FNORTHWEST ARKANSAS WESTERN BELTWAY FEASIBILITY STUDY EXECUTIVE SUMMARY

The 2030 Northwest Arkansas Regional Transportation Plan developed by the Northwest Arkansas Regional Planning Commission (NWARPC) in 2006 cites the need for a north-south transportation corridor as an alternative to continually adding lanes to Interstate 540 (I-540) which is becoming increasingly congested. The proposed beltway route would provide additional north-south capacity for motorists and address projected future traffic growth in Washington and Benton Counties. Sentiment expressed by city and county officials and the general public at public hearings for the 2030 Transportation Plan favored the study of a north-south corridor as an alternative to the expense and disruption of expanding capacity on I-540. The proposed Western Beltway is a response to considerable population and employment growth in Northwest Arkansas (NWA) and expectations that robust growth will continue into the future.

FUTURE TRANSPORTATION DEMAND AND ECONOMIC DEVELOPMENT

The business successes of major employers in Northwest Arkansas have largely driven recent population and economic growth in Benton and Washington Counties. Substantial population and employment growth is expected to continue despite the current economic slowdown, with population in the two-county area projected to increase by almost 300,000 (approximately 77 percent) between 2009 and 2030. Much of this new growth is anticipated to occur west of the I-540 corridor, because of limited land for expansion east of the corridor and minimal opportunities for infill development in currently developed areas. Improvements to the regional transportation network that will accommodate increased traffic are needed to address anticipated community growth and support future regional economic development.

FUTURE LAND USE

If population growth over the next two decades continues at the same pace as previous growth, the expansion will result in an additional 267,000 people living in the region by 2035. If a typical occupation rate of 2.5 persons per dwelling unit is assumed, well over 100,000 new homes or apartments will have to be constructed within the twenty year forecast period along with commercial development and public facilities that will be needed to support them. While some developable land exists east of I-540, it can be anticipated that most of the new development will take place in the western regions of Washington and Benton Counties. Such development is already evident in the vicinity of XNA and northern areas of the region. As a consequence,

corresponding traffic growth will require additional transportation infrastructure including a new north-south principal arterial highway.

WHAT WERE PUBLIC REACTIONS ABOUT A WESTERN BELTWAY?

Public outreach has been a major endeavor of the *Northwestern Arkansas Western Beltway Feasibility Study.* A public meeting, web-based questionnaires, stakeholder interviews and meetings with Northwest Arkansas public officials have been conducted to gauge public perceptions about the need for a western beltway as well as perceived benefits and concerns.

A public meeting was held on September 16th, 2010 at the Arvest Ballpark in Springdale to obtain public input for the beltway feasibility study. Almost all of the attendees said the beltway would be needed to serve future development, population growth, and north-south traffic, reduce I-540 congestion, facilitate through-traffic and trucks and help plan for future development. The meeting participants were concerned about the environment and natural resources, potential for the beltway to induce sprawl, potential to harm existing businesses, the need to raise taxes to pay for the beltway and potential for adverse effects to existing land uses.

Public officials from Washington and Benton Counties were invited to a project briefing immediately prior the public meeting. Most of the officials said that the beltway would ultimately be needed for traffic and population growth. They noted concerns about environmental harm, sprawl and adverse effects to farmlands and funding.

A questionnaire was made available on the NWARPC's website to enable persons interested in the Western Beltway study to record their thoughts, opinions and preferences. Almost two hundred responses were received. Of the responses, 49 percent said the beltway was needed, 41 percent said it was not needed and 10 percent were not sure.

WHAT HAVE THE ENVIRONMENTAL INVESTIGATIONS DETERMINED?

The process used to develop alternative corridors for the Western Beltway (shown on the following map) involved close collaboration among the project's environmental scientists and location engineers to identify and avoid sensitive environmental and economic resources. The environmental researchers examined available digital data and previous environmental studies in the Washington and Benton county region to map sensitive locations that could be avoided by beltway alternatives. This collaborative process resulted in conceptual corridors for a Western Beltway that produce minimal environmental effects and minimize the potential for a fatal flaw associated with environmental harm.

Corridor Alternatives Map



Northwest Arkansas Regional Planning Cor Map Produced by

WHAT WAS DONE TO INCREASE ACCURACY OF TRAFFIC FORECASTS?

A major effort of the *Northwest Arkansas Western Beltway Feasibility Study* was to provide an experienced travel demand model developer to refine the NWARPC's transportation model to increase its accuracy and improve its operations. The effort included training for the agency's staff and furnishing improvements for operational efficiencies, updates for traffic and planning variables as well as incorporation of traffic information from McDonald County located immediately to the north of the Arkansas/Missouri state line.

WHAT ARE THE FINDINGS FROM THE TRAVEL DEMAND MODELING PERFORMED FOR THE WESTERN BELTWAY?

The improved travel demand model was used to examine traffic volume forecasts within the two-county region along I-540 to determine future traffic conditions with and without a western beltway. It should be noted that Alternative 2 (shown on the above map) was used as a basis for the forecasts. Several assumptions were established to perform the forecasts including the ultimate provision of six lanes along I-540 in the two-county region as well as completion of the western leg of the Springdale Bypass, the Bella Vista Bypass and the XNA access road.

The modeling found that, with three lanes in each direction, I-540 will provide improved travel conditions in some locations but will experience increasing congestion and reduced travel and speeds toward the end of the 25 year analysis period. A western beltway will attract traffic that will be generated from new development in the western regions of the study area as well as through traffic that would use the beltway for reduced travel times. The findings suggest that a western beltway may be a longer range need for the area that will provide increasing benefit as the region continues to attract population and commerce.

HOW WOULD TRUCK VOLUMES THROUGH THE STUDY AREA BE AFFECTED IF I-49 IS COMPLETED BETWEEN NEW ORLEANS AND KANSAS CITY?

I–49 is a proposed multi-lane highway corridor that would provide improved freight and passenger mobility in the central region of the US and would connect New Orleans, Louisiana with Kansas City, Missouri. The route would generally follow the location of US 61 in southern Louisiana and US 71 north from Lafayette, Louisiana and would extend through the two county study area for the Western Beltway. While I-49 is a long range concept, completion of the route could increase truck volumes through the study region that could ultimately contribute to congestion along I-540 and increase the need for a western beltway. This increase in truck volumes has been analyzed as part of the Western Beltway feasibility study.

A national freight model was applied to analyze the impact of the I-49 expansion. The analysis found that unless I-49 stimulated entirely new markets that the construction of I-49 up from New Orleans to Kansas City is unlikely to result in significantly higher truck flows in the corridor. This is the result of two facts: there is not much truck bound freight flowing north and south in this entire corridor right now, and a new route will not attract traffic from other corridors because it offers them no major travel time savings or more efficient access to markets.

HOW MUCH IS THE WESTERN BELTWAY ESTIMATED TO COST?

Roadway construction cost estimates for each of the major corridor alternatives and options were developed by Garver's engineers using detailed unit costs for labor, materials and equipment initially prepared for the Springdale Bypass. The cost estimates are noted below.

Item	Cost
Construction	\$532 M
Planning and Environmental Processing	\$27 M
Engineering	\$37 M
Utility Relocation	\$21 M
Right of Way and Relocation	\$64 M
Construction Engineering and Inspection	\$53 M
Toll Collection System	\$40 M
Total Cost	\$775 M

Tota	Cost	for	W	estern	Be	ltway
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Source: Parsons Brinckerhoff / Garver

IS A WESTERN BELTWAY FEASIBLE?

Would a Western Beltway be acceptable to the public? Yes, public outreach conducted for the *Northwest Arkansas Western Beltway Feasibility Study* found that while some concerns exist about environmental impacts, funding and effects to existing businesses, the public, stakeholders and many elected officials generally perceived a western beltway as a long range transportation improvement that will ultimately be needed for the region.

Would a western beltway cause major environmental harm? No, the process employed to locate conceptual corridors for a western beltway was designed to minimize environmental intrusion and eliminate fatal flaws. It began with the development of a constraints map that prominently displayed locations of environmentally sensitive resources. The project's engineers in collaboration with environmental specialists used this map as a basis for locating conceptual beltway corridors that avoided environmental resources and potentially sensitive areas and did not encroach on lands within the Ozark National Forest, parks or other protected areas. As a result, a western beltway could likely be implemented without major adverse environmental consequences.

Will a western beltway be needed? Yes travel demand modeling conducted for the *Northwestern Arkansas Western Beltway Feasibility Study* found that even with construction of additional lanes on I-540, significant traffic would use a western beltway or alternative solution by 2035. Future beltway traffic will generally accommodate vehicles generated by new development in the western regions of Washington and Benton Counties as well as vehicles traveling through the area. Volumes forecast for the southern segment of the beltway approach 45,000 vehicles per day. This amount of traffic warrants the need for a freeway or major arterial such as the Western Beltway.

Can a western beltway be funded by tolls? No, preliminary estimates show that if I-540 is widened to a minimum of six lanes, significantly less traffic would divert to a western beltway if tolls are imposed. As a consequence, toll revenues could pay for operating and maintenance costs in all years of operation, but would support the issuance of bonds that would only pay for between 5 percent and 10 percent of initial project capital costs.

PARTIAL BELTWAY IMPLEMENTATION OPTIONS

Traffic forecasts and financial analyses conducted for this study revealed that while the facility will furnish improved mobility for the region, tolls would be inadequate to substantially fund the construction of the Beltway and its implementation would not offer major relief for I-540 traffic. These conclusions led to analysis of the mobility benefits of partial beltway implementation combined with possible expansion of Highway 112 to a four-lane arterial with signalized intersections and short bypasses around Cave Springs and Elm Springs. The analysis of the options found that even with construction of additional lanes on I-540, significant traffic would use a western beltway by 2035. Volumes forecast for the southern segment approach 45,000 vehicles per day and are consistent with the amount of traffic using I-540 between the Farmington and Weddington interchanges just a few years ago. The traffic forecasts also indicate a lack of north-south highway capacity to serve the region The 45,000 vehicles per day as well as improvements to Highway 112.

CONCLUSIONS

The completion of the *Northwest Arkansas Western Beltway Feasibility Study* provides answers to questions posed by the NWARPC committees regarding the need for a new beltway. The study found mixed public support with a small majority of the people responding to study questionnaires favoring the project.

Care was taken during the engineering studies to locate beltway corridors to identify and avoid environmental resources. As a result, the implementation of the project is not expected to cause major adverse environmental harm.

Traffic studies and forecasts concluded that even with expansion of I-540 to provide additional lanes, a major arterial highway such as the Western Beltway will be needed to address future north-south traffic congestion in the western regions of Washington and Benton counties as the region grows and population and traffic expand. However, toll analyses performed for the study concluded that toll revenues would provide only a small portion of the funding needed for construction of a western beltway. Due to major changes and uncertainty in traditional highway funding sources, no alternative funding options could be identified.

Due to these findings, a western beltway does not appear to be a solution to I-540 congestion in the short term but would furnish relief by diverting traffic away from the facility.