Environmental Assessment

AHTD Job Number 090218

FAP Number HHP2-3314 (1)

8th Street Improvements (Bentonville) P.E.
Benton County

Submitted Pursuant to 42 U.S.C. 4332(2)

by the
U.S. Department of Transportation
Federal Highway Administration

and the

Arkansas State Highway and Transportation Department

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Randal Looney
Environmental Specialist
Federal Highway Administration

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ACRONYM LIST

AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ac	acre
ADEQ	Arkansas Department of Environmental Quality
ADT	average daily traffic
AHPP	Arkansas Historic Preservation Program
AHTD	Arkansas State Highway and Transportation Department
ANHC	Arkansas Natural Heritage Commission
APE	area of potential effect
ARARNG	Arkansas Army National Guard
BMP	Best Management Practice
CALINE 3	EPA-approved dispersion model for predicting air pollutant levels near highways and arterial streets
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
dBA	decibels on the A-Weighted Scale
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
ha	hectare
HHS	U.S. Department of Health and Human Services
km	kilometers
km/h	kilometers per hour
LOS	Level(s) of Service
mph	miles per hour
MOA	Memorandum of Agreement
MP	noise receiver measuring point
MPO	Metropolitan Planning Organization
NAC	noise abatement criteria
NAIP	National Agricultural Imagery Program
NARTDM	Northwest Arkansas Regional Traffic Demand Model
NARTS	Northwest Arkansas Regional Transportation Study
NEPA	National Environmental Policy Act of 1969
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWACC	Northwest Arkansas Community College
NWARPC	Northwest Arkansas Regional Planning Commission
NWI	National Wetland Inventory
NWP	Nationwide Permit
OHWM	ordinary high water mark

OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl (organic compound)
PEM	palustrine emergent wetland
POW	palustrine open water wetland
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users of 2005
SHPO	State Historic Preservation Office
SSURGO	2009 Soil Survey Geographic Digital Data
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
TNM	Traffic Noise Model
USACE	U. S. Army Corps of Engineers
USC	United States Code
USDA	U. S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
vpd	vehicles per day
VSS	Vehicle Storage Shed
YR	soil color and value descriptor

* * * * *

PURPOSE AND NEED

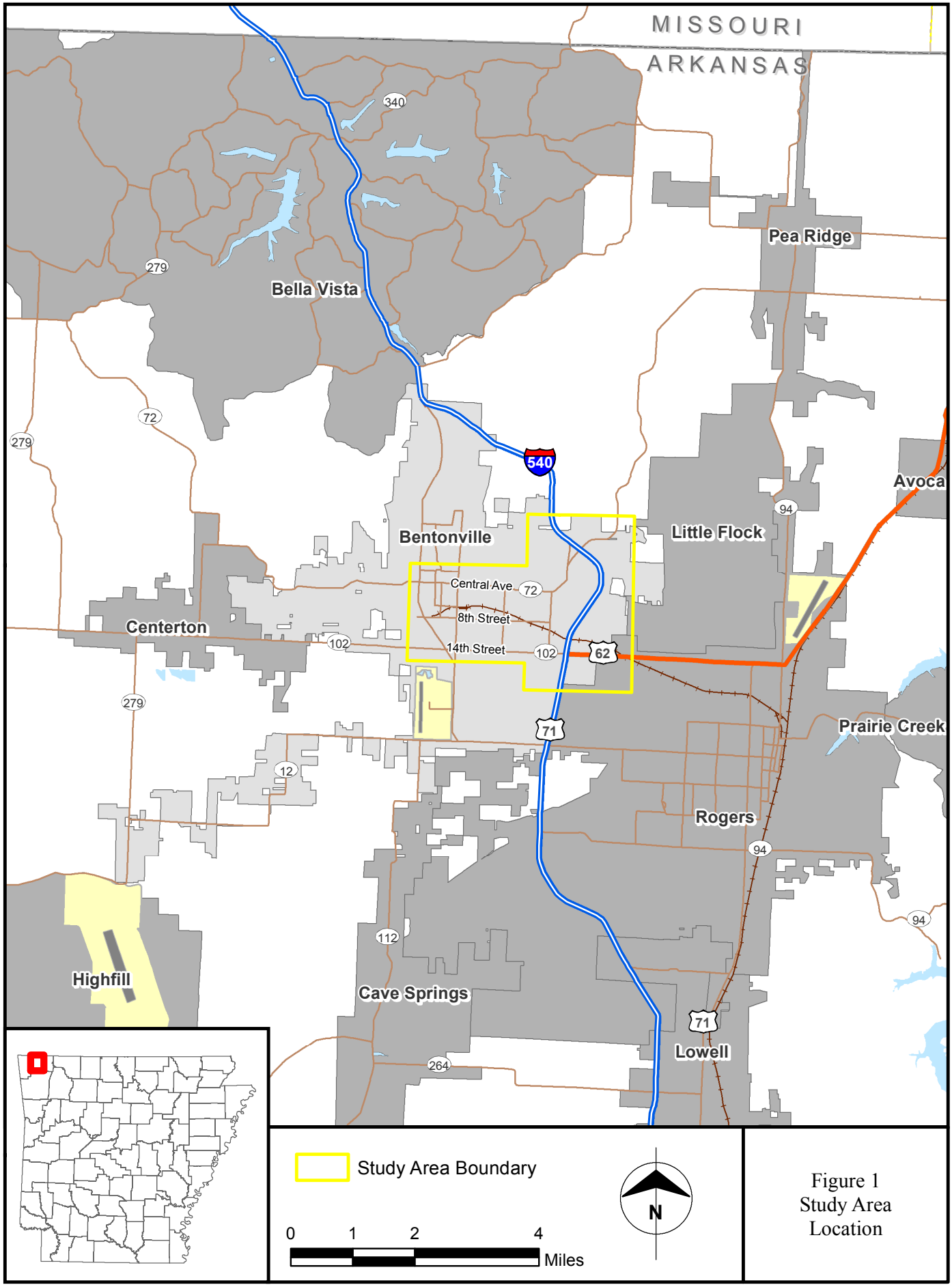
PROJECT DESCRIPTION

In cooperation with the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD), the City of Bentonville is proposing improvements to 8th Street and construction of a new Highway 71 interchange in Benton County, Arkansas. For the purpose of this Environmental Assessment (EA), the Study Area, as shown in Figure 1 and Figure 2, is located in northwest Arkansas in the City of Bentonville, approximately 24 miles north of Fayetteville. Highway 71 borders Bentonville on the east and serves as an important north-south route through northwest Arkansas, continuing as I-540 south of Highway 102/62.

The 8th Street Improvement Project, as shown in Figure 2, consists of improving the existing section of 8th Street between SW I Street and Moberly Lane; extending 8th Street on new location from Moberly Lane eastward to Highway 71; and constructing a new interchange on Highway 71 to provide improved access to 8th Street. The proposed 8th Street Interchange would be located between the existing Highway 102/62 and Highway 72 interchanges (see Figure 2), and would include improvements to the Highway 102/62 Interchange.

The project would widen existing 8th Street from a two-lane urban street to an urban arterial consisting of both four-lane and five-lane sections. A four-lane section with two travel lanes in each direction and a raised center median would be constructed between South Walton Boulevard and SE J Street. A five-lane section with two travel lanes in each direction and a continuous center two-way left turn lane would be constructed both between SW I Street and South Walton Boulevard and between SE J Street and the new interchange. Improving 8th Street would provide additional capacity to accommodate travel demand within the 8th Street Corridor and the additional traffic that would use 8th Street as a result of the proposed interchange at Highway 71.

The 8th Street Interchange would provide direct access to 8th Street from Highway 71, relieving traffic congestion at the existing Highway 102/62 and Highway 72 interchanges. Included with the construction of the 8th Street Interchange is the addition of right-turn lanes along the northbound and southbound ramps within the Highway 102/62 Interchange, and widening of Highway 102/62 under the Highway 71 overpass to accommodate vehicles turning onto Highway 71. The Highway 102 Interchange provides access to 14th Street and Hudson Road, and the Highway 72 Interchange provides access to Central Avenue (Highway 72), a major road leading to downtown Bentonville.


MISSOURI
ARKANSAS
340
Pea Ridge
279
Bella Vista
72
279
540
Avoca
94
Bentonville
Little Flock
Central Ave
72
8th Street
Centerton
102
14th Street
102
62
279
71
Prairie Creek
12
Rogers
94
94
112
Highfill
Cave Springs
71
Lowell
264
Study Area Boundary
0
1
2
4
Miles
N
Figure 1
Study Area
Location
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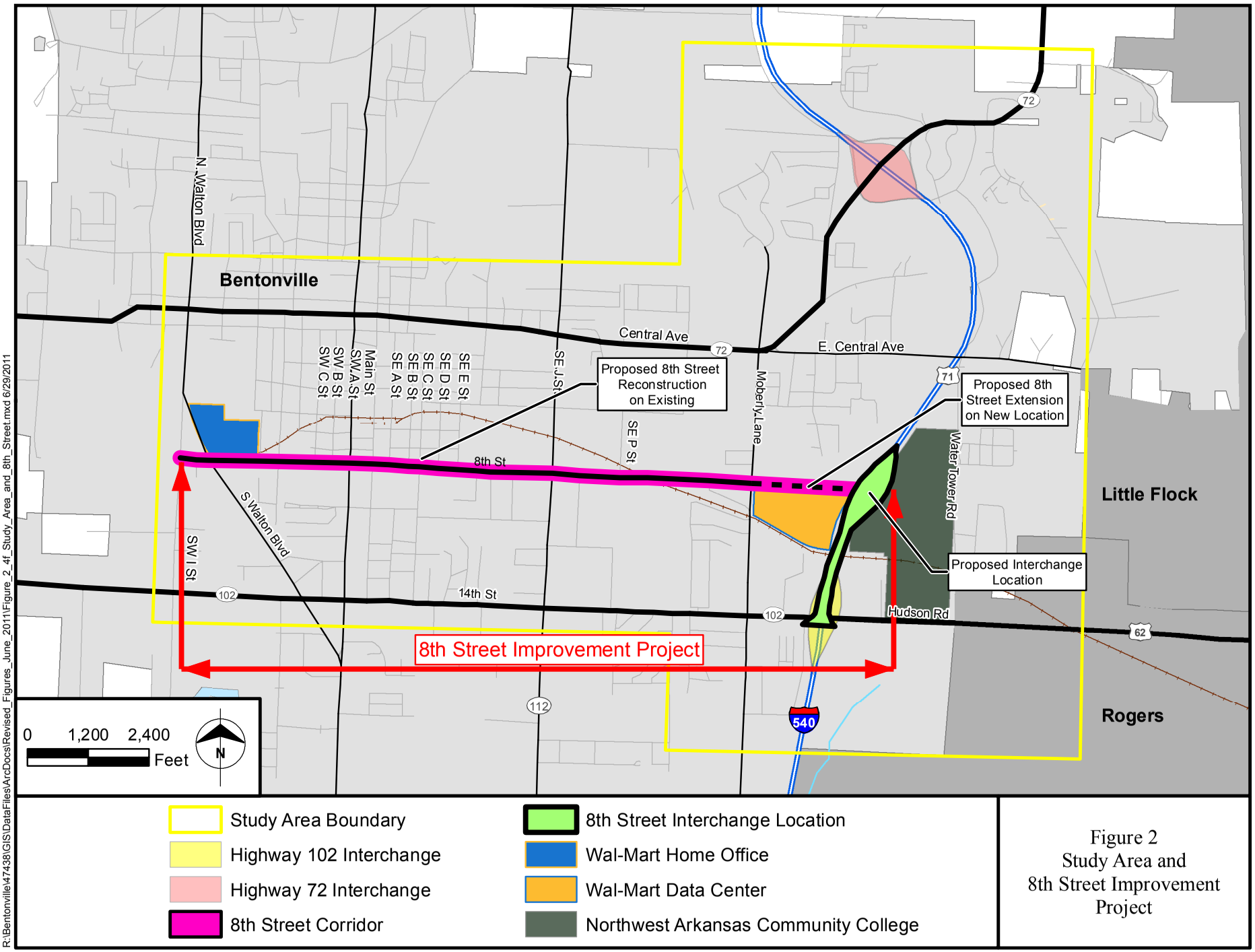

Figure 2
Study Area and
8th Street Improvement
Project

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As used in this EA, the reference "8th Street Corridor" refers to existing 8th Street, the proposed extension of 8th Street, and the properties adjacent to 8th Street between SW I Street and Highway 71. It is used to describe the character and environment surrounding the proposed improvements. The widening of existing 8th Street and the proposed new location of 8th Street between Moberly Lane and Highway 71 is referred to as "8th Street Reconstruction and Extension". The proposed 8th Street Interchange, and the 8th Street Reconstruction and Extension will be evaluated separately; however, together they constitute the proposed 8th Street Improvement Project (see Figure 2). Impacts within the proposed right of way limits required to improve existing 8th Street and to extend it to Highway 71, including permanent utility easements, and the interchange footprint, will be evaluated in this EA. The interchange footprint includes ample right of way to accommodate layout changes made during the design process. The turn-lane additions and road widening proposed at the Highway 102/62 Interchange would be completed within existing right of way.

PROJECT HISTORY

In recent years, there has been increased commercial and industrial development in Bentonville. Since 1990, Bentonville's major industrial mainstay, Wal-Mart, has expanded its operations along 8th Street, to include the Wal-Mart Home Office at the intersection of 8th Street and South Walton Boulevard, and the Wal-Mart Data Center adjacent to Highway 71 (see Figure 2). Approximately 15,000 Wal-Mart employees and supporting vendors commute to Bentonville every day from communities in northwest Arkansas, southwestern Missouri, and eastern Oklahoma. In addition, several Wal-Mart vendors have established offices and warehouses along the 8th Street Corridor, and new commercial buildings have been constructed between SE J Street and SE P Street.

As traffic generated by these developments continues to increase, the existing capacity of 8th Street and the Highway 72 and Highway 102 interchanges to accommodate that much traffic would be exceeded. Currently, access to 8th Street from Highway 71 is provided by area arterial streets, including 14th Street, Central Avenue, and South Walton Boulevard. Because a direct connection does not exist between 8th Street and Highway 71, semi-trucks are required to negotiate several turns and travel through residential neighborhoods to access commercial and distribution facilities located within the 8th Street Corridor. As a result, the City of Bentonville is proposing construction of a new Highway 71 Interchange that would provide direct access to 8th Street. The study and construction of the 8th Street" Improvement Project were listed as High Priority Project 3314 under Section 1702 of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users* (SAFETEA-LU) of 2005, Public Law 109-59. This project is also included in the *Northwest Arkansas Regional Transportation Study* (NARTS) *2030*

Northwest Arkansas Regional Transportation Plan, and the NARTS *Transportation Improvement Program* (TIP) 2007-2010.

EXISTING CONDITIONS

8th Street - The section of 8th Street proposed for improvement extends from SW I Street to Moberly Lane (see Figure 2) and consists of two travel lanes which vary in width from 11 to 12 feet. Between SW I Street and South Walton Boulevard, 8th Street is being improved to include curb and gutter. There are no sidewalks, and multiple driveways provide property access along this section. Between South Walton Boulevard and SW A Street, 8th Street contains sidewalks, curb and gutter, and several designated pedestrian crossings. The remaining section of 8th Street, from SW A Street to Moberly Lane, has open ditches and no sidewalks. The current posted speed limit along 8th Street is 30 miles per hour (mph). Electrical transmission lines extend along both sides of 8th Street and an existing at-grade railroad crossing is located east of SE P Street. The 8th Street Corridor is comprised of mixed residential, retail/commercial, office, and industrial uses. Because of the Wal-Mart Home Office, Wal-Mart Data Center, and associated parking areas, pedestrian use is heavy at the eastern and western end of the Corridor.

Highway 71 - Within the Study Area, Highway 71 is a four-lane divided expressway, consisting of four 12-foot wide travel lanes, 10-foot wide outside shoulders, and 6-foot wide inside shoulders. Highway 71 has a posted speed limit of 70 mph. Diamond interchanges are located at Highway 102 and Highway 72 (see Figure 2). AHTD has programmed the widening of Highway 71 through the Study Area to be completed by 2030.

Highway 102/62 Interchange and 14th Street- The Highway 102/62 interchange provides access to 14th Street and Hudson Road. Throughout the Study Area, 14th Street is classified as an arterial and consists of four 12-foot wide travel lanes and a 12-foot wide continuous center two-way left-turn lane. Within the Study Area, the majority of 14th Street includes sidewalks, curb and gutter, and a posted speed limit of 45 mph. The AHTD programmed the addition of multiple turn lanes within the Highway 102/62Iinterchange to begin in 2009. These turn lane improvements will be incorporated into the selected 8th Street Interchange concept evaluated in this EA.

Highway 72 Interchange and Central Avenue - The Highway 72 interchange provides access to Central Avenue, a major connector to downtown Bentonville. From South Walton Boulevard to SE J Street, Central Avenue is a two-lane collector roadway with sidewalks, curb and gutter, and on-street parking. The posted speed limit for this downtown section of Central Avenue is 30 mph. The City of Bentonville is in the process of widening Central Avenue between SE J Street to Highway 71 to a five-lane arterial

with a continuous center two-way left turn lane. The widened roadway will include on-street parking, a six-foot wide sidewalk, a ten-foot wide multi-use path, and will have a posted speed limit of 45 mph. The Central Avenue project will be completed in mid 2011.

TRAFFIC ANALYSIS

Travel Demand Modeling and the Transportation Network in the Project Area

The Northwest Arkansas Regional Planning Commission (NWARPC), which serves as the local Metropolitan Planning Organization (MPO), maintains the Northwest Arkansas Regional Traffic Demand Model (NARTDM). The NARTDM includes the Bentonville roadway network and is used by transportation planners to conduct traffic analyses and predict how development and transportation improvements affect local roadway networks. Improvement of 8th Street and Highway 71 was analyzed using the NARTDM. To conduct the analysis, data that included minor collector and local roadway classification information, design hour intersection turning movements, and supplemental freeway traffic volumes for the Study Area was added to the NARTDM.

In addition to information regarding 8th Street and Highway 71, the NARTDM was updated with information about roadway improvements planned by the City and AHTD by 2030. These programmed improvements include turn lane improvements at the Highway 102/62 Interchange, the extension of 8th Street west of SW I Street (completed in 2010), the extension of 8th Street between Highway 71 and Water Tower Road (future City project), the improvement of Central Avenue (to be completed mid 2011), and the future widening of I-540 and Highway 71 to a six-lane facility (to be completed by 2030). The assumptions used in the NARTDM were coordinated with, and reviewed by, participating agencies, including the AHTD and the City of Bentonville. Although all of these projects are included in the NARTDM, only the Highway 102/62 Interchange turn lane improvements are evaluated in this EA.

Based on the information from the NARTDM, annual traffic volumes were forecast to grow between 2.3 percent and 2.9 percent through 2030 for the predominant roadway segments within the Study Area. These growth rates were determined by review of historic data collected within the Study Area and from comparisons with other completed studies, including the I-540 Improvement Study. These growth rates were applied to 2006 traffic volume data to form the basis for traffic analyses of major intersections, freeway segments, and freeway interchange movements for the years 2010 and 2030.

Traffic Projections within the Study Area

Existing and projected future annual average daily traffic volumes (AADT) within the Study Area with no 8th Street improvements are summarized in Table 1 and shown on Figures 3 and 4. By 2030, traffic volumes along 8th Street are projected to increase 63 percent, with traffic volumes along Highway 71

projected to increase 63 to 70 percent. Similarly, Highway 102 traffic volumes are projected to increase by 64 to 72 percent, with an increase of 50 to 53 percent in traffic volumes along Highway 72 by 2030.

Table 1: Existing and Projected Traffic Volumes

	vehicles per day	
	2010	**2030**
8th Street	6,900 – 7,600	10,700 – 11,600
Highway 71	37,700 - 56,800	64,100 - 94,200
Highway 102	24,400 - 27,700	40,100 - 47,700
Highway 72	9,800 - 15,600	14,700 - 23,800

LEVEL OF SERVICE

Level of Service (LOS) is a common method used to describe operational conditions within a traffic stream, and their perception by motorists and/or passengers. LOS takes into account characteristics such as travel speed, travel time, freedom to maneuver, and traffic interruptions or delay.

LOS is graded on a scale of A to F, and is further described by the following general conditions:

LOS Indicator	General Description of Traffic Conditions
A	Free flow
B	Reasonably unimpeded operation with slight restriction
C	Stable operations with generally lower operating speeds
D	Delay occurs and operating speeds are decreased
E	Significant delay and low average travel speeds
F	Forced flow with slow speeds

The analyses of LOS for the years 2010 and 2030 were conducted utilizing software based upon guidance from the *Highway Capacity Manual, Transportation Research Board, 2000.* The locations analyzed were the existing 8th Street, 14th Street, and Central Avenue intersections, and existing Highway 71. The LOS and traffic volumes for the years 2010 (existing) and 2030 (future) with no improvement to 8th Street and without the proposed interchange are depicted in Figure 3 and Figure 4, respectively.

The intersection capacity analysis results are based on existing and future traffic conditions without the 8th Street Improvement Project and are summarized in Table 2. The American Association of State Highway and Transportation Officials (AASHTO) publication *Geometric Design of Highways and Streets*, 2004, suggests that intersections in heavily developed areas be designed for LOS D. The LOS for each

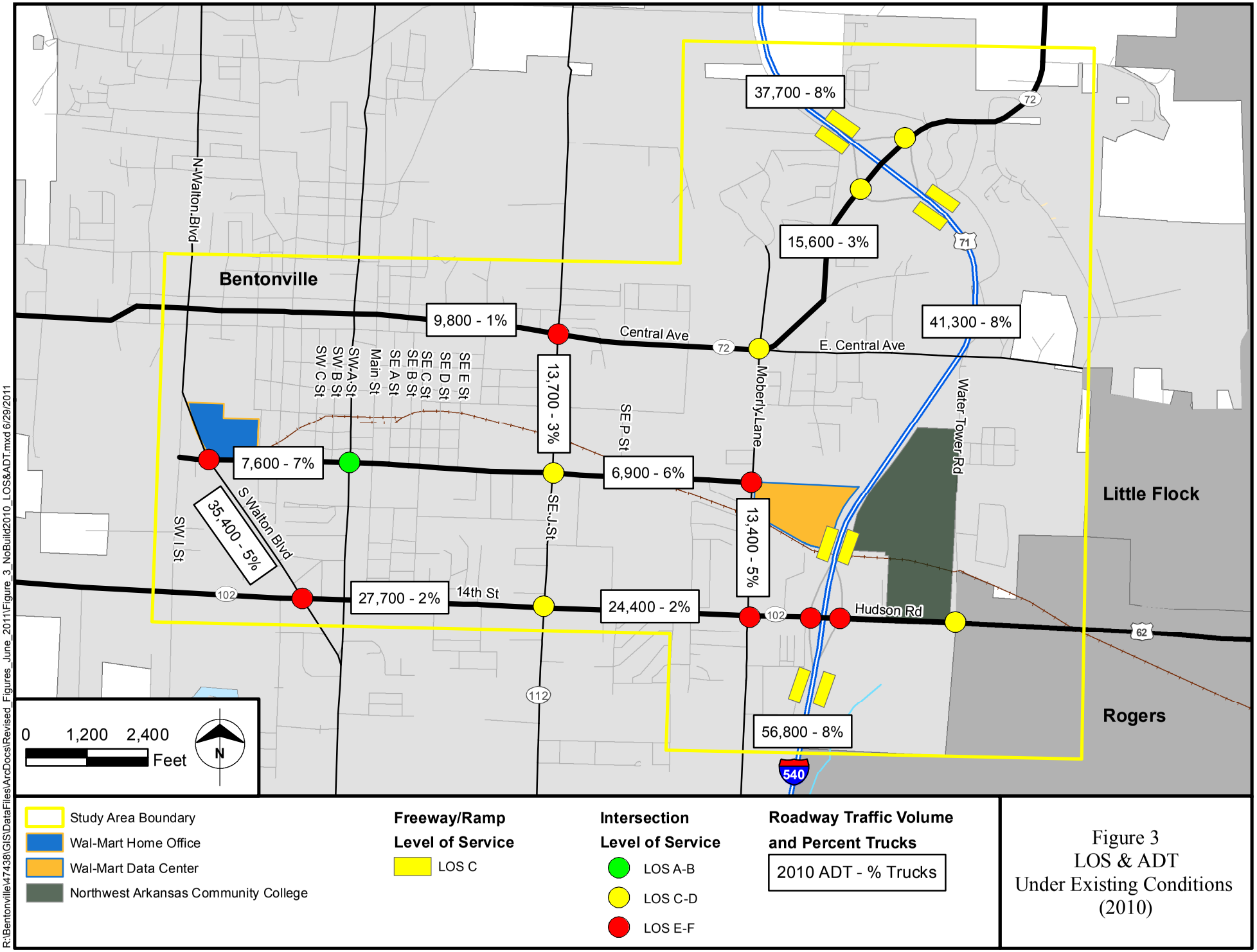

Figure 3
LOS & ADT
Under Existing Conditions
(2010)

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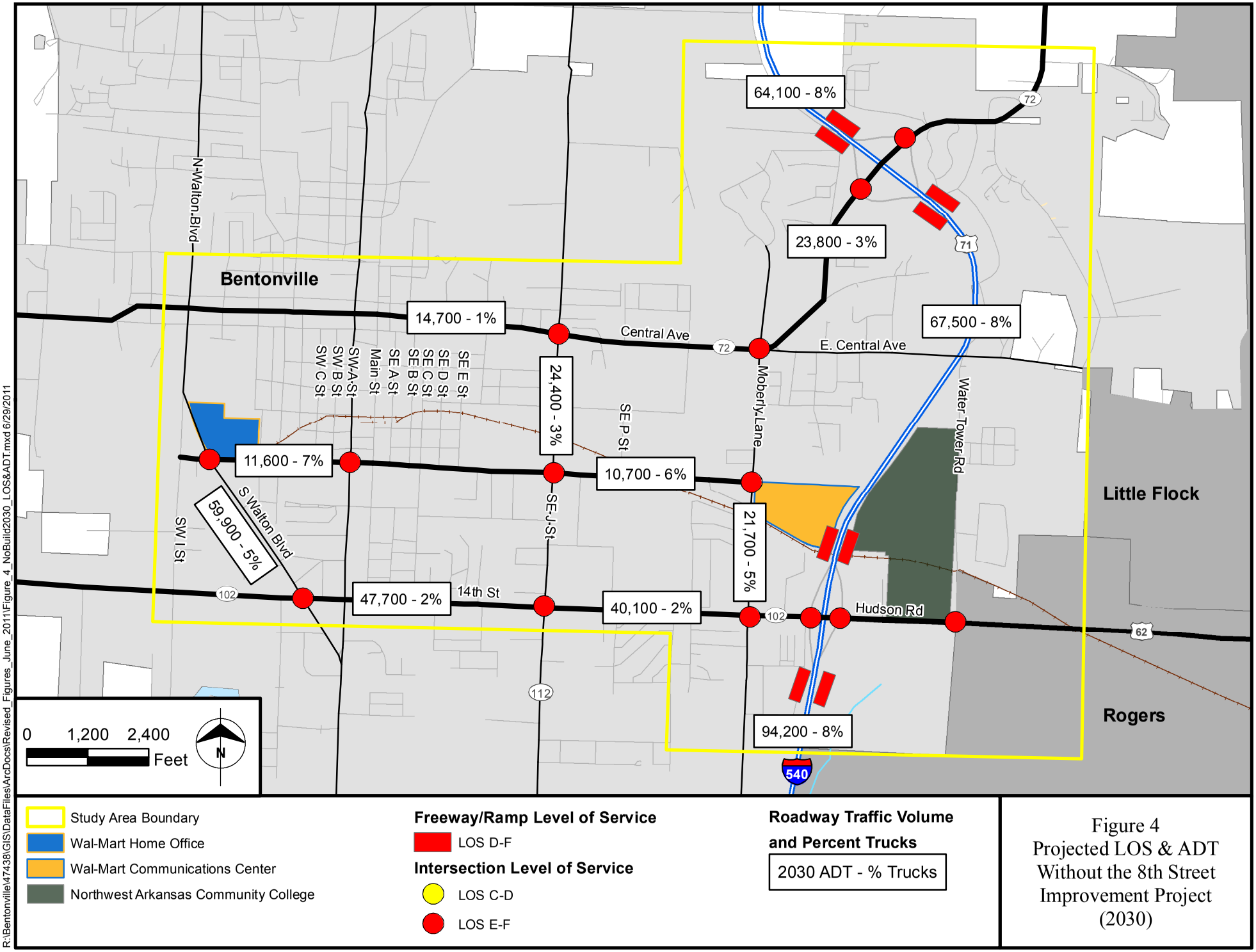

Figure 4
Projected LOS & ADT
Without the 8th Street
Improvement Project
(2030)

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intersection is given for AM peak hour and PM peak hour traffic conditions. Intersections where traffic is projected to operate at unacceptable levels (LOS E and LOS F) in the AM or PM peak periods are shaded in yellow in Table 2. Under existing conditions in 2010, approximately half of the intersections studied operate at LOS E or LOS F. By 2030, if no roadway improvements are made, all of the intersections studied are projected to operate at LOS E or LOS F.

Table 2: Existing and Projected LOS Without the 8th Street Improvement Project

Intersection	Level of Service	
	2010 AM peak hour – PM peak hour	2030 AM peak hour – PM peak hour
8th Street		
Moberly Lane	E-F	F-F
SE J Street	C-D	E-F
SW A Street	A-B	E-F
South Walton Boulevard	E-F	E-F
Highway 102		
Highway 71	F-F	F-F
Moberly Lane	F-F	F-F
SE J Street	C-D	E-F
South Walton Boulevard	E-F	E-F
Highway 72		
Highway 71	C-D	F-F
Moberly Lane	C-D	F-F
SE J Street	E-F	E-F

SOURCE: Burns & McDonnell, 2008

NOTE: Intersections where traffic is projected to operate at unacceptable levels (LOS E and LOS F) in the AM and PM peak periods are shaded in yellow.

The results of the Highway 71 freeway capacity analysis conducted without the 8th Street Improvement Project are shown in Table 3. The AASHTO publication *Geometric Design of Highways and Streets*, 2004, suggests that LOS C be used for freeway design. Roadway segments projected to operate at the unacceptable levels of LOS D, LOS E, or LOS F are shaded in yellow.

The results of the freeway capacity analysis, summarized in Table 3, relates the movement of through traffic (i.e., non-entering, non-exiting) traveling along the highway to the traffic entering (i.e., merging) and exiting (i.e., diverging) at existing interchanges. The merge analysis indicates the effect that traffic entering the highway via the interchange ramps will have on the speed and operation of the highway traffic. The diverge analysis indicates the effect that traffic exiting the highway via the interchange ramps

will have on the speed and operation of the traffic staying on the highway. Both merging and diverging traffic can cause through traffic to slow and weave between lanes before and after the highway ramp connections.

Table 3: Existing and Projected LOS for Highway 71 Freeway Movements Without the 8th Street Improvement Project

Merge (Entering Traffic) Analysis				
	Operational LOS			
Movement onto Highway 71/I-540	2010 AM	2010 PM	2030 AM	2030 PM
Hwy. 102 North Bound (NB) On Ramp	B	C	B	D
Hwy. 102 South Bound (SB) On Ramp	C	B	E	C
Hwy. 72 NB On Ramp	A	C	B	D
Hwy. 72 SB On Ramp	C	C	E	D
Diverge (Exiting Traffic) Analysis				
	Operational LOS			
Movement off Highway 71/I-540	2010 AM	2010 PM	2030 AM	2030 PM
To Hwy. 102 NB Off Ramp	C	D	F	F
To Hwy. 102 SB Off Ramp	C	C	E	D
To Hwy. 72 NB Off Ramp	B	C	C	E
To Hwy. 72 SB Off Ramp	D	C	E	D
Freeway Segment Analysis				
	Operational LOS			
Main Line Movement on Highway 71/I-540	2010 AM	2010 PM	2030 AM	2030 PM
South of Hwy. 102 (NB)	C	D	C	D
South of Hwy. 102 (SB)	C	D	C	D
Between Hwy. 102 & Hwy. 72 (NB)	B	C	C	D
Between Hwy. 102 & Hwy. 72 (SB)	C	C	E	D
North of Hwy. 72 (NB)	A	C	B	D
North of Hwy. 72 (SB)	C	B	E	D

SOURCE: Burns & McDonnell, 2008;

NOTE: Roadway segments projected to operate at unacceptable levels (LOS D, LOS E, or LOS F) are shaded in yellow.

SAFETY ANALYSIS

Roadway safety is an important characteristic and can be an indication of when roadway improvements should be made. The relative safety of a roadway segment can be determined by comparing the roadway's crash rate (reported as the number of crashes per million vehicle miles traveled) to the statewide crash rate for roadways with similar characteristics.

Reported crash data was analyzed for the three most recent and available years at the following locations within the Study Area:

- Highway 71 – south of the Highway 102/62 intersection ramp terminals to north of the Highway 72 ramp terminals. The ramp segments associated with these two interchange locations were included within the analysis boundary.
- Highway 102/14th Street – SE J Street intersection on the west to the east intersection of Highway 102 with Highway 71
- Central Avenue
- 8th Street

Table 4 indicates the crash rates for the street and highway locations described above. The annual crash rate for Highway 71 was compared with four-lane divided highway facilities with fully controlled access, and Highway 102/62 was compared with four-lane undivided facilities with no access control. The annual crash rate for Central Avenue and 8th Street was compared with similar two-lane urban streets. Central Avenue crash rates are based on the two-lane cross-section present at the time the study was initiated. Central Avenue is currently being upgraded by the City to a five-lane urban arterial with a continuous center two-way left-turn lane. Roadways with crash rates higher than the statewide average crash rate are shaded in yellow.

Table 4: Crash Rates

Year	Route	Crashes	Study Area Crash Rate	Statewide Average Crash Rate
2006	Highway 71	39	0.77	0.87
	Highway 102/14th Street	140	10.99	5.75
	Central Avenue	45	4.39	3.44
	8th Street	53	9.04	3.44
2007	Highway 71	28	0.56	0.76
	Highway 102/14th Street	122	9.92	5.65
	Central Avenue	48	5.00	3.43
	8th Street	62	11.09	3.43
2008	Highway 71	31	1.08	0.83
	Highway 102/14th Street	152	6.80	5.08
	Central Avenue	13	2.37	3.26
	8th Street	59	11.09	3.26

SOURCE: AHTD, 2010

NOTE: Crash rates in the Study Area that are higher than the statewide average crash rate are shaded in yellow.

Fifty-seven percent of the crashes on Highway 71, and 43 percent of the crashes on Highway 102, were recorded as rear-end collisions. Rear-end collision crashes are a strong indicator of roadway congestion, frequent turning movements, and stop-and-go conditions.

NEEDS ANALYSIS

Continued growth and development within and adjacent to the 8th Street Corridor is producing traffic that is overloading existing local streets. With expected growth and projected increases in traffic volumes, congestion on the local street network and at the Highway 71 interchanges will worsen. The purpose of the proposed improvements is to provide additional roadway capacity to serve the following transportation and access needs within the Study Area.

(1) Provide direct access to 8th Street from Highway 71

To access 8th Street from Highway 71, travelers must use either the Highway 72 Interchange or the Highway 102/62 Interchange. Those using the Highway 72 interchange follow Central Avenue to North Walton Boulevard, crossing through downtown Bentonville and several residential neighborhoods to get to 8th Street. Vehicles traveling from the Highway 102/62 Interchange pass through residential neighborhoods along 14th Street to South Walton Boulevard in order to access 8th Street. A number of side streets, including SW A Street, SE J Street, and Moberly Lane, are frequently used by semi-truck drivers to connect to 8th Street, causing further disruption within neighborhoods.

(2) Relieve congestion along 8th Street between SW I Street and Moberly Lane

In response to local development, 8th Street traffic volumes near the Wal-Mart Home Office are projected to increase by 63 percent to an average daily traffic (ADT) volume of 11,600 vpd by 2030. Without additional roadway or intersection capacity, 8th Street is projected to operate at unacceptable LOS E or LOS F, resulting in increased congestion and delay.

(3) Relieve congestion at the Highway 102 and Highway 72 interchanges

Under existing conditions in 2010, the Highway 102/62 and Highway 72 interchanges operate at LOS E/LOS F and LOS C/LOS D, respectively. Anticipated growth in and around Bentonville will increase traffic volumes along Highway 71 by 63 to 70 percent by 2030. As development continues, congestion at these interchanges is expected to increase. The lack of local roadway capacity in the vicinity of each interchange contributes to congestion that affects local and through travelers on Highway 71. Improvements that increase capacity within the local transportation network are necessary to maintain the safe and efficient movement of the volume of traffic forecast for the Study Area through 2030.

(4) Relieve congestion along 14th Street and Central Avenue

Development and increased traffic will strain existing roadways linked to the 8th Street Corridor. Both 14th Street and Central Avenue currently operate at marginally acceptable levels of service (LOS C/LOS D) during peak travel periods. As traffic increases along 8th Street, these peripheral streets will become more heavily traveled and lose their ability to efficiently move traffic. Moberly Lane, SE J Street, and Main Street would experience increased traffic that would contribute to congestion and delay. A direct connection between 8th Street and Highway 71 would relieve congestion along 14th Street and Central Avenue and minimize future congestion along side streets. Without an additional connection to Highway 71, 14th Street and Central Avenue are projected to operate at unacceptable levels of service (LOS E/LOS F) by 2030.

(5) Provide pedestrian access throughout the 8th Street Corridor

Significant pedestrian traffic occurs at both ends of the 8th Street Corridor, in the vicinity of the Wal-Mart Home Office and the Wal-Mart Data Center. Within the remainder of the Corridor, few sidewalks exist and both pedestrians and bicyclists use the roadway. The City of Bentonville's *General Plan and Zoning Ordinance* calls for mixed use development along 8th Street, which would require both roadway and sidewalk improvements to accommodate mixed modes of travel. In addition, the City's *Downtown Master Plan* outlines the continued evolution of the SW 8th Street/SW A Street intersection into a "place-making intersection," providing a gateway and linkage to Bentonville's downtown, as depicted in Figure 5 and Figure 6. In addition, the inclusion of sidewalks and accommodations for multi-use facilities along sections of 8th Street would comply with the recent DOT policy on integrating bicycle and pedestrian accommodations into projects to promote livable communities.[1] Multi-use sidewalks and improved roadway capacity are needed to satisfy current and future pedestrian needs and to maintain consistency with City plans.

[1] *DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*; March 15, 2010. http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

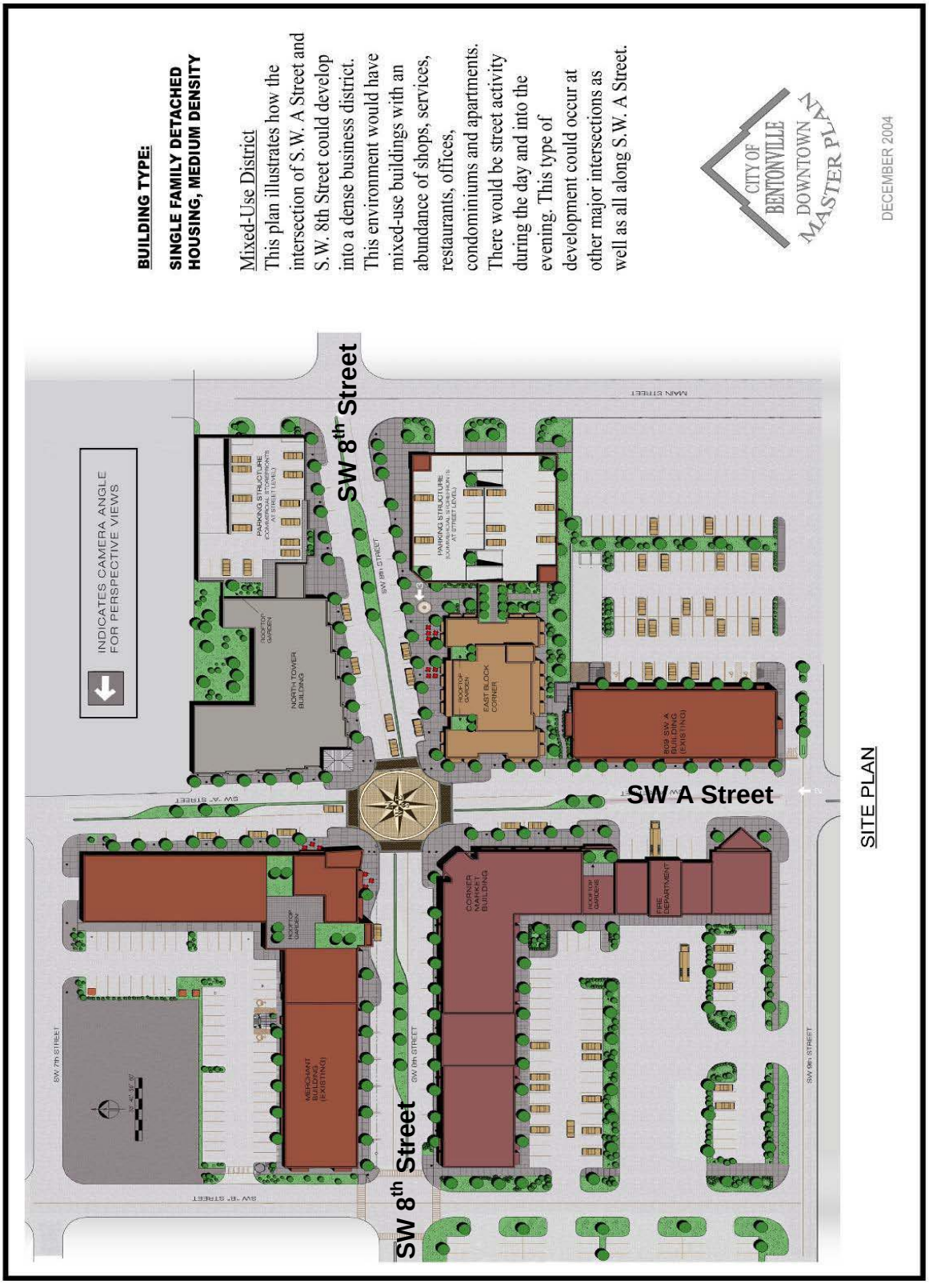

Figure 5: Place Making Intersection Proposed at 8th Street and SW A Street

Figure 6: Conceptual View of Place Making Intersection Proposed at 8th Street and SW A Street

ALTERNATIVES

This chapter provides a description of the alternatives examined to satisfy the transportation needs within the Study Area. Information relating to the development and screening of design concepts is also presented. The design concepts include improvements to 8th Street and several options to provide an interchange and direct connection of 8th Street to Highway 71. The alternatives carried forward for detailed evaluation in this EA are the No Action Alternative and two Build Alternatives – Alternative 8B and Alternative 9B. Each Build Alternative incorporates improvements to 8th Street and a design for a new interchange at Highway 71 and ramp and turning lane improvements at the existing Highway 102/62 Interchange.

ENVIRONMENTAL FEATURES AND PHYSICAL CONSTRAINTS

Environmental data, such as the location of wetlands and floodplains, historic sites, and hazardous waste sites, were collected, mapped, and used to develop and evaluate the 8th Street Improvement Project. Also identified were physical constraints, which include business and residential buildings, utilities, and the Arkansas-Missouri Railroad. The AT&T Communications building at the Wal-Mart Data Center (see Figure 2), was avoided due to the difficulty and expense of relocating its global fiber optic system.

8TH STREET AND INTERCHANGE CONCEPT DEVELOPMENT

Concepts were developed to improve 8th Street and provide direct access to 8th Street with an interchange at Highway 71. The concepts for widening 8th Street to an urban arterial with four-lane and five-lane sections were developed with the intent to avoid or minimize impacts to homes and businesses, where feasible, by shifting the right of way north or south. The improvements to 8th Street evaluated in this EA include reconstructing existing 8th Street between SW I Street and Moberly Lane and extending 8th Street on new alignment from Moberly Lane to Highway 71.

Concepts for improved access to Highway 71 incorporated design options involving the existing Highway 72 interchange, and the combination of an extension of 8th Street to Highway 71 with a new interchange at that location. The concepts to provide an 8th Street interchange at Highway 71 included ramp and collector-distributor road connections to the existing Highway 102/62 Interchange. The NARTDM was used to forecast traffic operations at these interchange locations. The purpose of this initial traffic assignment analysis was to establish which location would provide adequate roadway capacity and congestion relief along 8th Street and Highway 102 to address the transportation needs within the Study Area.

INTERCHANGE OPERATIONAL CONSIDERATIONS

Modifications to highway access can affect the ability of the freeway system to effectively and safely accommodate travel. Adequate control of access is critical to providing the highest level of service. The planning and design of a new freeway access point must conform to FHWA and AHTD guidelines and procedures. It is the general policy of the FHWA to minimize the addition of new freeway access points unless they are justified.

The minimum interchange spacing recommended for a divided interstate or non-interstate freeway is one mile in urban areas.[2] The FHWA may approve interchanges with a separation of less than one mile in urban areas when grade separated ramps, braided ramps, and/or collector-distributor roads are used to separate traffic. The spacing between the existing Highway 72 and Highway 102/62 Interchanges is 2.5 miles. The proposed 8th Street Interchange would be 1.5 miles from the Highway 72 Interchange, but less than a half mile from the Highway 102/62 Interchange. As part of the interchange concept development process, operational analyses were completed to determine how each interchange concept would function when the distance between adjacent interchanges was less than the one mile minimum[3]. Special design considerations and ramp connections were evaluated at the Highway 102/62 Interchange to maintain efficient traffic operations on Highway 71. The operational analysis of the interchange concepts is described in Appendix A.

INTERCHANGE LOCATION AND DESIGN CONCEPTS CONSIDERED, DISCARDED, AND CARRIED FORWARD

This section provides as overview of the location and design concepts that were developed for a new interchange on Highway 71. The locations reviewed include the existing Central Avenue overpass and the 8th Street extension location along Highway 71. It also provides a description of the concepts that were discarded and the concepts that were carried forward for additional operational analyses. Each of the interchange concepts is described in greater detail in Appendix A of the EA. Figures illustrating each concept are also provided in Appendix A.

Nine interchange design concepts were analyzed to determine if they would address the access needs and traffic volumes projected to occur within the Study Area by the year 2030. The advantages and disadvantages of each are summarized in Table 5.

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2 American Association of Street and Highway Transportation Officials (AASHTO), *Green Book: A Policy on Geometric Design of Highways and Streets*. 2004

3 *Engineering and Operational Acceptability Review, 8th Street Freeway Access, Highway 71-Bentonville, Arkansas*; Burns & McDonnell Engineering Company, Inc. May 19, 2009.

Table 5: Interchange Concept Comparison

Concept	Advantages	Disadvantages
1 Diamond interchange at Central Avenue with 8th Street/Central Avenue connection west of interchange (see Figure A-3)	• Reduces traffic congestion at Highway 72 Interchange	• Use of new interchange to reach 8th Street for traffic coming from and going to the south would require significant adverse travel as compared to existing conditions • Does not improve congestion at Highway 102/62 Interchange
2 Diamond interchange at Central Avenue with 8th Street /Central Avenue connection east interchange (see Figure A-4)	• Reduces traffic congestion at Highway 72 Interchange	• Use of interchange to reach 8th Street for traffic coming from and going to the south would require significant adverse travel as compared to existing conditions • Does not improve congestion at Highway 102/62 Interchange • Substantial right of way impacts to the NWACC property
3 Trumpet interchange at the 8th Street Extension (see Figure A-5)	• Reduces traffic congestion at Highway 72 Interchange • Reduces traffic congestion at Highway 102/62 Interchange • Reduces traffic congestion along Highway 102/62	• Ramps too close to Highway 102/62 Interchange resulting in unacceptable weave conditions and potentially un-safe conditions on Highway 71. • Substantial right of way impacts to the NWACC property • Does not provide for future extension of 8th Street to the east
4 Split diamond interchange at the 8th Street Extension with reconstruction of the north half of the Highway 102/62 Interchange (see Figure A-6)	• Reduces traffic congestion at Highway 72 Interchange	• Does not improve congestion at Highway 102/62 Interchange • No direct connection to 8th Street from the south • No direct connection to Highway 102 from the north • Increased delay for traffic from the north exiting at Highway 102/62. • Substantial right of way impacts to the NWACC property
5 Diamond interchanges at 14th Street and the extension of 8th Street (see Figure A-7)	• Provides direct connection to existing and new interchanges • Reduces traffic congestion at Highway 72 and Highway 102/622 Interchanges	• Complex and lengthy C-D road system requiring significant reconstruction of existing improvements • Two interchanges require twice as many bridge structures • Introduces weaving conditions on C-D road system, affecting operational safety • Substantial right of way impacts to the NWACC property

Table 5: Interchange Concept Comparison (continued)

Concept	Advantages	Disadvantages
6 Split diamond interchange at the extension of 8th Street with reconstruction of the Highway 102/62 Interchange (see Figure A-8)	• Provides direct connection to 8th Street • Reduces traffic congestion at Highway 72 and Highway 102/62 interchanges	• Complex and lengthy C-D road system requiring significant reconstruction of existing improvements and bridge structures • No direct connection to Highway 102/62 for traffic coming from the north • Increased delay for southbound traffic exiting to and northbound traffic entering from Highway 102/62 as compared to existing conditions • Requires reconstruction of existing Highway 102/62 interchange • Substantial right of way impacts to the NWACC property
7 Diamond interchanges at 14th Street and the extension of 8th Street with reconstruction of Highway 71 over the 8th Street Extension (see Figure A-9)	• Provides direct connection to existing and new interchanges • Reduces traffic congestion at Highway 72 and Highway 102/62 interchanges	• Requires reconstruction of Highway 71 over the 8th Street extension • Complex and lengthy C-D road system requiring significant reconstruction of existing improvements • Two interchanges require twice as many bridge structures • Introduces weaving conditions on C-D road system, affecting operational safety • Substantial right of way impacts to the NWACC property
8A Tight diamond with slip ramps and C-D roads (see Figure A-10)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Provides direct connections to existing and new interchanges	• Off-ramps cannot accommodate anticipated queue lengths • C-D road length insufficient to support weave • Safety concerns with traffic backing up onto Highway 71
8B Tight diamond with braided ramps and separate entrance ramps (see Figure A-11)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Braided ramps eliminate weave operations • Provides direct connections to existing and new interchanges	• Requires use of tunnels and additional walls to achieve the braided ramp configuration
8C Tight diamond with braided ramps and single entrance ramp (see Figure A-12)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Braided ramps eliminate weave operations • Provides direct connections to existing and new interchanges • Reduces number of entrance and exit points along Highway 71	• Requires use of tunnels and additional walls to achieve the braided ramp configuration • Substantial right of way impacts to the NWACC property • Require widening of the existing Highway 71 bridges over the railroad to accommodate the Highway 102/62 entrance/exit ramps

Table 5: Interchange Concept Comparison (continued)

Concept	Advantages	Disadvantages
9A Single-point with slip ramps and C-D roads (see Figure A-13)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Provides direct connections to existing and new interchanges	• Off-ramps cannot accommodate anticipated queue lengths • C-D road length insufficient to support weave • Safety concerns with traffic backing up onto Highway 71 • Larger, more complex bridge over Highway 71 required to accommodate single-point intersection than needed for tight diamond interchange (Concepts 8A/8B/8C)
9B Single-point with braided ramps and separate entrance ramps (see Figure A-14)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Braided ramps eliminate weave operations • Provides direct connections to existing and new interchanges	• Requires use of tunnels and additional walls to achieve the braided ramp configuration • Larger, more complex bridge over Highway 71 required to accommodate single-point intersection than needed for tight diamond interchange (Concepts 8A/8B/8C)
9C Single-point with braided ramps and single entrance ramp (see Figure A-15)	• Reduces congestion at Highway 72 and Highway 102/62 interchanges • Braided ramps eliminate weave operations • Provides direct connections to existing and new interchanges • Reduces number of entrance and exit points along Highway 71	• Requires use of tunnels and additional walls to achieve the braided ramp configuration • Larger, more complex bridge over Highway 71 required to accommodate single-point intersection than needed for tight diamond interchange (Concepts 8A/8B/8C) • Substantial right of way impacts to the NWACC property

In addition to the nine interchange design concepts that were developed and reviewed, a traffic management concept using the existing interchanges and roadways without constructing the 8th Street Extension or a new interchanges was also reviewed. Under this concept, traffic would be routed through signalized intersections at the ends of the ramps of the Highway 72 and Highway 102/62 interchanges. This concept would continue to route traffic through the existing interchanges that are currently congested and operating at LOS C to LOS F. This traffic management concept did not satisfy the project purpose or the transportation needs within the Study Area and was dropped from further consideration.

The operational analysis showed that an interchange located at the Central Avenue overpass (Concepts 1 and 2, see Figures A-3 and A-4 in Appendix A) would result in a reduction of less than five percent in the traffic volumes forecast at the Highway 72 Interchange. This reduction would be the result of some drivers exiting at Central Avenue to access the Study Area instead of exiting at Highway 72. There would be no reduction of traffic, or possibly a slight increase in traffic, at the Highway 102/62 Interchange with construction of an interchange at Central Avenue. The additional mile of travel distance to exit at Central Avenue and the driver's ultimate destination could deter drivers from using the Central

Avenue interchange if they were coming from the south. Concepts 1 and 2 were discarded because they did not satisfy the project purpose or the transportation needs within the Study Area.

Also, operational analyses were conducted for five interchange concepts at the extension of 8th Street. After completion of the operational analysis, Concepts 3 through 7 were discarded because of design issues and serious conditions that affected the safe operation of each concept. The best attributes of interchange Concepts 3 through 7 were carried forward in the development of interchange Concepts 8A, 8B, 8C, 9A, 9B, and 9C. These concepts combined interchange operations between 8th Street and Highway 102/62. The advantages and disadvantages of Concepts 8A, 8B, 8C, 9A, 9B, and 9C are summarized in Table 5. Interchange Concepts 4 through 9C included an extension of 8th Street from Highway 71 east to connect with Water Tower Road. The alignment of this eastwardly extension varied, depending on the concept. This eastwardly extension is part of the City's project to reconstruct Water Tower Road, which is planned to occur within the next ten years. The easterly extension of 8th Street is not proposed as part of the 8th Street Improvement Project. The eastwardly extension is considered a connected action to the proposed 8th Street Improvement Project and is reviewed in terms of cumulative impacts.

DETAILED OPERATIONAL ANALYSES OF THE INTERCHANGE CONCEPTS CARRIED FORWARD

The NWARPC's NARTDM was used to conduct a detailed operational analysis of the 8th Street Reconstruction and Extension and interchange Concepts 8A, 8B, 8C, 9A, 9B, and 9C. This analysis coincided with the Engineering and Operational Acceptability Review stage of AHTD's procedures for new freeway access.

A traffic capacity analysis for 8th Street Reconstruction and Extension improvements was conducted for the anticipated project opening year of 2014 and the future operational year of 2030. Conditions were forecast as though the proposed 8th Street improvements were in place. Analyses were also conducted for the signalized intersections along 8th Street and the proposed Highway 102/62 and 8th Street interchange freeway ramp intersections. The analysis indicated that in 2014 the 8th Street improvements would provide improved LOS at most locations, including at the Highway 102/62 and 72 interchanges. By 2030, under projected traffic conditions, an improved 8th Street would provide adequate operations at LOS D or better. An exception would be at the South Walton Boulevard intersection, which is projected to operate at LOS F in 2030 with or without the proposed improvements to 8th Street.

In 2030, with 8th Street improved and a new interchange on Highway 71, traffic volumes on Highway 102 would be reduced by approximately 10 percent. The number of vehicles traveling along 8th Street would

increase by nearly 150 percent near Moberly Lane and would increase by 40 percent near South Walton Boulevard. Ramp intersections at a proposed 8th Street Interchange are expected to operate at LOS C or better. The existing Highway 102/62 Interchange is projected to operate at LOS D or better for the majority of movements. A LOS analysis is provided in Table 6. Figure 7 provides LOS and traffic volumes for the years 2010 (without the project) and 2030 with the proposed 8th Street Improvement Project.

Table 6: 2010, 2014, and 2030 LOS With and Without the Proposed 8th Street Improvement Project

Highway 71 Merge (Entering Traffic) Analysis										
Movement onto (merge) Highway 71/I-540	2010		2014				2030[1]			
	Existing Conditions		Without the Proposed 8th Street Improvements		With the 8th Street Improvements		Without the Proposed 8th Street Improvements		With the 8th Street Improvements	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Hwy. 102/62 NB On Ramp	B	C	B	C	B	C	B	D	B	C
Hwy. 102/62 SB On Ramp	C	B	C	C	B	C	E	C	B	B
8th Street NB On Ramp	N/A	N/A	N/A	N/A	B	C	N/A	N/A	B	C
8th Street SB On Ramp	N/A	N/A	N/A	N/A	B	B	N/A	N/A	B	B
Hwy. 72 NB On Ramp	A	C	B	C	A	C	B	D	B	D
Hwy. 72 SB On Ramp	C	C	C	C	D	B	E	D	E	C
Highway 71 Diverge (Exiting Traffic) Analysis										
Movement from (diverge) Highway 71/I-540	2010		2014				2030[1]			
	Existing Conditions		Without the Proposed 8th Street Improvements		With the 8th Street Improvements		Without the Proposed 8th Street Improvements		With the 8th Street Improvements	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Hwy. 102 /62NB Off Ramp	C	D	D	D	B	D	F	F	B	C
Hwy. 102/62 SB Off Ramp	C	C	D	C	C	B	E	D	D	B
8th Street NB Off Ramp	N/A	N/A	N/A	N/A	A	B	N/A	N/A	B	B
8th Street SB Off Ramp	N/A	N/A	N/A	N/A	C	B	N/A	N/A	D	B
Hwy. 72 NB Off Ramp	B	C	B	D	B	C	C	E	C	E
Hwy. 72 SB Off Ramp	D	C	D	C	D	B	E	D	E	C
Highway 71/I-540 Freeway Segment Operational Analysis										
Main Lane Movement on Highway 71/I-540	2010		2014				2030[1]			
	Existing Conditions		Without the Proposed 8th Street Improvements		With the 8th Street Improvements		Without the Proposed 8th Street Improvements		With the 8th Street Improvements	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
North of Hwy. 72 (NB)	A	C	A	D	A	C	B	D	B	D
North of Hwy. 72 (SB)	C	B	C	C	D	A	E	D	E	C
Between Hwy. 102 & Hwy. 72 (NB)	B	C	B	C	N/A	N/A	C	D	N/A	N/A
Between Hwy. 102 & Hwy. 72 (SB)	C	C	D	C	N/A	N/A	E	D	N/A	N/A
Hwy. 102 to 8th Street (NB)	N/A	N/A	N/A	N/A	A	C	N/A	N/A	A	B
Hwy. 102 to 8th Street (SB)	N/A	N/A	N/A	N/A	C	A	N/A	N/A	C	A
8th Street to Hwy 72 (NB)	N/A	N/A	N/A	N/A	A	C	N/A	N/A	B	E
8th Street to Hwy 72 (SB)	N/A	N/A	N/A	N/A	D	B	N/A	N/A	E	C
South of Hwy. 102/62 (NB)	C	D	C	D	D	E	C	D	C	D
South of Hwy. 102/62 (SB)	C	D	D	D	D	D	C	D	D	C

SOURCE: Burns & McDonnell, 2008. NOTE: Roadway segments projected at unacceptable levels (LOS D, LOS E, or LOS F) are shaded in yellow.

[1] The operational analysis conducted for the 2030 design year includes the presumption that the widening of Highway 71/I-540 to six-lanes has taken place sometime between 2014 and 2030.

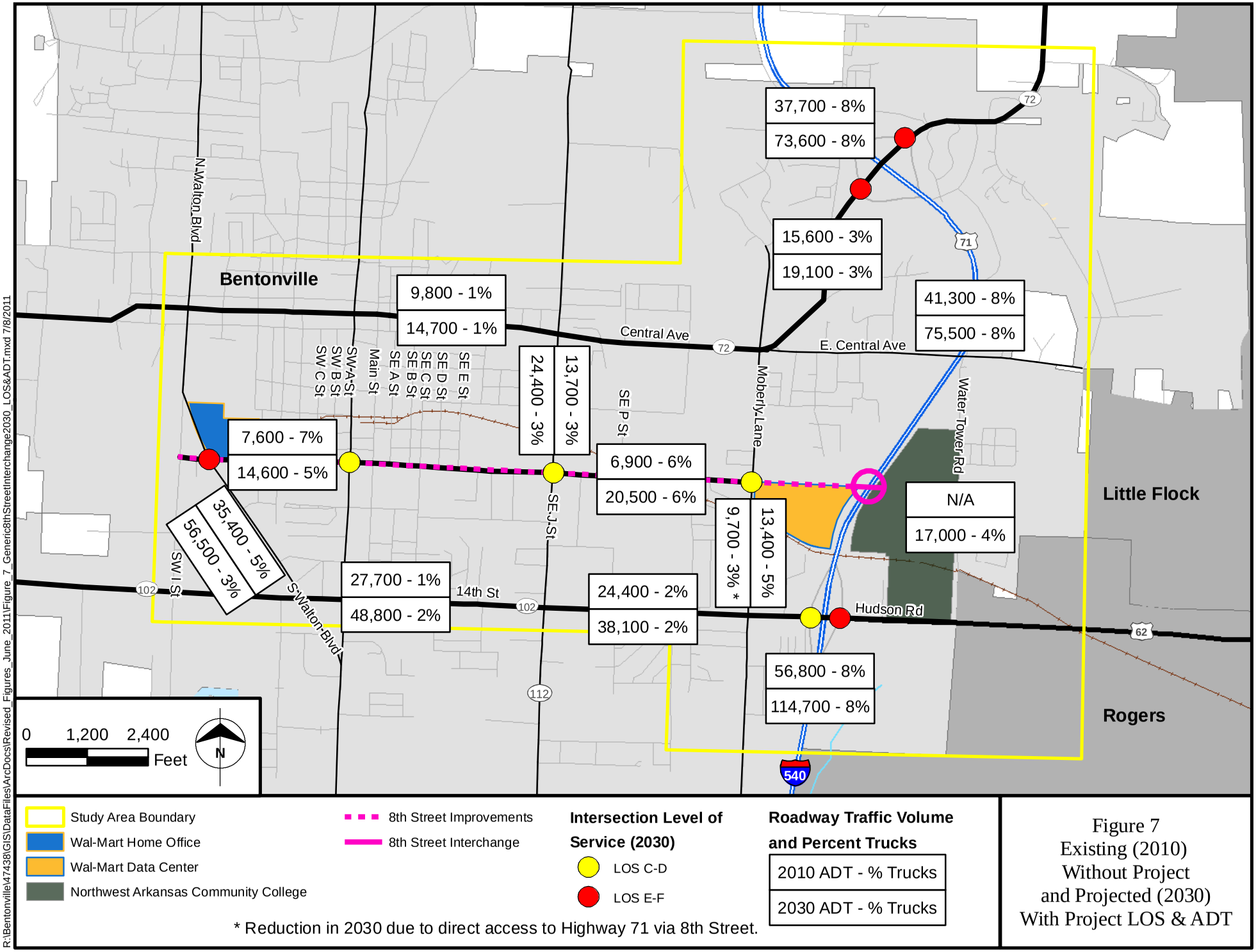

Figure 7
Existing (2010) Without Project and Projected (2030) With Project LOS & ADT

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ALTERNATIVES CARRIED FORWARD FOR DETAILED EVALUATION

Review of the operational analysis by AHTD and the City resulted in interchange Concepts 8B and 9B being carried forward for detailed evaluation. Concepts 8A, 8C, 9A, and 9C were removed from further consideration because of issues related to safety, congestion, and the amount of right of way required as described in Table 5. Under Concepts 8A and 9A, the required connector road length needed to fully accommodate merging and weaving traffic cannot be provided. This condition would result in traffic backing up onto Highway 71 as drivers merge onto Highway 71 from Highway 102/62 or exit onto 8th Street. In addition, Concept 9A would require a larger bridge structure at the 8th Street interchange to accommodate the single-point intersection, resulting in a higher overall project cost. Concepts 8C and 9C would require a substantial amount of right of way to be purchased from the NWACC campus for the interchange improvements, adding to the cost of the project.

Interchange Concept 8B and Interchange Concept 9B were individually combined with the 8th Street Reconstruction and Extension to form Build Alternative 8B and Build Alternative 9B, which are described in the following sections. Build Alternatives 8B, 9B, and the No Action Alternative are the alternatives that will be fully evaluated for this project.

An additional alternative was developed to avoid impacts to the Bentonville National Guard Armory/Readiness Center as part of the Section 4(f) Evaluation process (see Appendix F). This Avoidance Alternative is discussed and fully evaluated in the Section 4(f) Evaluation.

No Action Alternative

The No Action Alternative would not improve 8th Street and would not provide an interchange at 8th Street and Highway 71. This alternative would not relieve the current or projected traffic congestion in the Study Area, and intersections along 8th Street would continue to operate at diminished levels of service. The No Action Alternative would include maintenance projects for 8th Street and Highway 71. Although the No Action Alternative would not meet the project purpose and need, it has been retained to provide a comparison with the two Build Alternatives.

Build Alternatives

The Build Alternatives consist of improving existing 8th Street, extending 8th Street between Moberly Lane and Highway 71, and constructing an interchange on Highway 71 at the extension of 8th Street with turn-lane improvements at the Highway 102/62 Interchange. The two alternatives carried forward for detailed evaluation are based on interchange Concepts 8B and 9B. Both interchange designs are depicted in Figure 8.

- Alternative 8B reconstructs and extends 8th Street and provides a tight urban diamond interchange with braided ramps (Concept 8B) at the proposed extension of 8th Street at Highway 71, with additional turn lanes constructed at the Highway 102/62 Interchange.

- Alternative 9B reconstructs and extends 8th Street and provides a single-point interchange with braided ramps (Concept 9B) at the proposed extension of 8th Street at Highway 71, with additional turn lanes constructed at the Highway 102/62 Interchange.

Both alternatives provide direct access to 8th Street and would provide traffic operations at LOS C or better. Both alternatives include braided ramps to improve safety by eliminating weave movements that would occur along Highway 71 between the 8th Street and Highway 102/62 interchanges. Braided ramps separate entering and exiting traffic from highway through traffic. Traffic accessing Highway 102/62 from southbound Highway 71 would exit Highway 71 onto a ramp beginning just north of the 8th Street interchange, travel through a tunnel under 8th Street, and continue along the ramp to exit at Highway 102/62. Highway 102/62 traffic accessing northbound Highway 71 also would follow a ramp from Highway 102/62 north, traveling under 8th Street and merging with Highway 71 traffic north of the 8th Street interchange. Both alternatives would include the addition of right-turn lanes to the northbound and southbound on-ramps from Highway 102/62 to Highway 71. Highway 102/62 between the ramps under Highway 71 would be widened to accommodate traffic turning onto Highway 71. These improvements at the Highway 102/62 interchange would be completed within existing right of way. A summary comparison of interchange Concepts 8B and 9B is provided in Table 7.

Table 7: Interchange Concept Comparison

	Concept 8B		**Concept 9B**	
Right of Way Impacts	same		same	
Traffic Operations	2014 LOS B-C	2030 LOS B-C	2014 LOS C	2030 LOS C-D
Safety	braided ramps eliminate weaving		braided ramps eliminate weaving	
Maintenance	acceptable		more complex bridge will require more maintenance	
Driver Expectations	normal intersection configurations at both ends of interchange		single intersection at center of interchange, not commonly experienced by drivers	
Expandable	typical bridge, crossroad easily widened		crossroad not widened easily	
Estimated Construction Cost	$24.8 million		$26.0 million	

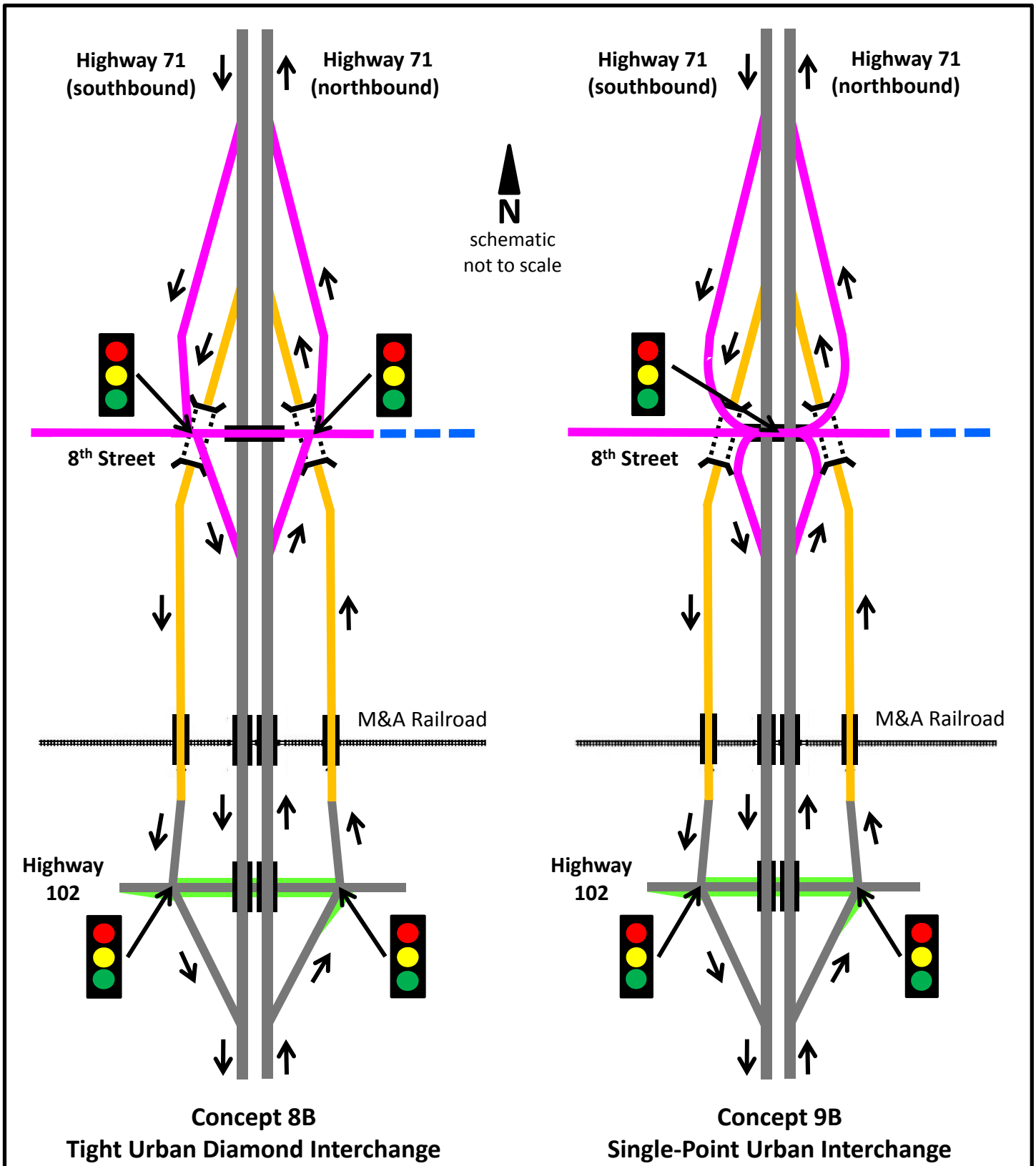

Figure 8
Interchange Design
Concept 8B
(Tight Urban Diamond)
and Concept 9B
(Single-Point)

The estimated right of way limits for both Build Alternatives encompass the area necessary to reconstruct and extend 8th Street, relocate utilities, and construct the interchange. To determine the impacts of both interchange designs, a single footprint that would accommodate either interchange layout, as well as potential design modifications, is evaluated in the remainder of the EA. This footprint includes the improvements at the existing Highway 102/62 Interchange. The description and evaluation of the Build Alternatives are divided into two sections – 8th Street Reconstruction and Extension and the 8th Street Interchange.

8th Street Reconstruction and Extension- The proposed improvements to 8th Street are depicted in Figure 9, with the proposed typical cross-sections shown in Figures 10 -15. The typical cross-sections are described further in the following paragraphs. Both Build Alternatives would reconstruct and extend 8th Street in the same manner.

Under both Build Alternatives, widening 8th Street between SW I Street and South Walton Boulevard would primarily occur north of the existing roadway, allowing the alignment to match the City's recently completed extension of 8th Street west of SW I Street. Between South Walton Boulevard and SW A Street, the improvements would primarily be along the south side of existing 8th Street. At the SW A Street intersection, the existing jog in the road would be eliminated. From SW A Street to Moberly Lane, widening would shift north to minimize impacts to businesses and residential areas. The extension of 8th Street between Moberly Lane and Highway 71 would provide a new five-lane urban roadway on new location. The 8th Street extension would tie into the proposed 8th Street Interchange. This new section of 8th Street would provide access to parking areas associated with the Wal-Mart Data Center.

Currently, private and commercial driveways have access to 8th Street. Driveway access would be limited by the proposed improvements in order for the roadway to function appropriately at the proposed speed limit. Access would be limited using raised medians, which limit left turns, and by consolidating the driveway entrances of neighboring developments.

The Town Branch Trail parallels a portion of 8th Street between SW J Street and Moberly Lane. The reconstruction and extension of 8th Street would construct that section of the Town Branch Trail to meet AHTD's Bicycle Facility Accommodation Policy design standards for a shared use path (i.e., joint pedestrian/bicycle facilities separated from the roadway) at a width of ten feet. Under a separate and independent project by the City, a shared use path is being constructed that would connect to this section of the Town Branch Trail, following along the railroad and under Highway 71 to tie into Water Tower Road. Because that project would provide the continuation of the shared use path through the Study Area, the sidewalks along the remainder of 8th Street and through the 8th Street Interchange would be constructed to a standard width of six feet.

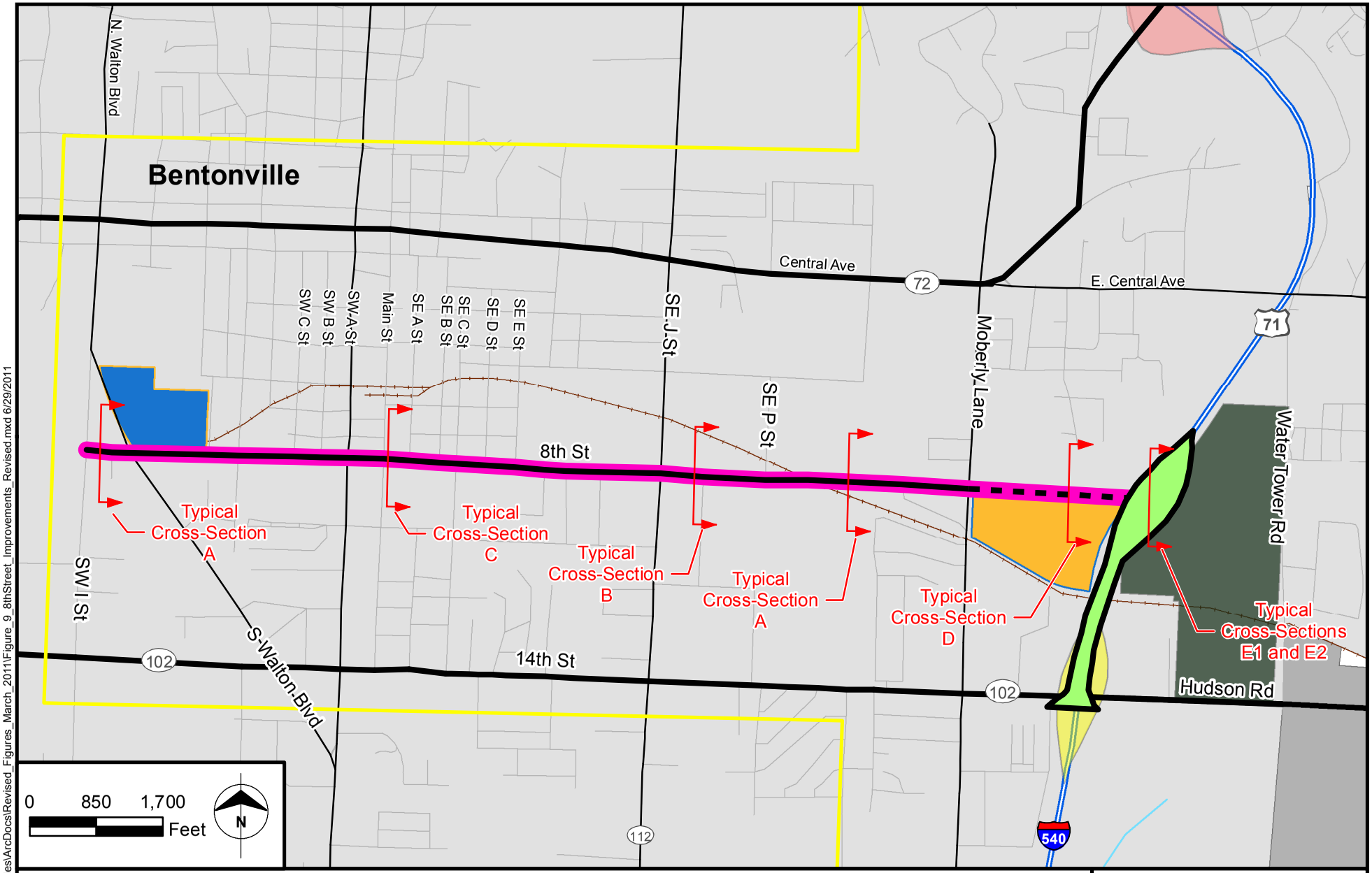

Figure 9
8th Street Improvement Project and Typical Cross-Section Locations

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Under both Build Alternatives, 8th Street from SW I Street to South Walton Boulevard and from SE J Street to Moberly Lane would be reconstructed to two-travel lanes in each direction and a two-way center left turn lane to accommodate a higher percentage of turning movements. This typical cross section is illustrated in Figure 10 and the location is shown on Figure 9.

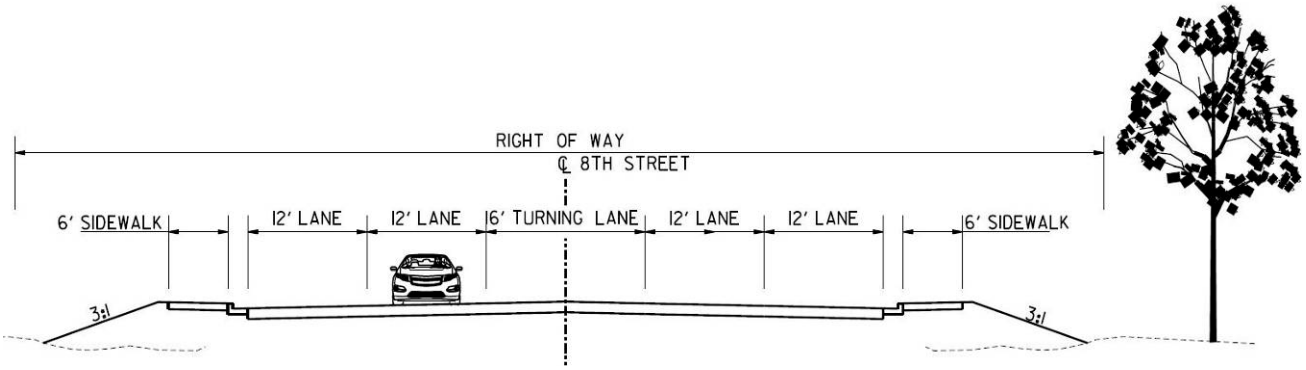

Figure 10: Typical Cross Section A

Figure 11 illustrates the same typical cross section with the addition of the Town Branch Trail designated along 8th Street between SW J Street and the railroad tracks. Town Branch Trail would be constructed parallel to 8th Street between SW J Street and the railroad tracks. At the railroad tracks, Town Branch Trail would follow the track alignment and pass under Highway 71 to tie into Water Tower Road.

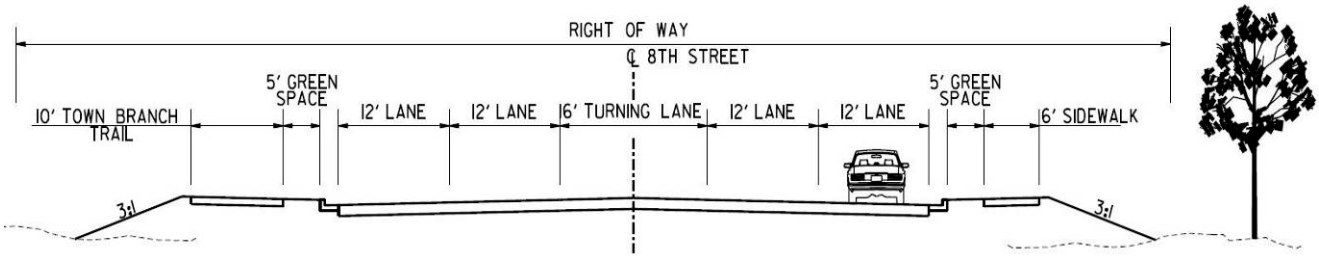

Figure 11: Typical Cross Section B

With both Build Alternatives, a raised median would be constructed between South Walton Boulevard and SE J Street, as illustrated in Figure 12.

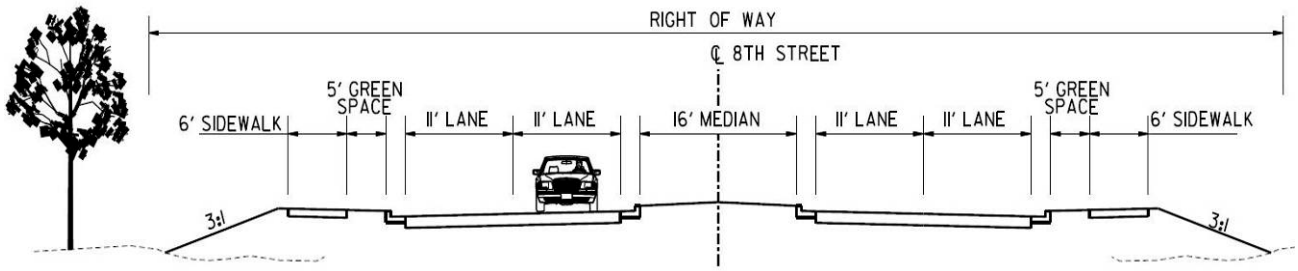

Figure 12: Typical Cross Section C

Typically, left-turns would be allowed only at major side streets; as determined by intersection traffic volumes and the City's *Master Street Plan*. Remaining driveways and side streets would be limited to right-in and right-out access. U-turns are not permitted under existing conditions; however, with left-turns restricted, U-turns may be permitted at signalized intersections as governed by City ordinance.

In addition to driveways, there is a substantial amount of pedestrian traffic along 8th Street in the vicinity of the Wal-Mart facilities located at both ends of the Corridor. This traffic primarily consists of workers traveling to and from parking areas on either side of 8th Street. To a lesser extent, pedestrian traffic associated with other businesses and residential areas occurs along the remainder of 8th Street. Under both Build Alternatives, signalized crossings would be provided to accommodate pedestrians crossing 8th Street throughout the Corridor. Near SE P Street, the existing railroad crossing would be improved and left at-grade.

Figure 13 illustrates the roadway section along the 8th Street extension between Moberly Lane and the proposed interchange for both Build Alternatives. The center two-way left turn lane and 12-foot turning lane is necessary for access to and from the interchange and the adjacent Wal-Mart Data Center parking facilities. The barrier and retaining wall are required to avoid the AT&T communications/fiber optic building near Highway 71. The 10-foot area is required for access/maintenance/drainage at the base of the wall.

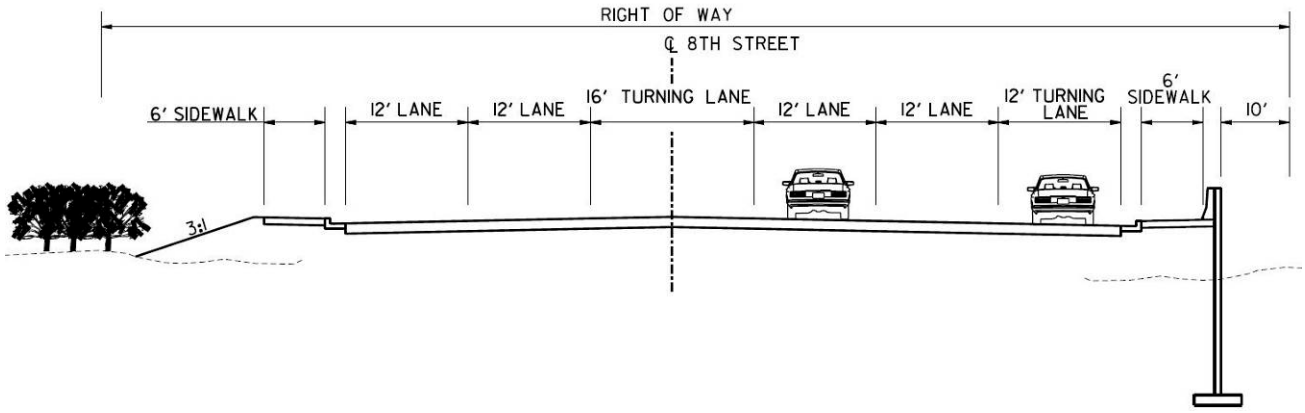

Figure 13: Typical Cross Section D

8th Street Interchanges 8B and 9B – Under both Build Alternatives, the proposed interchange would be located where the 8th Street extension would cross Highway 71 (see Figure 9). Under Alternative 8B with the tight urban diamond interchange (see Figure 8), the bridge crossing Highway 71 at the 8th Street extension would accommodate four-travel lanes, two left-turn lanes, and sidewalks to carry pedestrian and bicycle traffic, as illustrated in Figure 14. In the future, these sidewalks would connect to Water Tower Road along the easterly extension of 8th Street.

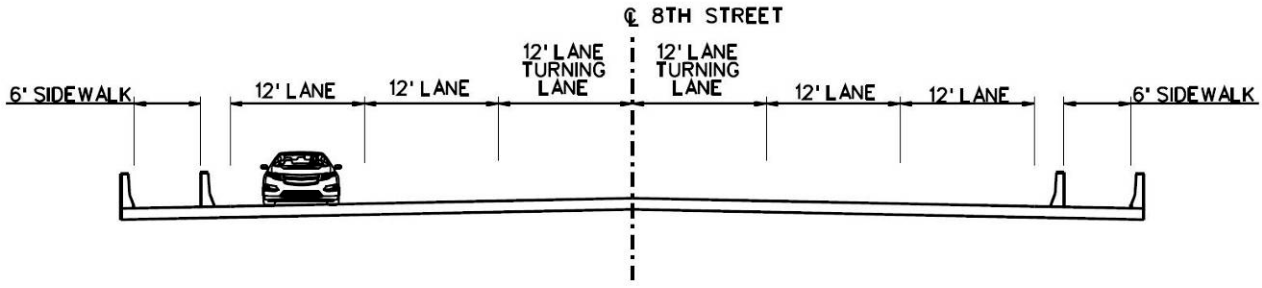

Figure 14: Typical Cross Section E1

With Alternative 9B's single-point urban interchange (see Figure 8), the bridge crossing Highway 71 at the 8th Street extension would provide four-travel lanes, a continuous two-way center left turn lane, and sidewalks to carry pedestrian and bicycle traffic, as illustrated in Figure 15. In the future, these sidewalks would connect to Water Tower Road along the easterly extension of 8th Street. Because the travel lanes across the bridge curve to meet at a traffic signal at the center of the bridge, raised medians are provided on both sides of the bridge in the area not used for travel lanes.

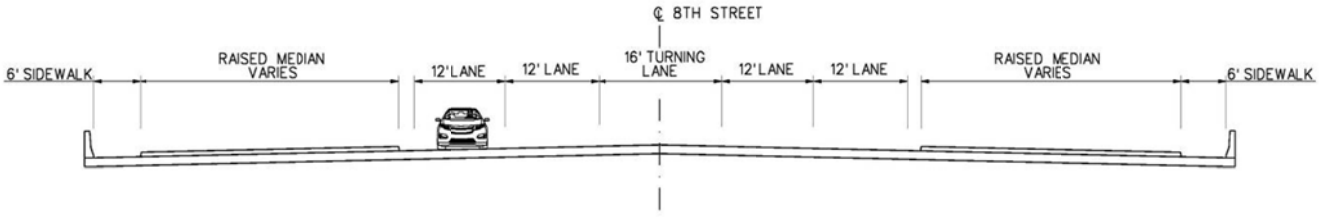

Figure 15: Typical Cross Section E2

The interchange improvements for both Alternative 8B and 9B include the addition of right-turn lanes on the northbound and southbound ramps within the existing Highway 102/62 Interchange and widening of Highway 102/62 under the Highway 71 overpass at that interchange. These improvements would be completed within the existing right of way. The same improvements to the Highway 102/62 Interchange would be made regardless of which 8th Street interchange design is constructed.

Preliminary Cost Estimates

Table 8 provides the preliminary cost estimates for the No Action and Build Alternatives. The preliminary cost estimates include right of way acquisition (land acquisition, estimated relocation expenses, and utility relocations) and construction costs (grading, earthwork, drainage, bridges, and engineering). The construction costs for the interchange portion of each Build Alternative include the costs of the Highway 102/62 Interchange improvements.

Table 8: Preliminary Cost Estimates (2011 dollars)

Cost Category	No Action	Build Alternative 8B			Build Alternative 9B		
		Interchange Concept 8B	8th Street	TOTAL	Interchange Concept 9B	8th Street	TOTAL
Construction	0	$21.4 Million	$16.0 Million	**$37.4 Million**	$22.6. Million	$16.0 Million	**$38.6 Million**
Property Acquisition	0	$3.0 Million	$4.6 Million	**$7.6 Million**	$3.0 Million	$4.6 Million	**$7.6 Million**
Relocation	0	0	$400,000	**$400,000**	0	$400,000	**$400,000**
Reimbursable Utilities	0	$400,000	$3.9 Million	**$4.3 Million**	$400,000	$3.9 Million	**$4.3 Million**
Non-reimbursable Utilities	0	0	$900,000	**$900,000**	0	$900,000	**$900,000**
Estimated Total Cost	**0**	$24.8 Million	$25.8 Million	**$50.6 Million**	$26.0 Million	$25.8 Million	**$51.8 Million**

SOURCE: Burns & McDonnell, 2011

IMPACT ASSESSMENT

This section presents impacts associated with Build Alternative 8B, Build Alternative 9B, and the No Action Alternative. Under each category, impacts are presented for (1) the reconstruction and extension of 8th Street and (2) construction of the 8th Street Interchange which includes the addition of turn lanes and widening of Highway 102/62 at the Highway 102/62 Interchange within the existing right of way. Because the same reconstruction and extension of 8th Street will occur, and the layout of both interchanges (8B and 9B) will be accommodated within the same impact footprint, the impacts of Build Alternatives 8B and 9B are the same.

NATURAL ENVIRONMENT

The proposed project is located within the Bentonville city limits. Bentonville is located in the Ozark Plateau physiographic region, consisting of gently rolling hills and wide plateaus with a mix of native short-grasses and deciduous tree cover. The vast majority of the 8th Street Corridor has been cleared of natural vegetation and is dominated by urban and suburban development. However, unmaintained fencerows, backyards, and the NWACC campus provide important habitat for urban wildlife.

No Action Alternative:

The No Action Alternative would not affect the natural environment because no construction would occur and no additional right of way would be acquired.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension- Impacts to the natural environment resulting from reconstructing and extending 8th Street would be negligible due to the present human effects on the local environment. Eighth Street extends through a developed area in Bentonville that is dominated by residential, industrial, and commercial land uses.

8th Street Interchange – Existing vegetation would be removed within the interchange footprint. Right of way would be acquired from the edge of an open field and the edge of the wooded outdoor classroom on the NWACC campus. Because the open field area is already disturbed and dominated by human activity, impacts to local biodiversity would be minimal. Loss of part of the outdoor classroom area would be compensated by planting additional trees on adjacent campus areas. The location for tree planting will be determined through continued coordination between the City and the NWACC. During construction, areas adjacent to the proposed interchange may be used for access and storage of equipment and materials that would result in the clearing and compaction of small areas. Once construction is completed, these areas would be reseeded with turf grasses or other groundcover to minimize the propagation of weedy or

invasive species. Vegetation within the new and existing right of way would be seeded and managed according to AHTD procedures and specifications. The newly disturbed right of way should be managed to limit and control the spread of invasive species.

After completion of this project, the City plans to extend 8th Street from the interchange east to Water Tower Road. The extension would be a project independent from the one discussed in this EA and is included on the NWACC's current campus master plan. The location and design of this roadway has not been determined, but it would avoid impacts to the NWACC's outdoor wooded classroom to the extent feasible.

FARMLAND

Farmland soils are defined by the U.S. Department of Agriculture (USDA) as the land best suited to food, feed, forage, fiber, and oilseed crops. Prime farmland soils are defined as soils with an adequate and dependable source of water, favorable temperatures and growing season, acceptable acidity/alkalinity level, few or no rocks, sufficient permeability for water and air, and slopes averaging zero to six percent.

The Farmland Protection Policy Act (7 CFR 658.2) does not apply to soils located within urban areas. Because the project is located within the Bentonville city limits, neither the No Action Alternative nor the Build Alternatives would require the conversion of prime or unique farmland to non-farm uses.

WATER QUALITY

Highway construction projects involve ground clearing and other activities generating dust and sediments that have the potential to adversely impact water quality. Normal roadway operations and maintenance activities can result in the accidental or incidental spill of fuels, herbicides/pesticides, and other chemicals that can potentially affect water quality. Construction activities and spills can result in short-term increased turbidity (caused by sediments and erosion), decreased dissolved oxygen (caused by chemicals), and increased pollutant loading of surface waters.

No Action Alternative:

The No Action Alternative would not create additional impacts to water quality. On-going roadway and interstate maintenance would continue, which would contribute minimal amounts of pollutants to surface waters.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension – The nearest intermittent and perennial streams are located more than 700 feet away from 8th Street, as shown in Figure 16. Curb and gutter and new connections to the existing storm sewer system would be included in the design of the 8th Street Improvements.

Construction of the 8th Street improvements would be completed under a separate contract from construction of the interchange. The City of Bentonville will comply with all requirements of the Clean Water Act, as amended, for the construction of this project. Compliance would include obtaining coverage under a General Permit for stormwater discharges resulting from construction under the National Pollutant Discharge Elimination System (NPDES) permit program. As a condition of the NPDES Permit, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) would be required. The SWPPP would include all specifications and best management practices (BMPs) needed for the control of erosion and sedimentation occurring during construction. The NPDES permit would be applied for and the SWPPP prepared just prior to the initiation of construction to best integrate the BMPs with the project design.

8th Street Interchange – A portion of an ephemeral stream (a stream or drainage that is usually dry and temporarily fills with water during brief rainfall events) flows under Highway 71 north of the Highway 102/62 Interchange and continues along the eastern edge of the proposed interchange. Impacts to this stream are discussed under the Wetlands and Waters of the U.S. section of this EA. Because the interchange would be constructed under a separate project by the City, coverage under the General NPDES Permit and preparation of a separate SWPPP would be required. A Section 401 Water Quality Certification from the Arkansas Department of Environmental Quality (ADEQ) to accompany the Section 404 permit obtained for impacts to wetlands and Waters of the U.S. (see Wetlands and Waters of the U.S. section of this EA) would be required for construction of either interchange design.

PUBLIC/PRIVATE WATER SUPPLIES

The City of Bentonville purchases its drinking water from Beaver Water District, which draws water from Beaver Lake located on the Benton County-Carroll County line. The City of Bentonville is located to the west of the Beaver Lake Watershed (Beaver Water District 2008). The project area is not within a public drinking water system's Wellhead Protection Area. No impacts to public or private drinking water supplies are anticipated with implementation of the No Action Alternative or either of the Build Alternatives.

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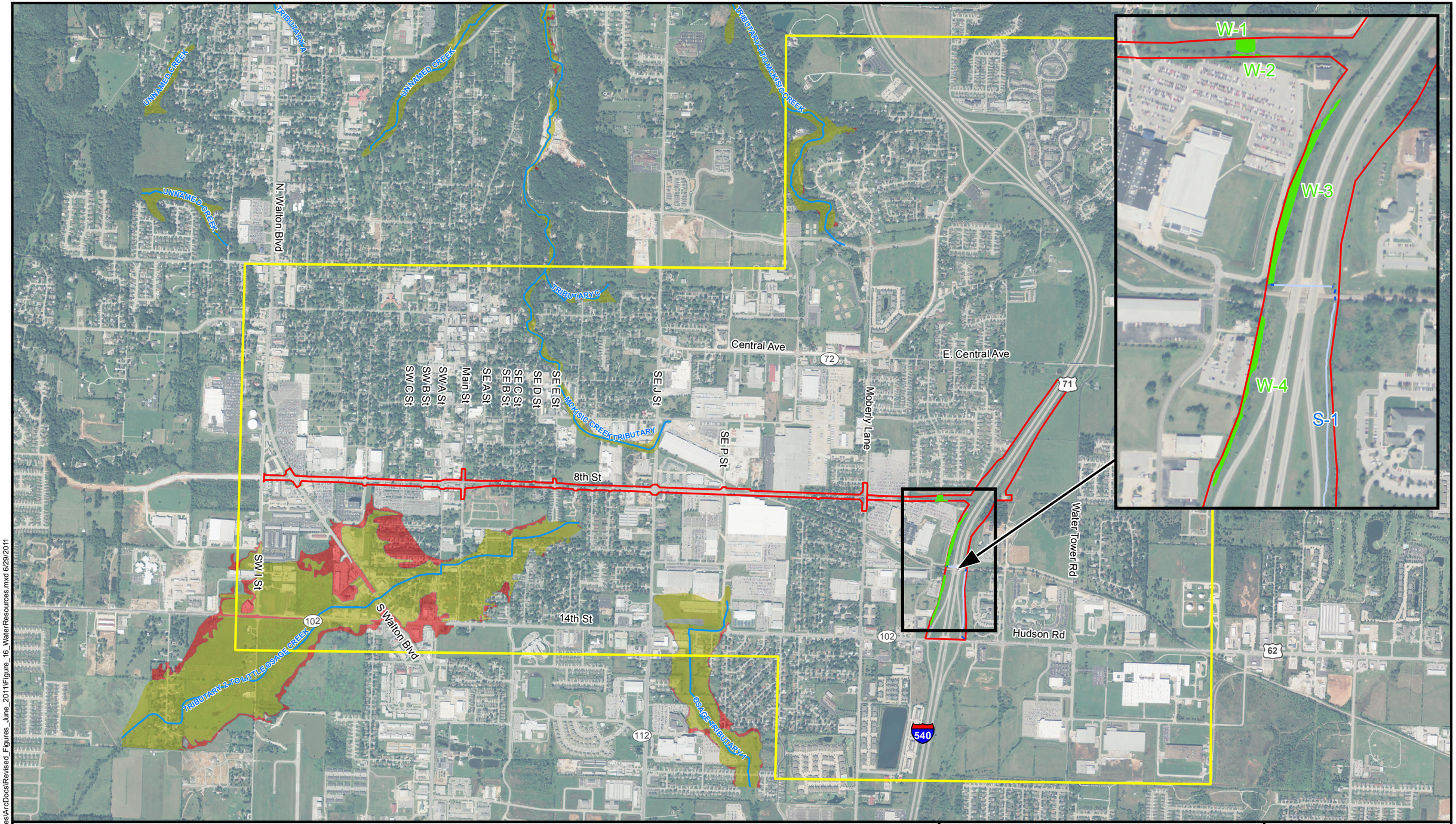

Study Area

Proposed Right of Way

Streams (S-1)

Streams (S-1)

Intermittent Stream

Concrete Drainageway

Wetland (W-1 through W-4)

PEM

Flood Hazards

100 Year Flood Plain

500 Year Flood Plain

0 850 1,700 Feet

N

Figure 16
Water Resources

R:\Bentonville\47438\GIS\DataFiles\ArcDocs\Revised_Figures_June_2011\Figure_16_WaterResources.mxd 6/29/2011

Sources: USDA NAIP Aerial Photograph for Benton County, Arkansas (2009); FEMA Q3 Floodplains; ESRI; Burns & McDonnell

WILD AND SCENIC RIVERS

There are no designated Wild and Scenic Rivers or Nationwide Rivers Inventory streams within the project Study Area. Therefore, none of the alternatives considered would have an impact on Wild or Scenic Rivers.

WETLANDS AND WATERS OF THE U.S.

Wetlands are areas typically inundated or saturated by surface or groundwater to the extent that they can support vegetation adapted for life in wet soil conditions. According to Section 404 of the Clean Water Act, a "water of the United States", must have a defined ordinary high water mark and must be hydraulically connected to an adjacent water body. Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) has the authority to issue permits for the placement of fill materials within wetlands or waters of the U.S.

Several background sources of information were reviewed prior to conducting delineations within the project area. These sources included: U.S. Geological Survey (USGS) 7.5-minute topographic map (1982 Bentonville North, Arkansas and 1982 Bentonville South, Arkansas quadrangles), the U.S. Fish & Wildlife Service (USFWS) National Wetland Inventory (NWI) map (1980 Bentonville South, Arkansas quadrangle), National Agriculture Imagery Program (NAIP) aerial photography (2006), and the USDA Natural Resources Conservation Service (NRCS) 2009 Soil Survey Geographic (SSURGO) Digital Data for Benton County, Arkansas.

No Action Alternative:

Because no right of way would be acquired and no construction activities would occur under the No Action Alternative, it would not impact wetlands or waters of the U.S.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension – Based on field surveys and jurisdictional determinations conducted in July 2009, no wetlands or Waters of the U.S. were identified within or adjacent to the proposed right of way required to reconstruct and extend 8th Street. Therefore, improving 8th Street would have no impact on Wetlands or Waters of the U.S.

8th Street Interchange – Wetlands and an ephemeral stream channel were delineated within the interchange footprint, as illustrated in Figure 16. Table 9 provides the type and size of the delineated areas.

Table 9: Type and Size of Delineated Wetlands within the Interchange Footprint

Wetlands		
Wetland Number	Wetland Type[1]	Approximate Size of Jurisdictional Wetland in the Surveyed Area (acres)
W-1	PEM	0.2
W-2	PEM	< 0.1
W-3	PEM	0.8
W-4	PEM	0.5
		Total: 1.6 acres

[1]=symbols for wetland type: PEM = palustrine emergent

Wetland 1 (W-1): Dominant vegetation in this wetland consisted of narrow-leaf cattail (*Typha angustifolia*). Soil color consisted of a 10YR 7/1 matrix. Wetland hydrology was indicated by apparent drainage patterns. A concrete-lined drainage ditch connecting W-1 to W-3 was noted outside of the interchange footprint.

Wetland 2 (W-2): Dominant vegetation in this wetland consisted of narrow-leaf cattail and American elm (*Ulmus americana*). Soil color consisted of a 10YR 6/2 matrix. Wetland hydrology was indicated by apparent drainage patterns. A concrete-lined drainage ditch connecting W-2 to W-3 was noted outside of the interchange footprint.

Wetland 3 (W-3): Dominant vegetation in this wetland consisted of flat-stem spikerush (*Eleocharis compressa*) and slender rush (*Juncus tenuis*). Soil color consisted of a 10YR 4/2 matrix with 10YR 6/8 mottles. Wetland hydrology was indicated by apparent drainage patterns and oxidized root channels.

***Wetland 4 (W-4)*:** Dominant vegetation in this wetland consisted of purple milkweed (*Asclepias purpurascens*), rough barnyard grass (*Echinochloa muricata*), flat-stem spikerush, and winged sumac (*Rhus copallinum*). Soil color consisted of a 10YR 4/2 matrix with 10YR 5/6 and 10YR 6/6 mottles. Wetland hydrology was indicated by apparent drainage patterns and oxidized root channels. Wetland 4 had no visible surface water connection to waters of the U.S. and may be considered isolated by the USACE.

Stream 1 (S-1)*:* Wetlands 1 through 3 drain into S-1. The stream is approximately 1.5 feet in width and 0.3 foot in depth from the ordinary high water mark (OHWM). The stream bed consisted of gravel, silt, sand and concrete. Stream 1 alternated between a weakly defined bed and bank and a concrete-lined bed throughout the Study Area. Approximately 1,500 feet of the stream bed is concrete lined and 300 feet is a natural bed and bank. The stream will not be affected by construction of the interchange.

A request for a Jurisdictional Determination was submitted to the Little Rock USACE in April 2010. In December 2010, the USACE agreed with the determination (see letter in Appendix K). Wetlands 1

through 4 have been determined to be jurisdictional. Construction of the interchange would require placement of fill materials within Wetlands 1, 2, 3, and 4 for a total area of impact of 1.6 acres. Because of the amount of wetlands filled, a Section 404 Individual Permit from the USACE and an individual Section 401 Water Quality Certification from ADEQ would be obtained by the City prior to starting construction.

The Section 404 Permit will require mitigation to compensate for impacts to wetlands and waters of the U.S. At this time, it is anticipated that mitigation requirements could be satisfied through the purchase of mitigation credits from a USACE-approved mitigation bank or in-lieu-fee program.

FLOODPLAINS AND FLOODWAYS

A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel, and adjacent areas that carry flood flows. Areas of special flood hazard within the Study Area are identified on Figure 16. None of the mapped 100-year and 500-year floodplains are located within or adjacent to the proposed 8th Street right of way or the interchange footprint. Neither the No Action nor the Build Alternatives would impact floodplains or areas of special flood hazard.

THREATENED AND ENDANGERED SPECIES

A threatened species is one that is likely to become endangered in the near future. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A list of federally threatened and endangered species, as well as state sensitive species, was compiled for Benton County through coordination with the Arkansas Natural Heritage Commission (ANHC) and the USFWS. A list of species likely to occur in Benton County is included in Appendix B.

The Study Area lies in a region known to contain karst features. Karst describes a type of topography that has developed as a result of the dissolving of soluble bedrock over time. Karst features include highly unique and sensitive habitats such as caves, sinkholes, losing streams (streams that lose significant quantities of surface water flow into the groundwater system), springs, and complex underground drainage systems. Highly specialized and often rare fish and wildlife species, including species of bat, salamander, cavefish, and crayfish, spend all or a part of their lives in these karst habitats (USFWS 2007). Although none have been observed, cave obligate species such as the Ozark cavefish (*Amblyopsis rosae*) and the gray bat (*Myotis grisescens*) could potentially exist in or near the Study Area. The City of Bentonville will follow a special provision to the AHTD *Standard Specifications for Highway Construction* outlining procedures to be utilized if karst features are discovered during construction.

No Action Alternative:

Because no threatened or endangered species or their habitats have been identified within the area, no right of way would be acquired, and no construction would take place, the No Action Alternative would not impact any threatened or endangered species or their respective habitats.

Build Alternatives 8B and 9B:

Because no known caves or sinkholes have been identified within or adjacent to the 8th Street right of way or interchange footprint, the likelihood of impacts to threatened or endangered species or their habitats is limited. In the event that karst formations, caves, or threatened or endangered species or their habitats are found within the 8th Street right of way or interchange footprint during construction, work would be stopped. At that time, the appropriate state and federal wildlife agencies would be contacted to determine the appropriate course of action.

SOCIAL AND ECONOMIC ENVIRONMENT

Considerations in evaluating socioeconomic impacts of a transportation project include community cohesion, changes in travel patterns, aesthetic impacts, and economic impacts. A socioeconomic impact assessment was completed for the project, with additional information provided in Appendix C. Based on the findings of the assessment, the following socioeconomic impacts may result from the alternatives.

No Action Alternative:

No changes would be made to 8th Street, Highway 71, or the existing interchange at Highway 72. The improvements planned for the Highway 102/62 Interchange would not be completed. The existing neighborhoods would remain the same. Designated pedestrian crossings along 8th Street would be limited to the existing signalized intersections at SW E Street, SW A Street, SE J Street, and Moberly Lane. The lack of new pedestrian crossings would pose a safety hazard to residents and Wal-Mart employees crossing 8th Street at both ends of the corridor. Increasing traffic volumes along 8th Street would cause congestion and travel delays, with the potential to increase the number of vehicle-vehicle and vehicle-pedestrian accidents. Neighborhoods would continue to experience heavy traffic traveling between Highway 71 and 8th Street. Development would continue, promoting a change from a suburban neighborhood to a more commercial and light industrial corridor, as depicted in the City's Future Land Use Plan.

Ozark Regional Transit operates a bus route throughout Bentonville that serves the NWACC, Wal-Mart facilities, and several medical centers with scheduled service. This route does not travel along 8th Street but crosses at Main Street and SW I Street. This transit service could experience schedule delays due to

increasing traffic congestion along its route. The No Action Alternative would not affect other public or emergency services.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension– Improving 8th Street would require right of way acquisition from residential, commercial, and industrial properties. Residential areas, especially between Main Street and SE J Street, and between SE P Street and Moberly Lane, would suffer a loss of homes and community cohesion. The number of lanes and width of the new roadway would limit pedestrian movement between residential areas north and south of 8th Street. Residential properties acquired for the improvements could be redeveloped for uses other than residential. Pedestrian crossings would be provided at signalized intersections. As part of the final design process, studies are underway to determine the location of additional pedestrian crossings. Both grade-separated and at-grade signalized pedestrian crossings will be evaluated during final design.

Between South Walton Boulevard and SE J Street, vehicle access to homes and businesses would be limited to right-in/right-out because of the center median. From SE J Street to Moberly Lane, left turn access would be accommodated using the center two-way left turn lane. Because of the center median and turn restrictions, some residents would need to modify their travel routes. The proposed improvements would not change access to public facilities or impact access by public service providers (school buses, Ozark Regional Transit service, taxi service, mail delivery, etc.) or emergency services (police, fire, ambulance, etc.). Short-term detours for school buses and Ozark Regional Transit would need to be implemented during construction.

Sidewalks would be constructed along both sides of 8th Street from SW I Street through the 8th Street Interchange providing pedestrian and bicycle access. The section of Town Branch Trail between SE J Street and the railroad tracks would be accommodated on a 10-foot wide multi-use path located along the south side of 8th Street. Under a separate and independent project by the City, a shared use path is being constructed that would connect to this section of the Town Branch Trail, following along the railroad and under Highway 71 to tie into Water Tower Road. Because that project would provide the continuation of the shared use path through the Study Area, the sidewalks along the remainder of 8th Street and through the 8th Street Interchange would be constructed to a standard width of six feet.

Improvements would indirectly spur continued expansion of commercial and light industrial development along 8th Street. Redevelopment of some parcels may not be feasible due to setback and access limitations. Some parcels may need to be combined to provide adequate space for redevelopment, depending on the intended use. These parcels may be best suited as landscaped buffers to minimize noise and visual impacts of the increased traffic and growing commercial character of the 8th Street Corridor.

Several businesses will lose parking spaces as a result of the additional right of way needed to reconstruct and extend 8th Street. The Wal-Mart Home Office will lose approximately 207 parking spaces from its lots on both sides of 8th Street. The Wal-Mart Data Center will lose an additional 72 parking spaces due to the extension of 8th Street. Nine on-street parking spaces will be lost by the Merchant Flats on 8th building, 81 spaces from the commercial complex north of 8th Street and east of SE J Street, and 44 spaces from the distribution business south of 8th Street and east of SE J Street.

8th Street Interchange - Construction of the interchange would not divide or isolate neighborhoods or disrupt community cohesion; instead, it would provide an additional east/west connection across Highway 71. Overall, access and travel ease would be improved as a result of the new access point along Highway 71. Connections with local and regional recreational/bicycle trials would be maintained. Sidewalks on the bridge would accommodate pedestrians and bicyclists and provide a future connection to the NWACC once the easterly extension of 8th Street is completed by the City. Construction of the interchange would not impact public transportation travel patterns.

Both positive and negative economic impacts may result from construction of the interchange. One positive impact would be the creation of temporary construction-related jobs. Reduced travel times would result from improved highway access and less congestion on local streets, contributing to more efficient travel and better fuel economy. Direct access to 8th Street from Highway 71 may encourage additional light industrial, warehouse/distribution, and commercial development in the area, contributing to the local tax base and the overall redevelopment of downtown Bentonville.

Construction of the Highway 71 interchange would have minimal impacts on future development of the NWACC campus. The proposed interchange would avoid the recently completed Shewmaker Center Addition, shown on the NWACC Master Plan Map is included in Appendix D. The City would continue to coordinate with the NWACC as the plans are developed for the 8th Street/Water Tower Road improvements planned to the east of Highway 71.

RELOCATION

Relocations occur when residential, business, or non-profit properties are within the new right of way of a proposed project. For the purpose of this EA, relocations have been estimated based on the proposed right of way limits which include a permanent utility easement for the improvement of 8th Street and construction of the interchange. Cost estimates, a Conceptual Stage Relocation Study, and an available housing inventory are presented in Appendix E.

No Action Alternative:

No additional right of way would be required with the No Action Alternative; therefore, the alternative would not result in relocations. Future development could occur in the Corridor, resulting in relocations that would not be associated with this project

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension– Both Build Alternative 8B and Build Alternative 9B would result in the same relocation impacts. Based on the new right of way limits and the permanent easement areas required for utility relocations, as shown in Figures 17 through 20, 24 households would be relocated to improve the 8th Street Corridor. Due to the relocation of tenant-occupied homes and the MDX Property, seven landlords, considered as businesses, will be displaced. Table 10 summarizes the relocations resulting from the Build Alternatives.

Table 10: Build Alternative Relocation Summary

Total Residential Relocations:	**24 households**
	• **14 single family** 8 owner-occupied 6 tenant-occupied • **10 multi-family units (MDX Property)** 10 tenant-occupied
Characteristics of Relocations:	6 minority households 4 elderly households 2 disabled households 10 low-income households
Total Business Relocations	**7 landlords** • MDX Property • 6 single family rental units

NOTE: several of the households have a combination of characteristics.

Residential properties located within the proposed right of way would be eligible for relocation assistance in accordance with Public Law 91-646, *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,* as amended (Uniform Act). The AHTD's Relocation Program provides advisory assistance and payments to help offset expenses incurred by those who are displaced. It is the AHTD's policy that adequate replacement housing will be made available, built if necessary, before any person is required to move from his/her dwelling. All replacement housing would be fair housing and offered to all affected persons regardless of race, color, religion, sex, or national origin.

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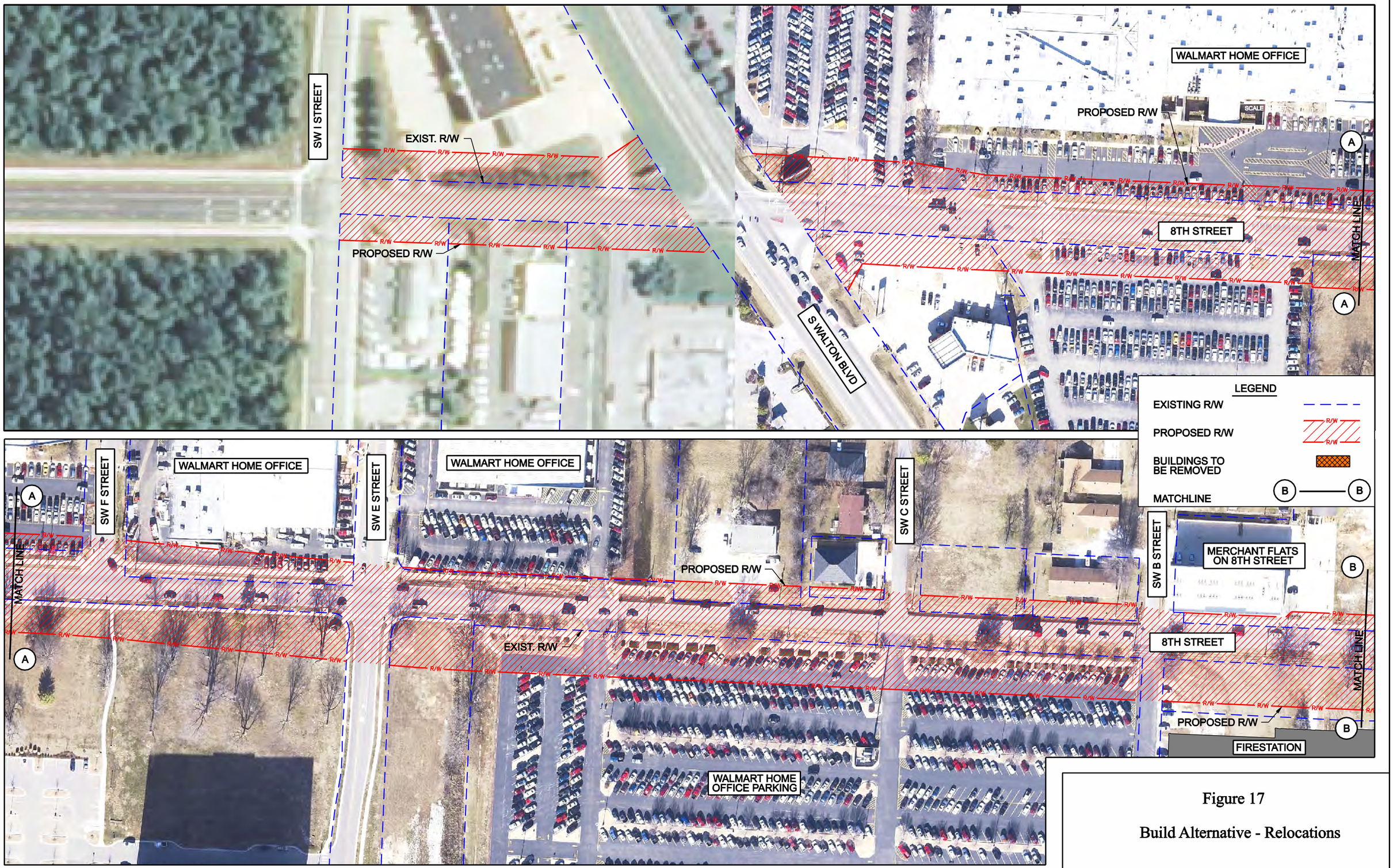


Figure 17

Build Alternative - Relocations

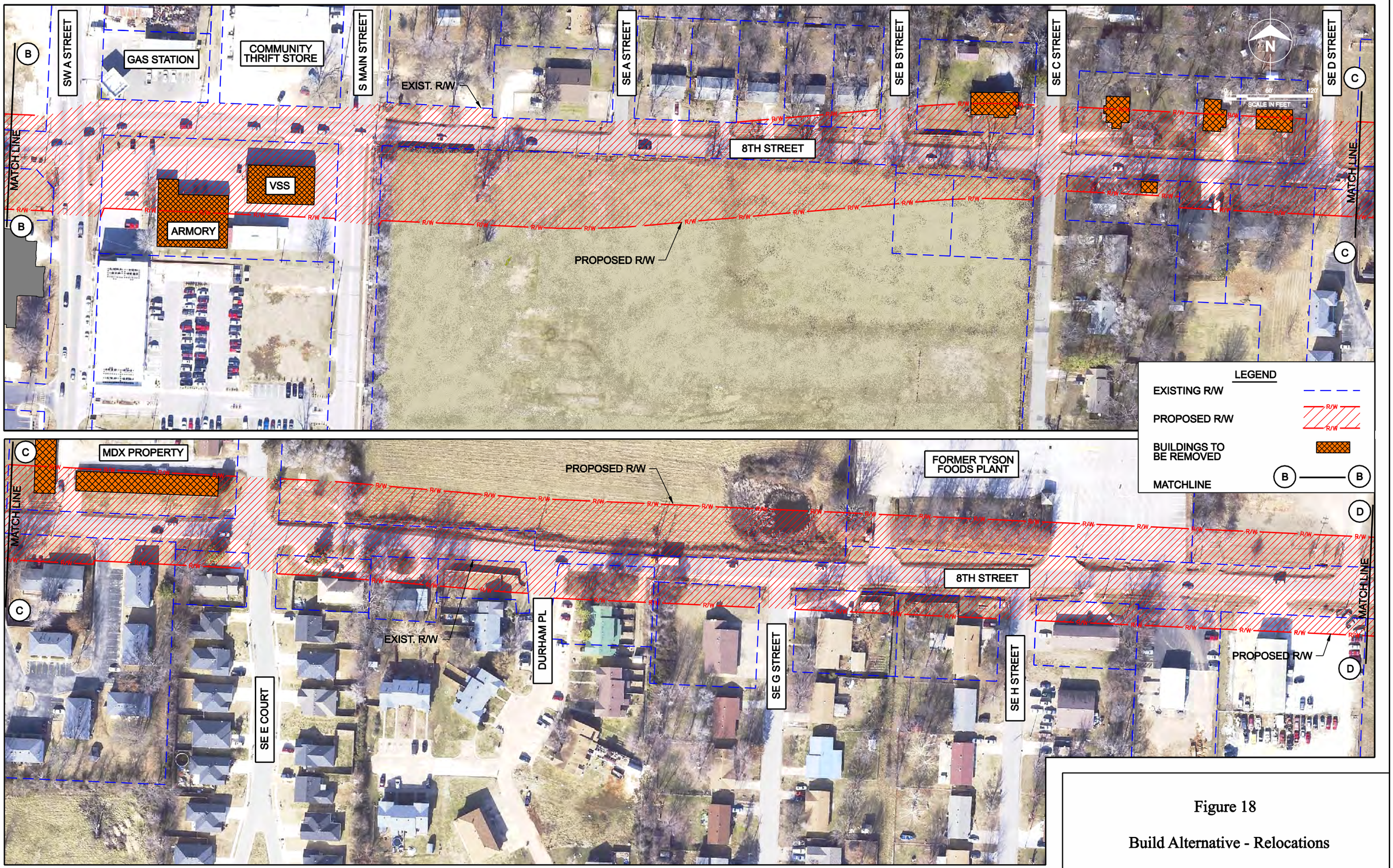


Figure 18

Build Alternative - Relocations

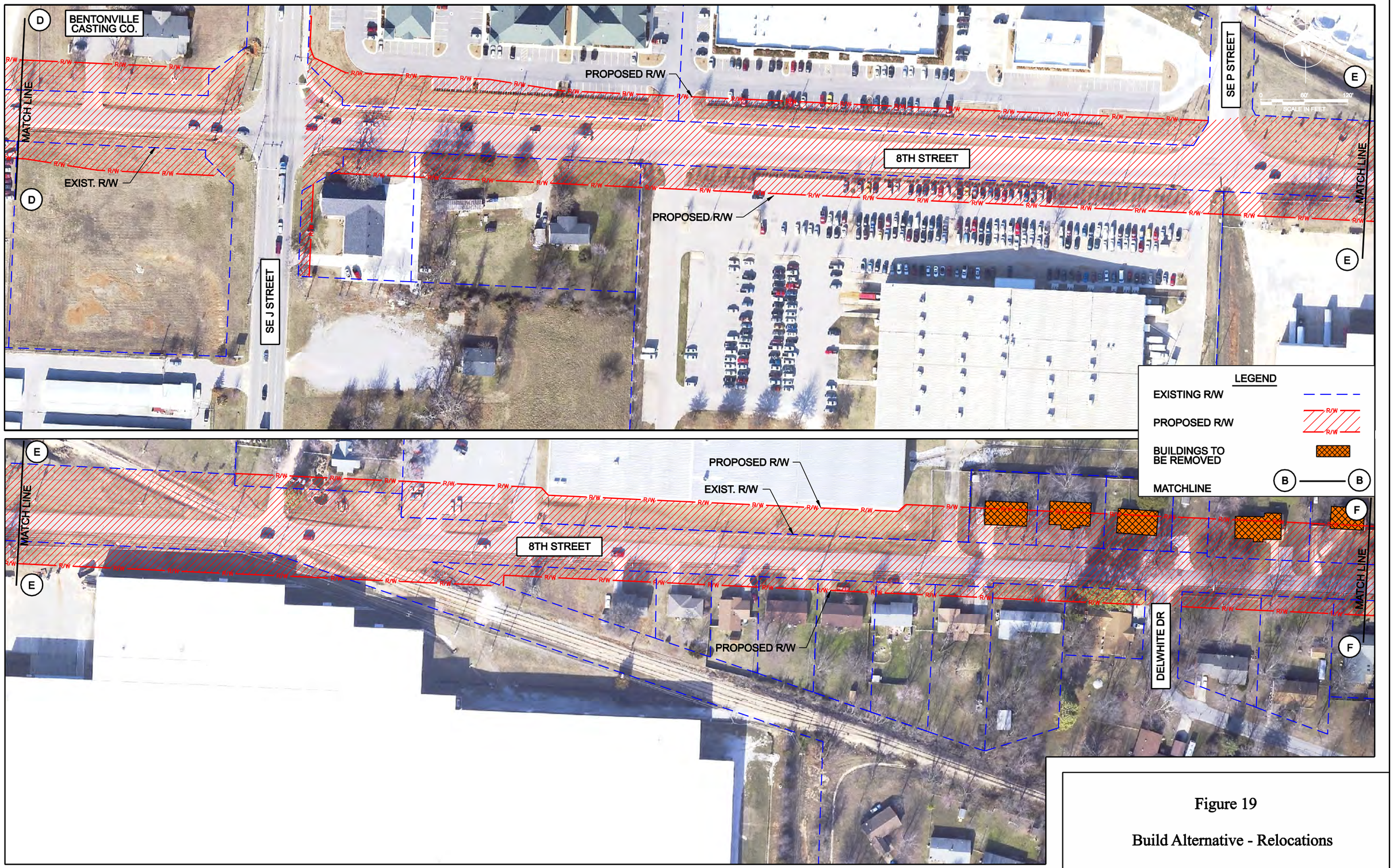


Figure 19

Build Alternative - Relocations

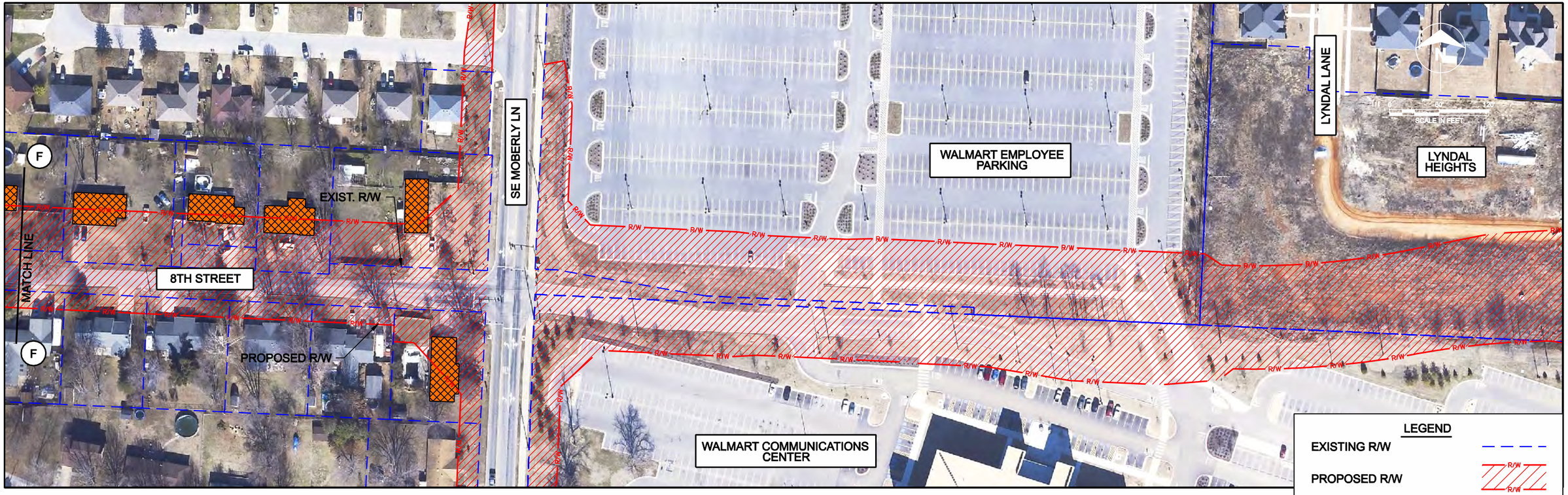


Figure 20

Build Alternative - Relocations

Construction of the project would not begin until decent, safe, and sanitary replacement housing is in place and offered to all affected persons. No lawful occupant shall be required to move without receiving 90 days advance written notice. The details of the City/AHTD Relocation Plan are provided in Appendix E.

8th Street Interchange - Construction of the interchange would not require any residence or business relocations. Right of way from undeveloped property owned by the NWACC and located along Highway 71 would be acquired. No campus buildings, dormitories, or parking areas would be affected by the proposed interchange improvements.

ENVIRONMENTAL JUSTICE AND TITLE VI

On February 11, 1994, the President of the United States signed Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low- Income Populations*. This Executive Order requires all federal agencies to identify and address disproportionate and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Order 12898 also directs federal agencies to incorporate environmental justice as part of their overall mission by conducting their programs and activities in a manner that provides minority and low-income populations an opportunity to participate in agency programs and activities. In addition to Order 12898, Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, national origin, sex, age, disability, or income.

The objectives of this environmental justice analysis were:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

A review of the 2000 U.S. Census Data, the results of the Conceptual Stage Relocation Study, public involvement meeting results, and field observations were utilized to determine whether the proposed project would have any adverse or disproportionate impact on minorities, low-income, elderly, or disabled

populations. Results of the Census Data review are presented in Appendix C, and the *Conceptual Stage Relocation Study* is provided in Appendix E.

The U.S. Census Bureau identifies low-income populations based on poverty levels. As discussed in Appendix C, the percentage of people living below the poverty level for census block groups within the Study Area ranged from 3.1 percent to 19.1 percent. Poverty levels are determined based on federally-prescribed poverty thresholds, which vary by family size. The U.S. Department of Health and Human Services (HHS) publishes annual poverty guidelines, which are a simplified version of the poverty thresholds used by the U.S. Census Bureau. In 2011, the HHS poverty guideline for a family of four was $22,350 (Federal Register; January 20, 2011). Table 11 presents a comparison of the population impacted by the 8th Street Improvement Project to the populations of the Study Area and City of Bentonville as a whole.

Table 11: Population Impacts

	Bentonville	Study Area	8th Street Improvement Project
Total Population	19,730	11,017	66 (estimate)
Total Minority Population (% of Total)*	9.0%	11.5%	21.2%
Hispanic or Latino Population (% of Total)	6.1%	9.0%	12.1%
65 and Older Population (% of Total)	8.5%	7.8%	7.6%
Low-Income Population (% of Total)	10.3%	Ranges from 3.1% to 19.1%	45.5%

*The data reported for minority population in this table includes individuals who are Black; American Indian or Alaska Native; Asian; Native Hawaiian or other Pacific Islander; or some other race than white.

Note: the data for total minority population and Hispanic population cannot be added together for reporting purposes as this would double count those individuals who may be both black and Hispanic.

No Action Alternative:

No right of way would be acquired and no construction would occur. As traffic volumes increase in response to growth and redevelopment along 8th Street, all residents, regardless of income level, race, age, or mobility, would be affected by the noise, vibration, exhaust, congestion, and inconvenience of living and traveling along 8th Street. Additional traffic leading to congestion and delay would make it difficult to enter or exit a person's property, or travel across the road to neighborhoods and destinations to the north and south. Pedestrian and bicycle use of 8th Street would be impeded due to concerns over safety and the possibility of poor pavement conditions resulting from heavy truck traffic. Heavy traffic would

continue to travel through neighborhoods to access 8th Street from Highway 71. The No Action Alternative would not have a disproportionate impact on minorities, low-income, elderly, or disabled populations.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension– Because of the location of homes and apartment complexes along 8th Street, reconstructing 8th Street under either Build Alternative would cause the relocation of minority, low-income, elderly, and disabled residents. Through the alternatives development and evaluation process described in the Alternatives Chapter of this EA, concepts for widening to the north, the south, and evenly down the centerline of 8th Street were studied. All of the widening options would affect homes occupied by minority and low income residents, some of which are elderly and/or disabled. The alignment proposed minimizes relocations, to the extent practicable, taking into account the amount and location of existing right of way and the additional right of way required to upgrade 8th Street to current design standards to handle forecast traffic volumes.

Improvement of the existing roadway would have fewer impacts on the community than constructing a new roadway on new location through the adjacent neighborhoods. The use and improvement of other local roadways would not provide the connections necessary between businesses located along 8th Street and Highway 71. Allowing traffic to continue to travel along local streets and through neighborhoods would disrupt the community and affect the quality of life of all residents. The new right of way required for the improvements has been shifted from north to south within the Corridor to minimize impacts to homes while taking into consideration the applicable roadway design criteria. As discussed above under *Relocation*, improving 8th Street would relocate 24 households. The characteristics of the relocations are summarized in Table 10. Based on census data and field reconnaissance, two of the minority families are presumed to be Hispanic and are owners of single family residences. The remaining minority families that would be relocated, as well as the majority of the low-income families, reside in the MDX Property apartment complex, depicted in Figure 18.

The MDX Property, located at 8th Street and SW D Street, is an 18-unit multi-family apartment complex that houses several low-income families. In late 2009, the property owner stated that fifteen families lived within the complex and three of the units were vacant. Three of the families were Vietnamese, four were black/African American, and the remaining eight were white.[4] The two largest buildings of the apartment complex, which include 11 of the 18 total units, are located within the proposed right of way and will be removed. Based on field observations, ten of the eleven units were occupied during the fall of

[4] Burns & McDonnell Project Management and Public Involvement staff met with the MDX Property owner in November 2009. The Property Owner agreed to work with City, AHTD, and the Study Team to distribute project information to tenants.

2009. Six of the ten units appeared to be occupied by white tenants, and the remaining tenants were reported as black/African American. Three Vietnamese families live within the complex, but live in the buildings that face SE E Street and SE 7th Street, which would not be directly affected by the project. With removal of the two larger buildings, the property owner has indicated that he would prefer to re-zone and redevelop the parcel into a mixed commercial land use, requiring relocation of the remaining tenants. The tenant relocations required by this proposed project would need to be conducted following City and FHWA requirements. The City's property rezoning process is summarized in the following section on *Land Use*.

In an effort to provide additional project information to the tenants and their rights as tenants under the Uniform Act, the City of Bentonville and AHTD will conduct an informal meeting with the apartment tenants following the Location and Design Public Hearing to review the 8th Street project and provide information on the relocation assistance process. The public involvement process conducted to date for the project did not exclude any individuals due to income, race, color, religion, national origin, sex, age, or disability. Translators will be available at the Location and Design Public Hearing and the tenant meeting. Information regarding the meetings will be published in local Spanish-language newspapers.

Ways to further minimize impacts to low-income, minority, elderly, and disabled households will be reviewed during the final design progress. This EA presents the worst-case scenario for property acquisitions. There may be locations where right of way or easements could be moved during final design to minimize or reduce impacts on properties.

8th Street Interchange - Construction of the interchange would not relocate any homes or businesses and would not have an adverse or disproportionate impact on minorities, low-income, elderly, or disabled populations.

LAND USE

The 8th Street Corridor is a mix of residential, commercial, and industrial land uses, as illustrated in Figure 21. Residential development, both single family and multi-family dwellings, is concentrated in areas between SW A Street and Moberly Lane. Commercial uses, including offices and retail developments, are scattered throughout the Corridor. Large office complexes are concentrated at the west and east ends of the street with industrial uses located between SE J Street and Moberly Lane. Direct impacts to land use include conversion of land from existing uses to roadway right of way and the indirect and future redevelopment of remaining properties along 8th Street.

No Action Alternative:

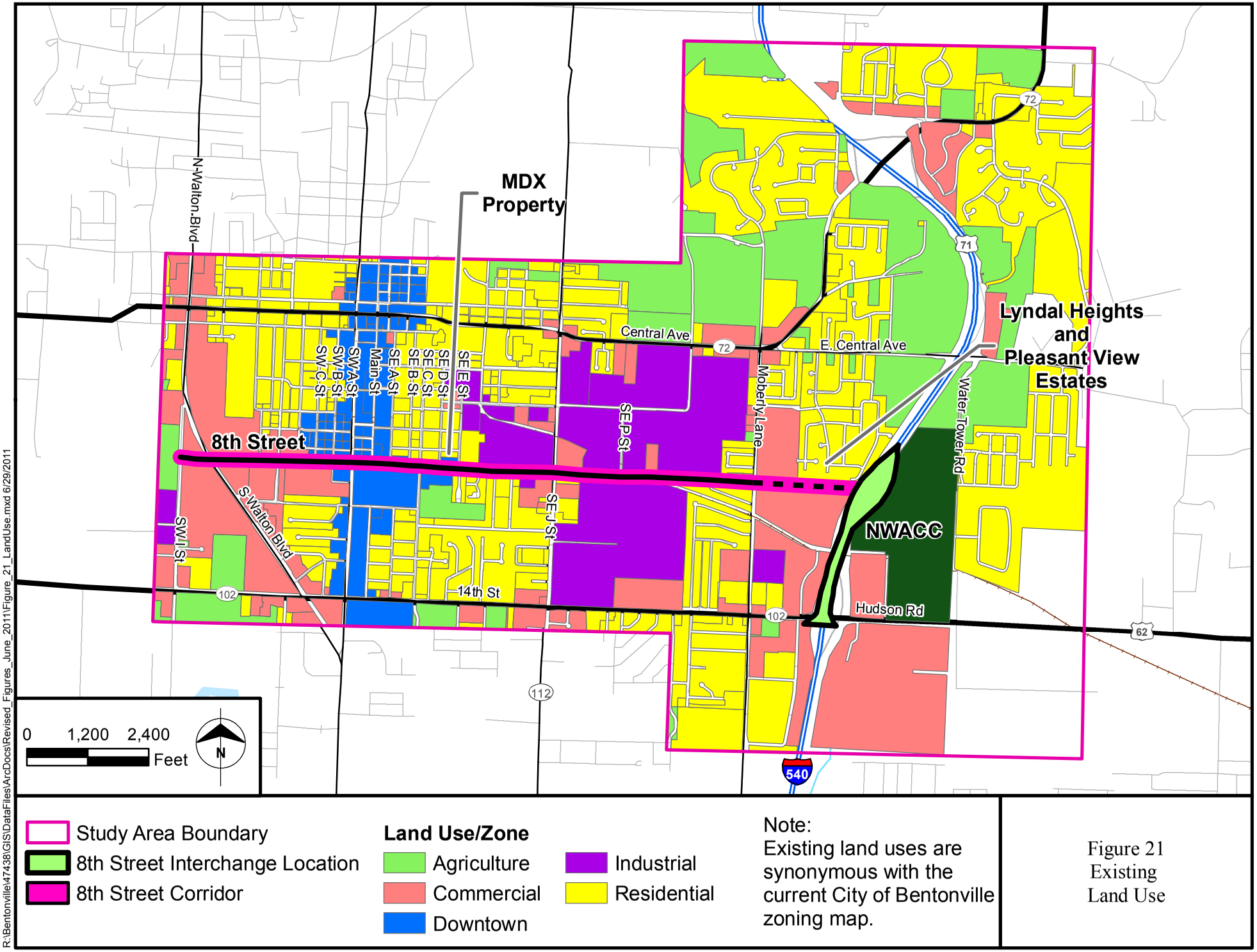
No right of way would be acquired and no direct changes in existing land use patterns would occur. Development and redevelopment of vacant or purchased properties within the 8th Street Corridor would continue. The No Action Alternative would not be consistent with local planning and regional objectives for improvement of the 8th Street.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension – Right of way would be acquired from existing residential, commercial, and industrial land uses. The proposed improvements would contribute to indirect land use changes that would following the established trend of land being redeveloped for commercial and light industrial uses. Along with continuing commercial and industrial development, the proposed roadway width and increase in traffic may discourage future residential development within the Corridor. The City has indicated that developers have shown interest in increasing commercial development along 8th Street once the improvements have been completed (Churchwell and Rushing, 2008). These land use changes would be made in conformance with current land use and zoning maps and would follow the City's re-zoning procedures.

Land use is regulated by the City of Bentonville's *General Plan and Zoning Ordinance*. Current land use (see Figure 20) reflects existing development patterns and may need to be updated as development plans change. Future land uses along 8th Street, as identified in the *General Plan and Zoning Ordinance*, include mixed use development. Widening 8th Street to an arterial roadway would be consistent with this type of development. Furthermore, the project is consistent with the ongoing development of the SW 8th Street/SW A Street intersection into a "place-making intersection," as planned for in the City's *Downtown Master Plan*, included in Appendix D.

Properties redeveloped following completion of the project may be rezoned to accommodate proposed changes in land use. The City's rezoning process involves (1) submittal of a rezoning application by the property owner, (2) notification of all property owners within 200 feet of the subject property of its pending rezoning, and (3) review of the application and action by the Planning Commission to approve, deny, forward the decision to the City Council, or table the matter for re-consideration. The action recommended by the Planning Commission is then approved, denied, or returned to the Planning Commission for further consideration. Once both the Planning Commission and the City Council have approved the rezoning, redevelopment of the property may commence.



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8th Street Interchange - Construction of the interchange would result in direct and indirect impacts to residential, commercial, and institutional uses located along the west side of Highway 71. Long-term land use changes may result from the direct access provided to Highway 71 by the new interchange. Additional commercial development associated with Wal-Mart and the vendor/distribution companies already located along 8th Street would continue. Any land use changes would need to be made in conformance with the City of Bentonville's *General Plan and Zoning Ordinance*. The remaining build-out of the Lyndal Heights and Pleasant View Estates developments, located west of Highway 71 (see Figure 21), would not occur due to the location of the 8th Street extension and the fill slopes and/or walls proposed to retain the soil under roadway approach to the interchange. Lyndal Lane would need to be ended with a cul-de-sac.

The future development plans for the NWACC campus have been taken into consideration and plans for construction of new campus buildings would not be affected. The planned extension of 8th Street east of Highway 71 as part of the City's 8th Street/Water Tower Road Improvement project would bisect the undeveloped northern portion of the NWACC campus. The extension would provide additional vehicular, pedestrian, bicycle access to the campus. The City will continue to coordinate with the NWACC regarding that project.

VISUAL ENVIRONMENT

The visual environment is the appearance of all visual features or resources and the values placed on those features by the viewer. As described in the Land Use Section, the 8th Street Corridor is a mix of land uses, varying from multi-story office buildings to single-level homes. Little transition from one type of development to another is common with single family homes existing next door to or directly across the street from large warehouses or office/retail complexes. The Wal-Mart development style with plain aluminum-sided and masonry buildings dominate the views at the west and east ends of the Corridor. With the exception of a residential development to the north and a large parking area to the south, the interchange site and the approach to it are relatively open. The undeveloped portion of the NWACC campus lies to the east of Highway 71, including their wooded outdoor classroom and a large, recently disturbed open grassed area. The existing 8th Street Corridor is relatively narrow with many of the existing buildings close to the roadway edge. The former site of the fairgrounds east of Main Street has been cleared of all buildings and is bordered by a tall wrought iron fence. At the intersection of 8th Street and SW A Street, a new three-story office building and fire station have been constructed. These buildings are a sharp contrast to the existing gas station and the Bentonville National Guard Armory/Readiness Center located on the east side of the intersection.

No Action Alternative:

The No Action Alternative would not change the visual character of the Corridor. No new street lighting, signage, or traffic signals would be installed and the existing two-lane roadway section along 8th Street would remain. No improvements would be constructed on or near the NWACC campus.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension – Fourteen single-family homes, six units in a multi-family apartment complex, and the Armory and VSS would be removed from the Corridor. The roadway section between SW I Street and Moberly Lane would be widened to accommodate additional travel lanes, turn lanes, medians, pedestrian crossings, traffic signals, lighting, and signage. The extension of 8th Street between Moberly Lane and Highway 71 would occur in an undeveloped area bordered by homes to the north and Wal-Mart Data Center to the south. Near SE P Street, the existing Arkansas-Missouri railroad crossing would be improved and left at-grade. Overall, the visual character of the Corridor would become more urban, due to the widened roadway and associated improvements. The residences along 8th Street not relocated by the project would be affected the most by changes in access and land use.

8th Street Interchange - The existing visual character of the proposed interchange location is dominated by residential and office development west of Highway 71 and the NWACC campus and open area to the east of the highway. The Arkansas-Missouri Railroad passes under Highway 71 south of the proposed interchange. New bridges would be constructed parallel to the existing bridges over the railroad to support the braided ramps connecting to the Highway 102/62 Interchange. Eighth Street between Moberly Lane and the interchange would go from an at-grade roadway to an elevated road with a bridge crossing over Highway 71. This sloping roadway would provide a visual barrier between the residential neighborhood north of the 8th Street extension and the Wal-Mart buildings on the south side. The location of the interchange is already in highway use with the remainder of the area dominated by pasture, non-native grassland, and part of the NWACC's wooded outdoor classroom. The new interchange and the braided ramps connecting to the Highway 102/62 Interchange would introduce new bridge, lighting, and signage structures along Highway 71.

HAZARDOUS MATERIALS

A hazardous material is any item or chemical that can cause harm to people, plants, or animals when released into the environment. The presence of hazardous materials within the project area was evaluated by visual reconnaissance and a search of federal, state, and local records. The search included any hazardous material sites such as generators or handlers, sites of hazardous material spills, Superfund sites, Brownfield sites, underground storage tanks (USTs), aboveground storage tanks (ASTs), small and large quantity solid waste generators and facilities, and various other sites of concern.

The records search identified 88 sites of concern in the Study Area (EDR 2008). Of these sites, 20 facilities generate, transport, store, treat, and/or dispose of hazardous waste. Among the 88 sites is one solid waste facility; four facilities generated emergency spill reports; 20 sites were related to asbestos; two are previous clandestine drug lab locations; seven contain ASTs; 45 USTs; and ten are reported leaking storage tank (LTANK) locations. Copies of the reports and maps reviewed are provided in Appendix I.

No Action Alternative:

No construction or acquisition of property would be conducted under the No Action Alternative; therefore, it would not impact any hazardous materials or waste sites.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension- Seven hazardous materials sites were identified within or adjacent to the proposed right of way for 8th Street, as listed in Table 12. Right of way would be acquired from some of these properties. The new right of way would be located along existing public streets and should not affect buildings or site locations where materials were previously stored or spilled. None of the properties listed in Table 11 would be relocated by construction of the 8th Street Improvements. As part of the property acquisition process, the City would conduct hazardous materials testing and/or remediation, as appropriate, in conformance with regulations established by ADEQ, the EPA, and the Occupational Safety and Health Administration (OSHA). If hazardous materials are identified, observed, or accidentally uncovered during construction, the City and the ADEQ would be notified by the contractor. The City will be responsible for determining the type, amount, and extent of contamination. The City will also develop a remediation plan and coordinate the disposal methods to be employed for the particular contaminant. Remediation work will be conducted in conformance with ADEQ, EPA, and OSHA regulations.

Table 12: Hazardous Material and Waste Sites Affected by the Build Alternative

Site Name	Site Address	Site I.D. Numbers	Description
Wal-Mart Facility	805 SW Walton Road	AFIN 04-0000 LTANKS S106570886	• Former Sale Barn Property • Reported fuel contamination in 1988, but source may have been from property across from Sale Barn
Former White Oak Gas Station	805 S Walton Boulevard	AFIN 04-01314 FAC ID 04000206 LTANKS S105575944 UST U003187711	• The former gas station site has 3 8,000 gallon USTs that have been out of service since 2002. • A leaking UST was reported in 1988 and 2002. • According to ADEQ records, the leak resulted in contaminated pit water and backfill. • Clean-up was initiated in 2002; status of site still undetermined in 2008.
EZ Mart #107	715 SW A Street	AFIN 04-000059 UST U001902832	• Currently in operation with two 8,061-gallon USTs. • A leaking UST was reported in 1997. • According to ADEQ records, the site was inspected and a determination was made that no further remediation was required.
Tyson Foods (VACANT)	801 SE 8th Street	ERNS 2005763846	• No longer in operation. • Anhydrous ammonia spills were reported in 1992 and 2005 • No other site contamination has been documented.
Bentonville Casting Company	1019 SE 8th Street	AFIN 04-00023 EPA ID 1000417687 ERNS 90183429	• Conditionally Exempt Small Quantity Generator (CESQG) of hazardous wastes. • Facility handles polychlorinated biphenyls (PCBs)
Wal-Mart Facility/CTS Corporation	1300 SE 8th Street	EPA ID ARD078907821 AFIN 04-00110	• CESQG of hazardous wastes (ceramics and electronic components)
Wal-Mart DGTC	805 Moberly Lane	AFIN 04-01474	• Currently operated as a telecommunications service center • Maintains 3 USTs (1-10,000 gallon/2-30,000 gallon) currently in use.

SOURCE: EDR DataMap Area Study: SE 8th Street, Bentonville AR; 2008

8th Street Interchange - Construction of the interchange would not affect any of the properties identified within the Study Area as hazardous waste sites. If hazardous materials are identified, observed, or accidentally uncovered during construction, the City of Bentonville and the ADEQ would be notified by the contractor. The City will be responsible for determining the type, amount, and extent of contamination. The City will also develop a remediation plan and coordinate the disposal methods to be employed for the particular contaminant. Remediation work will be conducted in conformance with ADEQ, EPA, and OSHA regulations.

CULTURAL RESOURCES

A preliminary review of cultural resources within the Study Area was conducted to identify archeological sites or historic properties that might be affected by the Build Alternative. The geographic area of potential impact to historic or archaeological resources is referred to as the Area of Potential Effect (APE). To determine the APE, the character of a project area and the potential for cultural resources are taken into consideration. The APE for this project has been defined as the properties that abut the 8th Street Corridor and the proposed Highway 71 interchange footprint. The preliminary review consisted of field visits and examination of site, structure, and property records provided by the Arkansas Historic Preservation Program (AHPP) and the Arkansas Archeological Survey. Based on research conducted for the Study Area, no archaeological sites have been previously documented within the APE.

On August 17 and 18, 2010, an archaeological field survey was conducted within and adjacent to the proposed right of way for improving 8th Street and within the footprint of the Highway 71 Interchange. No new archaeological, historical, or cultural sites were identified.

During a field visit, photographs of potentially historic structures in the APE were taken and submitted to the AHPP for review and evaluation. The Armory and a Vehicle Storage Shed (VSS) located at the Bentonville National Guard Amory/Readiness Center were determined eligible for listing on the National Register of Historic Places (NRHP) by the Arkansas State Historic Preservation Officer (SHPO) (see Figure 22). Both the Armory and the VSS are eligible for listing on the NRHP under Criterion A and Criterion C. Criterion A applies to structures associated with events that have made a significant contribution to the broad patterns of our history (such as an association with the history of the Arkansas Army National Guard (ARARNG); Criterion C applies to structure that embody the distinctive features of a building type. See Appendix F – Section 4(f) Evaluation for additional detail on the significance of the Armory and VSS.

No Action Alternative:

Because no roadway improvements would be made, the No Action Alternative would not affect any known archeological sites or historic structures.

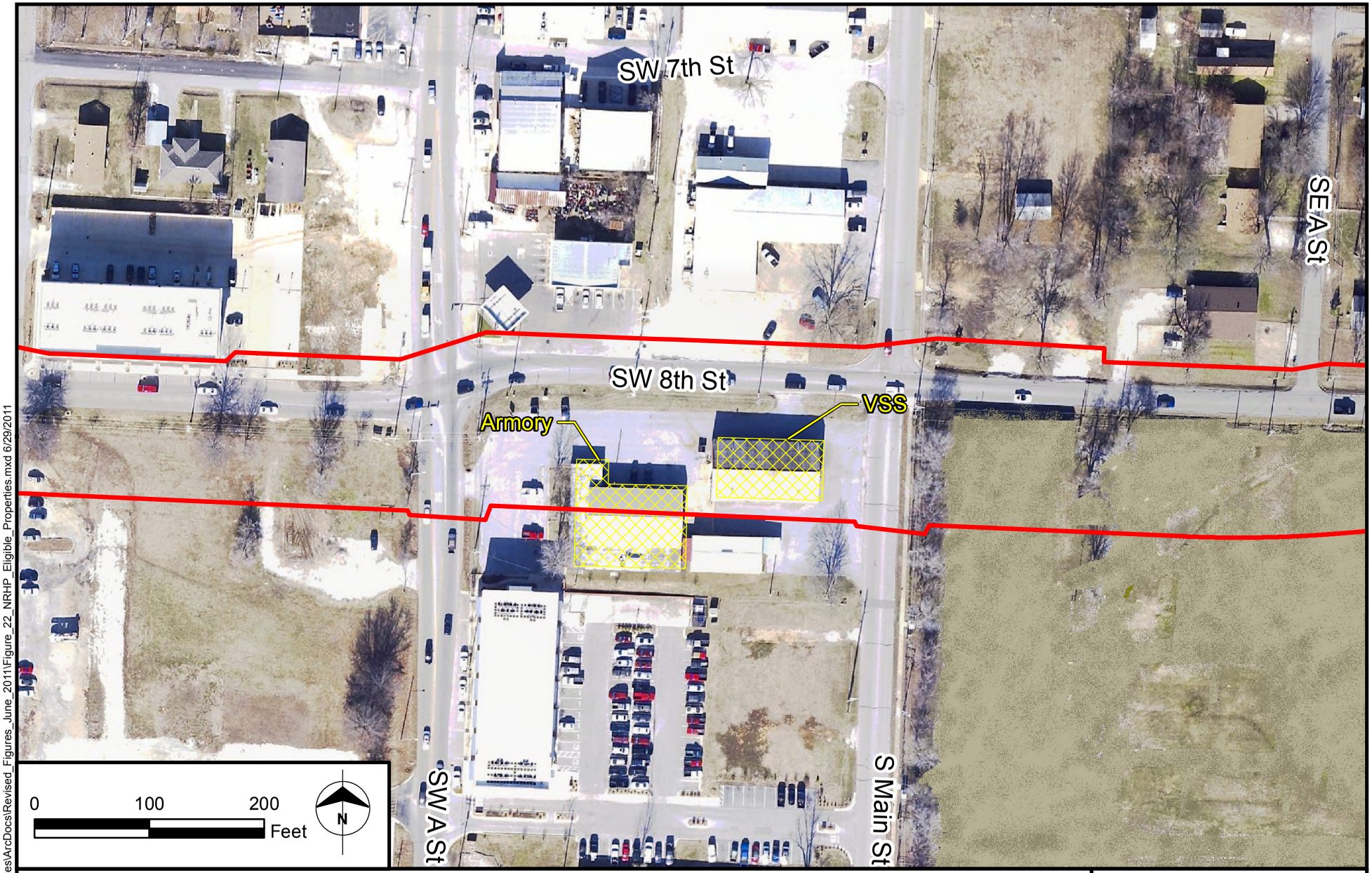

Figure 22
Properties Eligible for Listing on the NRHP

Source: City of Bentonville, AR; Burns & McDonnell

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Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension- The 8th Street Improvements would not impact any known archeological sites, but would necessitate the removal of the Amory and VSS. A Section 4(f) Evaluation of the Bentonville National Guard Armory/Readiness Center (Armory and VSS) was developed and is presented in Appendix F. A report detailing the results of the cultural resources surveys was submitted to the SHPO for review in March 2011. No response from SHPO has been received as of May 24, 2011.

8th Street Interchange - Construction of the interchange would not impact any known archeological sites or potential historic structures.

Tribal Coordination

The FHWA coordinated with and provided project information to two Native American Tribes with potential interest and/or historic ties to the project area. On July 29, 2009, the FHWA sent letters to the Caddo Nation of Oklahoma and the Osage Nation initiating consultation on this project. Copies of the letters and responses received are included in Appendix G.

SECTION 4(F) PROPERTIES

Section 4(f) of the U.S. Department of Transportation Act of 1966 (re-codified at 49 USC Section 303) prohibits the use of publicly owned parks, national wildlife and refuge areas, and any historic sites of national, state or local significance unless a determination is made that: (1) there is no feasible and prudent alternative to use of the land; and (2) the proposed action includes all possible planning to minimize harm to the property resulting from such use.

A Section 4(f) Evaluation was prepared because two structures at the Bentonville National Guard Amory/Readiness Center, the Armory and VSS, have been determined eligible for listing on the NRHP and implementation of the Build Alternatives for the 8th Street Improvement Project would affect both structures. The Section 4(f) Evaluation, provided in Appendix F, includes a detailed description of the Armory and VSS, the impacts of the No Action and Build Alternatives and the impacts of an alternative that would avoid both structures.

No Action Alternative:

The No Action Alternative would not affect the Armory or VSS. Only routine maintenance of the existing roadway would occur and no right new right of way would be required from the Armory/VSS property. The No Action Alternative does not meet the purpose and need for the project because it would not provide the roadway capacity to accommodate current and future travel demands.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension – Both Build Alternatives would require right of way to be acquired from the Armory/VSS property and would require that both buildings be demolished. Removing the Armory/VSS and improving 8th Street at the intersection with SW A Street would be compatible with goals outlined in the *Downtown Development Plan*. The *Downtown Development Plan* calls for the intersection of 8th Street and SW A Street to be a "place-making intersection" to provide a sense of downtown in an urban setting; differentiating this intersection from other areas of the community. The intersection also is identified "as an intersection of two primary thoroughfares through downtown, it will carry a significant volume of traffic.[5] An alternative that would avoid the Armory/VSS was evaluated in the Section 4(f) Evaluation (see Appendix F). Because of the additional cost of the Avoidance Alternative, the additional residential and business relocations it would cause, and its incompatibility with the *Downtown Development Plan*, the Avoidance Alternative was determined to not be feasible.

Prior to demolition of both buildings, mitigation will include photographic documentation and completion of Arkansas Architectural Resources Forms for both structures in compliance with AHPP standards.

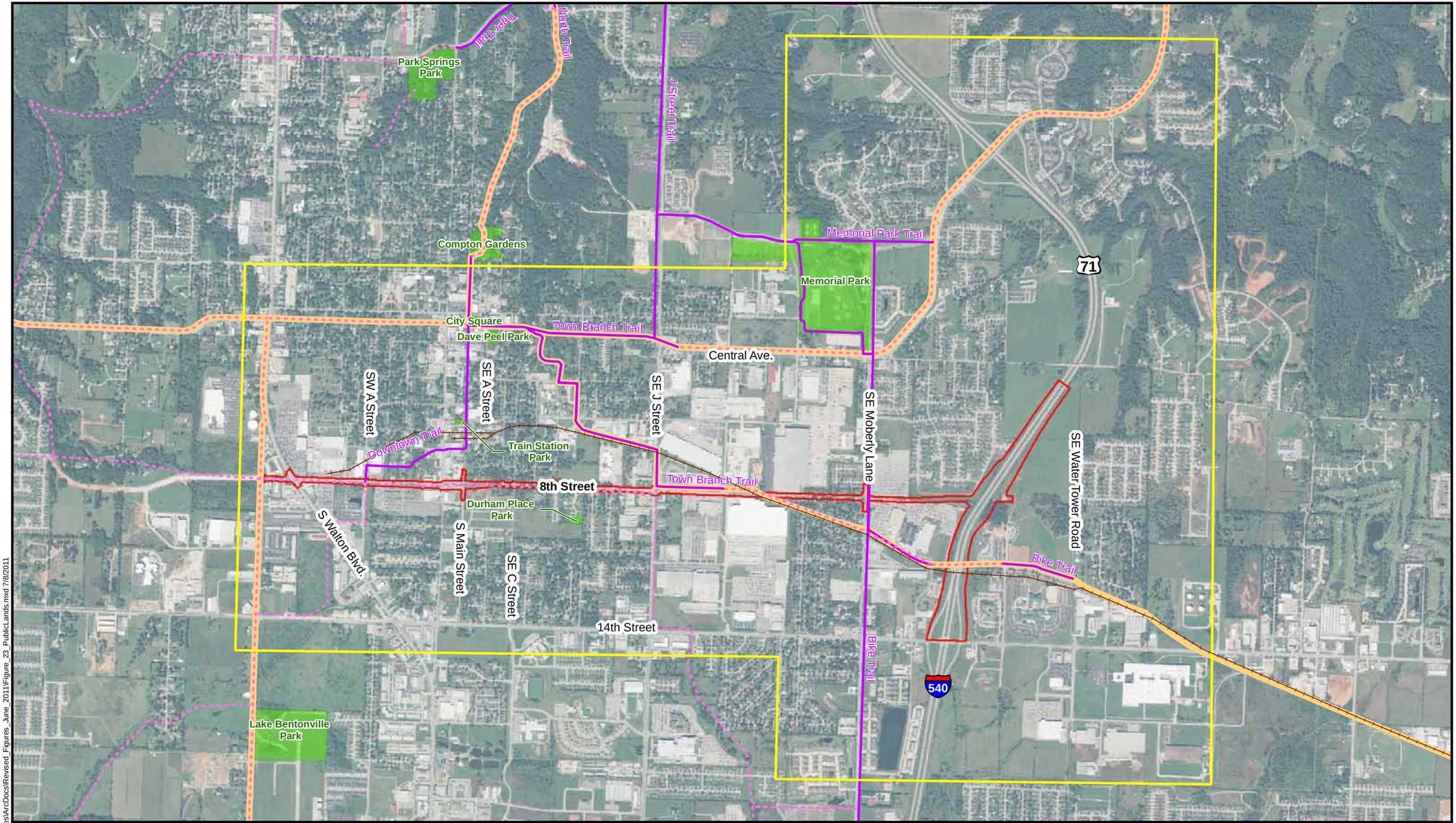
8th Street Interchange– The proposed location of the 8th Street Interchange is located approximately 2.2 miles east of the Armory/VSS property; therefore, construction of either interchange design would have no effect on the Armory or VSS.

RECREATIONAL FACILITIES AND PUBLIC LANDS

The Study Area includes a number of city parks, none of which are located along 8th Street. Many of the parks have established amenities including aquatic centers, picnic facilities, and athletic fields and are linked by a recreational trail system, established by the City's *Master Trails Plan.* [6] The parks and trails are shown on Figure 23.

Three of the City's trails cross or follow 8th Street. The Downtown Trail starts in downtown Bentonville and ends on 8th Street at SW A Street. The Town Branch Trail begins on Central Avenue and travels south, joining 8th Street at SE J Street and following 8th Street to the railroad tracks. The City Plans to extend the Town Branch Trail along 8th Street to Moberly Lane where it would intersect with the Moberly Trail. The Moberly Trail begins in Memorial Park and follows Moberly Lane south to SE 28th Street. According to the City's *Master Trail Plan*, the Town Branch Trail would be extended across Highway 71 to serve as a pedestrian and bicycle connection between NWACC and downtown Bentonville, and as a regional connection between the City of Bentonville and the City of Rogers trail systems.

5 *City of Bentonville Downtown Master Plan*; adopted December 14, 2004; Chapter 5, pp. 27-30.
6 *City of Bentonville, Arkansas Master Trail Plan*, adopted by City Council on February 14, 2006.



Proposed Right of Way

Public Parks

Components of the Northwest Arkansas Heritage Trail Plan

Bentonville Trails

Existing Trails

Proposed Trails

Railroad

0 850 1,700 Feet

N

Figure 23
Recreational Facilities and Public Lands

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Sources: USDA NAIP Aerial Photograph for Benton County, Arkansas (2009); ESRI; Burns & McDonnell

The Northwest Arkansas Heritage Trail Plan is a regional trail plan that spans Benton and Washington counties (NWARPC, Heritage Trail Plan) and connects several sites of historic significance within the region. A portion of the Heritage Trail incorporates sections of the Town Branch Trail along 8th Street between SE J Street and Moberly Lane. A portion of the Town Branch/Heritage Trail follows the railroad under Highway 71 and would eventually connect with Water Tower Road. This portion of the Town Branch/Heritage Trail would be 10-feet wide and serve as a multi-use facility.

No Action Alternative:

The No Action Alternative would not affect any public park or trail. Plans to expand/improve existing recreational trail sections along 8th Street would not be affected. Continued increases in traffic and congestion would make the use of the trails that follow 8th Street undesirable to most users. Without the development of sidewalks and multi-use trails to accommodate pedestrians and cyclists, users would be forced to travel in the street, creating potential conflicts with vehicles that could result in an increase in the number of vehicle-pedestrian or vehicle-bicycle accidents.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension– No parks would be affected by construction of the proposed improvements. The City of Bentonville's plans for future trail extensions along 8th Street would be incorporated into the project by including 6-foot sidewalks along both sides of the street and in designated areas, a 10-foot wide multi-use trail to accommodate the Town Branch Trail. The sidewalks and multi-use trail facilities would separate pedestrian and bicycle traffic from vehicle traffic, improving safety within the Corridor.

8th Street Interchange – Construction of the interchange would not affect any existing parks or trails. The interchange bridge would include six-foot wide sidewalks on both sides to accommodate pedestrian and bicycle traffic across Highway 71; while the Town Branch/Heritage Trail, located adjacent to 8th Street and proposed to be extended along the railroad line to the east and under Highway 71, would be constructed as a 10-foot wide multi-use facility. The City's completion of the 8th Street/Water Tower Road improvements would provide a connection to the NWACC campus.

NOISE

The impacts of traffic noise resulting from implementation of the alternatives considered was evaluated using FHWA's Traffic Noise Model 2.5 (TNM), existing and proposed roadway information, existing traffic information, and projected traffic levels for 2030. The details of the noise analysis are presented in Appendix H.

Traffic noise impacts take place when the predicted traffic noise levels approach or exceed the established noise abatement criteria (NAC), when the predicted traffic noise levels exceed the existing noise level by ten decibels on the A-weighted scale (dBA), or when future build noise levels exceed future no-build noise levels by more than seven dBA. The NAC of 67 dBA applies to sensitive noise receivers such as residences, schools, churches, and parks, which are classified under NAC Activity Category B. The term "approach" is considered to be one dBA less than the appropriate NAC, therefore, a sensitive noise receiver is considered impacted if the noise level is predicted to be 66 dBA or higher.

As part of the noise study, existing noise levels were measured at 15 representative locations. These locations were selected to represent sensitive receivers that would likely be affected by the proposed improvements. Table 13 lists the noise levels that were measured at each receiver (MP) location.

Table 13: Measured Existing Noise Levels

Receiver	Location Description	Activity Category	NAC	Measured Existing Noise Levels (dBA)*
MP1	NWACC parking lot	B	67	67
MP2	East of Water Tower Road across from cemetery	B	67	61
MP3	SE 6th Street Cul-de-sac	B	67	69
MP4	SE Lyndal Lane	B	67	70
MP5	SE Cambridge Place Cul-de-sac	B	67	63
MP6	SE 7th Street	B	67	70
MP7	Intersection of SE 7th Street and SE Leisure Lane	B	67	61
MP8	Dead end of SE Jamaica Drive	B	67	63
MP9	1st row of houses at intersection of SE 8th Street and Del White Drive	B	67	67
MP10	2nd row of houses at intersection of SE 8th Street and Del White Drive	B	67	60
MP11	Parking lot of Value Place	B	67	71
MP12	2nd row of houses at intersection of SE 8th Street and SE E Court	B	67	60
MP13	1st row of houses at intersection of SE 8th Street and SE E Court	B	67	67
MP14	2nd row of houses at intersection of SE 8th Street and SW B Street	B	67	58
MP15	1st row of houses at intersection of SE 8th Street and SW B Street	B	67	66

*Highlighted values approach, meet, or exceed the NAC.
SOURCE: Burns & McDonnell, 2008

Traffic noise levels were then predicted for all 15 representative receivers using the TNM model for the No Action and Build Alternatives as shown in Table 14. The Build Alternative, for the purpose of the noise analysis, includes both improvements to 8th Street and construction of the 8th Street Interchange.

Table 14: Representative Receiver Noise Levels - 2030 No Action and Build Alternatives

Receiver	Type	Represents	NAC	Measured Existing Noise Levels (dBA)	Modeled Noise Level (dBA)*	
					2030 No Action Alternative	2030 Build Alternative
MP1	Commercial	1 School and 1 Hospital	67	67	68	66
MP2	Residential	8 Residences	67	61	58	60
MP3	Residential	3 Residences	67	69	74	71
MP4	Residential	7 Residences	67	70	62	61
MP5	Residential	4 Residences	67	63	58	57
MP6	Residential	3 Residences	67	70	62	62
MP7	Residential	4 Residences	67	61	59	61
MP8	Residential	5 Residences	67	63	55	65
MP9	Residential	23 Residences	67	67	70	73
MP10	Residential	12 Residences	67	60	62	67
MP11	Commercial	1 Hotel (16 Residences)	67	71	68	68
MP12	Residential	24 Residences	67	60	60	64
MP13	Residential	51 Residences	67	67	66	70
MP14	Residential	3 Residences	67	58	61	65
MP15	Residential	3 Residences	67	66	69	71

[1] Highlighted values indicate that the receiver is predicted to be impacted (noise levels approach, meet, or exceed the NAC or future build noise levels exceed future no-action noise levels by more than 7 dBA)

SOURCE: Burns & McDonnell, 2008

No Action Alternative:

With the growth in traffic volumes projected to occur within the 8th Street Corridor, approximately 21 sensitive noise receivers would experience increases in noise levels by 2030 that would approach or exceed the NAC. No noise abatement would be implemented under the No Action Alternative.

Build Alternatives 8B and 9B:

8th Street Reconstruction and Extension- Receivers MP9, MP10, and MP12-MP15 are representative of the 8th Street Corridor. Approximately 55 residential structures[7] or a total of 87 households would experience an increase in noise levels that approach or exceed the NAC.

8th Street Interchange - Receivers MP1-MP8 and MP 11 are representative of the proposed interchange location. Two single family residences would experience an increase in noise levels that approach or exceed the NAC.

Noise abatement was considered for sensitive receivers located in the vicinity of the modeled receivers. Due to the cost per receiver, effectiveness of the abatement, and other factors used in determining the feasibility and reasonableness of noise abatement, it was determined that noise abatement is not warranted for this project. Both the topography and layout/location of the existing sensitive receivers contribute to the inability to provide effective noise abatement on this project. The details of the noise abatement analysis are presented in Appendix H.

To avoid noise levels that approach or exceed the design year NAC of 67 dBA, any sensitive receivers constructed in the future should be located a minimum of ten feet beyond the distance that the 67 dBA noise contour is projected to occur, as presented in Table 15. These distances are measured from the centerline of each section of the roadway. The distance should be used as a general guide and not a specific rule since the actual noise levels may vary depending upon the roadway grade and other roadway characteristics that typically contribute to roadway noise.

Table 15: Noise Abatement Standard Distance for 2030

Location	Modeled Distance to the >66 dBA contour in feet
Entire 8th Street Expansion	174
West of Highway 71 Between 14h Street and 8th Street	312
East of Highway 71 Between 14th Street and 8th Street	430
South of 8th Street East of Highway 71	150
East of Highway 71 Between 8th Street and Highway 71	Entire Area
8th Street Near Intersection With Water Tower Road	178
West of Highway 71 North of 8th Street	154

[7] The 55 residential structures include 42 single-family residences and 13 multi-family structures.

Any excessive project noise due to construction operations should be of short duration and have a minimal adverse effect on land uses or activities occurring with the Study Area.

AIR QUALITY

Utilizing the Mobile 5.0a Model (Mobile Source Emission Factor Model) and CALINE 3 dispersion model, air quality analyses have been conducted for carbon monoxide on similar projects of this type. These analyses incorporated information relating to traffic volumes, weather conditions, vehicle mix, and vehicle operating speeds to estimate carbon monoxide levels for the design year.

These computer analyses indicate that carbon monoxide concentrations of less than one part per million (ppm) would be generated in the mixing cell for a project of this type. This computer estimate, when combined with an estimated ambient level of 1.0 ppm, would be less than 2.0 ppm, and well below the national standards of 8.0 ppm for carbon monoxide.

Bentonville is located in an area that is designated as in attainment for all transportation pollutants. Therefore, the conformity procedures of the Clean Air Act, as Amended, do not apply. Neither the No Action Alternative nor the Build Alternatives would have an adverse affect on air quality.

CUMULATIVE IMPACTS

The evaluation of cumulative impacts provides a look at the impacts of the proposed projects when added to the impacts of other past, present, and reasonably foreseeable future actions in the area influenced by the 8th Street Improvements. Since 1990, office and distribution facilities associated with Wal-Mart and many of Wal-Mart's vendors have been constructed along the 8th Street Corridor. Vacant properties have been developed into new office, commercial, and distribution facilities, and residential development is limited to the area between Main Street and SE J Street and just west of Moberly Lane. As development continues along the Corridor in response to the access and capacity provided by the proposed roadway improvements, residences abutting 8th Street may eventually be displaced by commercial and distribution developments.

With 8th Street improved, reuse of existing industrial properties, such as the vacant Tyson Plant, may also occur. In the future, noise levels would increase and air quality may diminish because of increased traffic volumes and heavy truck use in the Corridor, which may cause residents to move out of the Corridor in search of quieter neighborhoods. Additional travel lanes along Highway 71 are planned in the future to accommodate forecast increases in traffic volumes. The improvement of Water Tower Road and extension of 8th Street between the interchange and Water Tower Road would provide additional access to the NWACC and adjacent properties, fueling development east of Highway 71.

IMPACT SUMMARY

A summary of the estimated impacts resulting from the No Action and Build Alternatives is provided in Table 16.

Table 16: Comparative Analysis and Impact Summary

Impact Category	No Action Alternative	Build Alternative 8B			Build Alternative 9B		
		Interchange 8B*	8th Street	TOTAL	Interchange 9B*	8th Street	TOTAL
Estimated Construction Cost in Millions (2011$)	0	$24.8 Million	$25.8 Million	$50.6 Million	$26.0 Million	$25.8 Million	$51.8 Million
Projected ADT (2030)	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7
Projected LOS (2030)	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7	Varies See Figure 7
Estimated Noise Receptors to approach or exceed the NAC (≥66 dBA)	approx. 21	approx. 2	approx. 87	approx. 89	approx. 2	approx. 87	approx. 89
Floodplain Impacts in acres	0	0	0	0	0	0	0
Residential Relocations (households - estimated)	0	0	24	24	0	24	24
Business Relocations (landlords – estimated)	0	0	7	7	0	7	7
NRHP-Eligible Properties Affected	0	0	2	2	0	2	2
Wetland Impacts in acres	0	1.60	0	1.60	1.60	0	1.60

* The cost of the Highway 102/62 Interchange improvements are included in the costs for 8th Street Interchange concepts 8B and 9B.

* * * * *

COMMENTS AND COORDINATION

The City of Bentonville provided the opportunity for public input on the proposed project at a Public Involvement Meeting held on February 28, 2008 at the Bentonville Public Library in Bentonville. A copy of the *Scoping Summary Report*, a sample public comment form, and the displays shown at the meeting are located in Appendix H.

The City of Bentonville, AHTD, and FHWA have coordinated this project with the Arkansas Natural Heritage Commission, the U.S. Fish and Wildlife Service, the Caddo Nation of Oklahoma, the Osage Nation, the National Park Service, and the SHPO. The Osage Nation has indicated an interest in the project and has requested the opportunity to review the Draft EA (see Appendix G).[8]

* * * * *

[8] Letter from the Osage Nation, Tribal Historic Preservation Office to FHWA/AHTD, August 13, 2009.

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COMMITMENTS

The City of Bentonville's standard commitments associated with relocation procedures, hazardous waste abatement, and control of water quality impacts have been made in association with this project.

They are as follows:

- The City will comply with relocation procedures described in Appendix E.
- The City of Bentonville and AHTD will meet with affected property owners and tenants following the Location and Design Public Hearing to review the relocation assistance program to be implemented for the project. The City will also present information on proposed construction detours, informational signage, and maintaining access to residences, businesses, and community facilities, where practicable, during construction. The same information will be provided at both meetings.
- The project will require the acquisition and demolition of standing structures. An asbestos survey will be conducted on each building prior to the development of demolition plans. If the survey detects the presence of any asbestos containing materials, plans will be developed to accomplish the safe removal of these materials prior to demolition. All asbestos abatement work will be conducted in conformance with ADEQ, EPA, and OSHA asbestos abatement regulations.
- During construction, if hazardous materials or USTs are identified or accidentally uncovered by City/AHTD personnel, or contracting companies, the City will determine the type, size, and extent of the contamination according to the AHTD's response protocol. The City and AHTD in consultation with ADEQ will decide the type of containment, remediation, and disposal methods to be employed for that particular type of contamination.
- The City and AHTD will complete documentation of the Armory and VSS per the stipulations outlined in the Memorandum of Agreement (MOA) and the Section 4(f) Evaluation. All Armory and VSS documentation will be completed and submitted to the SHPO, and approved by the SHPO prior to demolition of the Armory and VSS.
- The City of Bentonville will comply with all requirements of the Clean Water Act, as Amended, for the construction of this project. This includes Section 401 Water Quality Certification, Section 402 NPDES, and Section 404 Permit for Dredged or Fill Material. The NPDES Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).

The SWPPP will include all specifications and best management practices (BMPs) needed for control of erosion and sedimentation.

- Due to the distance of cave entrances from the alternatives, no effects to cave communities are expected to result from the alternatives. However, in the event a cave entrance is discovered during construction, all work would be immediately discontinued, and the proper procedures followed to examine the cave and determine its usage by any federally-protected species.

- The City will continue coordination with the NWACC to provide tree plantings on campus as mitigation for impacts to the outdoor classroom area.

- The City will make Spanish and Asian translators available at both the Location and Design Public Hearing and the tenant meeting. Information regarding the meetings will be published in local Spanish-language newspapers and in appropriate local Asian publications.

- The City and AHTD will consider means to further minimize impacts to low-income, minority, elderly, and disabled households during the final design progress.

* * * * *

FUTURE STEPS

The Build Alternatives will be presented at a Location and Design Public Hearing in the Fall of 2011. At this hearing, the impacts of the proposed improvement will be presented along with any mitigation that is warranted. The proposed design of the Build Alternatives will be presented. Following the hearing, public comments will be reviewed and resultant design modifications would be made, if deemed feasible and prudent by the City, AHTD, and FHWA.

Following completion of the design work, contracts for the construction of the proposed improvements can be developed and issued by the City of Bentonville, pending funding availability.

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