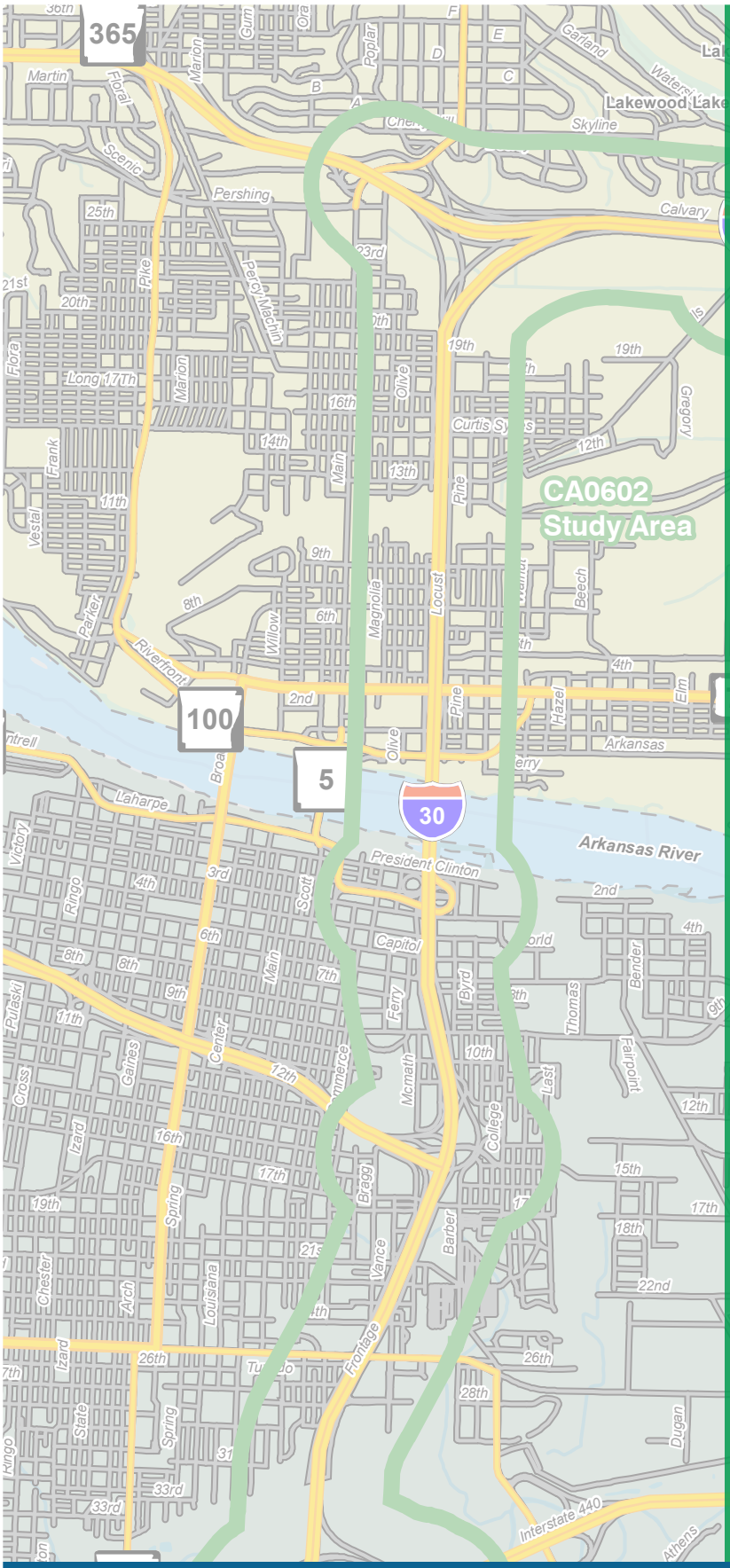


# PLANNING AND ENVIRONMENTAL LINKAGES TWG #2 RESPONSE TO COMMENTS

INTERSTATE 30

## CA0602

Interstate 530 – Highway 67

April 2015

CONNECTING ARKANSAS PROGRAM CAP

Arkansas State Highway & Transportation Department

# CAP Deliverable QC Comment Review Form

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|---|---|
| **Project Number:** | CA0602 |
| **Document:** | TWG #2 Meeting (Sept. 25, 2014) and Materials Distributed to TWG Members on USB/Flash Drive |
| **Consultant/Authors:** | CA0602 Study Team |
| **Date Submitted for QC Review:** | N/A |

| Cmnt No. | Section/ Page No. | Reviewer | Review Comment | Response | Change Verified | | Agency Verified ** |
|---|---|---|---|---|---|---|---|
| | | | | | New Pg. | Initials / Date | |
| **1** | **Email** 10/13/14 | Patricia Blick, Assistant Director, Arkansas Historic Preservation Program | Arkansas Historic Preservation Program, AR SHPO: We look forward to further consultation as the alternatives are narrowed and a preferred alternative is selected. We have made preliminary identification of historic properties that may be impacted by the undertaking, and anticipate establishing direct and in-direct Areas of Potential Effect in cooperation with the project proponents. Previous correspondence did not note that both Little Rock and North Little Rock are Certified Local Governments and that they should be included as consulting parties as this undertaking moves forward. We plan to coordinate our efforts with the Arkansas Archaeology Survey. | Comment noted. As Certified Local Governments, Little Rock and North Little Rock will be included as consulting parties as the project moves forward into the NEPA phase. As part of the NEPA evaluation, the Environmental Design Consultant shall conduct in coordination with the SHPO, non-archeological historic-age resource studies related to compliance with Section 106 and Section 110 of the National Historic Preservation Act (36 CFR 800), as well as an archeological survey if the footprint of the preferred alternative differs from the initial archeological background study previously performed by AHTD personnel and coordinated with the SHPO in 2014. | N/A | JLH/ 1/8/15 | ✓ |

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| **2** | **Email**<br>10/09/14 | Ann Marie Early, State Archeologist, Arkansas Archeological Survey | I may not have a chance to read all the documents from this meeting before the end of the day, but I do have some comments to offer on what I have read. They pertain to cultural resources as they are associated with likely work along the corridor.<br><br>I am pleased to see that cultural resources are mentioned, and are included in discussions of potential impacts to human and natural environment. I have read the AHTD archeologist memo in Attachment B2, first document reviewing some elements of known sites and historic documents.<br><br>My concern is regarding a lack of consideration in the document of potentially NR [National Register] eligible sites that may be under modern developments and currently undocumented. Urban archeology demonstrates worldwide that National Register quality archeological properties can exist under modern developments, and that urban construction can encounter these properties. We do not know what may lie within the project corridor and thus far the documents do not indicate a sensitivity to that fact. | Comment noted. An initial archeology background study was performed by AHTD personnel in 2014. A Request for Technical Assistance was submitted to the SHPO. This initial archeology background study for the proposed project included a 100-foot buffer Area of Potential Effect (APE) on each side of I-30 and I-40 from the existing right-of-way (ROW). An archeological study for potential National Register eligible sites located outside of the APE (and under existing modern developments) is beyond the scope of work for the PEL Study.<br><br>During the NEPA phase of project development, if the footprint of the preferred alternative differs from the study previously coordinated, additional archeological survey requirements may be required. Accordingly, the Environmental Design Consultant shall coordinate with AHTD to confirm the APE during the development of the NEPA document. The Environmental Design Consultant may prepare an archeology survey, if determined necessary, from the results of the overview report and in consultation with AHTD. The scope of that survey would be developed in coordination with AHTD and SHPO. | N/A | JLH/<br>1/8/15 | ✓ |

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| **3** | **Email** 10/09/14 | Ann Marie Early, State Archeologist, Arkansas Archeological Survey | The archeological properties currently on record with the Arkansas Archeological Survey do not constitute a full inventory of the properties that may exist even at the current surface of the urban area. No one has searched the length and breadth of the corridor for existing properties visible on the modern surface, or near surface. The current database reflects a fortuitously collected sample of sites reported to this office. | See response to Comment #2. | N/A | JLH/ 1/8/15 | ✓ |
| **4** | **Email** 10/09/14 | Ann Marie Early, State Archeologist, Arkansas Archeological Survey | I have found at least one of our recorded archeological sites that lies within the corridor on the maps provided by you and not mentioned in the memorandum in Attachment B2 above. This is the Odd Fellows Cemetery that once stood at the intersection of I-30 and I-40 W, and that was reportedly emptied of remains in advance of the construction of the interstate. There has been controversy over this action and the repopulation of a subsequent cemetery. There is a possibility that features, including graves, might still be present at this location despite subsequent development. The memorandum does not mention this site in its review. | Coordination with AHTD Cultural Resources determined the site of Odd Fellows Cemetery (Site 3PU736) to be located at the northeast corner of W Pershing Blvd. and Orange St. in North Little Rock, which is southwest of the I-40/Hwy. 107 (JFK Blvd.) interchange (location shown in **Attachment A**). This location is outside of the APE (100-foot buffer on each side of I-30/I-40 existing ROW) assessed as part of the initial archeology background study performed by AHTD personnel in 2014 for the PEL Study. It is unknown at this point in the PEL process if any improvements would be required to the I-40/Hwy. 107 interchange. Should the PEL Recommendations include improvements to this interchange, a Ground Penetrating Radar (GPR) survey would likely be required within the proposed and existing ROW within the area where the cemetery was located. Any additional archeological analysis, if determined necessary, would be completed during the NEPA phase of project development, and the scope of that work would be coordinated with AHTD and SHPO. | See Attach. A of this matrix | JLH/ 1/8/15 | ✓ |

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| **5** | **Email** 10/10/14 | Jon Honeywell, Director of Public Works, City of Little Rock | 3.1 Purpose and Need<br><br>3.1.1 Traffic Congestion<br><br>CLR [City of Little Rock] would like to insure that the measurements for LOS and Travel Time not only apply to the movements through the entire corridor but also the travelers moving from one location to another within the corridor. | Traffic analysis will include a comprehensive multi-modal analysis of traffic congestion along I-30 and the supporting transportation network, primarily within the I-30 PEL study area. Traffic analysis will be for the existing (2014) and projected traffic (2040) using Metroplan's Travel Demand Model (TDM). The traffic analysis will include the I-30/I-40 freeway components, parallel frontage roads and local arterial roads connecting to the freeway. Qualitative traffic congestion measures will be addressed in the Level 2 Screening. Quantitative traffic congestion measures will be evaluated in the Level 3 Screening using a traffic simulation model. The simulation model will analyze travel time to key destinations, travel speed, duration of congestion, vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average delay per motorist both on I-30/I-40 and the supporting local streets. This methodology is described in Section 3.1.4 of the I-30 PEL Study Purpose and Need Report.<br><br>An evaluation of future travel characteristics has been added to the Purpose and Need Report (Section 3.1.5), which was coordinated with Metroplan using their TDM. Roadway users were subdivided into 1) those with destinations within the study area, 2) those traveling through the study area, and 3) those traveling to and from I-630. Analysis showed that a high percent of the traffic using the I-30 corridor accesses local interchanges along I-30 to downtown Little Rock and North Little Rock or uses I-630. When the through traffic on I-40 is removed, only a small number of trips use I-30 for through traffic. | P&N Tech Report, Sections 3.1.4 (pg. 4) and 3.1.5 (pg. 6) | JLH/ 1/8/15 | ✓ |

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| **6** | **Email**<br>10/10/14 | Jon Honeywell, Director of Public Works, City of Little Rock | 3.2 Study Goals<br><br>3.2.1.2 Improve Local Access to and from Downtown LR and NLR<br><br>Local agencies should be directly involved in the identification and priority of the access locations used in evaluating this alternative. Local agencies have detailed knowledge of traffic patterns and attractions in the downtown areas. | Local representatives (agency, government, and community) appointed by the Mayors of Little Rock and North Little Rock and the Pulaski County Judge attended a visioning workshop on 11/19/14 where they provided input on access locations, ramping issues, traffic patterns, local attractions, land use plans and other design features to consider when developing and evaluating potential transportation solutions along the I-30/I-40 facility. In addition, the Study Team has been meeting regularly with the city mayors, county judge, and representatives from Metroplan, all Project Partners in the PEL Study. All of these individuals have and will continue to provide valuable planning knowledge used by the Study Team in the development of the proposed alternatives. | N/A | JLH/ 1/8/15 | ✓ |

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| **7** | **Email**<br>10/10/14 | Jon Honeywell, Director of Public Works, City of Little Rock | [ASM] 3.2.1.3 Improve Opportunity for East-West Connectivity; Connect Bike/Pedestrian Facilities across I-30/40<br><br>These goals need to be split into two separate items. Connectivity between the east and west sides of the corridor should encompass not only a physical connection but have aesthetic and visual connectivity also.<br><br>Elimination of the perceived separation of the east and west downtowns by the controlled access roadway should be a priority for the continued social and economic growth of the area. Locations as outlined on the City's Bike Master Plan should be used in identifying the locations and connections across the corridor. | As part of the ASM, Improve Opportunity for E-W Connectivity (Section 3.2.1.3) and Connect Bike/Pedestrian Facilities across I-30/I-40 (Section 3.2.1.4) have been separated into two different measures. In addition, "Minimize the real, perceived and visual barrier of the freeway" has been added as a guiding principle of the project. The Study Team agrees that connectivity is a multi-faceted issue, encompassing physical and aesthetic aspects. The quality of E-W connections and of bicycle/pedestrian crossings will be evaluated as part of the screening process such that they foster safe connectivity and meet current design standards. Moreover, visioning workshops have been incorporated as part of the PEL process to ensure that the points of E-W connectivity, bike/pedestrian facilities, and other project features are developed in a way that enhance existing and future land uses and incorporate the ideas and priorities for the I-30 corridor as established by local stakeholders. The first visioning workshop was held on 11/19/14 and ideas were shared for improving E-W connectivity, socioeconomic growth, and preserving and enhancing aesthetic, historic and community resources, among other design suggestions (also see Comment #6). During the NEPA/Schematic phase, a second visioning workshop will be held with stakeholders that examines potential context sensitive solutions (CSS) and design concepts in greater detail. Based on stakeholder feedback and available funding, CSS/aesthetic guidelines will be developed following this second visioning workshop and included in the design-build request for proposals, pending AHTD approval. Study Team planners and engineers have and will continue to work with city planners to ensure that city goals for future development, such as those outlined in a bike master plan, are given due consideration and incorporated when practicable. | I-30 PEL Study ASM, Sections 3.2.1.3 and 3.2.1.4 | JLH/ 1/8/15 | ✓ |

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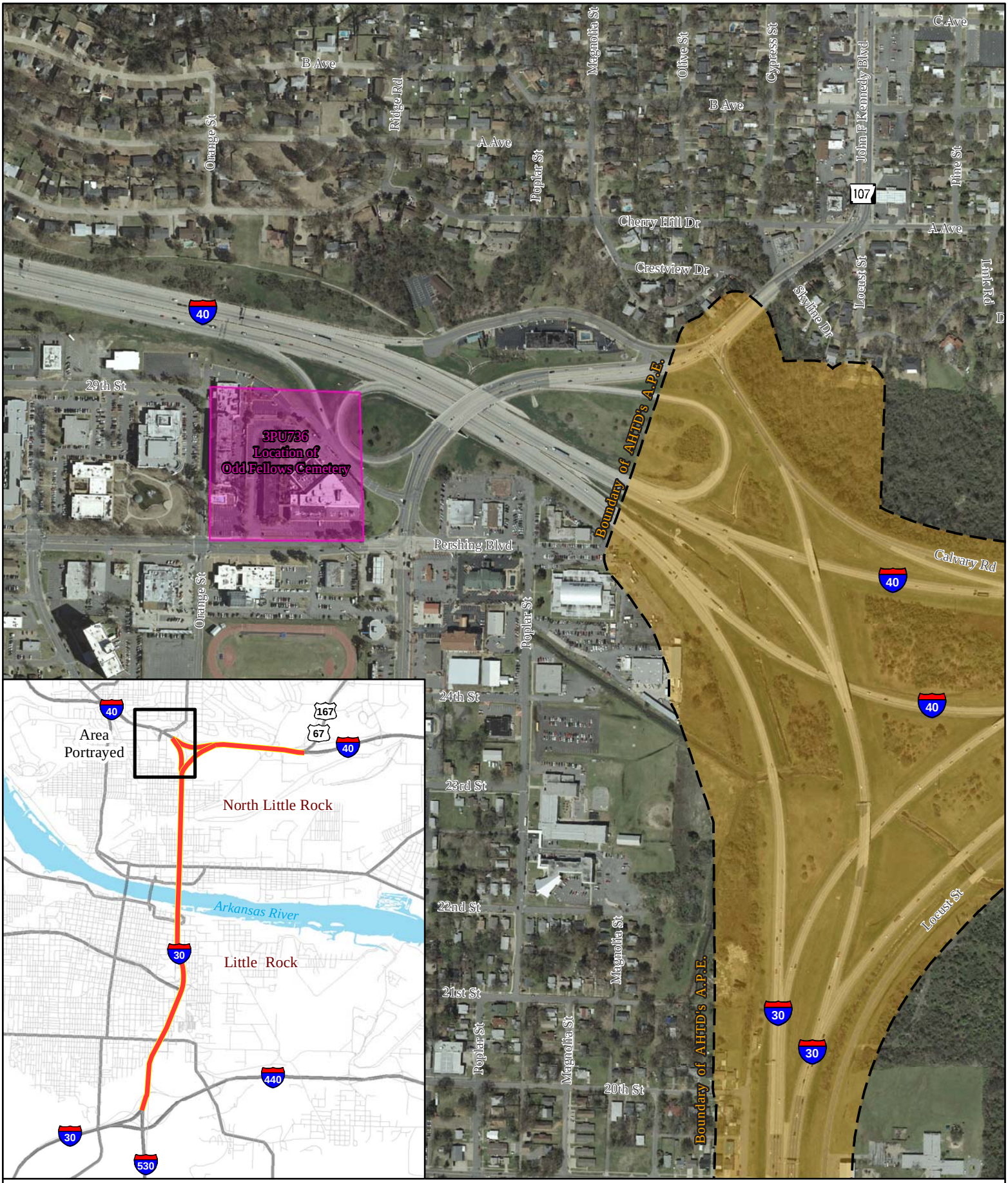
| **8** | **Email** 10/10/14 | Jon Honeywell, Director of Public Works, City of Little Rock | [ASM] 3.2.1.9 Improve Safety<br><br>Ramp Spacing - The measurement criteria for this goal does not take into account the existing infrastructure of the downtown corridors. Simply ranking an alternative higher due to lower number of ramps does not provide a realistic picture of the needs of the corridor.<br><br>Arterial Connection Conflict Points - The same is true for this goal. Careful consideration should be taken in evaluating the impacts of rewarding the lowering the arterial connection points versus the loss of the access to downtown and arterial corridors used in traveling to other parts of the City. | The existing I-30 facility does not meet AASHTO's recommendation for a maximum of two ramps per direction per mile for urban interstates. It is important for any facility improvements to meet these design standards to ensure the safety of motorists. The Study Team agrees that it is also important to understand the existing infrastructure of the Little Rock and North Little Rock downtown areas, and to facilitate quality connections to and from these areas as to accommodate the needs of the study area. Accordingly, the location and design of ramps and arterial connection points has and will continue to be coordinated closely with local city leaders and stakeholders through visioning workshops and meetings of local city and planning officials (see Comments 6 and 7 for description of visioning workshops and Project Partner meetings). Furthermore, it is also a goal of the project to *Improve Local Access to and from Downtown Little Rock and North Little Rock.* As part of this goal, alternatives will be evaluated based on their ability to provide improved access and travel time into the downtown areas. | N/A | JLH/ 1/8/15 | ✓ |
| **9** | **Annotated Document** 10/15/14 | Jim McKenzie and Casey Covington, Metroplan | A workshop was held on 10/15/14 between Metroplan and the I-30 PEL Study Team to discuss comments on the Purpose and Need Report. Metroplan provided their comments electronically via track changes in the Purpose and Need Report, which is attached to this comment response matrix. | Responses to Metroplan's comments are provided in the same track changes version of the I-30 PEL Purpose and Need Report provided by Metroplan, which is attached to this comment response matrix (**Attachment B**). | See Attach. B of this matrix | JLH/ 1/8/15 | ✓ |

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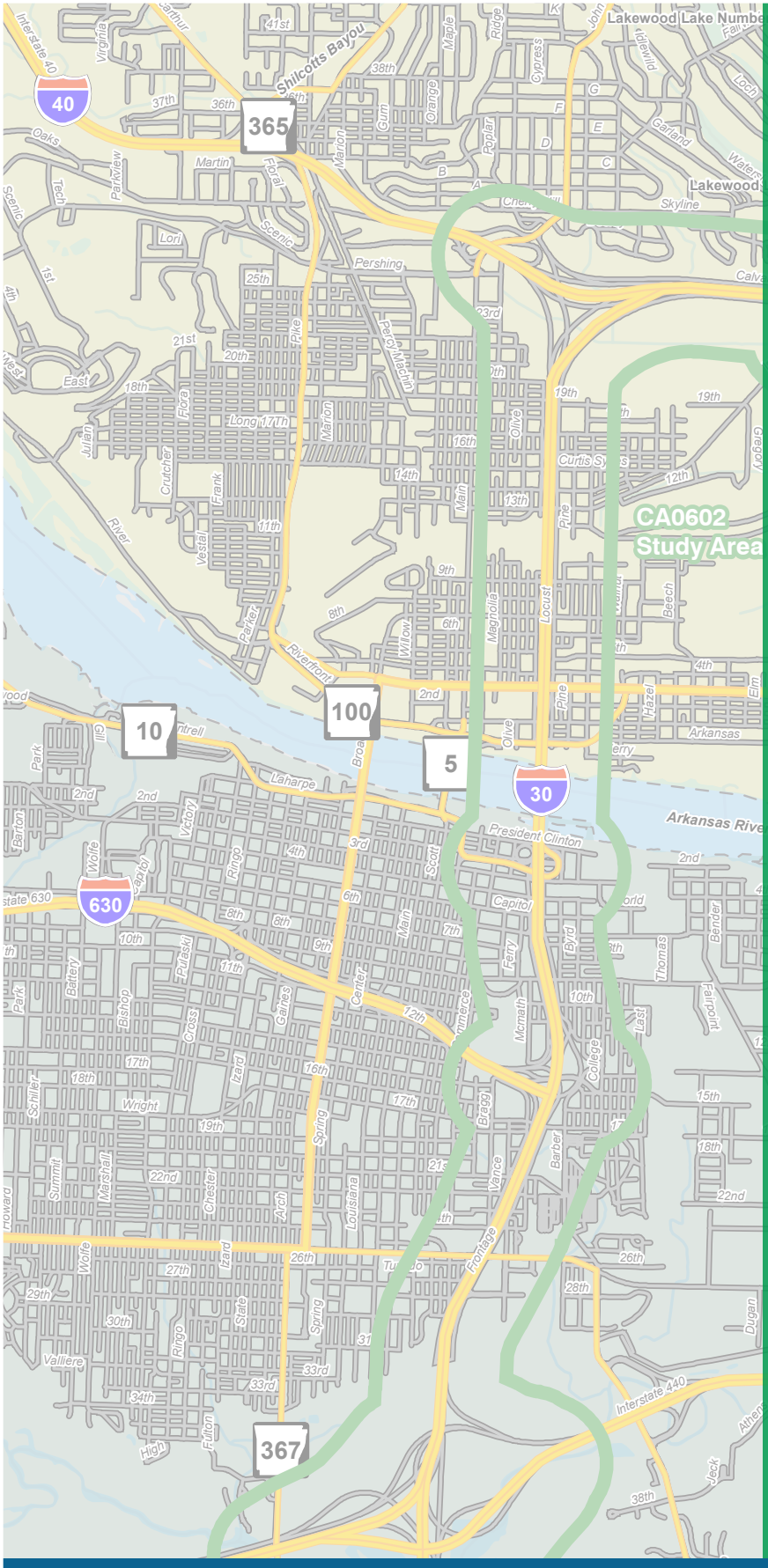
AHTD - Environmental GIS - Strawn
December 10, 2014

Job CA0602.
I-530 - Hwy. 67 (Widening & Reconst.)
(I-30 & I-40).
Pulaski County.

Project Location

Photography: 2013 AHTD Little Rock Orthophotos

Attachment A




# PLANNING AND ENVIRONMENTAL LINKAGES PURPOSE AND NEED TECHNICAL REPORT

INTERSTATE 30

## CA0602

Interstate 530 – Highway 67

December 2014

CONNECTING ARKANSAS PROGRAM CAP

Arkansas State Highway & Transportation Department

## TABLE OF CONTENTS



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## LIST OF FIGURES



## ATTACHMENTS



**Comment [AE1]:** Re-organized Attachments C and D to match the re-organization of Project Needs suggested by Metroplan in the document. All roadway related data (safety and structural and functional roadway deficiencies) is presented in Attachment C. All bridge related data (navigational safety and structural and functional bridge deficiency data) is presented in Attachment D.

# 1.0 INTRODUCTION

This document provides background information and data to support the purpose and need for improvements along I-30 from I-530 to I-40 and along I-40 from the I-30/I-40 interchange to United States Highway 67/167 (Hwy. 67/167). Data and analysis from previous studies, as well as an assessment of current and future conditions, are provided to assist in defining the key problems and potential solutions to address future mobility needs within the study area. The purpose and need discussed in this document is part of the Planning and Environmental Linkages (PEL) Study process.

# 2.0 BACKGROUND

## 2.1 I-30 PEL Study Area

The proposed I-30 PEL study area is located in central Arkansas, and stretches approximately 6.7 miles through Little Rock and North Little Rock. The study area begins at I-530 in the south, extends to I-40 in the north, and then east along I-40 to its interchange with Hwy. 67/167 in North Little Rock, as detailed in **Attachment A-1**.

## 2.2 Previous Studies and Planning Context

A number of studies have been completed that provide background on the study area. The most recent and relevant to the study area is the *Central Arkansas Regional Transportation Study Areawide Freeway Study, Phase 1 Arkansas River Crossing Study* from 2003. Other past relevant studies, summarized in **Attachment A-2,** include:

- Central Arkansas Regional Transportation Study (CARTS), Areawide Freeway Study, Phase 1 Arkansas River Crossing Study Final Report and Phase 2 Areawide Study, 2003;
- River Rail Airport Study, Phase 2 Final Report, 2011;
- I-630 Fixed Guideway Alignment Study, 2010;
- The Six Bridges Framework Plan 6 Bridges Study, late 1990s; and
- I-630 (from I-430 to I-30) Final Environmental Impact Statement (FEIS), 1978.

## 2.3 Regional Planning Context

Metroplan, the Metropolitan Planning Organization (MPO) for central Arkansas is responsible for long-range transportation planning for central Arkansas. The most recently approved long range metropolitan transportation plan (LRMTP) is ~~*Metro*~~ *METRO 2030.2*, adopted March 24, 2010. The MPO policy on freeway system capacity improvements, as reflected in *METRO 2030.2* and other policy documents, is to build the regional freeway system to six through lanes and to meet demand over that capacity with a robust regional arterial network and public transit. –The strategy behind the policy, –is to use finite resources to achieve transportation system balance once the regional freeway network is built out to six through lanes. *METRO 2030.2* does identify the ~~freeway~~interstate-to-interstate/highway ~~freeway~~ interchanges at I-40/~~US6~~Hwy. 67/Hwy. 167, I-40/I-30 and I-30/I-530/I-440 as in need of reconstruction to add capacity and improve safety. It also mentions the segment of I-30 between the North Terminal (I-30/I-40 interchange) and South Terminal (I-30/I-530/I-440 interchange) ~~interchanges~~ as needing study because of the very high number of interstate~~freeway~~-to-

interstate/highway~~freeway~~ interchanges and ~~freeway~~interstate/highway-to-arterial interchanges in that~~at~~ose five miles of ~~highway~~interstate.

~~-~~A description of planned improvements within the study area as well as how the proposed PEL study relates to the LRMTP is presented in **Attachment A-3**. Metroplan's *Policy on Freeways and Expressways* is presented in **Attachment A-4**.

With a view towards achieving consistency with local and regional planning efforts, it is anticipated that the PEL process and its subsequent recommendations will be submitted to the MPO to inform future updates/amendments to the LRMTP financially constrained plan and to the CARTS Transportation Improvement Program (TIP), as well as to the Arkansas State Highway and Transportation Department (AHTD) to inform future Statewide Transportation Improvement Program (STIP) updates/amendments. Additionally, the PEL process and associated documents will be developed in accordance with the CARTS Agreement of Understanding between Metroplan and the local jurisdictions and transit authorities, which is included in **Attachment A-5~~3~~4**.

## 3.0 NEED FOR IMPROVEMENTS IN THE PEL STUDY AREA

The following sections provide a summary of the current and future conditions in and around the study area which support the need for improvements to the I-30 corridor, with additional supporting data provided in the referenced appendices. These needs include:

- Traffic Congestion (**Section 3.1**);
- Roadway ~~and Navigational~~ Safety Issues (**Section 3.2**);
- 
- Roadway Structural and Functional Deficiencies (**Section 3.3**)
- Navigational Safety Issues (**Section 3.4**)~~and~~
- 
- Structural and Functional ~~Roadway and~~ Bridge Deficiencies~~ and Navigational Safety Issues~~ (**Section 3.5~~3~~**).

### 3.1 Traffic Congestion

Traffic was analyzed along I-30 and I-40, with the I-30 limits extending from the I-30/I-530/I-440 interchange to the south to the I-30/I-40 interchange to the north; and the I-40 limits extending from the I-30/I-40 interchange to the west to the I-40/Hwy. 67/Hwy. 167 interchange to the east.

#### 3.1.1 Traffic Demand

I-30 and I-40 within Little Rock and North Rock are the ~~As one of the most~~ heavi~~ily~~est ~~-~~traveled roads in Arkansas, with I-30 principally serving ~~not only provides~~ local access ~~between~~to Little Rock and North Little Rock (including I-630) and I-40 serving a mix of through and local trips~~, but also serves the longer distance commuter and through trips extending beyond the greater metropolitan area~~. I-30 and I-40 ~~serves as a part of the interstate transportation system that~~ connect~~s~~ six interstates within the Little Rock and

**Comment [AE2]:** Per Metroplan's suggestion, added text related to Metroplan's *Policy on Freeways and Expressways* (included in Attachment A-4).

**Comment [AE3]:** Change made. Per Metroplan's request, document re-organized so that Roadway issues are discussed sequentially and bridge/navigation issues are discussed sequentially.

**Comment [AE4]:** For organizational purposes, moved this description of the traffic study area from the traffic demand section to the beginning of the traffic congestion section.

**Comment [AE5]:** Change made per Metroplan's suggested language.

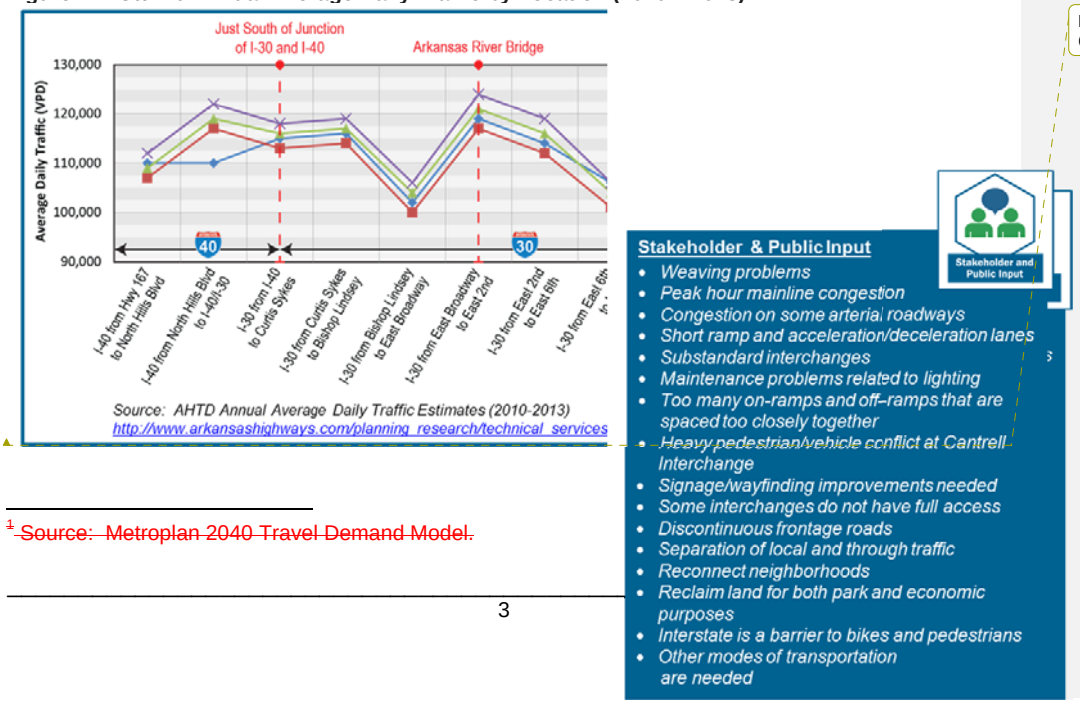
North Little Rock metropolitan area (I-40 northwest, I-40 northeast, I-630, I-30 southwest, I-530 and I-440) ~~and~~ to the larger region. Metroplan maintains the regional travel demand model, which is a tool that forecasts traffic demand and travel characteristics based on future land use assumptions developed by the community.

~~The Study Team coordinated with Metroplan on the travel demand model, which determined that future motorist trip characteristics are substantially different for traffic on the I-40 section of the corridor than on the I-30 section of the corridor. On I-40, a much higher percentage of the traffic is composed of through trips (xx percent) traveling through the study area. While as opposed to only 18% indicate approximately 43 percent of I-30 daily traffic 82% isto be destined for locations withinoutside of the I-30 PEL study area, abutting business districts, and I-630 (outside of the central business districts and abutting job centers).[1] Additional details outlining the regional significance of I-30 are presented in **Attachment B-1**.~~

~~Traffic was analyzed along I-30 and I-40, with the I-30 limits extending from the I-30/I-530/I-440 interchange to the south to the I-30/I-40 interchange to the north; and the I-40 limits extending from the I-30/I-40 interchange to the west to the I-40/Hwy. 67/Hwy. 167 interchange to the east.~~ Daily traffic demand along I-30/I-40 is depicted in **Figure 1.** In order to ensure that the trends are typical, multiple years of data (2010 - 2013) from AHTD were included in the traffic demand analysis.

As shown in **Figure 1**, 2013 traffic volumes on I-30/I-40 range from 94,000 to 119,000 daily vehicles. As expected, the I-30 Bridge has the highest volume at 119,000 daily vehicles.

**Figure 1. I-30/I-40 Annual Average Daily Traffic by Location (2010 – 2013)**




[1] ~~Source: Metroplan 2040 Travel Demand Model.~~



**Comment [AE6]:** The six interstates within LR and NLR that I-30 and I-40 connect were added for additional clarification.

**Comment [AE7]:** Because this text relates to roadway users and trip characteristics, it was moved to a new section, Section 3.1.5 (Roadway Users), and modified with suggestions from Metroplan.

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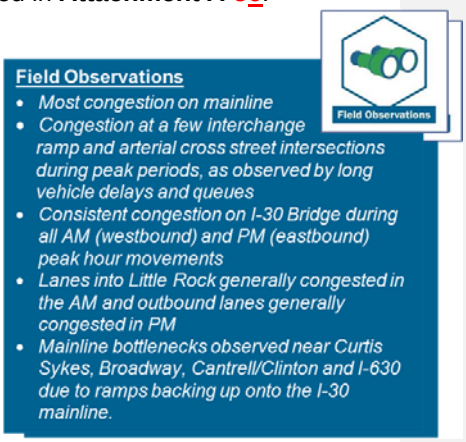
### 3.1.2 Capacity and Traffic Operations

Motorist mobility and traffic operation problems were based on stakeholder and public input, field observations and technical analysis.

Stakeholder input was obtained via interviews conducted with staff from the Cities of Little Rock and North Little Rock, Metroplan and AHTD in May 2014; and public input was obtained through public meetings held on August 12th and 14th of 2014 in North Little Rock and Little Rock, respectively. Field observations were conducted in the I-30/I-40 study area by driving during the morning and afternoon peak periods in May 2014. A summary of stakeholder and public input, as well as field observations are provided in the adjacent inset boxes. A more comprehensive listing of stakeholder input and field observations are presented in **Attachments B-2** and **B-3** respectively; and feedback obtained from the public meetings is presented in **Attachment A-~~5~~6**.



### 3.1.3 Causes of ~~C~~congestion

Observed ~~C~~congestion on I-40 is primarily related to 1) the weaving of through traffic on I-40 between I-30 and Hwy. 67, ~~ or~~ 2) queuing from I-30 that spills onto I-40, 3) traffic demand, and 4) non-recurring congestion such as accidents.

Observed ~~C~~congestion on I-30 is primarily caused by 1) high volume merge/diverge ramps (~~at~~ I-630 and Hwy. 10) and inadequate merge distances,~~,~~ 2) number and location ~~and proximate~~ of ramps resulting in high weaving volumes, 3) conflicts between through and local traffic, ~~and~~ 4) high traffic volumes that exceed available capacity, and 5) non-recurring congestion such as accidents.

### 3.1.4 ~~Level of Service~~Traffic Analysis

~~Technical~~ Traffic a~~A~~nalysis will include a multi-modal comprehensive analysis of I-30/I-40 mobility and safety and the supporting transportation network for the existing traffic (2013) and projected traffic (2040) using Metroplan's Travel Demand Model (TDM). The traffic analysis will include level of service (LOS) operational analysis of the I-30/I-40 mainlines, ramps, weaving, cross roads, and frontage roads. Other mobility measures will include travel time to key destinations, travel speed, duration of congestion, vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average delay per motorist. ~~included an evaluation of level of service (LOS) operations, based on Highway Capacity Manual (HCM) methodology for the I-30/I-40 mainline for the existing traffic (2013) and projected No-Action conditions (2040) using forecasted traffic data derived from historical trends. This Level of Service is used to identify were problems existing or may exists in the future and consequently improvements should be evaluated. More detailed traffic forecasts; operational analysis of I-30/I-40 mainlines, cross roads and ramps; and measures of effectiveness, such as travel time to key destinations, travel speed, vehicle miles traveled, vehicle hours traveled and average delay per motorist, will be performed as the PEL study progresses.~~

~~Table 1. LOS Designations~~

LOS is a standard Federal Highway Administration (FHWA) and AHTD measure of traffic flow. LOS is a letter designation that describes the quality of traffic flow on a particular type of roadway. As shown in **Table 1**, LOS is represented by the letters "A" (most favorable) ~~–~~through "F" (least favorable). **Figure 2** presents a summary of the LOS conditions on I-30/I-40. AHTD's desirable design year LOS is D. Under existing

**Table 1. LOS Designations**

| | |
|---|---|
| A | **Free Flow Traffic** No Delays |
| B | **Light/Moderate Traffic** No Delays |
| C | **Steady Traffic** Minimal Delays |
| D | **Speeds Begin to Decline** Minimal Delays |
| E | **Traffic at Capacity** Significant Delays |
| F | **Heaviest Congestion** Considerable Delays |

**Comment [AE8]:** A new section "Causes of Congestion" was added per Metroplan suggestion. In addition to Metroplan's suggestions, the Study Team added traffic demand as a cause of congestion on I-40 and non-recurring congestion as cause of congestion on I-40 and I-30.

**Comment [AE9]:** Metroplan suggested revising the section heading to Level of Service. Retained the Traffic Analysis heading because the context of this section was revised to discuss the comprehensive traffic analysis to be completed as part of the I-30 PEL Study, per the suggestion of Metroplan in Comment JM11.

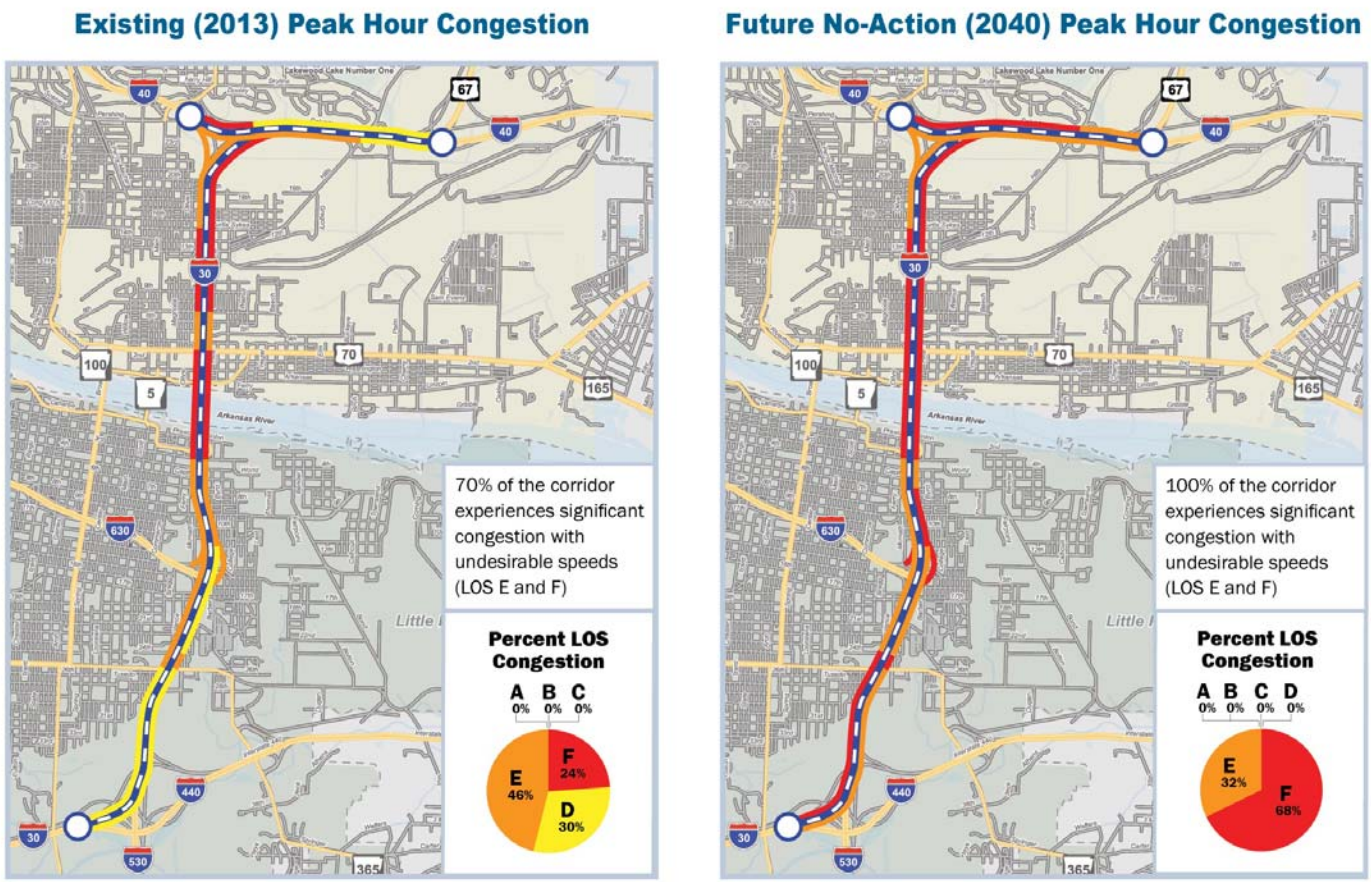
**Comment [AE10]:** Per Metroplan Comment JM11, revised the context of this section to discuss the comprehensive traffic analysis to be completed as part of the I-30 PEL Study.

conditions, 70 percent of the corridor experiences severe congestion with undesirable speeds (LOS E and F). This percentage increases to 100 percent by 2040 under future No-Action conditions. Without improvements, many sections of I-30 are anticipated to operate under 20 miles per hour (mph) during peak periods. A more detailed breakdown of existing (2013) and future (2040) LOS is presented in **Attachment B-4**. As previously described, the traffic analysis will involve measures of mobility other than LOS, to be completed during subsequent phases of the PEL process. As these analyses are completed, they can be incorporated as part of the purpose and need via attachment or addendum, and will be included as part of the I-30 PEL Traffic and Safety Analysis and PEL Final Report.

**Comment [JM11]:** Remove or expand significantly to discuss limitations of LOS, how LOS is to be measured, the LOS design standard being used and the system implications of that and the other methods of analysis that will be used and how the results will be weighted to use in evaluating alternatives.

Response: While LOS does have limitations, it is a standard FHWA and AHTD measure of traffic flow. Accordingly, and as acknowledged by the revisions in this section, additional measures of effectiveness will be evaluated as part of the I-30 PEL traffic analysis to ensure a comprehensive evaluation of the network. The Study Team will use Metroplan's model to understand the system implications of the proposed improvements. Document also revised to include AHTD's LOS design year standard of practice. AHTD has indicated to Metroplan that they will consider the trade-offs of using LOS E as the design threshold when determining the PEL recommendations.

**Figure 2. Comparison of Existing and Future No-Action LOS for I-30/I-40**




*Notes: Future 2040 traffic demand grown by one percent annually based on historical trends.*

### ~~3.1.3~~3.1.5 Roadway Users

Roadway users are subdivided into 1) those with destinations within the study area, 2) those traveling through the study area, and ~~2~~3) those traveling to and from I-630~~, and 3) those with destinations within the study area.~~ . Each of these users has different transportation needs~~expectations of congestion~~ within the corridor, as described below.

1) **Local Access** – Local access trips include those with destinations within the I-30 PEL study area. For local access trips providing a reliable travel time, safe merging opportunities and access to jobs and/or entertainment in Little Rock and North Little Rock is paramount.

~~1)~~ **Through Trips** – Through trips include those drivers that travel from the North Terminal ~~(I-40)~~ to the South Terminal ~~(I-530/I-440)~~interchanges. For through trips, congestion is related to slower travel speeds and conflicts that are caused by local traffic on I-30.

2) ~~**Travel to/from I-630** -~~

3) Trips traveling to and from I-630 are interregional trips and likely use I-630 to access downtown Little Rock. These trips ~~and are willing to accept a higher level of congestion than through trips. These interregional trips~~ are concerned with delay and safe merging and diverging to and from ~~onto~~ I-30. These drivers would like to minimize conflicts with traffic using local ramps.

The Study Team coordinated with Metroplan using the travel demand model, which determined future 2040 motorist trip characteristics for traffic on I-30 and I-40. **Table 2** shows that a high percent of the traffic using the I-30 corridor accesses local interchanges along I-30 to downtown Little Rock and North Little Rock or uses I-630.[2] When the through traffic on I-40 is removed, only a small number of trips use I-30 for through traffic. The table does not include local interchange to local interchange trips, but these trip patterns are expected to be low.

**Table 2. I-30 Estimated Daily Trip Characteristics in 2040[1, 2]**

| Trip Type | I-30 | From I-40 WB |
|---|---|---|
| Local Access | 45% | 71% |
| Through ~~[2]~~Trips[3] | 17% | 4% |
| Travel to I-630 | 38% | 25% |
| **Total Trips** | **100%**~~[43]~~ | **100%**~~[34]~~ |

*Notes: [1]Metroplan 2040 Travel Demand Model; [2] Figures B-1 through B-1c in Attachment B-1 further illustrate trip characteristics along I-30. [3]Through trips are vehicle trips that start and end outside the PEL study limits (External trips ~~a~~are considered vehicle trips that are outside the PEL study limits); [4]Does not include local to local trips.*

Details outlining the regional significance of I-30 are presented in **Attachment B-1**.

[2] Source: Metroplan 2040 Travel Demand Model.

**Comment [CC12]:** In the discussion of congestion a new section (similar to this) should be added that discusses the different expectations of drivers

Response: Per Metroplan suggestion, a new section entitled "Roadway Users" was added to the document.

**Comment [AE13]:** This text was moved from Section 3.1.1 (Traffic Demand) to Section 3.1.5 because it relates to roadway users and trip characteristics. Original text was modified with suggestions from Metroplan, and a new table (Table 2) was added to further illustrate anticipated trip characteristics for the study area.

## 3.2 Roadway Safety~~Safety~~

### 3.2.1 Existing Conditions

Crashes from 2010, 2011, and 2012 (the latest three years of available data) were reviewed along I-30 from the I-30/I-530/I-440 interchange to the south to the I-40/Hwy. 107/JFK Boulevard interchange to the north; and along I-40 to just east of the I-40/Hwy. 67/Hwy. 167 interchange. Of the total crashes from 2010 – 2012, approximately 1/3 occurred during the PM peak period from 3:30 PM – 6:00 PM, 1/3 occurred during the daytime hours from 8:30 AM – 3:30 PM; and the remaining 1/3 occurred either during the AM peak period from 6:30 AM – 8:30 AM ~~and~~or during the nighttime hours from 6:00 PM to 6:30 AM. Crash rates were calculated for total collisions (all severity types) as well as fatal (K) and serious injury (A) collisions (KA Crash Rate). A detailed breakdown of the safety analysis is presented in **Attachment C-1**~~.~~ and a summary of the results is presented in **Table 3.**

**Table 3. Crash Numbers and Rates along I-30/I-40**

| Year | # Crashes | | Crash Rate per MVMT [1] | | Arkansas Average Crash Rate for 6-lane Urban Interstates | | Conclusions |
|---|---|---|---|---|---|---|---|
| | All Severity Types | KA [2] | All Severity Types | KA | All Severity Types | KA | |
| **I-30 from I-530/I-440 to I-630** | | | | | | | |
| 2010 | 99 | 8 | 2.19 | 0.18 | 1.53 | 0.06 | Total crash rates (all severity types) were slightly higher compared to other 6 or more-lane urban interstates in Arkansas. KA crash rates were generally higher than the statewide average. |
| 2011 | 62 | 2 | 1.37 | 0.04 | 1.22 | 0.06 | |
| 2012 | 64 | 6 | 1.42 | 0.13 | 0.95 | 0.05 | |
| **I-30 from I-630 to I-40** | | | | | | | |
| 2010 | 471 | 9 | 4.74 | 0.09 | 1.53 | 0.06 | Total crash rates (all severity types) were three to four times higher compared to other 6 or more-lane urban interstates in Arkansas. KA crash rates were also elevated reaching as high as four and a half times the statewide average. |
| 2011 | 371 | 21 | 3.81 | 0.22 | 1.22 | 0.06 | |
| 2012 | 406 | 14 | 4.31 | 0.15 | 0.95 | 0.05 | |
| **I-40 from I-30 to Hwy. 67/Hwy. 167** | | | | | | | |
| 2010 | 66 | 3 | 0.94 | 0.04 | 1.53 | 0.06 | Total crash rates (all severity types) were slightly lower compared to other 6 or more-lane urban interstates in Arkansas, though still higher than desired. KA crash rates were slightly higher than the statewide average. |
| 2011 | 75 | 7 | 1.09 | 0.10 | 1.22 | 0.06 | |
| 2012 | 58 | 6 | 0.85 | 0.09 | 0.95 | 0.05 | |

*Notes: [1] MVMT = million vehicle miles traveled; [2] KA = fatal (K) and serious injury (A) collisions*
*Source: AHTD and Arkansas State Police Database*

As shown in **Table 3**, both the overall and the KA crash rates are much higher than the Arkansas average crash rate for 6 or more-lane urban interstates. This study area

**Comment [AE14]:** After discussion between the I-30 PEL Traffic and Safety Study Team and Metroplan, it was determined that the Study Team would review the safety data to see what time of day crashes were occurring. Text inserted into document to illustrate these findings.

**Comment [CC15]:** Focus on these

Response: Greater detail on KA Crashes added to Section 3.2.1 (see additional text and figures in this section)

**Comment [CC16]:** Is this other similar statewide facilities, if so it should say such

Response: Added "for 6-lane Urban Interstates" in the column title.

**Comment [CC17]:** This is the only thing that really says there is a problem, however it is unclear what the cause is –

Response: Additional detail related to the causes of crashes added to Section 3.2.1 (see additional text and figures in this section).

experienced 6 fatal collisions and 70 serious injury collisions from 2010-2012. These crash rates demonstrate a need for improvements along I-30/I-40. Some key locations on I-30/I-40 in the study area exhibited large clusters of crashes over the three year analysis period (2010 – 2012). For example, **Figure 3** shows that in 2012, crashes were particularly concentrated along the I-30 mainline at the following locations (south to north): along I-30 at the I-630 interchange (30 crashes), at 9th Street (38 crashes), on the Arkansas River Bridge (58 crashes), near E. Washington Avenue (49 crashes), at East Broadway Street (41 crashes), and at Curtis Sykes Drive (46 crashes); and along the I-40 mainline at North Hills Boulevard (52 crashes). Similar crash trends were generally exhibited at these locations in 2010 and 2011, with a particularly high number of crashes experienced in 2010 along the I-30 mainline at E. Broadway Street (80 crashes) and Curtis Sykes Boulevard (76 crashes) in North Little Rock. The number and location of crashes experienced along the I-30/I-40 mainline and cross-streets/ramps within the study area for 2010 - 2012 are graphically depicted in **Attachment C-1.**

**Figure 3. Numbers of Crashes on I-30/I-40 Mainline in 2012**

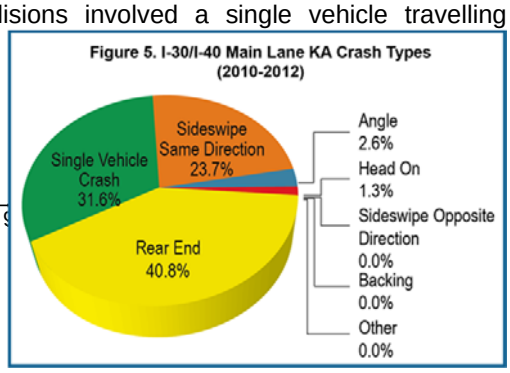
**Comment [AE18]:** Per Metroplan comment CC15 and CC17, added text related to KA crash rates.


**Comment [CC19]:** Further evaluation of crashes from the river north is needed to evaluate if impact of proposed improvements on safety

Response: Additional detail on causes of crashes north of the Arkansas River provided in Section 3.2.1 and illustrated in Figures 7 and 8 below.

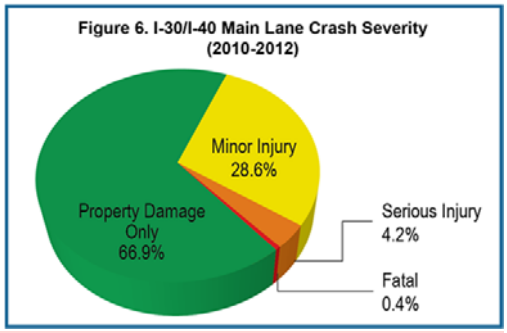
The safety analysis also evaluated the locations of only fatal and serious injury (KA) crashes, as detailed in **Attachment C-2**. The segment of I-30 between I-630 and I-40 experienced the most serious injury crashes over the three year analysis period; 43 total serious injury crashes from 2010 – 2012. In regard to fatal crashes, the interchange of I-40/Hwy. 67/Hwy. 167 experienced two fatal collisions in 2011 and one fatal collision in 2010. All three of these crashes were rear-end type collisions, and two of the three occurred in the westbound direction. Two fatal collisions occurred along I-30 during the three years analyzed: one near 19th Street in 2012 and one at the interchange of I-30 and I-630 in 2010. Both of these collisions involved a single vehicle travelling westbound, and one collision sited alcohol as a contributing factor.

Evaluating collisions by type gives further insight into the reasons that collisions



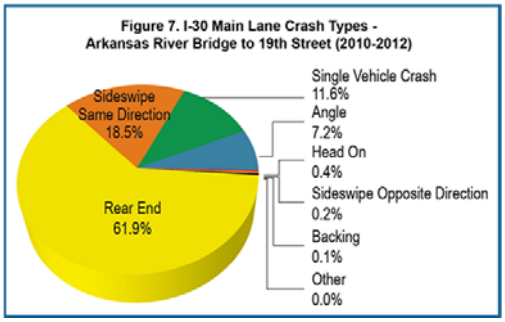
occurred. **Figure 4** depicts the types of crashes experienced along the I-30/I-40 mainline from 2010-2012, the majority of which were rear end collisions followed by sideswipe (same direction) collisions. **Figure 5** shows a similar pattern for KA crashes with rear-end collisions being most predominant. However, the KA crashes showed single vehicle crashes being the second most common followed by sideswipe (same direction) crashes. When evaluating crash severity, the majority of mainline crashes along I-30 and I-40 involved property damage or resulted in minor injuries. Serious injury and fatal crashes accounted for 4.2 percent and 0.4 percent of overall crashes, respectively, from 2010-2012, as shown in **Figure 6**.

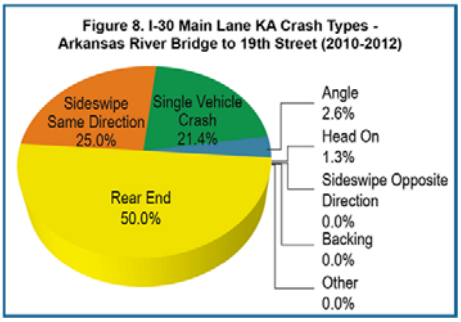
As was demonstrated in **Figure 3**, large clusters of crashes occurred along I-30 north of the river. Accordingly, crashes from the I-30 Arkansas River Bridge to 19th Street were evaluated separately by crash type and KA crash type as shown in **Figures 7** and **8**. As these figures show, this area experienced especially high percentages of rear-end collisions, most likely attributable to congestion. Sudden stops often occur due to slowing traffic and lengthy queues on the mainline, leading to rear-end collisions. Congestion also likely attributes to sideswipe (same direction) collisions, as impatient vehicles switch lanes suddenly or as merging vehicles experience difficulty finding adequate gaps in traffic for safe merging.



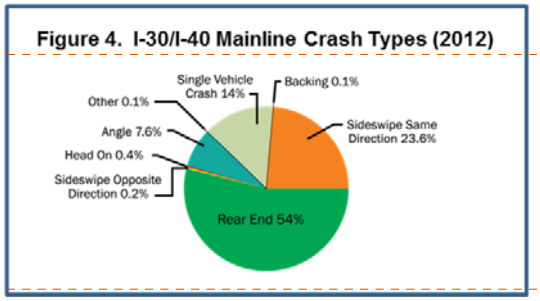

**Comment [AE20]:** Per Metroplan comments CC15 and CC17 above, additional detail related to crash causes and KA crashes added to discussion.

**Comment [AE21]:** Per Metroplan comment CC19, additional detail on causes of crashes north of the Arkansas River added to discussion.



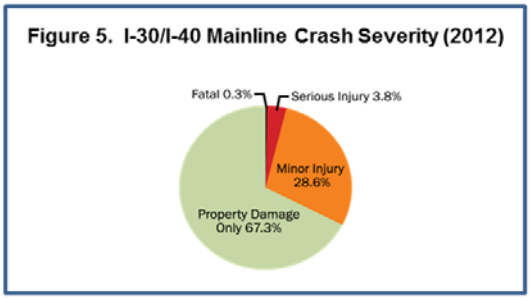

~~Collision types were also evaluated along I-30/I-40. **Figure 4** depicts the types of crashes experienced along the I-30/I-40 mainline in 2012, the majority of which were rear end collisions and sideswipe (same direction) collisions.~~




**Comment [CC22]:** Why is this just 2012, a similar map should be prepared with just KA Crashes

Response: Document revised to include data spanning 2010 – 2012, the latest safety data available at the time of the analysis. A new graphic, Figure 5, and associated discussion was added to illustrate KA crash types.

~~When evaluating crash severity, the majority of mainline crashes along I-30 and I-40 involved property damage or resulted in minor injuries. Serious injury and fatal crashes accounted for 3.8 percent and 0.3 percent of overall crashes in 2012, respectively, as shown in **Figure 5**.~~




**Comment [CC23]:** Why is this just 2012

Response: Document revised to include data spanning 2010 – 2012, the latest safety data available at the time of the analysis. New graphics, Figures 4 and 6, and associated discussion, was added to this section.

## Wrong-Way Collisions

Each year, AHTD conducts a review of all wrong-way crashes on freeway systems within Arkansas. The reviews for 2010, 2011, and 2012 were investigated to identify any wrong-way collisions occurring within the study area. Upon investigation, no wrong-way collisions were identified within the study area in 2010. In 2011, one wrong-way collision was reported at the I-30/I-630 interchange. The driver at fault was driving westbound on the I-30 eastbound lanes and caused a sideswipe-opposite direction collision that resulted in property damage only. According to the police report, the driver most likely entered I-30 the wrong way via the Exit 140 off-ramp which connects to a frontage road that provides access to 9th Street and 12th Street. All pavement markings and signs were in place according to the Manual of Uniform Traffic Control Devices (MUTCD)[3] standards, but according to the police

[3] The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The

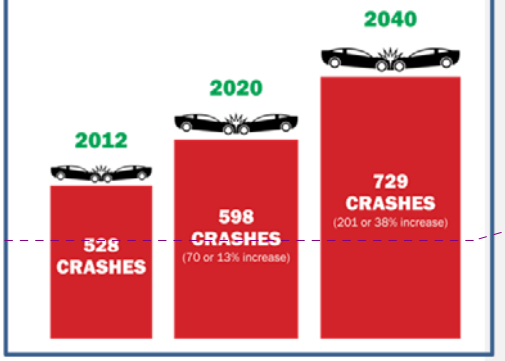
report, additional signs were needed and some signs were in need of replacing in order to meet AHTD standards. The collision occurred at night, therefore the unusual geometry of this ramp with the frontage road along with the reduced visibility during the night likely both contributed to this collision. In 2012, a head-on collision occurred in this same location. This driver was intoxicated, and the collision resulted in incapacitating injuries. Upon reinvestigation of this site, all signs and pavement markings were found to be in conformance to MUTCD and AHTD standards at the exit ramp. However, plans were made to increase the size of the *Do Not Enter* sign from 36"x36" to 48"x48" and to install a 54"x18" *One Way* sign on the east side of the road. In addition, plans were made to replace the *Wrong Way* signs prior to the 9th Street and 12th Street intersections to be consistent with AHTD standard sizes and to install a *Wrong Way* sign prior to the 10th Street intersection.

~~3.2.2~~

### ~~3.2.3~~3.2.2 Future No-Action Conditions

To develop the future No-Action conditions, an average crash rate from the 2010-2012 crash data was applied to the projected No-Action traffic volumes. While existing crash rates may not actually remain constant into the future, the existing crash rate was used as a conservative value. Due to vehicle-to-vehicle (V2V) communication technologies and other safety features in the auto industry, the actual number of crashes could be less than the projection. This analysis assumed that roadway conditions and all other factors would remain the same and that no safety measures would be implemented. In summary, a 13 percent increase in crashes was predicted for 2020 compared to 2012; and a 38 percent increase in crashes was projected by 2040 compared to 2012, as shown in **Figure 9**. Average crash rates and projected numbers of crashes under future No-Action conditions for 2020 and 2040 along I-30/I-40 are further detailed in **Attachment C-1**.

**Figure 9. Existing and Projected Number of Annual Crashes along I-30/I-40**




In addition to vehicular crashes, pedestrian and bicycle crashes were evaluated from 2001 to 2010, which are summarized below and detailed in **Attachment C-3**:[4]

- High concentration of pedestrian crashes at Broadway Street interchange in North Little Rock and Markham Street interchange in Little Rock (near ramp termination at Cumberland Street);

**Comment [CC24]:** Crashes is an existing issue and it is unrealistic to expect the rate to remain the same into the future

Response: While existing crash rates may not actually remain constant into the future, the existing crash rate was used as a conservative value. For clarification purposes, text explaining this was added to this section.

**Comment [JM25]:** 38% increase over 2012 or 2020 numbers?

Response: Document revised to explain that the 38% increase was over 2012 numbers.

MUTCD is published by the ~~Federal Highway Administration (~~FHWA~~)~~ under 23 Code of Federal Regulations (CFR), Part 655, Subpart F. Source: http://mutcd.fhwa.dot.gov/

[4] Source: Metroplan's *CARTS Pedestrian/Bicyclist Crash Analysis* (January 9, 2012). Pedestrian and bicycle crash data obtained from the Arkansas State Police Database.

- Several bicycle crashes at the Curtis Sykes interchange area; and
- Bicycle/pedestrian fatalities: I-630 interchange (one), Broadway Street interchange (one), between the I-30/I-40 interchange and North Hills Boulevard interchange (three); and the Hwy. 67/Hwy. 167 interchange (one).

## 3.3 Structural and Functional Roadway Deficiencies

### ~~3.2.4~~3.3.1 Structural Roadway Deficiencies


*Note: Photo also demonstrates inadequate shoulder widths and curb and gutter immediately adjacent to travel lanes (**Section 4.3.2**)*

Cracks are usually the first noticeable sign of pavement deterioration, causing a rough ride and also allowing water to seep into the base beneath the pavement. If cracked pavement is not repaired in a timely manner, water entering the cracks causes the pavement to deteriorate more rapidly, leading to unsafe conditions for the driver.

The 2012 existing surface conditions show moderate to severe levels of cracking along the I-40 and I-30 facilities. Details about the different types of roadway distress experienced along I-30/I-40 are provided in **Attachment ~~D-1~~C-4**. Portions of I-30/I-40 in the study area will likely require some level of pavement rehabilitation within the expected timeframe of this project to meet adequate structural performance for the typical 20 year design life utilized for pavement analysis.

### ~~3.2.5~~3.3.2 Functional Roadway Deficiencies

Functional deficiencies are features that prevent the roadway from handling the normal traffic volume expected of a major highway. Functional deficiencies within the study area include the following, which are illustrated and mapped in **Attachment C-5**:

- 8 locations with curves that do not meet design standards;
- ~~•~~ 9 ~~-~~locations with inadequate shoulder widths ~~(see above photo)~~, including ~~;~~
- 2 locations where the curb and gutter is immediately adjacent to the travel lanes[5] ~~,~~ ~~-~~(see above photo in **Section 3.3.1**)~~;~~;
- 10 ramps lack recommended lane lengths and/or are below standard acceleration/deceleration and taper lengths; and

*Typically, the desired ramp spacing in an urban area is defined as two ramps per direction per mile. **

*This corridor has 33 ramps in a five mile section – **That is 70% higher than the recommended number.***

** Based on the American Association of State Highway and Transportation Officials' (AASHTO) A Policy on Geometric Design of Highways and Streets (2004)*

[5] Current design standards recommend that curb and gutter not be placed adjacent to travel lanes on high speed facilities because of potential safety issues, such a vehicle vaulting upward and losing control from hitting the curb.

**Comment [JM26]:** On the surface this appears to be just another case of poor maintenance UNLESS there is underlying issues with the base or reflective cracking from the original concrete surface that should be replaced.

Response: The existing concrete pavement beneath the asphalt overlay was constructed back in the 1960s, and has experienced deterioration over the last 50 years of use. AHTD has periodically milled and overlaid the pavement with asphalt as needed, but there has not been a complete reconstruction performed on the underlying concrete structure since it was built in the 1960s. Much of the cracking in the asphalt is due to reflective cracking from the joints in the concrete pavement. Note that Falling Weight Deflectometer (FWD) measurements have been taken along the project corridor. Once the data analysis is complete, additional data supporting this need can be incorporated into this technical report. No change to the document at this time.

- 12 locations lack required spacing to safely allow weaving operations between entrance/exit ramps.

Additionally, one major weaving area of concern is located between the I-30/I-40 interchange and the I-40/Hwy. 67/Hwy. 167 interchange. This movement is complicated by the existence of the North Hills Boulevard interchange located within this weaving section, which is less than a mile from the adjacent interchanges. ~~Given the roadway deficiencies and heavy traffic volume on this area of I-40, the 2003 CARTS Phase II Areawide Freeway Study recommended I-40 east of the I-30/I-40 interchange to the I-40/Hwy. 67/Hwy. 167 interchange be improved to five lanes in each direction.~~

**Comment [JM27]:** Map all of these locations

Response: The locations of these functional deficiencies have been mapped and are included in Attachment C-5 and Figures C-5g through C-5j).

**Comment [JM28]:** This citation from the Areawide Freeway Study comes out of nowhere and doesn't seem to deal with the weaving issues at all. Recommend deleting this sentence.

Response: Sentence deleted.

## 3.4 Navigational Safety

The I-30 Bridge is one of six bridge structures that cross the McClellan-Kerr Arkansas River Navigation System (MKARNS) within a 1.4 mile stretch of the Arkansas River in the downtown areas of Little Rock and North Little Rock. Having a total length of 445 miles, the MKARNS provides a means for the transportation of commodities from Oklahoma through Arkansas to the Mississippi River. On average, 12 million tons of commodities, valued at $2-3 billion, are transported annually via this economically vital navigation system.[6] –A portion of the MKARNS channel, showing the Clinton, I-30, Junction and Main Street Bridges is shown in **Figure 10**.

For bridges crossing a navigation channel, the two most important features are the vertical clearance provided from the water surface to the bottom of the bridge and the horizontal clearance between the bridge piers (vertical supports within the water). The United States Coast Guard (USCG) typically requires vertical and horizontal clearances of 52 feet and 300 feet, respectively for the section of the MKARNS within the study area. Of the six bridges, only the I-30 Bridge fails to meet the typically prescribed 300-foot minimum horizontal clearance for the MKARNS within the study area, as illustrated in **Figure 10**.[7]

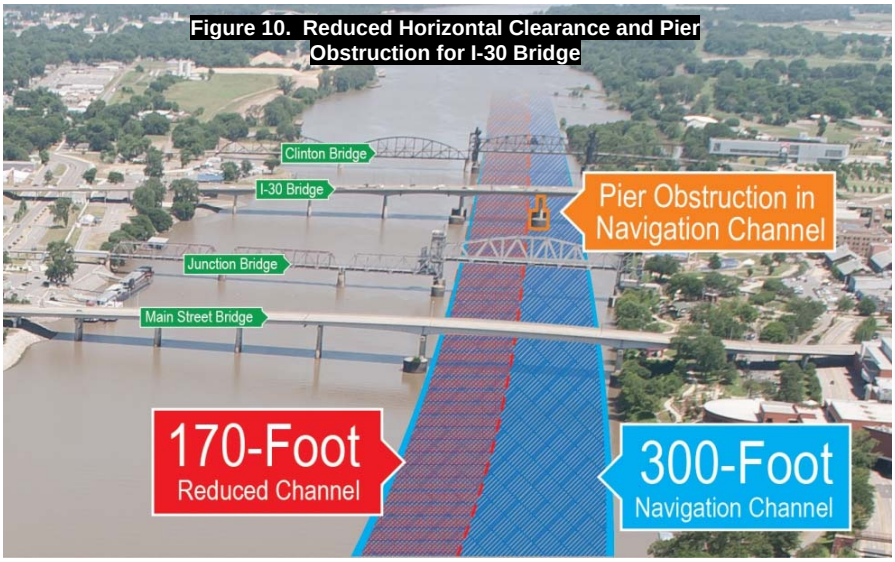
In addition to the substandard horizontal navigation clearance, the pier configuration of the I-30 Bridge poses an obstruction to river navigation. The five other bridge structures have an open span across the entire navigation channel. However, as shown in **Figure ~~7~~10**, the I-30 Bridge has a pier within the middle of the channel which divides the channel into two navigation spans as further discussed in **Attachment ~~C-4~~D-1**. The reduced horizontal clearance and pier obstruction is cumbersome to navigate and restricts the operational speed of the barges. Barge collision data, provided by the

[6] Valued by the Institute for Water Resources and the National Agricultural Statistics Service; Source: United States Army Corps of Engineers (USACE) Little Rock District.
[7] All six bridges meet the USCG vertical clearance requirements.

USCG, indicates a total of five barge strikes have occurred at the I-30 Bridge site since 2001, with the two most recent of these strikes having occurred since August 2013.[8]

On August 21, 2014, the Arkansas Waterways Commission submitted a letter to the AHTD recommending that the I-30 Bridge pier that divides the navigation channel be removed and a navigation channel of 332 feet be established; and that the vertical clearance of the I-30 Bridge be no lower than the soon-to-be constructed Broadway Bridge (vertical clearance of 62.4 feet). A copy of the Arkansas Waterways Commission letter is provided in **Attachment D-42**.

**Figure 10. Reduced Horizontal Clearance and Pier Obstruction for I-30 Bridge**




[8] The barge collision data provided by the USCG does not differentiate between a strike on the protection cells and the bridge itself; and therefore, there is no information available to quantify the damage the bridge sustained during each strike.

## ~~3.3~~ 3.5 Structural and Functional Bridge Deficiencies

### ~~3.3.1~~3.5.1 Structural Bridge Deficiencies

The 2003 *Arkansas River Crossing Study* rated the I-30 Bridge across the Arkansas River to be in fair condition. As the result of an October 2013 inspection by AHTD, the I-30 Bridge has been downgraded to Structurally Deficient[9]. The Structure Inventory and Appraisal Sheet developed following the 2013 inspection indicates that the substructure of the bridge is rated as "Poor". An AHTD memorandum outlining some of the major deficiencies identified as a result of the October 2013 inspection is presented in **Attachment D-3.**

*The fact that a bridge is classified as "structurally deficient" does not imply that it is unsafe. A structurally deficient bridge, when left open to traffic, typically requires maintenance and repair to remain in service and eventual rehabilitation or replacement to address deficiencies.*

*Source: Federal Highway Administration, Status of the Nation's Highways, Bridges and Transit: Conditions and Performance Report to Congress, 2008*

### ~~3.3.2~~3.5.2 Functional Bridge Deficiencies


In addition to structural deficiencies of the I-30 Bridge, the width of the existing bridge is less than desirable. Although the bridge meets the minimum width requirements, the shoulders on the bridge are below current standards for new construction. The reduction in the shoulder width can lead to driver discomfort resulting in decreased speed and increased congestion. A reduced bridge width can also lead to an increase in traffic accidents because there is no additional space to maneuver around an obstacle in the roadway. Furthermore, the lack of adequate shoulders doesn't allow for the storage of disabled vehicles and the passage of emergency response, which causes further congestion after an accident.

### ~~3.4~~3.6 Summary of Needs

As presented in **Sections 3.1** through **3.5~~3~~**, the need for improvements to I-30 and I-40 in the study area include:

- Traffic Congestion;
- Roadway Safety Issues;

[9] Bridges are considered structurally deficient if significant load carrying elements are found to be in poor condition due to deterioration. Source: *FHWA 2010 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*; *AHTD Bridge Inspection, Oversight, and Maintenance Performance Audit (November 2008).*

- Structural and Functional Roadway Deficiencies
- ~~and~~ Navigational Safety Issues; and
- Structural and Functional ~~Roadway and~~ Bridge Deficiencies.

## 4.0 PURPOSE AND STUDY GOALS AND OBJECTIVES

### 4.1 Purpose

The purpose of the proposed project is to address the transportation needs identified in **Section 3.4** by:

- Relieving Traffic Congestion;
- Improving Roadway ~~and Navigational~~ Safety ~~Issues~~; ~~and~~
- Addressing Structural and Functional Roadway ~~and Bridge~~ Deficiencies; and
- Improving Navigation Safety; and
- Addressing Structural and Functional Bridge Deficiencies ~~and Navigation Safety Issues.~~.

Comment [AE29]: Purpose of the project re-organized to match the re-organization of the project needs.

### 4.2 Study Goals/Objectives

In addition to the purpose and need, other project elements were established to balance transportation and environmental goals and objectives. Input sought from agencies and the public was incorporated to develop goals and guiding principles.[10] A listing of the study goals/objectives is presented in the inset box and a listing of the guiding principles is provided below. Goals identified by the public and/or agencies are notated by asterisks, as described in the inset box. A more comprehensive summary of the feedback obtained from the public meetings is presented in **Attachment A-~~5~~6**.

**Study Goals/Objectives**
***(Listed in no particular order)***

- *Improve opportunity for east-west connectivity***
- *Enhance mobility**
- *Improve local vehicle access to downtown Little Rock and North Little Rock**
- *Connect bicycle pedestrian friendly facilities**
- *Accommodate existing transit and future transit**
- *Minimize roadway disruptions during construction**
- *Minimize river navigation disruptions during/after construction*
- *Follow through on commitment to voters to improve I-30 as part of the CAP*
- *Optimize opportunities for economic development*
- *Avoid and/or minimize impacts to the human and natural environment*, including historic and archeological resources***
- *Sustain public and agency input and support for the I-30 corridor improvements**
- *Improve system reliability**
- *Maximize I-30 cost efficiency*
- *Improve safety**

***Notes:** * indicates a goal identified mutually by the Study Team and agencies/public; ** indicates a new goal identified by agencies/public that was incorporated into the goals and objectives or guiding principles*

Guiding principles that will influence the overall project include (listed in no particular order):

- Accelerated Project Delivery;
- Context Sensitive Solutions*/Aesthetically Pleasing Facility*;
- Minimize the real, perceived and visual barrier of the freeway**;

Comment [AE30]: Guiding principle added per the suggestion of Metroplan.

[10] Agency (local, state and federal) input gathered through technical work groups; public input gathered through public meetings held on August 12, 2014 in North Little Rock and August 14, 2014 in Little Rock.

- Open public participation process**; and
-
- Support of Local, Regional and Statewide Transportation Plan.

~~ATTACHMENT A: BACKGROUND INFORMATION~~
~~Attachment A-1: Study Area~~
~~Attachment A-2: Previous Studies~~
~~Attachment A-3: Regional Planning Context~~
~~Attachment A-4: Regional Plan and Policies on Freeways~~
~~Attachment A-5: CARTS Agreement~~
~~Attachment A-6: Public Meeting Feedback~~

**Comment [AE31]:** A new attachment, Attachment A-4, Regional Plan and Policies on Freeways was added per Metroplan suggestion.

Attachment A-3
Regional Planning Context

Paragraphs 1,2 and 3 no change
Replace last paragraph with:

The MPO policy on freeway system capacity improvements, as reflected in METRO 2030.2 and other policy documents, is to build the regional freeway system to six through lanes and to meet demand over that capacity with a robust regional arterial network and public transit. The strategy behind the policy is to use finite resources to achieve transportation system balance once the regional freeway network is built out to six through lanes. METRO 2030.2 does identify the freeway-to-freeway interchanges at I-40/US67/167, I-40/I-30 and I-30/I-530/I-440 as in need of reconstruction to add capacity and improve safety. It also mentions the segment of I-30 between the North Terminal and South Terminal interchanges as needing study because of the very high number of freeway-to-freeway interchanges and freeway-to-arterial interchanges in that five miles of highway.New Attachment 4
Metroplan Policy and Plan Statements on Freeway Capacity

**Metroplan Policy on Freeways and Expressways**
The Metroplan Board has adopted the following policy with regard to Freeways and Expressways in the CARTS area:

The metropolitan freeway system should be built to six through lanes. It is the Metroplan Board's intent that demand over that capacity be met with a robust regional arterial network and public transit.

If the Arkansas State Highway and Transportation Department sees the need to widen metropolitan freeways beyond six through lanes, it should consult with the Metroplan Board for its concurrence. Prior to planning for widening beyond six through lanes, the Department is expected to do a thorough analysis of alternative methods of meeting travel demand in the corridor with improved arterials and public transit. A thorough analysis of the impact of the induced traffic demand on local roadways as a result of the widening beyond six through lanes would also be required. The Metroplan Board may also consider conducting an independent analysis of widening proposals over six through lanes for its use and benefit.

METRO 2030.2

**METROPOLITAN FREEWAY SYSTEM-CAPACITY IMPROVEMENTS**

The freeway network within the metropolitan area should be completed and expanded to six through travel lanes by 2030. That means completing the Northbelt Freeway. It also means widening I-40 to six lanes between I-430 and Conway at Hwy. 65 and eastward into

**Comment [AE32]:** The MPO policy of highway system capacity improvements added to Attachment A-3 per request. However, The last paragraph of Attachment A-3 was retained because it highlights the importance of consistency between the PEL and local and regional planning efforts. This same verbiage is included in the P&N Technical Report (see Section 2.3 – Regional Planning Context).

Lonoke County. It calls for extending the widening of Hwy. 67/167 beyond its planned terminus at Redmond Road in Jacksonville to the Vandenberg/LRAFB exit in the short-term and then on to Cabot and Hwy. 89 by the end of the plan period, plus extending the widening of I-30 southwest from Sevier Street in Benton to at least Hwy. 67.

Nearly all the freeway-to-freeway interchanges in the metropolitan area need some level of reconstruction to increase capacity and safety. The I-630/I-430 Interchange is one of the highest needs, but the I-630/I-30, I-40/Hwy. 67/167, I-430/I-40, I-30/I-40 (North Terminal) and the I-30/I-530/I-440 (South Terminal) also need attention.

- The recently completed Areawide Freeway Study also indicated that additional capacity may be needed at some point in the future on a) I-30 between the North and South Terminals where five interstate highways merge and diverge within five miles, b) I-430 south of I-40 to I-630, c) I-630 from I-430 to University Avenue, d) I-30 from South Terminal to 65th Street and e) I-440 from South Terminal to Lindsey Road (Map 17-2). At an appropriate time, these highway segments should be studied consistent with the regional policy on freeway capacity.

ATTACHMENT B: TRAFFIC DATA

Attachment B-1
• Trip Characteristics:
Correct per mutual agreement on how to measure through trips and local trips.

Attachment B-3
Attachment B-3, page 3
(7) LaHarpe Boulevard and Markham Street
Scratch "which can attribute to vehicle backups."

Attachment B-4, page 2
LOS colors and letters are not consistent
Define Density
PAGE 2 – bottom paragraph – LOS bias toward unsustainable design criteria. Seems to define "severe congestion as LOS E/F even though LOS E is estimated at up to 54 mph. Should define how long Peal period is, how LOS is calculated over that time frame and how long segments operate under 20 mph.

ATTACHMENT C: SAFETY
Attachment C-1 Crash Data – all maps show crashes outside the study corridor. Are those crashes included in the crash data? If so, do they skew the conclusions?

Attachment C-2 Serious Injury and Fatal Crash Data - all maps show crashes outside the study corridor. Are those crashes included in the crash data? If so, do they skew the conclusions?

C-2, Page 3 – What happened in 2012 to vastly reduce crashes at East Broadway from previous years?
C-3 Bicycle and Pedestrian Crash Data

**Comment [AE33]:** A new attachment, Attachment A-4 was created with this suggested content from Metroplan.

**Comment [AE34]:** Attachment B-1 was revised per mutual agreement of trip characteristics. The trip characteristics table from Section 3.1.5 was added to Attachment B-1.

**Comment [AE35]:** Per Metroplan suggestion, this text was deleted from Attachment B-3.

**Comment [AE36]:** Per Metroplan suggestion, Attachment B-4 revised as follows:

LOS colors in Table B-4b revised to be consistent

Density was defined in Tables B-4a and B-4b

Revised text to indicate that the undesirable LOS was according to current AHTD standards.

The VISSIM analysis to be completed as part of the Level 3 screening analysis will analyze how long the peak hour LOS is sustained as well as the length of time segments operate under 20 mph. No change to Attachment B-4 in response to this comment.

**Comment [AE37]:** Response: Attachments C-1 and C-2 revised. Crashes that were shown outside of the study corridor have been removed. Those crashes were not included in the crash data.

**Comment [AE38]:** The Study Team has reviewed the data obtained from AHTD/Arkansas State Policy Database and confirmed the data to be correct. Per the City of Little Rock Traffic Department (Traffic Engineer Director), *"From the police and some of my Traffic Department personnel, several factors might have accounted for the reduction in crashes. They're as follows:*

- *Widening/drainage improvements along the East Broadway corridor that were completed a few years ago. I was told drainage was pretty bad prior to the AHTD widening/drainage improvements.*
- *NLR Citizens learning how to use Riverfront drive during events to by-pass downtown. In other words, Riverfront drive provides a good east-west route to get out of downtown versus Broadway during events.*
- *During the last few years, the Police report there has been a reduction in the number of events held at Verizon Arena."*

A note has been added to Table C-2b in Attachment C-2 that describes these potential reasons for the decrease in collisions.

~~Page 1 para 2 and page 2para 1 be definitive where the pedestrian accidents are occurring. It is at the Markham/Cumberland/La Harpe intersection primarily.~~
~~Attachment D-2 Functional Roadway Deficiencies~~
~~Map ALL of the deficiencies on aerial photographs.~~

**Comment [AE39]:** Response: Page 1, paragraph 2 – This refers to data presented in Figure C-3b. Based on the scale of Figure C-3b, it is difficult to ascertain specific details, but instead is better suited for establishing general areas of high pedestrian crash clusters. Figure C-3d on page 2 provides the additional clarification on crash locations, which is further detailed on page 2 of the attachment.

Page 2, paragraph 2 – This refers to data presented in Figure C-3d. Based on the available data, additional detail added to the text regarding the crashes occurring at the intersection of Markham and Cumberland/LaHarpe; and E Broadway and Magnolia.

**Comment [AE40]:** Response: The locations of these functional deficiencies have been mapped and are included in Attachment C-5 and Figures C-5g through C-5j).