actions.
18 Transportation projects within the RSA identified in the 2016-2020 Transportation
19 Improvement Plan (TIP) are shown in **Figure 6** and are listed as follows:

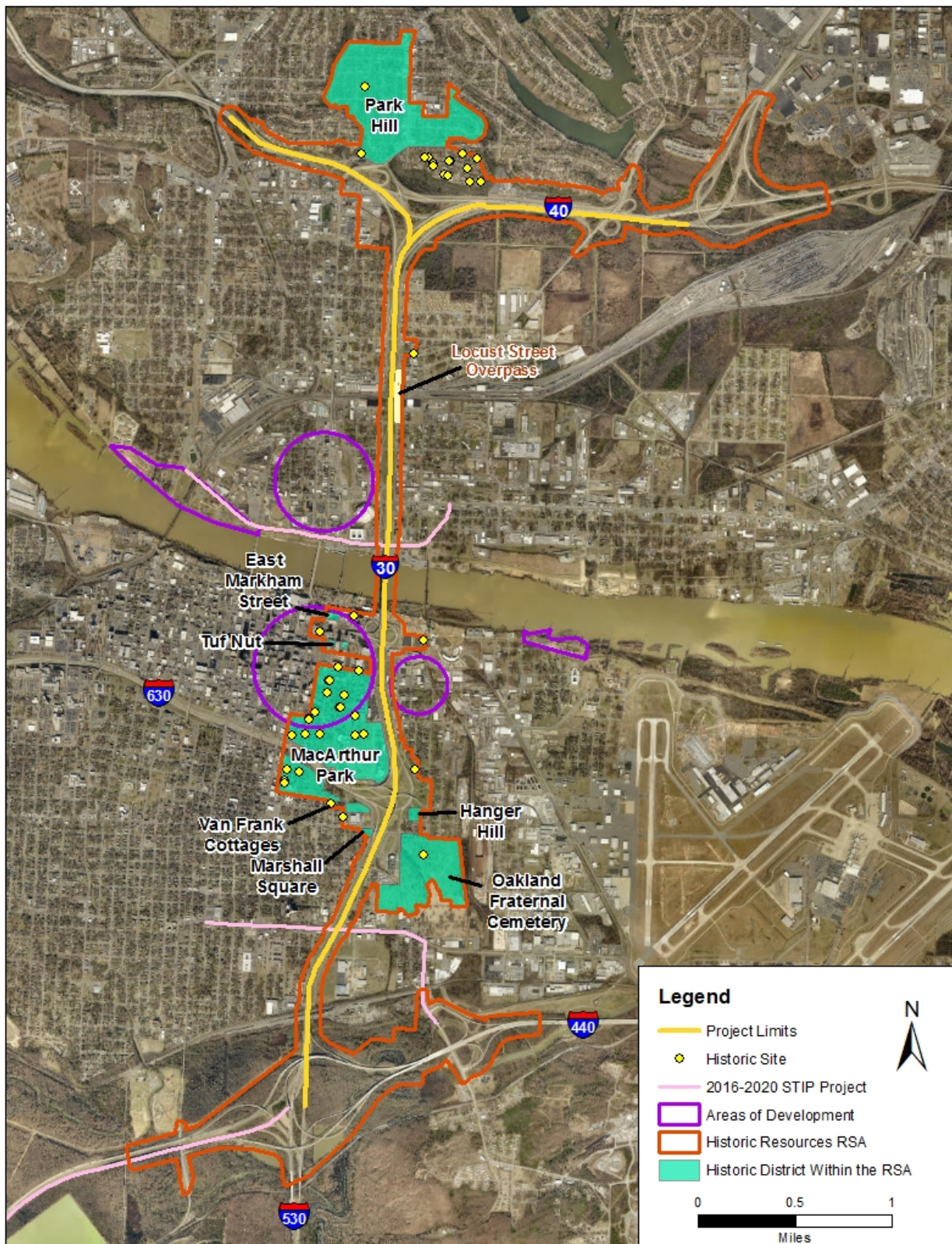
- 20
21
 - Highway 100 improvements from Hwy. 365 to Hwy. 70,
 - 22 • I-30 at 65th Street reconstruction in southern Little Rock,
 - 23 • Hwy. 367 improvements from Fourche Creek to Hwy. 70, and
 - 24 • Various intersection and signal improvements.

25
26 With these projects, analysis of impacts to historic resources would be individually
27 evaluated. Impacts could include noise, visual and access impacts in addition to direct
28 impacts to structures and buildings. These transportation projects will collectively provide
29 enhanced mobility, reduce congestion, and provide safer roadways and connectivity for
30 the users of these facilities. However, these projects are unlikely to impact historic sites
31 because no historic sites are located adjacent to these roadways within the project limits
32 as listed.

33
34 Other reasonably foreseeable actions could also be determined by evaluating land use
35 and local management plans from the local municipalities. Both the City of Little Rock
36 and North Little Rock have long committed to the preservation of its historic architectural
37 resources. The City of Little Rock Planning and Development Department has the *City*
38 *of Little Rock Citywide Historic Preservation Plan 2009*.

39
40 It is anticipated that the reasonable foreseeable actions would not directly impact NRHP
41 listed properties. It is anticipated that no development project would adversely affect
42 NRHP listed or eligible properties because of local ordinances and protections in place.
43 With the existing federal, state and local regulatory controls in place, as well as other
44 related preservation initiatives and mitigation agreements, it is likely that potential impacts
45 to listed infrastructure buildings, bridges or districts would be minimal and overall
46 preservation in the area is likely. As a result, no substantial impacts would be anticipated.

1

Figure 6: Historic Resources and Future Actions Map2
3

Source: Project team, 2018.

2.3.4 Step 4: Overall Effects of the Proposed Project Combined with Other Actions

In the context of the entire RSA, the proposed project would provide better connectivity to help reverse past actions that impacted the local communities and historic districts. Providing added bicycle and pedestrian accommodations and removing the Hwy. 10 (Cantrell Rd.) interchange circular ramps would result in potential green spaces that local neighborhoods could use and revitalize communities in Little Rock. The SPUI Action Alternatives would not result in changes to the traffic on city streets and would be similar to existing conditions of the Hwy. 10 (Cantrell Rd.) interchange except the interchange would be elevated. In contrast, the SDI Action Alternatives would alter some of the traffic volumes along some of the city streets as described in **Section 2.1.2**. These traffic volumes, however, are not anticipated to result in substantial adverse impacts to historic resources and to the historic districts.

The direct impact of one historic bridge structure (Locust Street Overpass) is not a substantial impact to the overall state of historic resources within the RSA. Although future developments have the potential to impact historic properties, the loss of historic properties is unlikely as ordinances and historic protection requirements are in place to protect the historic integrity and character of listed historic properties and historic districts. Although past projects have altered some historic resources, these resources are protected through various ordinances and protective policies monitored by several local organizations and agencies. Based on the analysis presented, considering the minor impact resulting from the proposed project and assuming ordinances and protection policies remain in place, no substantial cumulative effects on historic resources within the RSA is anticipated from the proposed project.

2.3.5 Step 5: Mitigation of Cumulative Effects

A programmatic agreement will be prepared to mitigate the direct impacts to the Locust Street Overpass. The mitigation measures would be coordinated with the Arkansas State Historic Preservation Officer. Other actions such as future developments or activities that are not likely to adversely impact historic properties must be coordinated through city, county and local land use plans and ordinances. Additional protection from preservation initiatives, mitigation agreements, historic preservation groups and historic district commissions would also avoid and minimize potential future impacts to historically significant community neighborhoods, districts, and properties. Any impacts associated with future developments would be the responsibility of developers to comply with all applicable federal, state and local laws and policies in coordination with state and local agencies and organizations.

3.0 SUMMARY AND CONCLUSIONS

For socioeconomic resources, the proposed project would provide new connectivity to help reverse past actions that impacted the local communities. Providing added bicycle and pedestrian accommodations and removing the Hwy. 10 (Cantrell Rd.) interchange circular ramps would result in potential green spaces that local neighborhoods could use to improve the east-west connectivity and revitalize the area of Little Rock east of I-30. Furthermore, proposed improvements are anticipated to provide traffic congestion relief, improve safety, and improve mobility within the RSA.

For water resources, the direct impacts of approximately 6.4 and 6.6 acres of wetlands equates to approximately 0.2 percent of the total acreage for water resources (approximately 3,717 acres) found within the RSA. Although an additional 8 percent reduction is anticipated on the amount of water resources within the RSA, a combined acreage of approximately 312 acres would be considered minor in the context of the entire RSA (approximately 46,982 acres). Considering the minor percentage of impact and assuming appropriate implementation of regulatory control strategies and policies, the proposed project would not contribute substantial cumulative impacts to the water resources in the RSA.

Regarding historic resources, the removal of one historic bridge structure (Locust Street Overpass) would not be considered a substantial impact to the overall state of the historic resources within the historic RSA because it would be the only historic structure that would experience direct adverse effects as a result of the Action Alternatives. Based on the analysis, considering the minor impact resulting from the proposed project, and assuming ordinances and protection policies remain in place, no substantial cumulative effects on historic resources within the RSA is anticipated from the proposed project.

Efforts would be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities. City, county or local plans could help avoid and minimize impacts to community resources from future developments or activities. Several standards and regulations are in place by ArDOT and other agencies to mitigate for water and wetland impacts. Additional protection from historic preservation groups and historic districts commissions would also avoid and minimize potential future impacts to historically significant community neighborhoods and properties. Any impacts associated with future developments would be the responsibility of developers to comply with all applicable federal, state and local laws and policies in coordination with state and local agencies and organizations.

4.0 REFERENCES

- American Association of State Highway and Transportation Officials. August 2016. Practitioner's Handbook Number 12. *Assessing Indirect Effects and Cumulative Impacts Under NEPA*.
- Dahl, T.E. 2011. *Status and Trends of Wetlands in the Conterminous United States 2004 to 2009*. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. 108 pp.
- FHWA, 2003. Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process.
- Metroplan. July 2017. *2017 Metrotrends Demographic Review and Outlook*.
- National Wetland Inventory. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. <https://www.fws.gov/wetlands/index.html>. Accessed in August 2017.
- Texas Department of Transportation. July 2016. *Cumulative Impacts Analysis Guidance*.

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