

PLANNING AND ENVIRONMENTAL LINKAGES REPORT



CA0602

Interstate 530 – Highway 67

May 2015



Arkansas State Highway &
Transportation Department





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

Arkansas Division

July 1, 2015

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In Reply Refer To:
HDA-AR

Mr. Scott Bennett
Director
Arkansas State Highway and Transportation Department
10324 Interstate 30
Little Rock, AR 72203-2261

Dear Mr. Bennett:

This letter acknowledges the completion of the Planning and Environmental Linkages (PEL) study undertaken by the Arkansas State Highway and Transportation Department (AHTD) in relation to proposed highway improvements to Interstate 30 between Interstate 530 and U.S. Highway 67 in Pulaski County. The project is included for study and development in AHTD's Connecting Arkansas Program.

We appreciate and commend the efforts the PEL teams have undertaken to conduct this study in a manner consistent with current Federal Highway Administration (FHWA) PEL guidance and authority. The benefits of this streamlining effort will undoubtedly be realized in terms of time and cost savings during the follow-on National Environmental Policy Act (NEPA) study that will be conducted in the coming months.

The completed PEL Questionnaire submitted to FHWA in May 2015 and revised in June 2015, along with other PEL products provides thorough documentation of the activities conducted during the PEL study, as well as a solid foundation for transition into the NEPA study. Some of the strengths exhibited throughout the PEL study include a meaningful and attentive engagement of the public, local public agencies, and resource agencies; development of a sound purpose and need statement and project goals; and the thorough evaluation of a reasonable range of alternatives. This effort will continue as the NEPA study for the project advances, providing a more detailed analysis of the impacts of the alternative recommended by the PEL study.

If you have any questions or would like to discuss, please contact me at 501-324-5625.

Sincerely,

Peter A. Jilek
Acting Division Administrator

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	WHAT IS A PEL STUDY?	1
3.0	WHY A PEL STUDY FOR I-30?	3
4.0	WHAT IS THE STUDY AREA?.....	4
5.0	HAS THE STUDY AREA BEEN EVALUATED BEFORE?	6
6.0	HOW DOES THE I-30 PEL STUDY FIT WITHIN THE PLANNING CONTEXT FOR THE STUDY AREA?	6
7.0	WHY IS THE STUDY NEEDED?.....	7
	<i>STUDY GOALS</i>	8
8.0	HAVE THE PUBLIC AND AGENCIES BEEN INVOLVED IN THE DECISION- MAKING PROCESS?	8
9.0	WHAT RESOURCES ARE PRESENT WITHIN THE STUDY AREA?	10
10.0	HOW WERE THE ALTERNATIVES DEVELOPED?	10
11.0	WHAT ALTERNATIVES WERE SCREENED?.....	10
12.0	HOW WERE THE ALTERNATIVES SCREENED?	12
13.0	WHAT WERE THE LEVEL 1 SCREENING RESULTS?	14
14.0	WHAT WERE THE LEVEL 2 SCREENING RESULTS?	17
15.0	WHAT WERE THE LEVEL 3 SCREENING RESULTS?	18
16.0	WHICH ALTERNATIVE SHOULD BE CARRIED FORWARD INTO NEPA?.....	19
17.0	REFERENCES	22

LIST OF TABLES

Table 1.	I-30 Purpose and Need	7
Table 2.	I-30 PEL Screening Process Summary	15

LIST OF FIGURES

Figure 1.	I-30 PEL Study Area	5
Figure 2.	Highway Build Alternatives.....	11
Figure 3.	I-30 Bridge Alternatives	11
Figure 4.	Other Mode Alternatives.....	11
Figure 5.	Congestion Management Alternatives	12
Figure 6.	Non-recurring Congestion Management Alternatives.....	12
Figure 8.	PEL Recommendation	21

LIST OF APPENDICES

Appendix A	I-30 PEL Purpose and Need Report
Appendix B	I-30 PEL Constraints Report
Appendix C	I-30 PEL Public and Agency Coordination Documentation
Appendix D	I-30 PEL Alternatives Development and Evaluation
Appendix E	I-30 PEL Environmental Impacts Report
Appendix F	I-30 PEL Traffic and Safety Report
Appendix G	I-30 PEL Cultural Resources Survey Methodology Memorandum
Appendix H	I-30 PEL to NEPA Transition Report
Appendix I	I-30 PEL Questionnaire

1.0 INTRODUCTION

In April 2014, the Arkansas State Highway and Transportation Department (AHTD) began the Interstate 30 (I-30) Planning and Environmental Linkages (PEL) Study to identify the purpose and need for improvements within the I-30 PEL study area, determine possible viable alternatives for a long-term solution and recommend alternative(s) (herein referred to as PEL Recommendation(s)) that can be carried forward seamlessly into National Environmental Policy Act (NEPA) studies.

This document presents an overview of the I-30 PEL Study, supplemented by various appendices documenting the detailed analyses completed throughout the PEL process.

- **Appendix A** includes the purpose and need statement and provides supporting information for the development of the PEL Recommendation(s), while also providing a history of previous studies in the corridor.
- **Appendix B** supplies detailed information regarding the study area's environmental constraints.
- **Appendix C** contains documentation of the robust agency coordination and public involvement efforts which have taken place since the inception of the I-30 PEL Study.
- **Appendix D** describes the process and key technical findings used to screen alternatives and define the PEL Recommendation(s).
- **Appendix E** summarizes the potential environmental impacts associated with the PEL Recommendation(s).

- **Appendix F** provides detailed information on the traffic and safety analyses conducted for existing and future scenarios that provide support for the project's purpose and need.
- **Appendix G** outlines the cultural resources survey methodology used for the I-30 PEL Study and to be used in future investigations.
- **Appendix H** provides information and guidance on moving the PEL Recommendation(s) through the NEPA phase of project development.
- **Appendix I** is the *I-30 PEL Questionnaire* which will be utilized by the Federal Highway Administration (FHWA) to determine if an effective PEL process has been followed and if the I-30 PEL Study can be used as a resource for future NEPA documentation during project-specific development.

2.0 WHAT IS A PEL STUDY?

A PEL Study represents an approach that fosters a collaborative and integrated transportation decision-making process. A PEL Study is generally executed early in the transportation planning process when decision-makers consider environmental, community, and economic goals and carry these goals through to the project development and environmental review process, and ultimately through design, construction and maintenance. The goal of the PEL is to create a seamless decision-making process that minimizes duplication of effort, promotes environmental stewardship, and reduces delay from planning through project implementation.¹

¹ FHWA. 2008. *Planning and Environmental Linkages Implementation Resource Guide*.

PEL studies are generally more focused than regional planning efforts, but broader than traditional project-specific environmental analyses typically conducted during the NEPA process. The PEL studies, or corridor and subarea studies, can be used to produce a wide range of analyses or decisions for FHWA review, consideration, and possible adoption during the NEPA process for an individual transportation project, including:^{2,3}

- Purpose and need or goals and objective statement(s);
- General travel corridor and/or general mode(s) definition;
- Preliminary screening of alternatives and elimination of unreasonable alternatives;
- Basic description of the environmental setting; and/or
- Preliminary identification of environmental impacts and environmental mitigation.

All corridor and subarea studies utilizing the PEL Study approach must adhere to certain standards and must include extensive public involvement and agency coordination to advance to the NEPA process. The regulations for a PEL Study are formalized in the *Statewide Transportation Planning; Metropolitan Transportation Planning; Final Rule* (23 CFR 450), which details how results or decisions of transportation planning studies may be used as part of the overall project development process consistent with

² FHWA. 2011. *Guidance on Using Corridor and Subarea Planning to Inform NEPA*.

³ AASHTO. 2008. *Using the Transportation Planning Process to Support the NEPA Process*.

Why PEL?

PEL Studies foster a collaborative and integrated transportation decision-making process. The goal of the PEL is to create a seamless decision-making process that minimizes duplication of effort, promotes environmental stewardship and reduces delay from planning through project implementation.

NEPA. Appendix A to Part 450—*Linking the Transportation Planning and NEPA Processes* (23 USC 139) describes how information, analysis, and products from transportation planning can be incorporated into and relied upon in NEPA documents under existing laws. Some of the key criteria that a Federal agency must consider in deciding whether to adopt planning-level analyses or decisions in the NEPA process include:⁴

- Involvement of interested state, local, tribal, and Federal agencies;
- Public review;
- Reasonable opportunity to comment during the development of the corridor or subarea planning study;
- Documentation of relevant decisions in a form that is identifiable and available for review during the NEPA scoping process and can be appended to or referenced in the NEPA document; and
- The review by FHWA and the Federal Transit Administration (FTA), as appropriate.

⁴ FHWA. 2008. *Planning and Environmental Linkages Implementation Resource Guide*.

To help maximize the utility of the results from subarea or corridor plans to inform NEPA, FHWA has developed a PEL Questionnaire. The questionnaire is intended to act as both a guide and summary of the planning process and ease the transition from planning to NEPA analysis.

To further guide the PEL process, a Framework and Methodology was developed at the initiation of the I-30 PEL Study, serving to formalize the scope, schedule and expectations for the Study. Moreover, it was created to foster proactive working relationships among the FHWA, AHTD, the Metropolitan Planning Organization (MPO) for central Arkansas (Metroplan) and the local governments of Little Rock, North Little Rock and Pulaski County. A copy of the I-30 PEL Framework and Methodology is included as part of the I-30 PEL Questionnaire (**Appendix I**).

3.0 WHY A PEL STUDY FOR I-30?

A feasibility study prepared jointly by AHTD and Metroplan in 2003, called the Central Arkansas Regional Transportation Study (CARTS) *Areawide Freeway Study - Phase 1 Arkansas River Crossing Study*⁵, identified the need for transportation improvements for crossings of the Arkansas River. Some of the challenges identified included:

- Congestion problems (2003) during the peak traffic periods on the Main Street and Broadway Bridges, and to a greater degree, on the I-30 Bridge.

⁵ Herein referred to as the *Areawide Freeway Study – Phase 1*

- Future anticipated congestion problems on all three river bridges, with the I-30 Bridge experiencing severe congestion.
- Negative impacts on other parts of the transportation system due to future capacity problems on I-30.
- Functional deficiencies of the I-30 Bridge (inadequate shoulders) and I-30 main lanes (weaving issues from ramps spaced too closely together) leading to safety and operational problems.

The I-30 PEL Study provides a tool for re-engaging the public and agencies in developing improvements within the study area to address these challenges. It creates a link between past, current and future transportation decisions, thus potentially minimizing any duplication of effort and time lost between studies. Additionally, the I-30 PEL Study will shorten the time needed to implement a project by allowing planning-level decisions to be carried into future, more detailed environmental studies.

Utilization of the PEL process was also driven by the identified method of delivery for the I-30 project, Design-Build (D-B)⁶. This type of project delivery allows a single contractor to perform both the design and construction of a project at the same time to ultimately deliver the project

⁶ The type of D-B delivery to be utilized for the I-30 project is called *Fixed Price-Best Design*. This method fixes the maximum amount available to all design-build teams proposing on the project to deliver a project that meets the project goals while maximizing the amount of specific project improvements that can be built for the fixed budget. It promotes innovations that yield time savings and high quality.

faster and more efficiently. Given the streamlining nature of D-B delivery, the early identification of risks is critical to its successful implementation. The PEL process facilitates early coordination, outreach and resource evaluation, thereby enabling the identification of potential risks associated with the improvements as early as possible in project development.

Ultimately, the goal of the I-30 PEL Study is to identify a long-term transportation solution along I-30 to meet the needs of the study area. In order to produce results that will be most useful to future NEPA studies, the I-30 PEL Study:

- Engaged stakeholders (public, agencies, etc.) early and often throughout the planning process;
- Identified the transportation needs and issues within the study area;
- Identified potential solutions (alternatives) to meet the identified needs, and evaluated them for their potential mobility and safety benefits and impacts;
- Recommended a viable transportation alternative that can be carried forward into future environmental studies; and
- Documented all activities, coordination, and results related to the I-30 PEL Study.

4.0 WHAT IS THE STUDY AREA?

The I-30 PEL study area consists of a quarter-mile wide buffer along each side of I-30. The study area extends approximately 6.7 miles through portions of Little Rock and North Little Rock in central Arkansas as shown on **Figure 1**. The study area begins at I-

530 to the south and extends northerly to I-40, then easterly along I-40 to its interchange with Hwy. 67. This study area was determined based on input from the public and agencies, while also building upon the *Areawide Freeway Study - Phase 1*.

The study area is located within an urban area and is generally comprised of commercial and residential properties. There are undeveloped areas, primarily regulatory floodplains, in the southern and northern portions of the study area.

Study Area Features

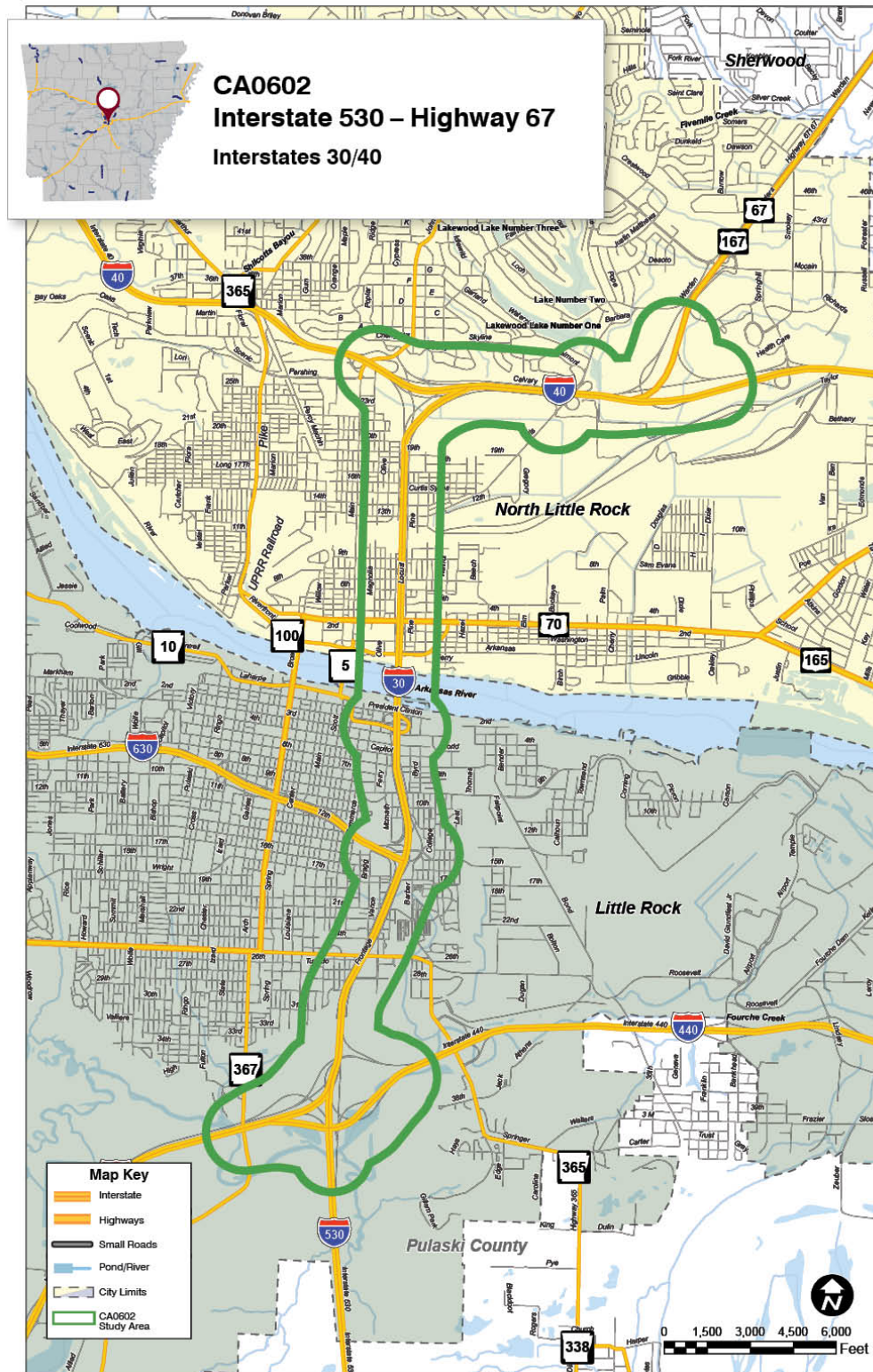
The Union Pacific Railroad (UPRR) crosses the study area at 4 locations. The Verizon Arena, William J. Clinton Presidential Center and Park, William Jefferson Clinton Presidential Library, and Little Rock River Market are just a few attractions located within the study area.

Adjacent to the study area is the Bill and Hillary Clinton National Airport/Adams Field, Dassault Falcon Jet, and Arkansas National Guard.

Design elements of study area include:

- 11 interchanges: 4 system-to-system and 7 service interchanges
- 8 underpasses/overpasses
- Variety of interchange types: fully directional, partial cloverleaf, diamond, split diamond and modified trumpet.
- 2-lane, one-way frontage roads that run along the majority of both sides of I-30 and I-40.
- Stop signs and signals used for traffic control at the end of entrance and exit ramps along I-30.

Figure 1. I-30 PEL Study Area



5.0 HAS THE STUDY AREA BEEN EVALUATED BEFORE?

The I-30 PEL Study builds upon the results of previous planning studies that have been completed that provide background on the study area. As previously described, the most recent and relevant to the study area is the *Areawide Freeway Study - Phase 1* as outlined below. Study details are provided in the *I-30 PEL Purpose and Need Report (Appendix A)*:

- **Purpose:** To evaluate the Arkansas River Bridge crossing needs, including the need for an additional river crossing.
- **Bridge crossings studied:** I-30, Main Street, Broadway Street and an extension of Pike Avenue across the river.
- **Alternatives:** Evaluated 6 alternatives including four widening alternatives along I-30.
- **Findings:** Study did not make any recommendations but made observations for each alternative regarding cost-benefits, level of service and construction costs. The study observed that that widening I-30, in a similar area of study would be necessary to provide acceptable operations for all Arkansas River crossings.

6.0 HOW DOES THE I-30 PEL STUDY FIT WITHIN THE PLANNING CONTEXT FOR THE STUDY AREA?

Metroplan is responsible for long-range transportation planning for central Arkansas. The 2030 long range metropolitan transportation plan

Other Past Studies

- *CARTS Areawide Freeway Study, Phase 2 Areawide Study, 2003*
- *River Rail Airport Study, Phase 1, 2008*
- *River Rail Airport Study, Phase 2, 2011*
- *I-630 Fixed Guideway Alignment Study, 2010*
- *The Six Bridges Framework Plan, 6 Bridges Study, late 1990s*
- *I-630 (from I-430 to I-30) Final Environmental Impact Statement (FEIS), 1978*

Study details provided in the *I-30 PEL Purpose and Need Report (Appendix A)*.

(LRMTP)⁷ was active at the beginning of the PEL Study in April 2014.

Subsequently, a 2040 LRMTP⁸ was developed during the PEL process (December 2014). The 2030 and 2040 LRMTPs and their relation to the I-30 PEL Study are described below.

2030 LRMTP

The 2030 LRMTP identified the interstate-to-interstate/highway interchanges at I-40/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 described the segment of I-30 between the north terminal (I-30/I-40 interchange) and south terminal (I-30/I-530/I-440 interchange) as needing study because of the very high number of interstate-to-interstate/highway interchanges and interstate/highway-to-arterial interchanges in those five miles of interstate.

⁷ METRO 2030.2, March 2010.

⁸ *Imagine Central Arkansas: Blueprint for a Sustainable Region* (December 2014)

2040 LRMTF

The 2040 LRMTF includes operational improvements on I-30 (limits listed as Central Corridor) and rehabilitation improvements on I-40 (limits listed as I-30/I-40 Interchange to Hwy. 67) in the financially constrained plan (10-year project list). The financially constrained LRMTF notes that an amendment may be required upon completion of the PEL Study once the number of through lanes has been determined. No other projects within the PEL study area are identified in the 2040 LRMTF; however several rehabilitation projects leading into/out of the PEL study area are included in the financially constrained plan. Additional details on the planning context can be found in the *I-30 PEL Purpose and Need Report (Appendix A)*.

The PEL Recommendation(s) will inform the next State Transportation Improvement Program (STIP) (2016-2019) currently in development by AHTD. Likewise, and with a view towards achieving consistency with local

and regional planning efforts, the PEL Recommendation(s) will be submitted to Metroplan to inform future updates/amendments to the LRMTF financially constrained plan and to the Transportation Improvement Program (TIP), consistent with the STIP.

7.0 WHY IS THE STUDY NEEDED?

Purpose and Need

A purpose and need statement was developed for the I-30 PEL Study with agency and public input, and was used to compare transportation alternatives and determine solution that will be evaluated further in subsequent stages of project development.

A summary of the purpose and need is shown in **Table 1**. The *I-30 PEL Purpose and Need Report (Appendix A)* contains a detailed description of the conditions within the study area and provides data to support the need for major transportation improvements.

Table 1. I-30 Purpose and Need

Needs (Problems)	Purpose (Solutions)
Traffic Congestion	To improve mobility on I-30 and I-40 by providing comprehensive solutions that improve travel speed and travel time to downtown North Little Rock and Little Rock and accommodate the expected increase in traffic demand. I-30 provides essential access to other major statewide transportation corridors, serves local and regional travelers and connects residential, commercial and employment centers.
Roadway Safety	To improve travel safety within and across the I-30 corridor by eliminating and/or improving inadequate design features.
Structural and Functional Roadway Deficiencies	To improve I-30 roadway conditions and functional ratings.
Navigational Safety	To improve navigational safety on the Arkansas River Bridge by eliminating and/or improving inadequate design features.
Structural and Functional Bridge Deficiencies	To improve I-30 Arkansas River Bridge conditions and functional ratings.

Study Goals

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.⁹ The following study goals provided guidance for the alternatives development process (listed in no particular order):

- Improve opportunity for east-west connectivity;
- Enhance mobility;
- Improve local vehicle access to and from downtown Little Rock/North Little Rock;
- Connect bicycle/pedestrian friendly facilities across I-30/I-40;
- Accommodate existing transit and future transit;
- Improve system reliability;
- 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
- Maximize cost efficiency;
- Optimize opportunities for economic development;
- Avoid and/or minimize impacts to the human and natural environment, including historic and archeological resources;
- Sustain public support for the I-30 Corridor improvements; and

⁹ 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.

- Improve safety.

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

8.0 HAVE THE PUBLIC AND AGENCIES BEEN INVOLVED IN THE DECISION-MAKING PROCESS?

Yes. The I-30 PEL Study included a robust outreach plan, such that the public, agencies and stakeholders were actively engaged throughout the entire PEL process. The *I-30 PEL Public Involvement and Agency Coordination Plan (PIACP)* (**Appendix C-1**), prepared prior to the initiation of the I-30 PEL Study, outlined the various avenues for agency, stakeholder and public involvement, as described below.

Agency Outreach

Coordination with agencies was initiated at project inception and continued throughout the PEL Study. Early in the planning process, the Study Team established the Technical Work Group (TWG) to serve as the primary means of agency coordination.

TWG participation was requested by AHTD from environmental regulatory

and resource agencies typically involved during a NEPA study. Four TWG meetings were held at major study milestones. PEL analyses and documents were presented to the TWG, and comments were solicited. Responses to TWG comments were completed by the Study Team, as presented in the *TWG Comment Documentation* appendix (**Appendix C-3**).

Stakeholder Outreach

In addition to conducting meetings with the TWG, the Study Team also formed the Stakeholder Advisory Group (SAG) which was established in order to ensure early and ongoing decision making throughout the Study. The Study Team also conducted one-on-one meetings with a number of key stakeholders.

Additionally, Project Partners, comprised of the mayors of Little Rock and North Little Rock, the Pulaski County Judge and Metroplan representatives, served to provide expertise and input in the spirit of proactive teamwork amongst community leaders.

Stakeholders appointed by the mayors and county judge were also engaged in the PEL Study through a visioning workshop. This all day workshop brought community stakeholders together to provide insight into the functional and aesthetic vision of the I-30/I-40 facility.

Additional outreach efforts also included regular meetings with elected officials and community groups.

Summaries of stakeholder coordination conducted during the course of the I-30 PEL Study are provided in the *I-30 PEL Additional Outreach Documentation and Visioning Workshop Documentation* appendices (**Appendices C-4** and **C-5**, respectively).

Public Outreach

Four public meetings were held to provide a forum where the public could provide feedback on transportation needs and possible solutions in the study area. These meetings are summarized as follows:

Public Meeting #1: Held as a series of two meetings in August 2014. Introduced the I-30 PEL Study process and obtained input from the public on the identification of problems (needs) and goals for the I-30/I-40 facility.

Public Meeting #2: Held on November 6, 2014; presented the purpose and need, Universe of Alternatives and Level 1 Screening process and results.

Public Meeting #3: Held on January 29, 2015; presented the Level 2 Screening process and results.

Public Meeting #4: Held on April 16, 2015; presented the Level 3 screening process and PEL Recommendation(s).

All four public meetings included a 15 day official comment period from the day of the public meeting. All comments received were responded to by the Study Team and included in public meeting summaries. The summaries for all four public are included in the *I-30 PEL Public Meeting Documentation* appendix (**Appendix C-2**).

9.0 WHAT RESOURCES ARE PRESENT WITHIN THE STUDY AREA?

Environmental resources were examined as part of the I-30 PEL Study to establish a baseline context and generally describe the existing conditions within the study area. The resource information was also utilized during the alternatives screening process to broadly assess the potential impacts associated with each of the alternatives.

The existing conditions for the following social, economic and environmental resources located within the study area were analyzed and documented in the *I-30 PEL Constraints Report (Appendix B)*:

- Infrastructure Constraints;
 - Utilities
 - Rail
 - Seawall
- Socio-economic Demographics;
- Land Use;
- Parks;
- Natural Resources;
 - Vegetation/Habitat
 - Threatened and Endangered Species
 - Waters of the U.S., including Wetlands
- Historic and Archeological Resources;
- Traffic Noise Receptors; and
- Hazardous Materials.

The information contained in the Constraints Report was used throughout the alternatives development and screening process.

10.0 HOW WERE THE ALTERNATIVES DEVELOPED?

The alternatives development process for the I-30 PEL Study built upon previous studies, and incorporated current technical analyses and input from the public and agencies. Previous planning efforts served as a starting point for developing the *Universe of Alternatives* under consideration in the I-30 PEL Study, including:

- 2003 *Areawide Freeway Study – Phase 1*;
- 2040 LRMTP;
- I-30 PEL Study travel demand modeling;
- *I-30 PEL Study Purpose and Need Report*;
- *I-30 PEL Study Alternative Screening Methodology*;
- Input from the public through I-30 PEL Study public meetings (documented in **Appendix C-2**);
- Input from the I-30 PEL Study TWG (documented in **Appendix C-3**); and
- Coordination with individual stakeholder groups (documented in **Appendices C-4 and C-5**).

11.0 WHAT ALTERNATIVES WERE SCREENED?

The Universe of Alternatives for the I-30 PEL Study included 43 potential Action Alternatives and a No Action Alternative. Each of these alternatives is described in more detail within the *I-30 PEL Universe of Alternatives (Appendix D-1)*.

The 43 Action Alternatives were grouped into categories based on the nature of the alternative. A brief description of these alternative

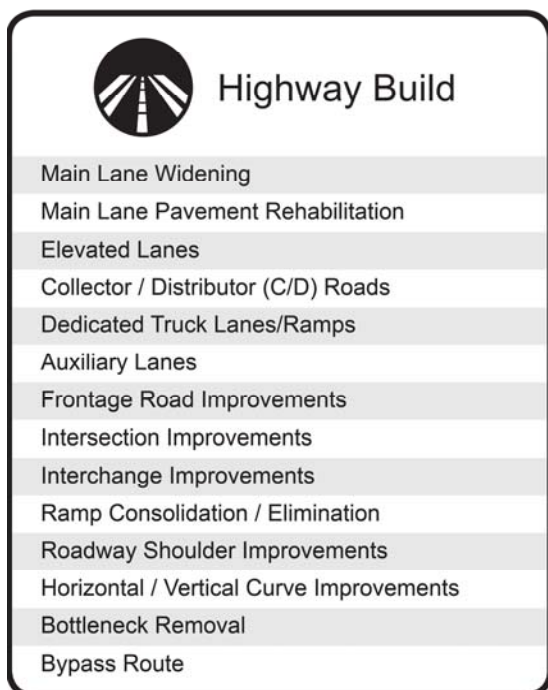
categories, as well as the No Action Alternative, is summarized below and a complete listing is shown in **Figures 2** through **6**.

No Action – Includes the preservation of the existing transportation network and any programmed transportation improvements that are reasonably expected to occur regardless of the outcome of the I-30 PEL Study.

Action Alternatives – Action Alternatives were developed to address the needs identified in the study area (**Section 7**). The Action Alternative categories included the following:

- **Highway Build** (14 alternatives – **Figure 2**) - Capital improvements to the I-30/I-40 main lanes, associated ramps and functional interchange areas.

Figure 2. Highway Build Alternatives



- **I-30 Arkansas River Bridge** (3 alternatives – **Figure 3**) - Capital investments to improve travel on I-30 across the Arkansas River.

Figure 3. I-30 Bridge Alternatives



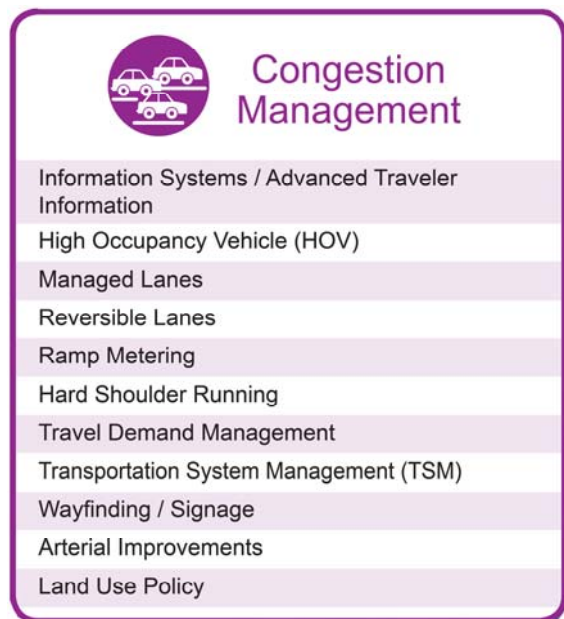
- **Other Modes** (10 alternatives - **Figure 4**) - Capital and operating improvements to non-highway modes including transit, rail, bike and pedestrian.

Figure 4. Other Mode Alternatives



- **Congestion Management** (11 alternatives - **Figure 5**) - Alternatives to general purpose highway lanes that focus on reducing congestion on I-30/I-40 by either adding capacity or reducing demand.

Figure 5. Congestion Management Alternatives



- **Non-recurring Congestion** (5 alternatives - **Figure 6**) - Represents traffic incidents, bad weather, work zones and special events.

Figure 6. Non-recurring Congestion Management Alternatives



12.0 HOW WERE THE ALTERNATIVES SCREENED?

The alternative screening process is similar to a funnel with multiple levels of screening blending a varied group of strategies, corridor needs and goals into a set of refined transportation alternatives through an elaborate “filtering”, or evaluation, process. Definitions of the various screening stages follow below and are shown graphically in **Figure 7**.

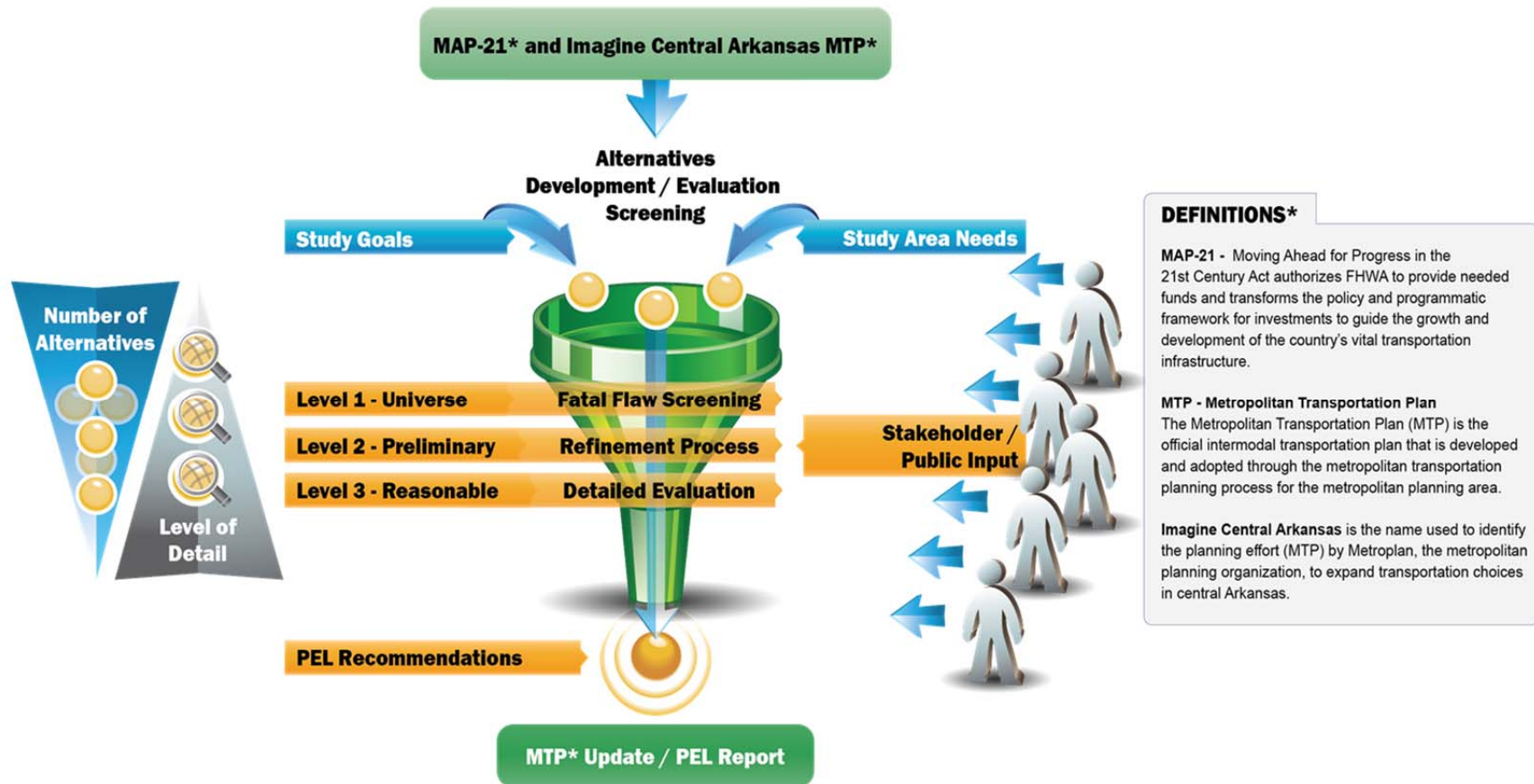
Development of alternative concepts for the I-30 PEL Study involved a three level screening and evaluation process.

Level 1- This was a fatal flaw evaluation that screened alternatives against the purpose and need and assessed alternatives for practicality. For transportation projects, generally, an alternative is **practicable** if it:

- 1) Meets the purpose and need;
- 2) Is available and capable of being done (i.e., it can be accomplished within the financial resources that could reasonably be made available, and it is feasible from the standpoint of technology and logistics); and
- 3) Will not create other unacceptable impacts such as severe operation or safety problems, or serious socioeconomic or environmental impacts¹⁰.

¹⁰ The evaluation of alternatives must consider a reasonable range of options that could fulfill the project sponsor's purpose and need. Reasonable Alternatives include those that “are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant” (Council on Environmental Quality, 1981).

Figure 7. Alternatives Screening Process



Alternatives that passed the fatal flaw screening were considered Preliminary Alternatives.

Level 2 - Further refined the Preliminary Alternatives by qualitatively assessing the alternatives against evaluation criteria established from the study goals in a two-step process.

- **Level 2A** - Preliminary Alternatives were screened individually against the study goals.
- **Level 2B** - Remaining Preliminary Alternatives were grouped and screened as multimodal *Basic Scenarios*. The alternatives that moved forward from the Level 2 Screening were considered Reasonable Alternatives.

Level 3 - Further refined the Reasonable Alternatives by quantitatively assessing the alternatives against the study goals. The Level 3 screening resulted in PEL Recommendation(s) to be advanced for further development and analysis during the subsequent NEPA study.

This three-level screening process is summarized in **Table 2** and presented in greater detail in the *Levels 1, 2 and 3 Screening Methodology and Result Memorandum(s)* (**Appendices D-3 through D-5**).

13.0 WHAT WERE THE LEVEL 1 SCREENING RESULTS?

The following alternatives from the Universe of Alternatives were screened out from further consideration because they did not meet the purpose and need

of the project, or they were deemed impractical.

- **Elevated Lanes (Roadway)** – Deemed impractical and screened out because of the high construction cost and the difficulties associated with constructability.
- **Truck Lanes/Ramps** – Screened out because it would have minimal effect due to the low percentage of trucks currently using I-30.
- **Elevated Lanes (Bridge)** – Deemed impractical and screened out because of the high construction cost and the difficulties associated with constructability.
- **Heavy Rail** – Deemed impractical and screened out because of the high construction and operating cost.
- **High Speed Rail** – Deemed impractical and screened out because of the high construction and operating cost.

The alternatives moving forward from the Level 1 Screening were called Preliminary Alternatives. This set of alternatives included 12 highway build alternatives, 2 bridge alternatives, 8 other travel mode alternatives, 10 congestion management strategies, and 5 non-recurring congestion alternatives.

More detailed information on the Level 1 Screening results is included in the *I-30 PEL Level 1 Screening Methodology and Results Memorandum* (**Appendix D-3**).

Table 2. I-30 PEL Screening Process Summary

Description	Level 1	Level 2 – 2 Step Process			Level 3
		Level 2A	Level 2B		
Screening Type	Qualitative - Fatal Flaw	Primarily Qualitative (some Quantitative)	Primarily Qualitative (some Quantitative)		Primarily Quantitative (some Qualitative)
Screening Criteria	Purpose and Need; Practicality ¹	Study Goals	Study Goals		Study Goals
Screening Measures	See Level 1 Screening Methodology and Results Memorandum (Appendix D-3 – Table 1)	See Level 2 Screening Methodology and Results Memorandum (Appendix D-4, Tables 3 and 4)	See Level 2 Screening Methodology and Results Memorandum (Appendix D-4, Tables 10 and 11)		See Level 3 Screening Methodology and Results Memorandum (Appendix D-5, Tables 1-4)
Rating System	Pass/Fail	Rating	Evaluation	Score	Quantification by unit of measure (and when qualitative, rating system from Level 2)
		++	Substantial positive effects	2	
		+	Some positive effects	1	
		O	Neutral effects	0	
		–	Some negative effects	-1	
		--	Substantial negative effects	-2	
Screening Process	<ul style="list-style-type: none">Universe of Alternatives screened individually against purpose and need and practicalityPass not required on all criteria for alternative advancement, but alternative needed to show an overall positive impact on the I-30/I-40 facility and be determined practicable.Resulted in Preliminary Alternatives.See Figure 4 for graphical representation of Level 1 Screening.	<ul style="list-style-type: none">Preliminary Alternatives screened individually against study goals.Ratings based on engineering, safety, cost and environmental assumptions identified by the Study Team subject matter experts.Resulted in Primary² or Complementary³ Alternatives, and then grouped into Basic Scenarios.See Figure 5 for graphical representation of Basic Scenarios and Figure 6 for graphical representation of the overall Level 2 Screening.	<ul style="list-style-type: none">Basic Scenarios screened against study goals.Highway Capacity Manual spot main lane level of service analysis for evaluating mobility and safety measures.Cost analysis varied proportionately to typical section width.GIS spatial analysis using general footprint of Basic Scenarios for evaluating environmental measures.Resulted in Reasonable Alternatives.See Figure 6 for graphical representation of the overall Level 2 Screening.		<ul style="list-style-type: none">Reasonable Alternatives screened against study goals.Micro-simulation models (Vissim) for evaluating mobility and safety measures.More detailed schematics for evaluating cost measures.GIS spatial analysis of more detailed schematics for evaluating environmental measures.See Figure 7 for graphical representation of Level 3 Screening.Resulted in PEL Recommendation(s)

Description	Level 1	Level 2 – 2 Step Process		Level 3
		Level 2A	Level 2B	
Reasons for Alternatives Screened Out	<ul style="list-style-type: none"> • Did not meet purpose and need • Impractical based on cost or effectiveness 	<ul style="list-style-type: none"> • Preliminary Alternatives did not adequately address study goals due to negative environmental impacts, costs and/or difficulties from an engineering standpoint • Alternatives scored zero or less screened out 	<ul style="list-style-type: none"> • Basic Scenarios did not adequately address study goals due to negative environmental impacts, costs, and/or difficulties from an engineering standpoint • Basic Scenarios scored zero or less screened out 	<ul style="list-style-type: none"> • Only the Reasonable Alternative that best addressed study goals from an overall standpoint (mobility, safety, cost and environmental) was identified as the PEL Recommendation; other remaining alternatives screened out.
Technical Report with Detailed Screening Analysis	<i>Level 1 Screening Methodology and Results Memorandum (Appendix D-3)</i>	<i>Level 2 Screening Methodology and Results Memorandum (Appendix D-4)</i>	<i>Level 2 Screening Methodology and Results Memorandum (Appendix D-4)</i>	<i>Level 3 Screening Methodology and Results Memorandum (Appendix D-5)</i>

Source: Levels 1, 2, and 3 Screening Methodologies and Results Memorandums (**Appendices D-3** through **D-5**)

Note:

¹ For transportation projects, generally, an alternative is **practicable** if it: 1) meets the purpose and need; 2) is available and capable of being done (i.e., it can be accomplished within the financial resources that could reasonably be made available, and it is feasible from the standpoint of technology and logistics); and 3) will not create other unacceptable impacts such as severe operation or safety problems, or serious socioeconomic or environmental impacts. The evaluation of alternatives must consider a reasonable range of options that could fulfill the project sponsor's purpose and need. Reasonable Alternatives include those that "are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (Council on Environmental Quality, 1981).

² Primary Alternatives - Considered to have the potential to substantially address the study goals as stand-alone alternatives.

³ Complementary Alternatives - Alternatives that when combined with the Primary Alternatives, address the study goals.

14.0 WHAT WERE THE LEVEL 2 SCREENING RESULTS?

Level 2A - The following alternatives were screened out from further consideration during the Level 2A Screening.

Highway Build

- **Bypass Route** – Screened out due to the moderate reduction in I-30 traffic¹¹, environmental impacts and lack of a dedicated funding source identified in the LRMTTP.

I-30 Arkansas River Bridge

- **Rehabilitation** – Screened out due to poor scoring in categories related to structural condition, project cost and navigational impediments. Additionally, bridge rehabilitation would not address the cited concerns related to pier placement by the USACE, USCG and Arkansas Waterways Commission.

Other Modes

- **Light Rail (Street Car)** – Screened out as a result of Rock Region METRO (formerly CATA) not including light rail in their 10-year Strategic Plan and the lack of a dedicated funding source identified in the Metroplan LRMTTP.
- **Commuter Rail** – Screened out as a result of Rock Region METRO not including commuter rail in any of their future planning documents and

the lack of a dedicated funding source identified in the Metroplan LRMTTP.

Congestion Management

- **Managed Lanes** – Screened out due to the increase in conflict points in weaving areas, the high initial cost given the lack of an existing managed lane system, the continued operational costs and potential negative impact to low-income populations given the added monetary cost for use of these lanes.
- **Reversible Lanes** – Screened out due to high initial cost, continued operational cost, increased conflict points in the weaving areas and right-of-way (ROW) requirements.
- **Hard Shoulder Running** – Screened out due to potential safety impacts resulting from interference with emergency vehicles and conflict with the Bus on Shoulder transit option, which Rock Region METRO identified as a preferential congestion management alternative for possible future implementation.
- **Land Use Policy** – Screened out because it would not result in near-term benefits to the I-30/I-40 facility, nor would it meet a study goal to “follow through on commitment to voters to improve I-30 as part of the CAP.” Screening out this alternative does not mean that land use is not important to the corridor or region, but that it is not considered to be a main solution for addressing safety, mobility and associated roadway deficiencies along I-30/I-40.

¹¹ Metroplan’s Travel Demand Model runs showed that the addition of a bypass route would reduce peak hour traffic on I-30 by approximately 3.5%.

The remaining Preliminary Alternatives were identified as either Primary¹² or Complementary Alternatives¹³, and then grouped into **Basic Scenarios** to be evaluated in the Level 2B Screening.

Level 2B - The following Basic Scenarios were screened out from further consideration due to their low scores in the Level 2B Screening.

- **6 Main Lanes** (3 main lanes in each direction) – Screened out because it failed to substantially improve mobility and safety in the study area, and as traffic volumes continue to increase, the conditions will grow progressively worse over the next 20 years.
- **8 Main Lanes** (4 main lanes in each direction) East and West¹⁴ Basic Scenarios – Screened out because they incurred costs and environmental impacts while not adequately addressing mobility and safety in the study area.
- **12 Main Lanes** (6 main lanes in each direction) East and West Basic Scenarios – Screened out because the Highway Capacity Manual (HCM) traffic analysis showed that the 10-lane alternatives were capable of addressing mobility and safety along the I-30/I-40 facility, and therefore

the extra lanes were not needed. These scenarios also had high construction, ROW and utility costs, along with the most serious impacts to parks, water crossings, endangered species, hazardous material sites, and parcels, many of which resulted in displacements.

More detailed information regarding the results of the Level 2 Screening analysis is included in the *I-30 PEL Level 2 Screening Methodology and Results Memorandum (Appendix D-4)*.

The Basic Scenarios moving forward from the Level 2 Screening were called Reasonable Alternatives. Three Reasonable Alternatives (8-lane C/D, 10 Main Lane, and 10-lane C/D) and the No Action Alternative were evaluated in the Level 3 Screening.

15.0 WHAT WERE THE LEVEL 3 SCREENING RESULTS?

The following Reasonable Alternatives were screened out as part of the Level 3 Screening:

- **8-lane C/D** – This alternative had the lowest cost and the least environmental impacts of the Reasonable Alternatives. The addition of the C/D system did substantially reduce crashes by separating the slower moving traffic destined for the downtown areas from the main lanes, but this alternative performed poorly in the mobility measures. By 2041, several locations would experience peak hour travel speeds below 25 mph and the southbound direction would experience LOS F congestion (worst level of congestion) for nearly the

¹² Alternatives considered to have the potential to substantially address the study goals as stand-alone alternatives.

¹³ Alternatives that when combined with the Primary Alternatives, address the study goals.

¹⁴ Each widening Basic Scenario, with the exception of the 10-lane C/D Basic Scenario, had an east and a west option. This represents the location of the bridge replacement, with staged construction of the new bridge beginning to the east or west of the existing bridge.

entire AM peak period. The afternoon peak period also had several locations with LOS F congestion lasting more than an hour.

Because this alternative did not meet the purpose and need or the study goals of the project, it was not identified as a PEL Recommendation for further study during NEPA.

- 10 Main Lanes** – This alternative was comparable to the other alternatives for the environmental measures and costs slightly less than the 10-lane C/D Alternative, though more than the 8-lane C/D Alternative. The 10 Main Lane Alternative performed well on the mobility measures, having peak hour travel speeds of 58 mph through much of the corridor. Travel time through the study area in the year 2041 was reduced to 7 minutes in the southbound direction, compared to 17 minutes for the No Action. Crashes were also reduced significantly, though not as much as the 10-lane C/D Alternative.

From a safety and accessibility standpoint compared to the 10-lane C/D Alternative, the 10 Main Lane Alternative was not advanced as a PEL Recommendation. This is further described in **Section 16** below.

More detailed information regarding the results of the Level 3 Screening analysis is included in the *I-30 PEL Level 3 Screening Methodology and Results Memorandum (Appendix D-5)*.

16.0 WHICH ALTERNATIVE SHOULD BE CARRIED FORWARD INTO NEPA?

Based on the results of the Level 3 Screening, the **10-lane C/D Alternative** was identified as the top alternative. This alternative performed well in all mobility measures, having average peak hour travel speeds of 59 mph through the study area, compared to 25 mph for the 8-lane C/D Alternative and 58 mph to the 10 Main Lane Alternative. The addition of the C/D lanes removed slower moving traffic destined for the downtown areas from the main lanes, thereby eliminating 70 crashes per year compared to the non-C/D alternative (10 Main Lane Alternative). Moreover, the slower speeds traveled on the C/D lanes are anticipated to result in less severe crashes than the higher speed main lanes.

The C/D lanes also serve to create a new local connection between Little Rock and North Little Rock across the Arkansas River Bridge, allowing motorists to travel between the downtown areas without entering the main lanes of the interstate. Serving as an additional crossing of the Arkansas River that is separate from main lane traffic, the C/D lanes would provide more convenient access to and between the downtown economic districts and support improved connectivity and cohesion of these financially viable commercial and tourist areas.

This qualitative assessment of the additional mobility, safety, connectivity and economic benefits of the 10-lane C/D Alternative demonstrates a substantial improvement compared to

the 10 Main Lane Alternative that outweighs the slight differences in environmental impacts and cost of the 10 Main Lane Alternative.

Slight design modifications, such as shortening the C/D road system's northern limits to increase the weaving distance between the north terminal and the C/D system, were made to this top alternative to achieve additional mobility and cost benefits. The resulting alternative, called the **10-lane Downtown C/D Alternative**, was identified as the **PEL Recommendation** to be carried forward into the NEPA process.

I-30 PEL Recommendation

10-lane Downtown C/D Alternative

The PEL Recommendation would include 3 main lanes and 2 C/D lanes in each direction. The C/D lanes for both southbound and northbound travel would extend from just south of Broadway in North Little Rock to the Cantrell Road interchange just north of 3rd Street in Little Rock. Outside the location of the C/D roads, the new facility would generally include 5 main lanes in each direction. Other alternatives such as bus on shoulder and ramp metering were incorporated into the PEL Recommendation. The PEL Recommendation is shown in **Figure 8**, including a complete listing of the alternatives incorporated into the PEL Recommendation.

The C/D lanes of the PEL Recommendation provide more convenient access to and between downtown economic districts and support improved connectivity and cohesion of these financially viable commercial and tourist areas.

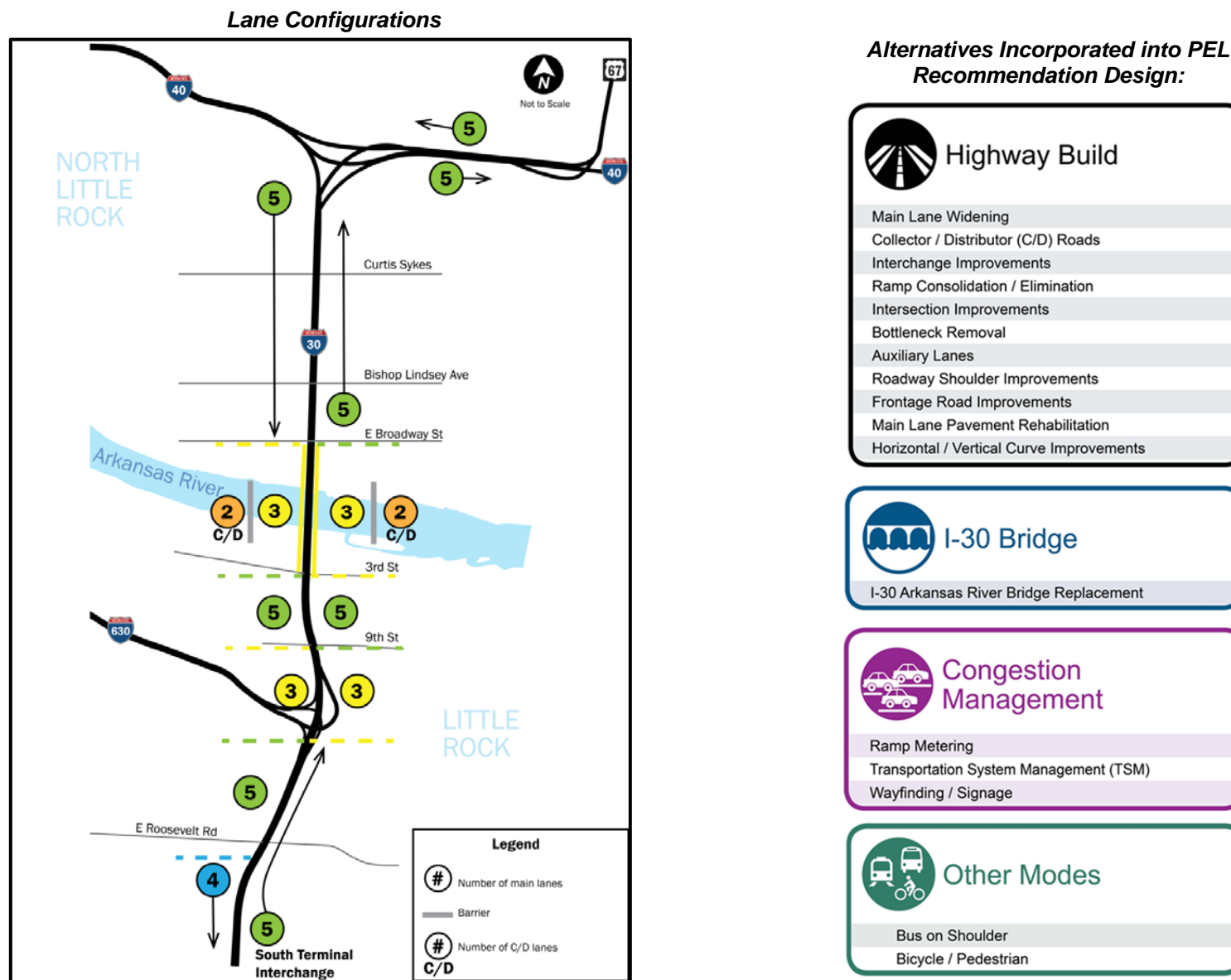
Potential environmental impacts associated with implementation of the PEL Recommendation are presented in the I-30 PEL Environmental Impacts Report (**Appendix E**).

The I-30 PEL Study determined that the 10-lane Downtown C/D Alternative would best relieve traffic congestion, improve roadway safety, address structural and functional roadway deficiencies, improve navigation safety and address structural and functional bridge deficiencies in accordance with the purpose and need, as well as meet the study goals, as defined by the Study Team, agencies and public.

Project-specific determinations regarding the roadway design, exact location of ramps and interchanges, and project funding would be analyzed and decided through the NEPA process. Issues/design features to be determined during NEPA are further detailed in the *I-30 PEL NEPA Transition Report* (**Appendix H**).

The *I-30 PEL Study Planning and Environmental Linkages Study Questionnaire* (**Appendix I**) provides a summary, in the format of questions and answers, describing the steps completed and the methodology utilized during the PEL process.

Figure 8. PEL Recommendation



17.0 REFERENCES

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