

1 PURPOSE AND NEED

1.1 INTRODUCTION

A Draft Environmental Impact Statement (DEIS) was prepared and finalized January 31, 2002 for this proposed project. As a result of comments received at the DEIS Location Public Hearing, a decision was made to prepare a Supplemental Draft Environmental Impact Statement (SDEIS). The SDEIS provided additional information to address these comments and was used in combination with the DEIS to form the basis for the selection of an alternative in the Final Environmental Impact Statement (FEIS). The SDEIS was prepared and finalized May 7, 2004. As a result of comments received on the DEIS, revisions were made to the western terminus and the preferred alignment between existing Highway 412 and Brush Creek Road.

The processing of a FEIS requires an explanation of why a project is needed and what purpose it will fulfill. The Purpose and Need Section presents this required information. The description of the proposed project is also based upon conclusions drawn from information developed in the project's Major Investment Study (MIS), and the project's public involvement process.

1.2 PROPOSED PROJECT DESCRIPTION

The proposed project will provide a bypass of heavily traveled routes through Springdale, Arkansas, utilizing a four-lane, divided, fully controlled access cross-section (Interstate type). Alternative alignments are located in northern Washington and southern Benton Counties, Arkansas. See Figure 1-1 for a map of the project's study area. The facility will have two twelve-foot (3.6-meter) travel lanes in each direction separated by a variable width median. Right-of-way requirements will vary depending on the depth of cut or height of fill, but are estimated to average about 300 feet (90 meters). Figure 1-2 illustrates a typical section of improvement for the project. Toll and non-toll (free) funding options will be considered.

Typically, the design standards used for Interstate type facilities specify divided lanes with a design speed of 70 mph (110 km/h). These design standards will be used for this project. The need to provide an acceptable level of service to the traveling public determines the number of lanes to be built. Level of service discussion is presented in Section 1.4.8 and Appendix D.

All alternative alignments begin with an interchange at existing Highway 412 west of Tontitown [approximately 6.5 miles (10.5 km) west of Interstate 540 (I-540)] where the existing highway presently transitions from four lanes with a divided median to five lanes. All alternative alignments have an eastern terminus at an interchange at existing Highway 412 between the eastern Springdale city limits and Beaver Lake where the existing highway's five-lane cross-section transitions to four lanes with partial access control. The lengths of the alternative alignments range from 19.8 to 20.6 miles (31.9 to 33.2 kilometers).

Access along the proposed facility will be fully controlled; this means that entrances and exits would be allowed only at the interchange locations. No driveways would be allowed. In addition to the interchanges with existing Highway 412 at the eastern and western termini of the project, interchanges are proposed at Highway 112, I-540, Highway 71 Business (Highway 71B), and Highway 265 (Old Wire Road) where crossed by an alignment. There is a Draft Environmental Impact Statement (DEIS) currently in progress to determine the location of an access road from the Northwest Arkansas Regional Airport (NWARA) to Highway 412 or I-540. The location of both the selected bypass' alignment and the airport access road alignment will determine the need for an additional interchange with the access road. Major streets and roads will be bridged (grade separated) so that the continuity of the existing street system will be maintained and disruption of local traffic patterns by the new facility kept to a minimum. In some cases, roads and streets that provide local access may need to be relocated or terminated.

1.3 PROJECT HISTORY

As early as the 1970s, an east-west bypass of Springdale was proposed to serve this growing area. The Northwest Arkansas Regional Transportation Study (NARTS) 1970-1990, the transportation plan for the Fayetteville-Springdale Metropolitan Statistical Area prepared by the Northwest Arkansas Regional Planning Commission (NWARPC) and the Arkansas State Highway and Transportation Department (AHTD), included a future east-west arterial located between Springdale and Fayetteville. The facility was proposed to be built to Interstate or expressway standards.

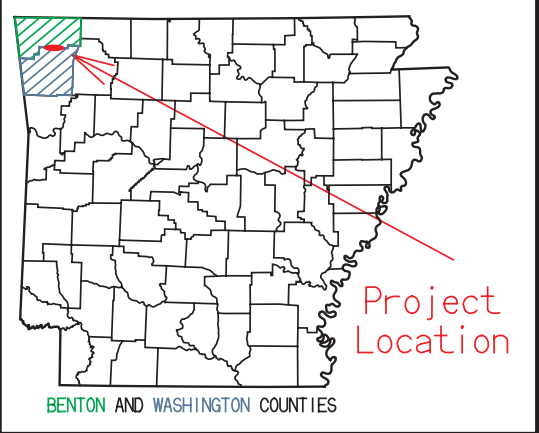
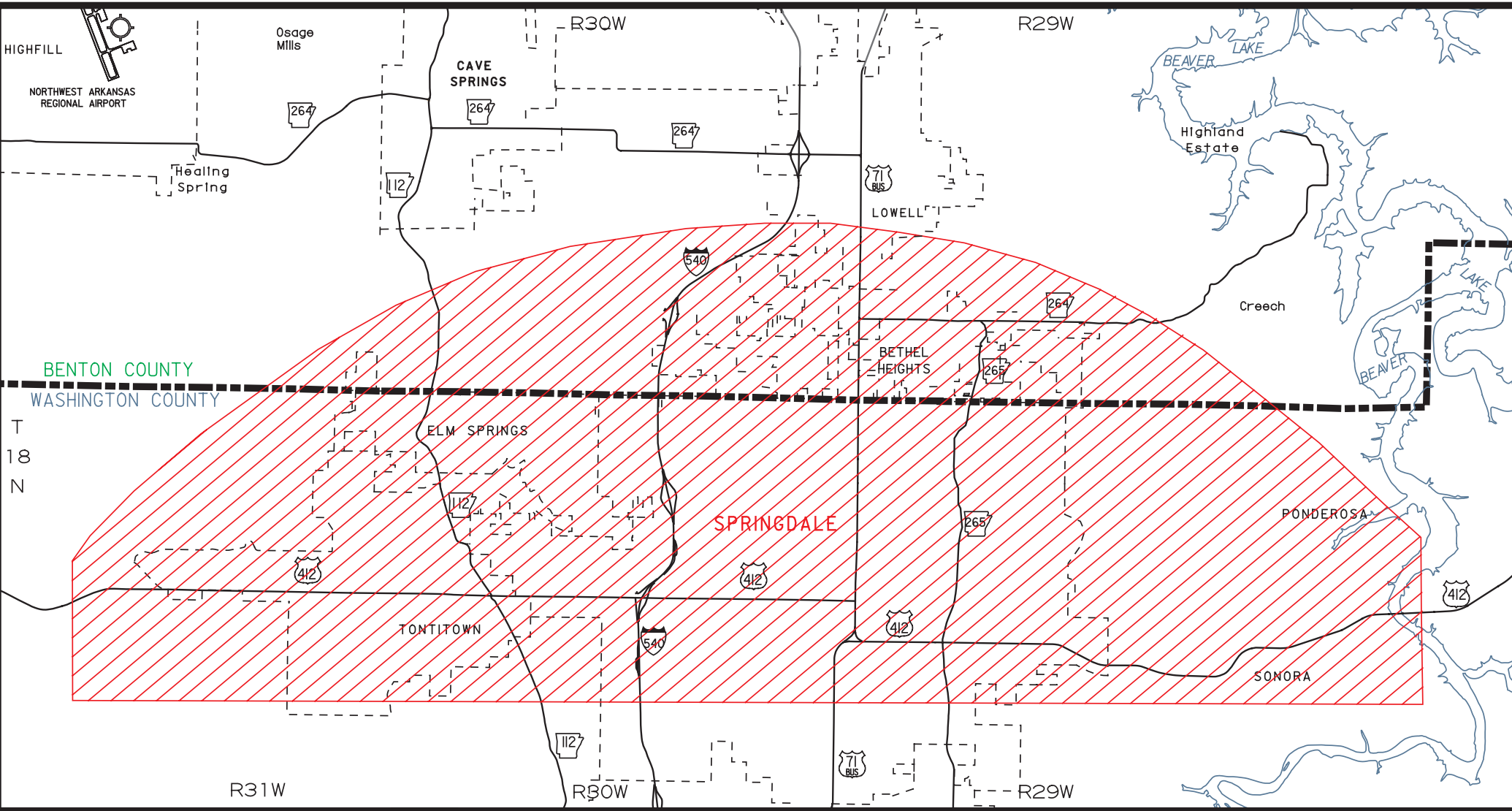
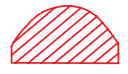


Figure 1-1



Project Study Area

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BENTON AND WASHINGTON COUNTIES

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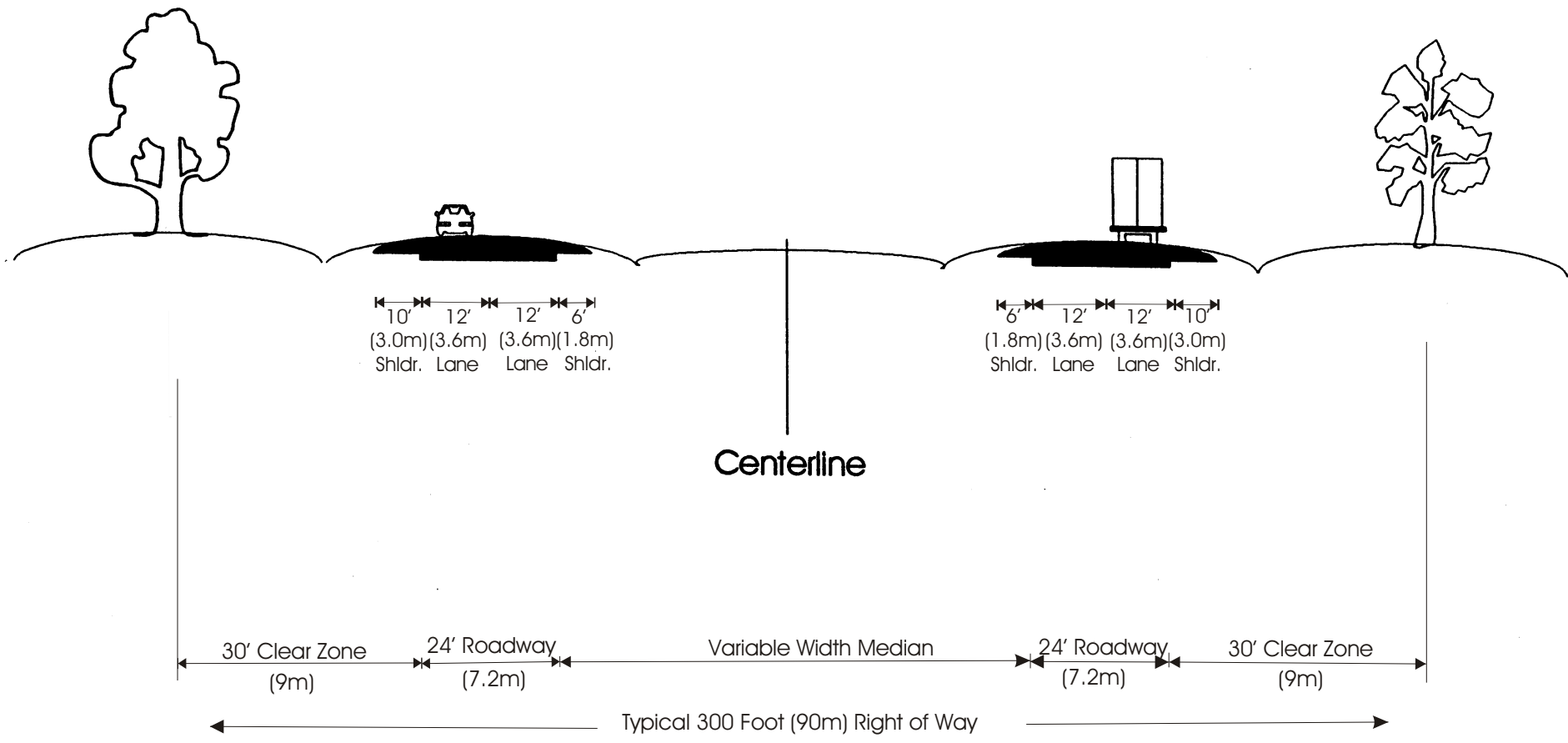


FIGURE 1-2
TYPICAL SECTION OF IMPROVEMENT
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By 1989, both the Springdale and Tontitown Planning Commissions expressed interest in a corridor for an east-west bypass of Springdale. However, there was public opposition to locating a southern bypass between Fayetteville and Springdale. Issues included possible disturbance of environmentally sensitive sites and noise impacts to established neighborhoods. Additionally, the location and acquisition of adequate right-of-way at critical interchanges and intersections was an important constraint. In 1990, the Springdale Master Street Plan was revised and did not include a bypass corridor.

Highway 412 across northern Arkansas was designated by Congress as part of a High Priority Corridor in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. In November 1992, the Arkansas Highway Commission adopted Minute Order 92-505 authorizing the Director to proceed with location studies, plan development, corridor preservation and construction "as funds become available" for a Springdale bypass (see Appendix C). At that time, the City of Springdale and the Springdale Chamber of Commerce passed resolutions showing their support for the construction of a Highway 412 southern bypass in the Springdale area.

After a review of potential locations for a southern bypass, the Arkansas Highway Commission adopted Minute Order 92-536 (see Appendix C) stating that no feasible location existed for a southern bypass of Springdale.

Because of the lack of feasible corridors for a Highway 412 bypass south of Springdale, the AHTD began to investigate possible improvements to existing Highway 412, such as eliminating the offset at the intersections of Highway 412 and Highway 71B in Springdale. Although the improvements would not have removed through traffic from Springdale, they were intended to improve traffic flow and reduce indirection.

Other improvements were considered to alleviate congestion, such as the widening of existing Highway 412 to seven lanes. Also, a bypass north of Highway 412 was given a cursory evaluation, although no specific corridors were identified.

As a part of the metropolitan planning process, NARTS prepared a long-range transportation plan update for the area (2020 Regional Transportation Plan for Metropolitan Northwest

Arkansas). Published in 1995, the Plan included a wide corridor for a Highway 412 bypass located north of Springdale. Although shown on the 2020 Constrained Plan Map, the corridor was not intended for alignment identification, but as an indicator of corridor planning and funding needs. Inclusion of the corridor in the plan indicated there was a consensus of the NARTS Policy Committee members that a bypass was needed. These actions led to the implementation of the Major Investment Study (MIS) process.

During this time, location and feasibility studies for the NWARA were underway. The proposed airport access road location was also shown as a corridor on the 2020 Plan maps to indicate a future need for a highway facility from the airport to the proposed bypass corridor.

In January 1996, the Arkansas Highway Commission approved Minute Order 96-020 (see Appendix C) authorizing appropriate studies for a northern bypass of Springdale. In March 1996, the NARTS Policy Committee agreed to participate in the study process authorized by the Commission. A northern Interstate-type bypass concept was recommended at the final MIS Working Group meeting on February 19, 1997. At the March 28, 1997 meeting of the NARTS Policy Committee, Resolution 97-1 was adopted concurring with the recommendations of the MIS Working Group (see Appendix C). Also, the NARTS 2020 Regional Transportation Plan System map was amended to refine this corridor.

The 1998 Transportation Efficiency Act for the 21st Century (TEA-21) retained the status of the Highway 412 High Priority Corridor named in ISTEA. This status was reinforced with the designation of approximately \$17 million in TEA-21 for improvements in the Highway 412 corridor through Arkansas. A total of \$146.3 million has been appropriated for the Highway 412 corridor since ISTEA was initiated.

The National Environmental Policy Act (NEPA) process was begun for this project in 1998 with work on a DEIS. The DEIS was completed and signed by the Federal Highway Administration (FHWA) on January 31, 2002. The document was made available for public review and Location Public Hearings (LPHs) were held in April 2002. Comments were received from the public at the LPHs requesting consideration of an alignment that crossed I-540 to the north of Callahan Mountain. After preliminary study, this alignment appeared to be both reasonable and feasible. A decision was made that this alignment deserved further

study, and information related to this new alignment and its comparison to the previous alignments in the DEIS was developed and presented in the SDEIS. The SDEIS was published in May 2004 and Location Public Hearings were held in June 2004 to present SDEIS study information and maps of all alignments considered. As a result of comments received on the DEIS and SDEIS, a preferred alignment has been identified to be evaluated in this FEIS.

1.4 DEVELOPMENT OF PURPOSE AND NEED

During the development of ISTEA in 1991, Congress found that "many regions of the Nation [were] not now adequately served by the Interstate System or comparable highways and [would] require further highway development in order to serve the travel and economic development needs of the region." Improvement of the entire Highway 412 corridor is part of a national effort to improve regional access.

To determine the purpose and need of the project, several transportation-related issues were examined. These included: the results of the MIS; the needs of the existing highway system; the condition of the Highway 412 corridor including; existing and anticipated capacity and congestion and delays in the corridor; forecasted regional growth; intermodal connectivity; transportation demand; regional long-range planning; and traffic safety along the existing facility, including crash history analysis. A summary of the findings of this analysis is presented in this section.

1.4.1 The Major Investment Study

The MIS was a tool introduced under ISTEA that was designed to provide more complete information concerning the options available for addressing identified transportation problems. The MIS was designed to be a cooperative and collaborative decision making process that expanded the traditional roles of many participants from passive reviewers to active contributors.

The objectives of this MIS were to identify a range of conceptual improvements that would address metropolitan transportation issues and to reach a consensus on improvements to be implemented. These conceptual improvements, called investment strategies, were evaluated

against the purpose of the High Priority Corridor and the project identified need. This study was conducted at the planning level and involved concepts, rather than actual "location alternatives."

The process consisted of the following steps:

- 1) Forming a Multi-Disciplined MIS Working Group,
- 2) Determining the Goals and Objectives of the Improvements,
- 3) Quantifying Need,
- 4) Obtaining Public Input, and
- 5) Refining and Evaluating Strategies.

1.4.2 Development of Need and Objectives During the MIS Process

The MIS was a collaborative process that promoted effective communication between the involved parties. Representatives of each of the cities and counties within the corridor, the NWARA Authority, the FHWA, the Federal Transit Administration (FTA), the NARPC, and the AHTD formed a Working Group in early 1996.

As part of the MIS, the Working Group identified transportation needs within three corridors; the Highway 412 Bypass of Springdale, an Eastern Bypass of the Fayetteville-Springdale area, and an Eastern Bypass of Rogers. Before beginning, agreement was reached concerning an appropriate approach for determining needs and developing solutions.

The Working Group considered needs, established public involvement procedures, set objectives against which proposed solutions would be measured, and identified preliminary improvement strategies. The MIS was conducted between March 1996 and March 1997 and resulted in the selection of a strategy for implementation.

The following objectives were developed at the Working Group's first and second meetings:

- Improve safety
- Improve circulation
- Improve connectivity

- Improve intermodal access
- Provide movement around cities and towns
- Minimize traffic through the cities
- Maintain the Level of Service of existing and proposed facilities
- Encourage and incorporate alternative modes of transportation
- Support compact economic development within existing cities
- Allow for future route development (spacing and topography)
- Build the most economical route with the smallest or least perceived impact on the surrounding environment
- Consider aesthetics for drivers and adjacent landowners

In October 1996, meetings were held in Greenland and Lowell. The public was invited to ask questions about the MIS process, to comment on needs, to suggest criteria for evaluation, and to suggest additional strategies to address the needs. No alignments were introduced at these meetings since the Working Group agreed that identifying alignments this early in the process was inappropriate. Comments requested from the public were related to objectives, measures of effectiveness, and the proposed solutions previously developed by the Working Group.

Opinion surveys were collected from the attendees at the public meetings. Relief of congestion and improved safety on Highway 412 in Springdale were identified as the highest priorities. Attendees were asked to identify their preferred method for alleviating congestion in the area with no consideration of costs or impacts. Survey responses revealed a preference for widening along Highway 412, followed by a preference for a new location facility to the north and a new location facility to the south.

At the first public meeting held in Greenland, the majority of those attending supported removing through traffic from the main thoroughfares in the region. Other concerns expressed at the meeting related to frustration in using the existing transportation system, the need for turn lanes, enforcement of traffic laws, and the increasing predominance of truck traffic in the region.

At the second meeting, held in Lowell, there was overwhelming support for a new location facility to both alleviate congestion and delay along Highway 412 and within communities in the region. Additional comments stated the need and support for a connection to the NWARA, which was under construction at that time. This support was given with the qualification that the corridor alignment not be the one encompassing Wagon Wheel Road shown in the NARTS 2020 Regional Transportation Plan. Support was also expressed for locating a bypass corridor away from existing development in Springdale.

As mentioned earlier, the MIS Working Group identified improved safety within the existing Highway 412 corridor as an objective. Many of the members of the Working Group were local road users and as such were aware of the frequency and severity of crashes along the corridor. The members of the Working Group also expressed the need to improve circulation along the Highway 412 corridor and in turn improve mobility in the area.

Improved connectivity was another objective named by the Working Group. This objective was based on the need to provide better access throughout the region. Access in this context is not related to individual parcels but rather access between neighborhoods and communities. Discussions of these objectives by the Working Group included references to reducing indirection through Springdale. The objectives of reduced indirection and improved connectivity could also directly improve intermodal access. The objectives could be accomplished in several ways, including incorporating other modes of transportation and having direct connections to specific facilities.

There was a consensus of the Working Group members concerning the need to provide movement around cities and towns in the region to minimize the through traffic in the cities. By making these provisions, through truck traffic and vehicles traveling long distances with higher speeds could be separated from local traffic. Additionally, separating the through traffic movements would improve the level of service for existing facilities. Also the group felt that a proposed facility should have controlled access to realize the full benefits of the facility.

The Working Group agreed that any improvements within the region should incorporate and encourage the use of alternative modes of transportation and that the existing transit service

in the region should be utilized if possible. However, at that time, existing transit service was limited to that provided by Razorback Transit in the Fayetteville area and Ozark Regional Transit in the rural areas of the counties.

As stated previously, the Working Group was concerned with three projects, of which one was the Highway 412 bypass project. Emphasis was placed on the need to coordinate proposed improvements within the three corridors. Allowances for future route development related to the Working Group's goal to ensure that there would be adequate spacing for future improvements including rail overpasses, interchanges and intersections. This was tempered with the objective to support compact development within the existing communities allowing adjacent, subsequent development to take advantage of the existing infrastructure.

Finally, the Working Group wished to provide an aesthetically pleasing facility for road users and adjacent landowners and concurrently, where practical, the most economical route with the least or smallest perceived environmental and economic impacts. In this context, aesthetically pleasing refers to the desire to limit signage along the facility (such as outdoor advertising) and to incorporate landscaping where appropriate. It should be noted that the MIS did not include detailed environmental evaluation of the various improvement strategies.

The Working Group developed improvement strategies to address the identified needs and assessed each strategy against the objectives developed by the Working Group. This evaluation process is discussed in Section 2.2 in the DEIS.

1.4.3 Regional Highway System

Highway 412 is part of the National Highway System (NHS) along with two other regional routes, the I-540/Highway 71 corridor and Highway 62 to the northeast, intersecting with Highway 37 leading to Springfield, Missouri. Figure 1-3 illustrates the regional highway system in Benton and Washington Counties.

The Highway 412 corridor through northern Arkansas has long served a vital role in the statewide and regional transportation system. It is the only east-west principal arterial that completely traverses the NARTS study area and is the only east-west principal arterial

crossing the State north of I-40. As part of the NHS, Highway 412 is strategically located relative to other regional highways and the proposed project would provide improved connectivity for both local and through travelers along I-540, Highway 412, and the proposed NWARA Access Road. In addition to Highway 412, I-540/Highway 71, and Highway 62, other highways located in the study area of northwest Arkansas are Highway 71B, Highway 112, Highway 264, and Highway 265. Highway 71B travels in a north-south direction parallel to and east of I-540/Highway 71, providing an alternative to I-540/Highway 71. Also traveling in a north-south direction from Fayetteville to Bentonville, Highway 112 passes to the west and runs parallel to I-540/Highway 71. Highway 112 serves as the main route of travel for residents of Elm Springs and northern Tontitown to access Highway 412. Traveling in an east-west direction north of and parallel to Highway 412, Highway 264 connects Highfill with I-540 and Highway 71B and serves as the main access road for the NWARA. To the east of Highway 71B and Lowell, Highway 264 travels to Beaver Lake. Highway 265 travels in a north-south direction between Fayetteville and Springdale, connecting existing Highway 412 with Highway 264 in Springdale. Highway 265 provides an alternative to the east of Highway 71B and I-540 for travel between the two cities and provides access to the industrial area of Springdale.

1.4.4 Description of Existing Highway 412

The segment of Highway 412 under study is located in Washington and Benton Counties in northwest Arkansas (see Figure 1-1). Highway 412 has a minimum of five lanes throughout the study area.

Entering the study area from the west, Highway 412 is a four-lane facility with a divided median and partial access control. It transitions to a five-lane, open shoulder cross-section with no control of access. The five-lane cross-section has two travel lanes in each direction and a continuous, two-way, left turn lane. Between Pinalto Road and Mantegani Road in Tontitown, the roadway cross-section changes to a five-lane, curb and gutter section. A short, six-lane section has recently been added at the I-540 interchange. The roadway continues to the east to the intersection of Highway 71B. The route then turns southward and runs concurrent with Highway 71B for 0.4 mile (0.6 km). Highway 412 then turns back to the

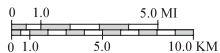
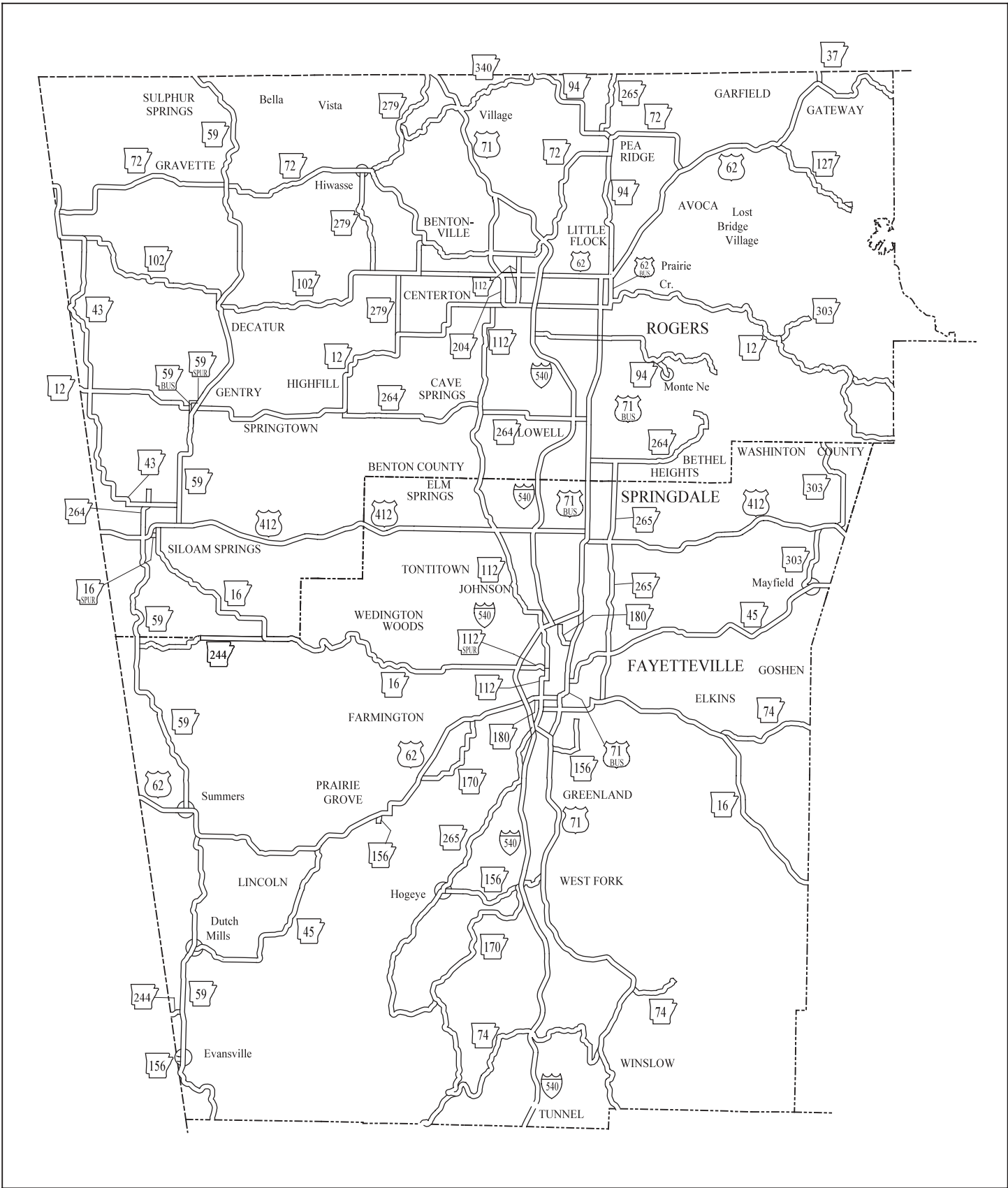
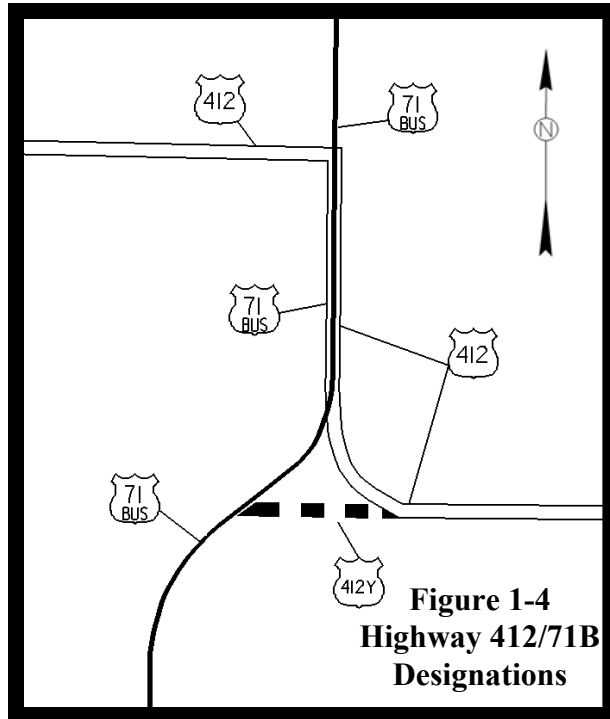


Figure 1 - 3

Regional Highway System



east. Refer to Figure 1-4 for an illustration of the Highway 412/71B intersection layout. Highway 412 changes back into a four-lane facility with a divided median and partial access control immediately west of Beaver Lake. Highway 412 has numerous signalized intersections and an interchange with I-540



between Highway 112 and the eastern city limits of Springdale.

As mentioned previously, recent modifications were made at the interchange of I-540 and Highway 412 to improve traffic flow in that area. The exit ramps of I-540 were widened to three lanes, the signals were synchronized, and a six-lane cross-section was constructed on Highway 412 between the interchange ramps, resulting in two travel lanes in each direction and two left turn lanes.

From the western study limits to I-540, development along Highway 412 consists predominantly of large commercial and residential tracts with some interspersed agricultural and small commercial parcels. Development along Highway 412 between I-540 and Highway 71B is typical for an urban arterial; it is predominantly large and small tract commercial and shopping centers with numerous driveways. Within the triangle created by Highway 71B, Highway 412 and Highway 412Y, the development is primarily commercial. Development along Highway 412 from Highway 71B to the eastern city limits of Springdale is predominantly a combination of commercial and industrial. East of the Springdale city limits the land use is mostly agricultural and residential, with small commercial parcels scattered adjacent to the roadway.

1.4.5 Regional Growth

Benton and Washington Counties had the first and third highest percent population growth, respectively, among Arkansas counties from 1990 to 2000. According to the U. S. Bureau of the Census, the 1990 population of the Fayetteville-Springdale-Rogers Metropolitan

Statistical Area (Benton and Washington Counties) was 210,939 and the 2000 population was 311,121. This represents a 47.5% increase.

Benton County and most cities located north of Highway 412 are growing at faster rates than Washington County and the cities to the south. From 1990 to 2000, Benton County's population increased by 55,907 (57.3%), growing from 97,499 to 153,406. During this same period, Washington County increased by 44,306 (39.1%) from 113,409 to 157,715. During the 1990-2000 period, cities north of Highway 412 grew by 33,669 (72.8%) from 46,279 to 79,948. South of the highway, the increase was 22,537 (43.2%), from 52,121 to 74,658. These figures do not include cities located along Highway 412, i.e., Siloam Springs, Tontitown, and Springdale.

The 1970 population of Springdale was 16,783. From 1970 to 1980 there was 39.8% population growth. The 1990 population was 29,941, which was a 27.7% increase over the 1980 total (23,458). The 2000 population of 45,798 was a 53.0% increase over the 1990 population.

An additional indicator of regional growth is the number of building permits issued within an area. Building permit data from 1989-2002 reveals a consistently higher number of building permits issued to communities north of Highway 412 than for communities south of Highway 412. This trend is similar to the population statistics presented previously with more development occurring to the north of Highway 412 than along or south of Highway 412.

Regional building permit data projects a doubling of permits issued from 1990 to 2010 south of Highway 412, provided parcels are available for development. Along Highway 412, there is an expected increase of permits 2.7 times the number issued in 1990. North of Highway 412 there is an expected tripling of permits issued between 1990 and 2010 with development likely to continue because of readily available parcels.

With this type of explosive growth, traffic in the region is anticipated to also increase. There is a need to provide sufficient transportation capacity for the growing population of the area. The increased local traffic will lead to worsening congestion, increased delays and safety concerns.

1.4.6 Transportation Demand

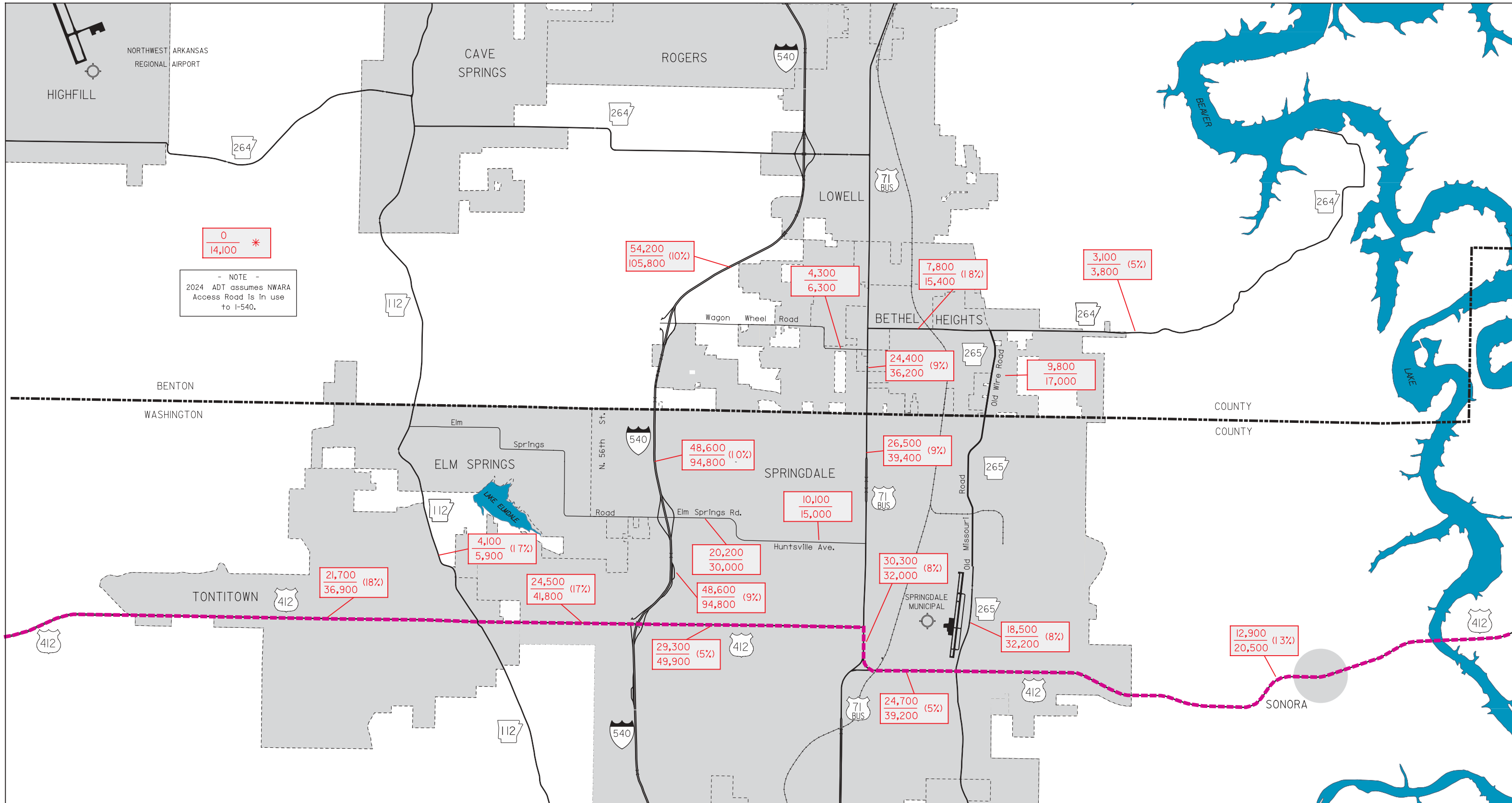
Transportation demand along a facility is based on the facility's current traffic volumes. It is calculated by adjusting the current traffic volume to reflect various factors such as the percentage of heavy vehicles (trucks, buses and recreational vehicles), and the amount of traffic traveling in the peak hour.

Current and projected traffic volumes in the project study area are shown on Figure 1-5. Current traffic on the existing highway system is shown as the 2004 Average Daily Traffic (ADT). Estimated traffic volumes for the 2024 ADT were developed using projections from historical traffic data maintained by the AHTD. This 2024 projection assumes that the NWARA Access Road would be in use as a part of the local transportation system and therefore reflects its influence on the traffic using the surrounding highway system. The 2024 ADT projections shown for the NWARA Access Road were obtained from traffic studies being performed for the NWARA Access Road DEIS. Refer to Section 2.4.1 in the DEIS for further background information concerning the NWARA Access Road project.

Traffic volumes on Highway 412 show an increase as they near the Springdale city limits. In 2004, approximately 29,000 vehicles per day (vpd) are expected to traverse the study area, decreasing east and west as Highway 412 leaves the study area. This information is based on an origin and destination survey conducted in 2000.

A comparison of traffic growth rates on highways north and south of Highway 412 shows that growth rates to the north are higher than those to the south. The average annual growth rate for highways north of Highway 412 is 4.75% as compared to 3.83% south of Highway 412. As a comparison, the statewide average growth rates are around 2%. The difference in traffic growth rates and projected traffic indicates that the area north of Highway 412 is growing at a faster rate than the area south. If this trend continues, traffic volumes north of Highway 412 will continue to increase at a faster rate than those to the south.

The newly constructed NWARA near Highfill is a traffic generator with the potential for substantial growth. This facility has become the predominant location for commercial air



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14,100 *

- NOTE -
2024 ADT assumes NWARA
Access Road is in use
to I-540.

Legend

- Highway 412
- 2004 ADT
2024 ADT
(% Trucks) Average Daily Traffic (ADT)
- * ADT for Proposed Road to Airport

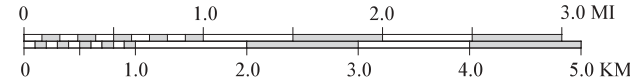


Figure 1 - 5
Current and Projected Traffic Volumes
on Existing Highway System

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travel in northwest Arkansas. Employment at the airport and passenger and freight traffic through the airport will produce a large number of vehicle trips. Currently, traffic generated by the airport and adjacent development travels along Highway 112 or Highway 264 to I-540 for travel north and south; both of these routes are rural, two-lane facilities. Traffic may also use Highway 264 to Highway 112, then to Highway 412, traveling west or east from the region toward Tulsa, Oklahoma or toward Harrison, Arkansas. This additional traffic will contribute to the existing congestion at the intersection of the north/south routes with Highway 412 and along Highway 412. Increased traffic congestion and delay may contribute to the more frequent occurrences of crashes along the Highway 412 corridor. The NWARA Authority plans to construct a connector facility from the southern entrance of the airport to either Highway 412 or I-540, depending on the results of ongoing environmental and location studies.

In addition to the increased customer and employee traffic directly related to the airport, changes in land use will lead to an increase in traffic north of Highway 412 near the airport. The Bentonville Planning Commission has rezoned 40 acres (16 hectares) located northeast of the airport for commercial development. An additional 70 acres (28 hectares) is expected to develop for industrial use. Continued development of parcels adjacent to the airport is expected.

1.4.6.1 Intermodal Demand

Providing improved intermodal connectivity became a national priority with the enactment of ISTEA and TEA-21 by the United States Congress. To improve intermodal connectivity, it is important to consider other transportation modes within a region when planning and designing highway facilities. Accommodations for intermodal facilities and activities must be provided to achieve a seamless transportation system with little or no delay for passengers and freight. These include increasing the ease of transfer between modes and reducing delay due to inadequate turning radii, roadway conditions, and restricted routes based on structure clearance.

Improved intermodal access and improved connectivity can be accommodated during the development of a new highway facility. Adequate turning radii, grades, railroad grade

separations, and vertical and horizontal clearances can be included in the design of a new highway facility. The improved design features will in turn allow for ease of movement of tractor-trailer trucks and trains through the region. Control of access along a new facility allowing for the unrestricted movement of through traffic will also improve intermodal connectivity and movement by removing the delay caused by local traffic movements. The reduced delay resulting from the control of access and replacing intersections with interchanges means cars and trucks will not have to stop or slow as much as they currently do while traveling in the region, resulting in improved travel times. More efficient movement of trucks and freight shipments in the region can be equated with a more efficient trucking and shipping industry. Likewise, with a more efficient transportation network, economic growth will be enhanced by improved efficiency in shipping and receiving freight and commodities.

The NWARA has become the predominant location for commercial air travel in northwest Arkansas. With its capacity for larger aircraft than Drake Field in Fayetteville, this facility will have an increasing impact on regional transportation patterns. Coordination of the studies for the Highway 412 corridor and the proposed NWARA Access Road will be important to maximize intermodal connectivity benefits for both projects.

In addition to travel demand generated by the regional airport, there is a large amount of freight movement through the Washington-Benton County area. Several trucking firms headquartered in the area, along with Wal-Mart and Tyson Foods, place additional demands on the highway network.

The Arkansas and Missouri Railroad serves the industrial area adjacent to Highway 265. This is a vital transportation link for businesses located there. The demand for intermodal access to link truck traffic and railroad traffic through the transportation system will continue to grow.

An improved Highway 412 corridor is needed to provide for the expected future intermodal transportation demand. An improved route would improve the efficiency of transportation for the trucking industry and for businesses and facilities dependent on trucking.

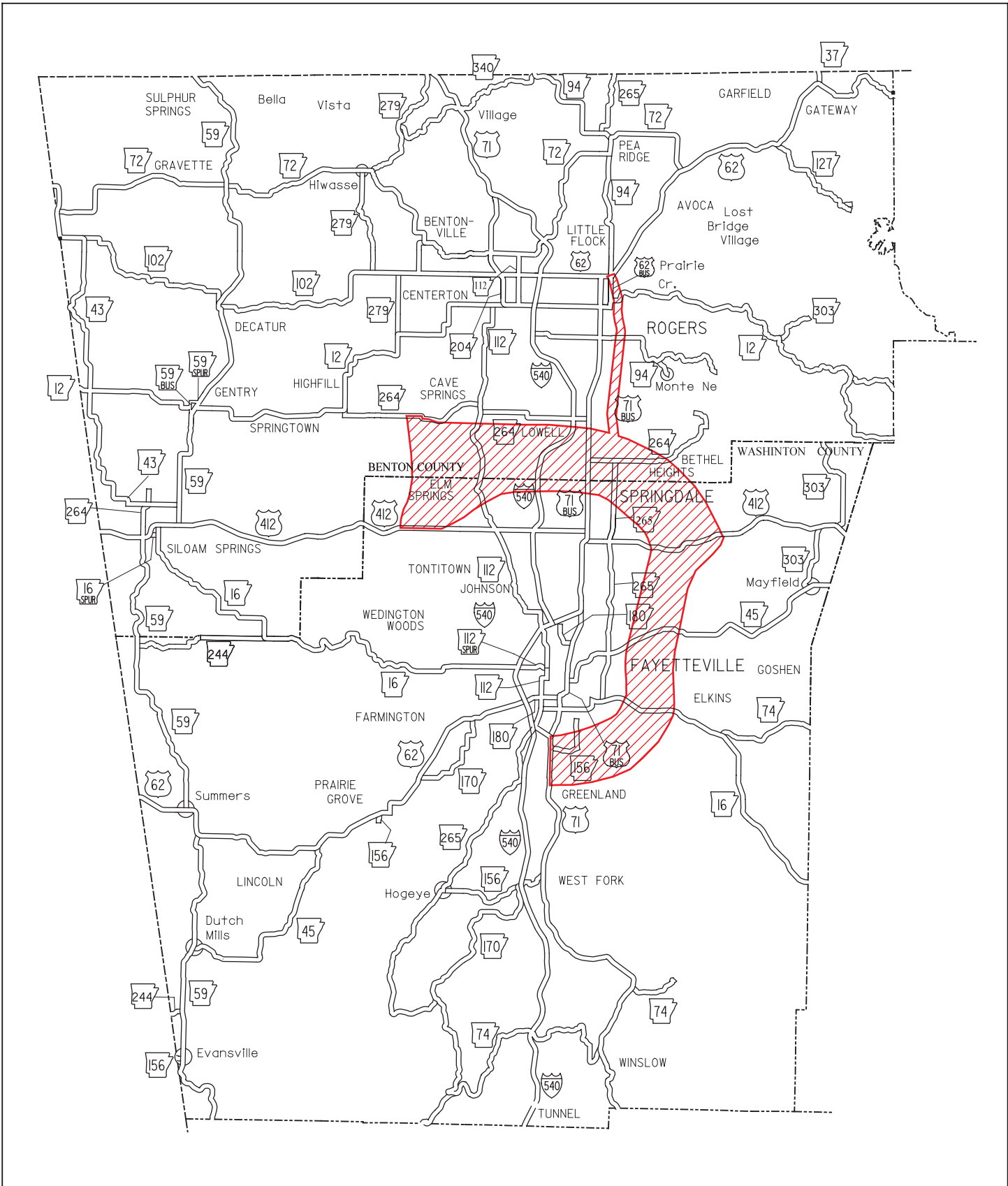
1.4.7 Regional Long-Range Planning

The Northwest Arkansas Regional Planning Commission, in its role as the Metropolitan Planning Organization for the Fayetteville-Springdale Statistical Area, completed the *2025 Regional Transportation Plan for Metropolitan Northwest Arkansas* (NWARP et al., 2001). This plan was developed through the coordinated effort of the local governments in the metropolitan area and determined transportation needs in the area for the 2000-2025 time period. The local governments indicated the need for congestion relief along the Highway 412 corridor by including a Highway 412 bypass north of Springdale. They also showed a need for congestion relief along a north-south path east of Springdale, Fayetteville, and Rogers by including an Eastern Bypass corridor that generally follows the existing Highway 265 (Old Wire Road) corridor. The bypasses are listed as illustrative projects in the constrained project list because dedicated sources of funding for the projects had not been identified when the plan was developed. Figure 1-6 shows the bypass corridors as shown in the 2025 Regional Transportation Plan.

1.4.8 Congestion

Congestion along a facility can be measured to determine the efficiency at which the facility is operating. This measurement involves the comparison of the traffic volume to the capacity of the facility using adjustments based on number of lanes, lane width, shoulder type and width, percent trucks, terrain and adjacent development. This comparison results in varied levels of service (LOS) from LOS A (free-flow with no delay) to LOS F (travel speeds vary from relatively slow to complete stoppages of traffic).

Segments operating at LOS A have little congestion or delay. Actions of other drivers along these segments are barely noticeable. The general level of comfort and convenience provided to the motorist is good. For the sections operating at LOS D and E, actions by individual drivers impact the other users. Travel speed and maneuverability are restricted and the driver experiences slow operating speeds and severe delays. Level of service D is the lowest acceptable LOS in an urban area, while LOS C is the minimum desired in rural areas (see Appendix D for a detailed explanation of LOS).



Job Number - 001966
 AHTD/Environmental - GIS/Pearson
 04/30/2004

Legend


 2025 Bypass Corridors

Figure 1 - 6
2025 Regional Transportation Plan
Bypass Corridors

Localized areas of congestion will cause delay through the entire corridor. Specifically, delay commonly occurs at the major intersections along the corridor, i.e., I-540, Highway 71B, local street intersections with Highway 412 west (412W) and Highway 412 east (412E), Highway 265, and local street intersections along the concurrent section of Highway 412 and Highway 71B. The delay and congestion at the intersections of Highway 71B with Highway 412E and Highway 412W is increased both by the concurrent highways and the 90-degree turns required to use Highway 412. Turning maneuvers at other intersections and access points also contribute to congestion and delay.

Currently, traffic on Highway 412 from west of Tontitown to I-540 is operating at LOS B and is expected to deteriorate to LOS C or D by 2024. Traffic between I-540 and Butterfield Coach Road is currently operating at LOS E with operating conditions expected to operate at LOS E or F by 2024. Traffic on Highway 412 from Butterfield Coach Road to the White River bridge is currently operating at LOS A with traffic expected to operate at LOS B through 2024.

The section of Highway 412 between I-540 and Butterfield Coach Road is operating at an unacceptable level of service and this condition is expected to continue through 2024.

1.4.9 Delay

The difference between the posted speed and the actual speed can be equated to annual hours of time lost due to traffic congestion and the number of signalized intersections. Factors that contribute to the congestion and delay along the existing facility include the dense urban development, a large number of intersections (both signalized and unsignalized), and frequent turning maneuvers into and out of streets and driveways. These factors slow the through traffic and reduce the overall speed.

Projected traffic congestion will increase the delay experienced along the route. Although the posted speed along this facility ranges from 35 mph to 55 mph (55 to 90 km/h), the average travel speed along Highway 412 from west of Tontitown to Sonora is approximately 32 mph (~50 km/h). Along the urban portions of the route (I-540 to Butterfield Coach Road)

the average travel speed is 28 mph (~50 km/h) compared to a posted speed of 35 mph (55 km/h). By 2024 an estimated 1,879,000 hours of time will be lost annually under the congested conditions on Highway 412 between Tontitown and Sonora.

1.4.10 Crash Analysis

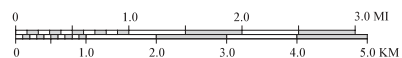
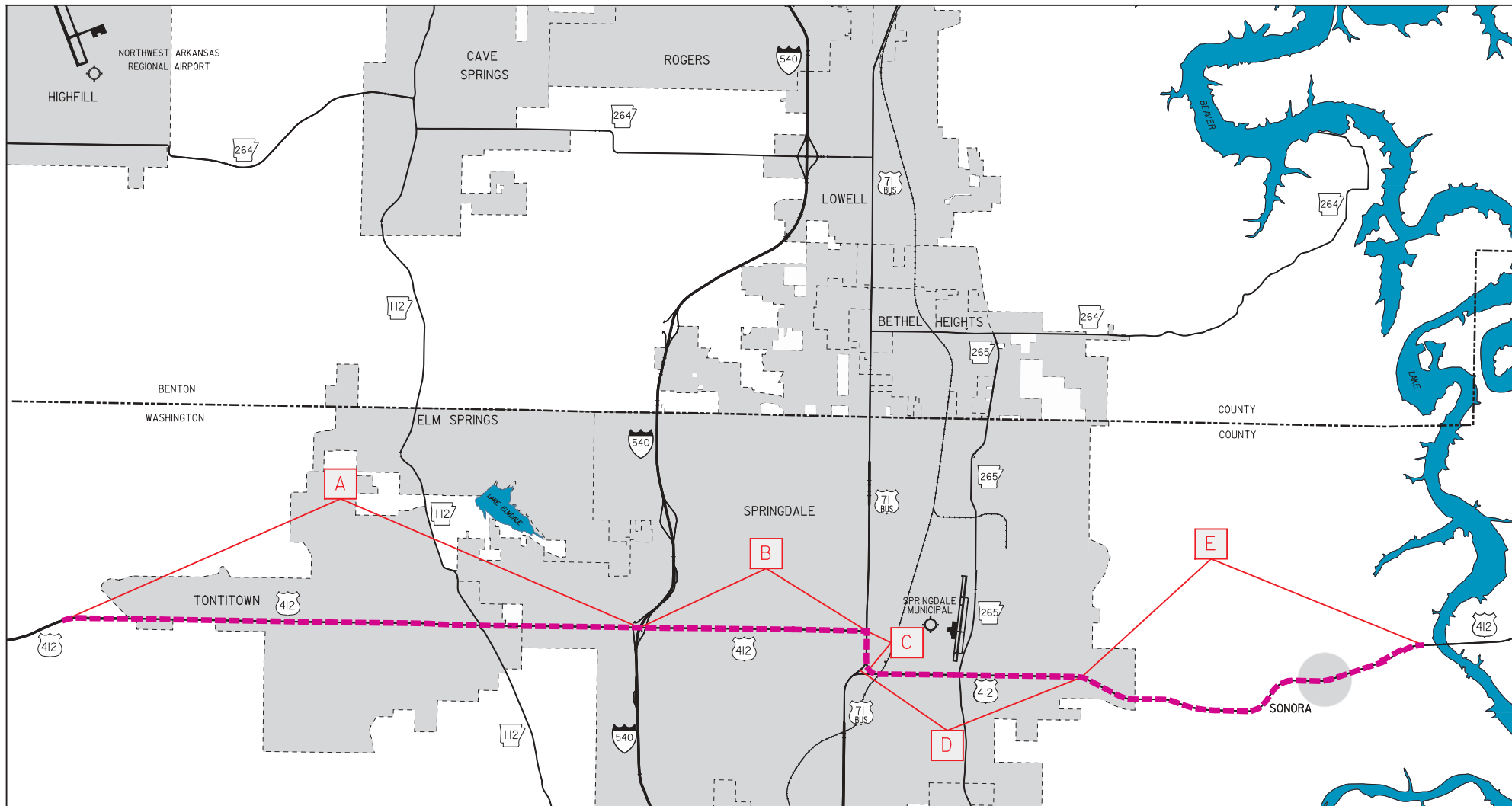
The AHTD maintains a record of crashes occurring on the State Highway System. When conducting the analysis, the most recent data available is for 2001. Table 1-1 shows a comparison of the statewide average crash rates to the actual crash rates along Highway 412 within the limits of the study area. Refer to Figure 1-7 for an illustration of the Sections involved.

Section Description (Year)	Section Crash Rate (2001)	Statewide Crash Rate (2001)	Section Crash Rate (2000)	Statewide Crash Rate (2000)	Section Crash Rate (1999)	Statewide Crash Rate (1999)
Section A	1.51	0.98	2.04	1.03	2.51	1.00
Section B	16.41	7.71	12.53	7.59	10.61	7.65
Section C	9.20	7.71	7.85	7.59	8.35	7.65
Section D	8.96	7.71	8.49	7.59	7.16	7.65
Section E	1.77	0.98	2.53	1.03	3.75	1.00

For the three years analyzed, all sections of Highway 412 had higher crash rates than the corresponding statewide average except for two sections: Year 2001 on Section E and Year 2002 on Section C. The increasing crash rates on Sections B-D could be an indication that congestion on Highway 412 between I-540 and Butterfield Coach Road is increasing.

1.4.11 Safety

Improvements in safety can be achieved in a number of ways. One way is by reducing the number of vehicles along the facility. Another way is to separate the local and through traffic. Safety can be improved because more of the drivers perform similar maneuvers, lowering the likelihood and severity of crashes.



Legend

--- Highway 412

**Figure 1 - 7
Crash Analysis Sections**

A mainline of the Arkansas and Missouri Railroad traverses the Fayetteville-Springdale-Rogers Urbanized Area and is parallel to and east of Highway 71B. In addition to the safety concerns related to vehicle-vehicle conflicts, there is also the possibility of vehicle-train conflicts. Current inventory information shows a Hazard Rating of 6.5 and four trains per day crossing existing Highway 412. Any improvements within the Highway 412 corridor will have to consider either improvements to the existing railroad crossing or a new crossing with appropriate protection.

1.5 SUMMARY OF PURPOSE AND NEED

Highway 412 was designated by Congress as a High Priority Corridor by the 1991 ISTEA legislation. The TEA-21 legislation continued this designation. These Acts establish that a purpose of this project is to function as a link in the High Priority Corridor system that will serve the travel, economic development, and commercial demands of northern Arkansas and the nation. Highway 412 is part of the National Highway System and as such serves as a vital link in the state and regional transportation system. It is the only east-west principal arterial that completely traverses the NARTS study area. As Highway 412 improvements are completed across the State, the route will become even more attractive to through travelers. Improvements will need to be made in the Springdale area to allow through traffic to avoid local congestion and for this increasing through traffic not to adversely impact the local traffic conditions. This proposed project will provide a vital link in the improvement of the Highway 412 corridor from Tulsa, Oklahoma to Nashville, Tennessee.

In determining the purpose and need of this project, several transportation-related issues were examined. These included: the results of the Major Investment Study; the needs of the existing highway system; the condition of the Highway 412 corridor; the current and future capacity of the existing facility; forecast regional growth; transportation demand; intermodal demand; regional long-range planning; existing and future congestion along the existing facility; existing and future delay along the existing facility; and safety of traffic along the existing facility, including crash history analysis.

The MIS Working Group developed a list of needs for a relief route for Highway 412 through Springdale. These needs are: improve safety, improve circulation, improve connectivity, improve intermodal access, provide movement around cities and towns, minimize traffic through the cities, maintain or improve the Level of Service of existing and proposed facilities, encourage and incorporate alternative modes of transportation, support compact economic development within existing cities, allow for future route development (spacing and topography), build the most economical route where practical with the least impact on the surrounding environment, and provide the best aesthetics for drivers and adjacent landowners within practical limits.

Development trends indicate an increase in traffic throughout this corridor. This results from continuing development along Highway 412 and growth and development in the suburban and urban areas north of Highway 412, including areas adjacent to the NWARA, the Rogers-Bentonville area, and Benton County in general.

As these growth trends to the north of Highway 412 continue, related traffic volumes in the region will also continue to increase. As transportation volumes increases, related congestion, delays, and crash rates will also increase. Intermodal needs in the form of heavy truck traffic to local industry, traffic to the airport for both flights and jobs, and truck to rail movement at local businesses will continue their current growth trends. These demands will place a heavy burden on the existing transportation system.

A purpose of this project is to provide safe and efficient movement of traffic within the region while accommodating through and intermodal traffic and alleviating congestion along existing facilities. Improving east-west traffic flow has been a long-standing and well-documented need in the region. West of I-540 and east of Butterfield Coach Road, traffic is operating at LOS A or B with the level of service staying at LOS D or better through 2024. Within the urban segments of the corridor, congestion plays a major role in slowing speeds and increasing delay, resulting in LOS E in the current year. It is projected that within 20 years, traffic operating conditions along Highway 412 in Springdale, between I-540 and Butterfield Coach Road, will erode to the point that they are at or approaching LOS F. Ongoing improvements to the Highway 412 corridor east and west of Springdale

will increase traffic capacity in these areas and place additional demands on existing Highway 412's capacity through Springdale.

Crash rates for 1999-2001 along the Highway 412 corridor were compared to the statewide average rates. This comparison showed that in each year the crash rates were higher than the comparable statewide average except for two instances, Section E in 2001 and Section C in 2002. With increasing traffic volumes along Highway 412, the trend toward increasing crash rates along all of the sections is expected to continue.

Development trends indicate an increase in traffic throughout this corridor resulting from continuing development along Highway 412 and new development activities in the more suburban portions of the study area, including parcels adjacent to the NWARA.

With continuing development trends, transportation demands, including intermodal demands, will soon outpace the ability of the existing Highway 412 corridor to serve them. This increasing demand will lead to increased congestion, ever worsening levels of service, and higher crash rates along the corridor. This Highway 412 corridor in the Springdale area needs capacity improvements to safely serve the transportation demands of the area.