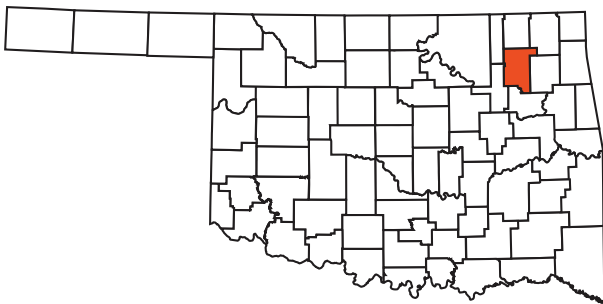


2011 TRANSPORTATION INVESTMENT
GENERATING ECONOMIC RECOVERY (TIGER) III
DISCRETIONARY GRANT APPLICATION

OKLAHOMA

Elevated Freight Railroad with Grade Separation
Claremore, Rogers County, Oklahoma



October 31, 2011



TIGER



Name of Applicant: Oklahoma Department of Transportation
Address: 200 NE 21st Street, Oklahoma City, OK 73105

Primary Point of Contact
Name: Secretary Gary Ridley
Telephone Number: (405) 522-1800
Email Address: GRidley@ODOT.org

PROJECT TYPE:
Multimodal (rail, roadway,
pedestrian/bicycle)

CFDA # 20.933 FY2011
National Infrastructure Investments

LOCATION:
Claremore, Rogers County, Oklahoma
Oklahoma Congressional District 2
(U.S. Rep. Dan Boren)

AREA: Rural

REQUESTED AMOUNT:
\$9,000,000 (17% of total project)

TOTAL PROJECT COST:
\$52,377,350

DUNS NUMBER:
824700074

**CENTRAL CONTRACT
REGISTRATION NUMBER:**
339V2

PROJECT WEB ADDRESS:
http://www.okladot.state.ok.us/tiger/tiger_2011_claremore/index.htm

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embankments and bridges to provide grade separations from the roadways and the UPRR railway. City, county, and business leaders, along with the rail industry, see this solution with a total cost of \$52,377,350, and a benefit/cost ratio of 2.52 to 1.00 (3% discount rate), as one that will usher in a new era for this vital community in northeast Oklahoma.

for northeast Oklahoma that stems from the region’s green vegetation, hilly terrain, and lakes. Claremore area streams and rivers flow into the Arkansas River and ultimately the Mississippi River. (See project website http://www.okladot.state.ok.us/tiger/tiger_2011_claremore/index.htm for History of Claremore and all subsequent references to additional documentation).

is a constant slow order assigned to trains as a result of the railroad diamond crossing with the BNSF. Typical speeds through Claremore are 30 mph.

The BNSF line extends from Long Beach, CA, through Claremore to St. Louis. This single track runs parallel to SH 66 in a southwestern to northeast direction in Claremore. Currently, an average of 27 trains run daily on this line which allows a maximum speed of 60 mph. However, because of the high volume and mandatory slow order imposed because of the diamond, trains run much slower. Both of these lines provide connection to the national rail network (**Figure 2**). Both railroads expect daily train traffic to increase over the next decade. In fact, traffic on both lines has grown 11 percent since last year.

I. PROJECT DESCRIPTION

A. Introduction

Claremore, perhaps best known as the home of Will Rogers, was settled around 1800 by a band of Osage Indians who named the town after one of their chiefs. The city is located in Green Country, a popular tourism term

B. Transportation Challenges

The city of Claremore grew up around the intersection of the Union Pacific Railroad (UPRR) and the BNSF Railway (BNSF). The UPRR line extends from Houston through Claremore to Kansas City and the Chicago hub. This single track currently carries 23 trains daily and runs southeast to northwest through Claremore. While the track speed is approved at 40 miles per hour (mph), there

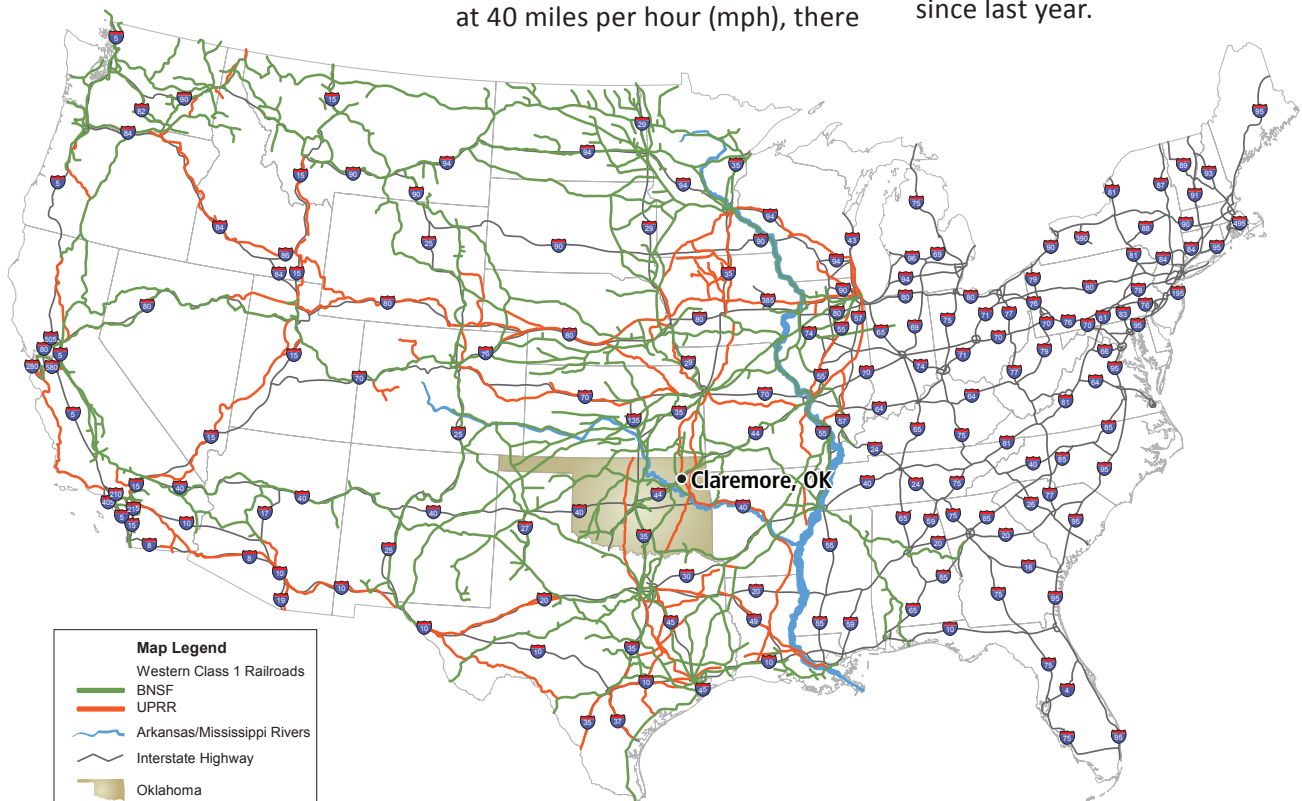


Figure 2: Nationwide Rail and Interstate Network, Arkansas and Mississippi River Waterways, 2010

In addition to the issues raised by two Class I railroads crossing through the city center, Claremore is also criss-crossed by three State highways (Figure 3). SH 66 parallels the BNSF railway through Claremore from the southwest to northeast. This historic route is a four-lane primary arterial that takes travelers in and out of Tulsa, Oklahoma. SH 20 carries travelers east to west through Claremore. Owasso to the immediate west and Mayes County to the east are also rapidly growing areas and will continue to increase traffic demands through Claremore. The third primary route is SH 88, which generally goes from southeast to the northwest. Both SH 20 and SH 88 jog through the downtown area and merge onto Will Rogers Blvd. at their crossing of the BNSF railway. In short, the heart of Claremore is a made-to-order traffic jam resulting from a combined daily traffic volume of 50,000 vehicles, and train movements every half hour.

C. Project Addresses Transportation Challenges

The Claremore, Oklahoma, freight railway grade separation project addresses the challenges posed by the existing infrastructure configuration and accomplishes a number of important community objectives. These include:

- reducing delay,
- improving safety,
- expediting the flow of materials,
- increasing development opportunities,

- strengthening community livability
- creating employment opportunities for economically distressed portions of the community.

1. Reduce Congestion and Delay

Travel delay and congestion occur frequently for passenger travel, rail freight, and emergency response vehicles as a result of the BNSF/UPRR diamond crossing and numerous at-grade public railroad crossings. With the removal of the at-grade diamond crossing and five at-grade public railroad auto crossings, trains traveling on both rail lines will be able to travel at faster speeds, and without stop requirements. The result will be shorter travel times for both BNSF and UPRR trains, conservatively amounting to an estimated 930 hours of reduced travel time in the first year of operation.

Of the five at-grade crossings involved, the most heavily traveled is Will Rogers Blvd., where daily crossing volumes approach 20,000. Blue Starr Dr. crossing volumes are 10,500 per day. Because of traffic volumes and the complexities of two additional streets (J.M. Davis Blvd.), a minor arterial immediately east

of the railroad serving many of the businesses in the area, and SH 66 running parallel to the BNSF, congestion and delay present a continuing problem for the half-mile radius surrounding the central business district (CBD) of Claremore. This project will eliminate the railroad induced vehicle congestion and delay at the BNSF crossings and greatly reduce the length of delay at the UPRR crossings. Motor vehicle travel time savings for the first year of project operation are estimated at nearly 22,000 hours for the UPRR at-grade public railroad crossings, and nearly 28,500 hours at the (eliminated) BNSF crossings. This is a total savings of approximately 51,000 hours (the equivalent of 24 years of regular 9 to 5 workdays!).

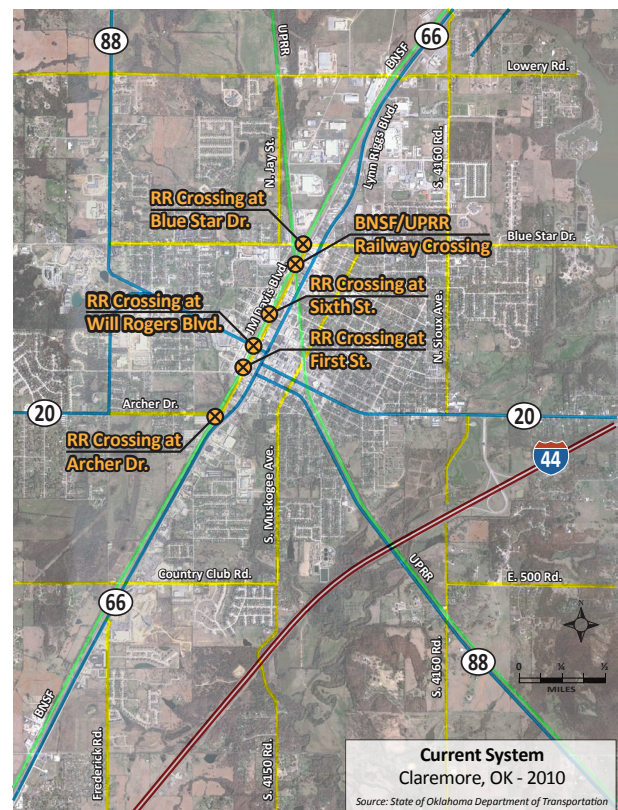


Figure 3: Current Rail Crossings in Claremore

Annual vehicle travel time savings from the project will increase over the years as both rail and road traffic continues to grow.

2. Improve Safety

Safety is a significant issue in relation to the numerous at-grade public railroad crossings. Over the past 11 years, fatal crashes have occurred at two of the locations, and injuries have been sustained at Blue Starr Drive, Sixth Street and Archer Drive. Not surprisingly, an analysis of collision rates on the state highways surrounding the city center showed that crashes were significantly higher there than on similar roadways in the state. The project will eliminate rail/highway crossing crashes at five at-grade public railroad crossings (Figure 4).

Emergency Medical Service (EMS) response vehicles experience daily hold ups by trains; if not multiple times per day. This situation affects access to both the Claremore Regional Hospital and the Claremore Indian Hospital. Last year the city completed a third fire station to provide better response coverage for emergencies, but the trains continue to delay services. Police cars are met with similar impediments. The local ambulance service likely has the greatest challenge with a single station along J.M. Davis Blvd. When a train is on the BNSF track, they are unable to respond promptly to the west side of Claremore. All of these delays contribute to additional injuries and fatalities. Both will be reduced with this project.

The Claremore grade separation project also eliminates potential train to train collisions and possible hazardous materials contamination by removing the diamond crossing. Both train/

vehicle collisions and train/train collisions can have devastating community impacts.

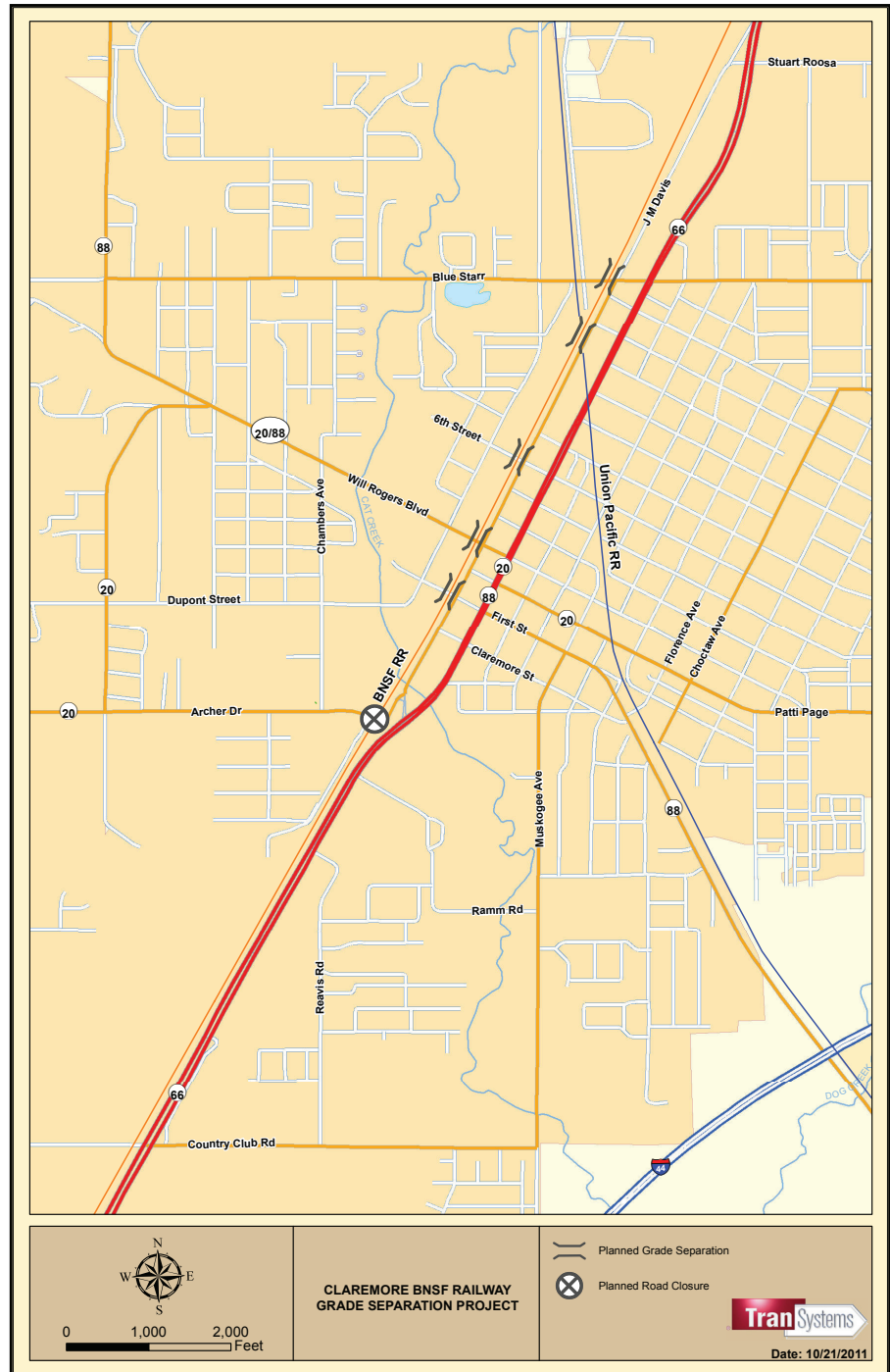


Figure 4: Location Map – Claremore Railway Grade Separation Project

3. Expedite Goods Movement on the Rail Network

Freight trains of grain and coal move through Claremore by rail each day. Trains operate at 50 percent of maximum speed, because of a slow order assigned as a result of the diamond crossing. Removal of the crossing will allow higher approved speeds, eliminate train queues and minimize delays while improving the efficiency of the regional and national rail network.

4. Increase Development Opportunities

Unencumbered by the at-grade public railroad crossings in the middle of the city, land use development opportunities will expand. For example, over 100 acres west of SH 66 between Archer Dr. and Country Club Rd. are constrained from commercial development because of difficult site access. When complete, the BNSF elevated track will allow for sufficient entry to this property on the west side of SH 66. It is also believed that the frequency of train-related delays for auto travelers reduces tourist and shopping trips to downtown Claremore, and restricts development in the area.

5. Strengthen Community Livability

The current location of the railroad imposes a physical division in the community of Claremore. Elevating the BNSF will provide greater ease of access between the different neighborhoods and public services, workplaces, and commercial locations in

Claremore. Pedestrians and bicycle users finally will be able to take advantage of the City's trail system without having to be concerned with the hazards of at-grade crossings. The project will also reduce the need for train horns and crossing-gate bells related to the BNSF trains, which will decrease the noise level in the surrounding community. It is clear that grade separation will provide for safer, smoother and quieter travel in and through the Claremore area.

This project will undoubtedly lead to many substantial benefits for the local economy in Claremore including affordable quality housing, job creation, and reduction of the current carbon footprint.

Tim Hight, Executive Director, CIEDA, Claremore, Oklahoma

6. Create Opportunities in Economically Distressed Area

Rogers County, for which Claremore serves as the county seat, does not meet the definition of an Economically Distressed Area (EDA). However, the area made up of census block groups immediately adjacent to the two mile rail grade separation project had a median household income in 2000 of \$29,815. This is below the EDA definitional threshold of \$30,892. In 2000, the unemployment rate in the immediate project area was twice that of the city as a whole. The population distribution according to both age and racial composition

is very similar when comparing the city and the area immediately adjacent to the project. There is a slightly higher incidence of people with disabilities (23 percent versus 19 percent), and people who do not own a personal motor vehicle (10 percent versus 8.5 percent) in the project area. All will benefit from easier access to jobs and new development opportunities with the grade separated railroad corridor.

D. Proposed Project Overcomes Obstacles and Creates Cohesion

The 2006 Railroad Study for Improvement Projects (ODOT 2006), presented the concept of elevating the BNSF for the two mile downtown segment between Stewart Roosa Dr. on the north and S. Reavis Rd. on the south. The current concept for this project gradually shifts the mainline 55 feet east and elevates the railroad with embankments and bridges. The project concept is illustrated in **Figure 4**. (Plan and Profile sheets are posted on the project website.) Roadway underpasses are provided at Blue Starr Dr., Sixth St., Will Rogers Blvd., First St. and Claremore St. The project calls for Archer St. to be closed.

A business park immediately north of the City limits will allow for relocation of the two downtown businesses affected by the grade separation project.

Table 1: Sources and Uses of Funds (000s of 2011 \$)

| Claremore-Elevated Freight RR, Grade Sep -2011- | Source of Funds | | | | | | | | |
|---|-----------------|----------------------------|-----------|----------------------|-------------|------------------|----------------|-------------------|---------------------|
| | Total Cost | Total HPP Congress'l Appr. | FRA funds | Okla Fed. Apporntm't | State Funds | Local Govt Funds | BNSF/ Other \$ | TIGER III Request | Total Funds Secured |
| Use of Funds | | | | | | | | | |
| Engineering & Environmental Studies | 2,500.00 | 2,500.00 | | | | | | | 2,500.00 |
| Construction (capital and support) | 46,877.35 | 320.00 | 332.50 | | 34,224.85 | 2,000.00 | 1,000.00 | 9,000.00 | 37,877.35 |
| Other / Unspecified | 3,000.00 | 1,780.00 | | | 1,220.00 | | | | 3,000.00 |
| Percent of Total | | 8.8% | 0.6% | 0.0% | 57.3% | 3.8% | 1.9% | 17.2% | 82.8% |
| TOTAL | 52,377.35 | 4,600.00 | 332.50 | 0.00 | 35,444.85 | 2,000.00 | 1,000.00 | 9,000.00 | 43,377.35 |

Source: Oklahoma Department of Transportation
 Note: Table totals may be slightly different due to rounding

II. PROJECT PARTNERS

A. Grant Recipient

Oklahoma Department of Transportation (ODOT)—ODOT will sponsor, manage, and provide oversight for this project.

B. Other Parties Providing Financial Support

Other project supporters include BNSF Railway, City of Claremore, Federal Highway Administration (FHWA), State of Oklahoma, and the Federal Railroad Administration (FRA). See **Table 2**.

III. GRANT FUNDS AND PROJECT COSTS

The total project cost, \$52.4 million; the amount of TIGER III Funding requested, \$9.0 million; and the amount that has been secured, \$43.4 million is provided in **Table 1**. The cost breakdown also shows use of funds by source.

IV. SELECTION CRITERIA

A. Long Term Outcomes

1. State of Good Repair

The project improves the condition of a portion of the existing BNSF Cherokee Subdivision by replacing approximately 2.0 miles of the existing rail infrastructure. Included in this upgrade will be the elimination of the existing UPRR/BNSF diamond crossing, replacing four existing at-grade public railroad crossings with bridges and closing one at-grade public railroad crossing. The project also will improve the existing track condition of the railroad and will decrease operating and maintenance expenses. The diamond crossing is expensive to operate because conflicting routes must be controlled by interlocked signals, and it is costly to maintain because of the heavy and frequent pounding of freight trains. These costs, averaging

\$65,000 annually, will be avoided with the elimination of the diamond crossing.

This project is consistent with efforts to maintain the existing Oklahoma State Highway System and to minimize highway–railroad safety conflicts. This is of primary national importance to the railroad industry as evidenced by the Operation Lifesaver Program (www.operationlifesaver.org). The state has approximately 4,000 at-grade public railroad crossings, and about half utilize passive devices (signs). The state has an excellent history of working with communities and railroads to consolidate and reduce the number of at-grade public railroad crossings, using procedures developed in collaboration with public safety and education agencies, local governments, public interest groups, motor vehicle users and railroads. (See Final Report of Oklahoma Railroad Grade Crossing Safety Task Force on project website). Both BNSF

and UPRR see substantially reducing at-grade public railroad crossings as a top priority in their efforts to maintain systemwide safety standards (www.uprr.com/she/safety.index.shtml; www.bnsf.com/communities/safety-and-security/railroad-grade-crossings/grade_crossing).

The project plan, community support, and ODOT's commitment to asset management ensure that the investment of federal dollars will yield benefits for years to come. ODOT maintains an ongoing highway and bridge maintenance program and will follow standard operating procedures for maintaining the underpasses. The railroads as private sector entities are responsible for railroad maintenance and repair. The Department will work with BNSF on joint maintenance of the bridge structures. BNSF will perform track inspections and repairs in conformance with FRA standards.

A sustainable revenue source is available for long-term operations and maintenance of the highway underpasses. ODOT maintains an Eight Year Construction Work Plan and also devotes \$125,000,000 annually to maintenance of the state highway system. The city of Claremore is currently developing a transportation plan, which will serve as an element of the Claremore Comprehensive Plan. The city has maintained a capital improvements program (CIP) for ten years, and maintains its infrastructure with scheduled repair, maintenance and replacement. The city has also maintained a successful history

of passing bond issues and has a current bonded indebtedness of \$24,300,000 (City of Claremore Funding Requirements, 2009).

The congestion from the railroad not only hampers community activities but also endangers the general public.

Brant Shallenburger, Former Mayor, City of Claremore

Regarding a long term revenue stream for the railroad, the BNSF is a fiscally sound operation with total assets of \$36.4 billion and total operating revenue of \$18 billion. Its intermodal businesses surpassed the \$2 billion yearly revenue mark in 2005 (BNSF Employee Magazine). The Corporation conducts an annual audit through an independent auditor, and submits the report in accordance with requirements of the Securities and Exchange Commission (BNSF, 2008 Corporate Audit).

2. Economic Competitiveness

Claremore sits at the crossroads of two Class I railroads, BNSF and UPRR, and three major state highways, SH 66, SH 20, and SH 88. These corridors include a component of BNSF's Intermodal Network and provide connectivity to the Tulsa International Airport and ports on the nation's inland waterways. They connect to I-40, I-35, and I-44, and are vital to the regional and national flow of travelers and freight. US 69, passing through the eastern half of Oklahoma, has emerged

as a relief route for commercial motor vehicles transporting goods from the Gulf Coast and Mexico to the northeast. This route is nearing capacity. The importance of strengthening the nation's rail network as a viable mode for shipping high volume, heavy-weight products and eliminating conflicts and slow speed operations cannot be overstated. Given the long-term future of energy prices and crowded highways, this becomes imperative. Both the BNSF and the UPRR lines through Claremore offer an important mode for cost-efficient and fuel-efficient shipment of goods on a route proximate to the congested highway network. Moving freight by rail provides significant public benefits, namely reduced highway congestion, improved mobility, energy efficiency, and cleaner air.

Project's Role in the Claremore Economy.

Claremore is home to a population of around 18,580 residents and 16,000 jobs (2010 U.S. Census and Claremore, OK). Being a county seat and the primary trade center for Rogers County, Claremore's economy is diversified, with wholesale and retail trades being of greater importance than the service trades and professions. The largest number of jobs is in the government and education sector, with just over a quarter of all jobs. Major public sector employers include Rogers State University, Claremore Regional Hospital and the city government. A significant number of jobs are also within the manufacturing and service sectors.

Tourism also plays an important role in Claremore’s economy. The downtown has retained a good deal of its historical character. The town draws visitors to the Patti Page and Will Rogers homes and museums, and historical attractions such as the J.M. Davis Arms and Historical Museum (**Figure 5**). It is also located along Historic Route 66, notable not only as the “Mother Road” that transported Americans from Chicago to Los Angeles, but also for its scenic routes across middle America. Today SH 66 is a part of the National Scenic Byways system (www.okscenicbyways.org).

Claremore is a growing city in one of the state’s most rapidly growing counties, and is an attractive residential area for employees from nearby counties and towns. Claremore and Rogers County have their own economic and social identity, but they are also part of the Tulsa Metropolitan Area. Of the working residents living in Claremore, about 40 percent commute to Tulsa County to work. (Journey to Work Data, U.S. Census).

“The city’s snarled traffic patterns at railroad crossings that can require twenty minutes or more to traverse the city can encourage residents, especially those on the west side of the city closest to Tulsa, to drive there to shop, thereby robbing Claremore of badly needed tax revenue.”

The City of Claremore 2009 Strategic Plan

Similarly, a substantial number of residents from the surrounding counties make the 20-minute average work commute to Claremore for employment. Included in the Claremore labor shed are economically distressed areas in Rogers County (including Central Claremore, Catoosa and Chelsea), and in neighboring Washington, Tulsa, and Wagoner Counties—to the west, southwest and south, respectively. According to Census Journey-to-Work data, 60 percent of the individuals working in Claremore live in Rogers County and 17 percent live in neighboring Tulsa County. **Table 2** and **Table 3** provide information on the employment and population growth for the project area and region.

Elevation of the BNSF in Claremore will open several areas previously constrained by access problems. Oil and gas related manufacturing and aerospace industries currently located in Rogers County have indicated a willingness to expand should the rail obstructions be mitigated. This, in turn, will offer job opportunities for area unemployed or under-employed workers. The Claremore Comprehensive Plan also designates several areas in north and west Claremore, which are already served by city utilities, as available for commercial and industrial development (See City of Claremore and Rogers County Comprehensive Plan Exhibits for Current Land Use (4.2) and Future Land Use (4.4) on the project website).

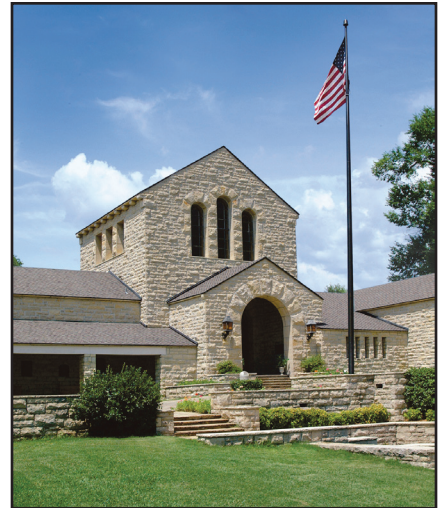


Figure 5: Will Rogers Memorial Museum, Claremore

Economic Impact of Road Vehicle Delays

Reduced train travel speeds on both rail lines combined with train lengths of up to a mile create delays at the current at-grade railroad crossings that average two to three minutes per train. Often delays are much longer when a train is stopped waiting for another train to clear the diamond crossing. These delays affect commuters, tourists, and other auto travelers, as well as trucks, delivery vehicles, and emergency vehicles. A discussion of the value of travel time savings is provided in the cost benefit analysis. In addition to these quantifiable delays, the unpredictability of travel times, and the frequent frustration of waiting for a train create a barrier discouraging travel, and therefore have a negative effect on shopping and residential development. The congestion and frustration also reduces quality of life for existing residents. Delays dampen its attractiveness as a tourist

Table 2: Employment Growth

| Entity | 1990 | 2000 | 2010 | 2030 | 2000-2030 Growth | 2000-2030 Growth (%) |
|-------------------|---------|---------|---------|---------|------------------|----------------------|
| City of Claremore | 9,985 | 14,930 | 15,960 | 18,803 | 3,873 | 25.9% |
| Rogers County | 19,877 | 33,166 | 41,240 | 68,985 | 35,819 | 108.0% |
| Tulsa TMA | 414,617 | 420,020 | 430,000 | 473,000 | 52,980 | 12.6% |

Sources: Indian Nations Council of Governments, www.incog.org; US Bureau of Labor Statistics, www.bls.gov.

Table 3: Population Growth

| Entity | 1990 | 2000 | 2010 | 2030 | 2000-2030 Growth | 2000-2030 Growth (%) |
|-------------------|---------|---------|---------|---------|------------------|----------------------|
| City of Claremore | 13,280 | 15,873 | 18,581 | 22,130 | 6,257 | 39.4% |
| Rogers County | 55,170 | 70,641 | 86,905 | 98,500 | 27,859 | 39.4% |
| Tulsa MSA | 708,954 | 803,235 | 937,478 | 970,300 | 167,065 | 20.8% |

Sources: U.S. Bureau of the Census, www.census.gov, Oklahoma State Data Center, http://www.okcommerce.gov/Libraries/Documents/Population_Projections_2000_City_by_County_140904109.pdf

destination and as a location for new residents. The reduction in tourism depresses local retail sales, restaurant, hotel and other hospitality businesses.

Reducing delays for truck traffic crossing these rail lines will strengthen the local economy by making shipping more reliable for manufacturers, agricultural processors, and other businesses. Blue Starr Dr. is a major access point for industrial properties along Industrial Dr., an area wedged between the rail lines north of the diamond crossing. The only roads that provide access east and west of the railroads are Blue Starr Dr. and Lowery Dr., which is a mile north of Blue Starr Drive. Blue Starr Dr. crosses both rail lines where they are only 400 feet apart, placing this road at a high risk for rail crossing delays and safety problems.

Economic Importance of Freight Rail to Local/Regional/National Economy

According to the American Association of State Highway and Transportation Officials (AASHTO), in the year 2000, the U.S. rail system carried 16 percent of the nation's freight by tonnage. This accounted for 28 percent of total ton-miles, 40 percent of intercity ton-miles, and six percent of freight value. Freight rail provides shippers with cost-effective transportation, especially for heavy and bulky commodities, such as the grain and coal shipments going through Claremore. Rail services are a critical factor in retaining and attracting industries central to state and regional economies. If all rail freight were shifted to trucks tomorrow, it would cost current rail shippers an additional \$1.4 trillion over the next 20 years—causing significant changes in business and consumer costs

(AASHTO Freight Rail Bottom Line Report, July 2009).

Grain and non-metallic minerals such as stone, clay and concrete products used in the construction industry head the list of rail-borne commodities originating in Oklahoma. Coal accounts for the lion's share of product terminating in the state. Most of the rail movements, however, are through-traffic, and coal and grain are the dominant products carried. Freight flows of grain and coal shipments are particularly critical since a delay resulting from diamond crossing operations or a vehicle/train collision would interrupt the scheduled flow of goods that feed the nation and fuel its power plants.

BNSF Line Important for National Defense

Military equipment is also shipped through Claremore. Primarily used



Figure 6: Existing Condition at Will Rogers Boulevard with At-Grade Public Railroad Crossing



Figure 7: Simulation of Future Condition at Will Rogers Boulevard with Grade Separated Crossing

during contingency operations, the BNSF transports military tanks and other supplies from the south to the eastern U.S. through Claremore. For example, in the two years following September 2001, the U.S. Department of Defense shipped cargo to various ports including three on the East Coast. One of the most important considerations in moving military cargo during contingency operations is the ability to move goods safely and swiftly. Taking one particular route out of service may result in a total standstill of traffic in the event of an accident or incident on the remaining rail lines. It is clear that delays in shipping military cargo, particularly during times of special operations, are highly undesirable and may have severe consequences. To this end, the elevation of the railroad, by increasing speeds and reducing the chance of accidents that stop the flow of traffic, can be of great assistance in expediting military readiness and supporting the national defense.

Economic Importance of Waterways and Intermodal Options

The Tulsa Port of Catoosa is located at the head of the navigation channel for the McClellan Kerr Arkansas River Navigation System (MKARNS), about 12 miles southwest of Claremore. The 445 mile waterway links Oklahoma and the surrounding five-state area with ports on the U.S. Inland waterway system. MKARNS also connects the region to foreign and domestic ports beyond, by way of New Orleans and the Gulf Intra-coastal Waterway (**Figure 8**). The port complex encompasses an industrial park and terminal for public and private barge operations. The port's intermodal capabilities include barge switching service, in-port rail operations, pipelines, and access to BNSF.

Connections between Claremore and Catoosa are important, with industries having access to the

Port of Catoosa by rail or truck. More than two million tons of cargo in 1,300 barges is shipped annually through the Port of Catoosa. The port is responsible for returning \$2.8 billion in annual benefits to the regional economy (Tulsa Port of Catoosa Annual Report, 2008).

Future Transload Facility

Recently the U.S. Economic Development Administration announced a grant to fund construction of a regional railroad-based transload facility in Claremore's North Business Park. The facility will allow goods to be transferred easily between trucks and railcars so that shippers can take advantage of rail's low long-haul transport costs, while still having truck's shipping flexibility to reach all destinations.

The new facility will enhance the ability of regional manufacturers to transport goods and will help the region become more disaster resilient by providing additional,



Figure 8: Tulsa Port of Catoosa Connection to National Waterways

alternative transportation options during major flooding events and severe weather. For over 20 years, the Tulsa Port of Catoosa has served countless eastern Oklahoma’s businesses. However, severe weather, such as flooding and/or ice prevents current users from gaining access to the waterway for weeks or sometimes months out of the year. Development of a multimodal rail and trucking transportation center for businesses located in the region will be a huge boost for

businesses that may be hindered by periods of inactivity at the Port of Catoosa or ice on the roads. For these businesses, future rail improvements will provide them with important options to continue shipping goods even when the Port is inaccessible.

3. Livability

The elevation of the BNSF and the addition of roadway underpasses will improve the livability of Claremore in several

areas. This includes but is not limited to improved travel time, and improved public safety and emergency services response times. **Figure 9** illustrates the difficulties often encountered by EMS vehicles at the at-grade crossings.

After the project is implemented, the city will experience a sensation of public space that not only feels, but in fact is, more unified because of improved capacity to see and move more easily about the city center. The clang of warning signals at the existing at-grade railroad crossings will be eliminated. Regular use of train horns by the BNSF railway in the affected area will be noticeable by its absence.

The project enhances user mobility by creating more options. A ten-foot sidewalk will be added on Blue Starr Dr., and four- or five-foot sidewalks will be added along First St., Will Rogers Blvd. and Claremore St. With the exception of Will Rogers Blvd., all of these sidewalk additions will be on both sides. The existing trail along Blue Starr Dr. and planned trail extensions along SH 66, Will Rogers Blvd., and other parts of the city will be more appealing following project completion.

The elimination of five at-grade public railroad crossings will make it easier for area residents and visitors to choose from various modes including walking, bicycling, or driving. The sidewalks, lighting, and other features of the project will make walking safer and more conducive to bicyclists, pedestrians, individuals who need



Figure 9: Pafford EMS Vehicle Blocked at Rail Crossing in Claremore

Source: ODOT photo

accessible pathways, and others who use a non-driving mode of transportation. Routine travel to work and school will flow more smoothly.

According to the Center for Neighborhood Technology's Housing + Transportation Affordability Index, the average Rogers County household spends over 28 percent of its income on transportation. Because of less time spent in idle mode, as well as more travel activities completed by walking or bicycling, area residents will see a reduction in fuel expenditures and improved air quality.

The concept for the railroad elevation and elimination of at-grade crossings was developed over a series of years with planning efforts including extensive community engagement and rail company support. These include but are not limited to:

- Railroad (Feasibility) Study for Improvement Projects, ODOT, September 2006.

- City of Claremore Comprehensive Plan, 2006.
- Environmental Assessment on SH 88 in Claremore from Blue Starr Drive southeast approximately 4.5 miles to Flint Road, Rogers County, Oklahoma. 2006.
- Claremore Railroad Overpass Feasibility Study, ODOT, June 2003.
- U.S. Department of Transportation Federal Highway Administration and ODOT Planning Division. "SH 20, from US 75 East to Claremore, Tulsa and Rogers Counties Oklahoma, Environmental Assessment", Oklahoma City, Oklahoma, 2000.

These planning efforts considered the interaction of land use and transportation. They included public hearings, neighborhood and community meetings to solicit and respond to public comments.

Police, fire and ambulance services are regularly delayed by railroad traffic making it increasingly difficult to navigate safely and quickly when responding to emergency calls.

Claremore Chief of Police

4. Sustainability

The project promotes a more environmentally sustainable transportation system. With steadily increasing highway congestion and an inevitably shrinking oil supply, it is increasingly important to develop other modal choices. This project will improve rail as a choice for freight shipping. It will reduce emissions, save fuel, and relieve highway congestion by encouraging freight movements by rail—a more efficient and less polluting option compared to trucks.

The project improves energy efficiency and reduces greenhouse gas emissions primarily because of reduced delay and idling time and in turn reduced emissions. Daily emissions "savings", pollutants not expelled into the air, amount to nearly a ton; the annual savings is in excess of 250 tons. Annual emissions reductions will grow in future years as rail and auto traffic grows. Further information on emissions is available later in the benefit/cost section of this document.

The rail separation project creates other environmental benefits as well. It will reduce locomotive related emissions, and likely will encourage new walking and bicycling travel habits that will replace some traditional motor vehicle use.

Diesel emissions of nitrogen oxides contribute to the formation of ground level ozone. Ozone irritates the respiratory system, and reduces lung capacity. Urban ozone pollution has been linked to increased incidence of respiratory problems such as asthma. The Tulsa metropolitan area experiences high levels of mobile source pollution related to ozone, and is very close to being classified as a nonattainment area for not meeting the National Ambient Air Quality Standards (NAAQS). Such a designation would indicate a serious public health issue and have negative economic consequences for the region.

Particulate matter (PM) emissions come from diesel engines. The PM emissions are of lower magnitude than ozone emissions, and are currently not considered as serious a concern as ozone pollution to the Tulsa metropolitan area. It is worth noting that exhaust of particulate matter, commonly known as soot, irritates the eyes, nose and throat, and contributes to asthma and similar illnesses.

The project is expected to reduce particulate matter emissions from trucks by reducing idling time, as well as by reducing the number of times trucks have to stop

and start at rail crossings. The more efficient movement of well maintained trains through the city of Claremore will clearly reduce emissions. This will contribute to a cleaner environment and easier breathing in the area.

To date, project preliminary engineering plans have incorporated several environmentally-friendly methods and materials. Plan specifications for the project include requirements for the use of recycled aggregates and cementitious materials in concrete and asphalt mixes. Local sources for construction materials are to be given priority over out-of-area sources. Erosion and Sedimentation Control Plans as well as a Dust Control Plan will be included in the construction drawings.

Contractors will be required to divert demolished/removed structures and any paper, cardboard, glass, plastic, and metals from disposal in landfills to recycling centers. Temporary formwork, bracing, scaffolding and other wood products will be required to be Forest Stewardship Council certified. High efficiency lighting will be specified for use in the underpass as well as for replacement street lighting within the project limits.

5. Safety

The likelihood of collisions is a serious concern, especially because of the presence of 50 daily trains and the number of at-grade public railroad crossings. This project will improve the safety of the rail and highway system by eliminating five at-grade public railroad crossings, which will eliminate grade crossing related crashes and associated injuries and fatalities (Table 4).

The project replaces four at-grade railroad crossings with overpasses and closes one crossing. Additionally, because of reducing the number of possible conflicts between commercial motor vehicles and locomotives, where either one or both is carrying hazardous cargo, the likelihood of collisions and release of hazardous materials is minimized.

In addition to the expected reduction of collisions at the at-grade railroad crossings, it is likely that high collision and related injury levels at nearby intersections will decline markedly as well.

An evaluation of crash patterns within approximately one-half mile on either side of the at-grade crossing shows that collision rates

Table 4: Rail-Street/Highway Collisions in the Project Corridor

| Collision Data, 1998–2008 | | | |
|---------------------------|------------|----------|----------------------|
| Total Crashes | Fatalities | Injuries | Property Damage Only |
| 9 | 2 | 5 | 2 |

Source: City of Claremore Police Department, ODOT Traffic Engineering Division, Collision Analysis & Safety Branch; ODOT Rail Division, Safety Branch; US DOT Railroad Crossing Inventory database 2010.

are four to fourteen times as high as they are for comparable facilities in the State of Oklahoma. Most of the collisions (80 percent) are rear-end or angle collisions. The quantity and type of collisions likely can be explained by the difficulty in driving in an environment where there are long queues and numerous, skewed intersections surrounding the at-grade crossings. Even moving to a wider radius of one mile from the crossings, the data show a crash rate of two to five times the average state rate on similar roadways. Eliminating the subject at-grade public railroad crossings is expected to result in a sharp decline in these associated collisions.

B. Job Creation and Economic Stimulus

1. Ready to Move Forward

The Claremore Freight Railroad Grade Separation project is ready to move forward quickly. The National Environmental Policy Act (NEPA) process is expected to be complete by the end of March 2012, and final design will commence immediately thereafter. The project, if funded, is expected to be under contract in June 2013. The construction schedule, including critical path items, is available with the supplemental documents on the project website. The project completion is scheduled for February 2015.

2. Influence on Economically Distressed Areas

The Claremore area has a Northeast Technology Center campus, and there is one in

I am concerned with students attending the university... The proposed project would eliminate multiple at-grade railroad crossing, add sidewalks to the new underpasses, and reduce emissions... Students would have greater means to traverse the city on foot or bicycle, breathe cleaner air, and more efficiently travel from the university to various locations across the city.

*Larry Rice, President,
Rogers State University*

nearby Pryor, Oklahoma, as well. The schools offer training programs in areas such as computer aided manufacturing and construction trades to provide skilled workers for area businesses and industries. The Technology Center and the Northeast Workforce Investment Board work with prospective employees to increase their work readiness or to retrain individuals for current and emerging industry needs. Construction firms are expected to use these resources to hire workers for this project.

According to an analysis by the Indian Nations Council of Governments (INCOG), the metropolitan planning organization (MPO) for the Tulsa area, several census tracts in Claremore and Rogers County are characterized by low and moderate income households. The combination of low income households, under- or

unemployed workers, and local training programs provide great opportunities for the railroad elevation project to have a speedy and positive impact on the hardest hit parts of our economy.

3. Construction Induced Economic Impacts

The Claremore Freight Railway Grade Separation project is expected to create near-term economic benefits for the Rogers County area and the state of Oklahoma. The economic benefits from the project would be driven by an increase in construction spending in the region. These project expenditures would generate a short term increase in demand for engineering and technical services, as well as construction-related labor and materials.

To quantify the near-term economic benefits of this project an analysis was conducted utilizing an input-output modeling framework based on multipliers from MIG Inc., the developers of IMPLAN. For this analysis, national level data was chosen.

The multipliers estimate two types of impacts:

- **Direct/Indirect Impacts:** Direct impacts represent new spending, hiring, and production by civil engineering construction companies to accommodate the demand for resources in order to complete the project. Indirect impacts result from the quantity of inter-industry purchases necessary to support the increase in production from

the construction industry experiencing new demand for its goods and services. All industries that produce goods and services consumed by the construction industry will also increase production and, if necessary, hire new workers to meet the additional demand.

- **Induced Impacts:** Induced impacts stem from the re-spending of wages earned by workers benefitting from the direct and indirect activity within area. For example, if an increase in demand leads to new employment and earnings in a set of industries, workers in these industries will spend some proportion

of their increased earnings at local retail shops, restaurants, and other places of commerce, which would further stimulate economic activity.

The results of the short term economic impacts are shown in **Table 5**.

Assuming the grant is awarded, the Claremore project is expected to generate economic benefits for the region beginning in 2012. An estimated average of 269 jobs will be created annually by the project, including an average of 166 direct jobs per year. **Figure 10** on page 16 shows the profile of average

annual employment generated by the project’s expenditures.

In total, the project is projected to create 1,347 person years of employment, including 831 direct job person years. **Table 6** shows the number of persons directly and indirectly employed on the project per quarter.

The creation of jobs as a result of this project vary by industry. As expected, the civil engineering construction industry is estimated to receive the largest increase in jobs from the project (455 person years), almost all of which are direct jobs created. The other industries that will see the largest

Table 5: Summary of Near-Term Economic Impacts Resulting from the Project

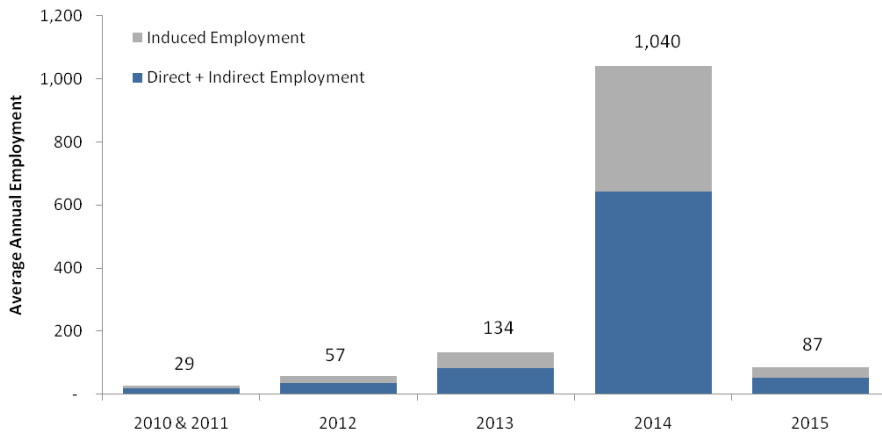
| | |
|---|---------------|
| Project Expenses (2011 \$) | \$53,838,678 |
| Direct/Indirect Impacts | |
| Avg. Annual Jobs Created (full-time equivalent) | 166 |
| Avg. Annual Wages (2011 \$) | > \$45,000 |
| Total (2010–2015) Jobs Created (person-years) | 831 |
| Earnings (2011 \$) | \$41,355,653 |
| Output(2011 \$) | \$159,487,090 |
| Induced Impacts | |
| Avg. Annual Jobs Created (full-time equivalent) | 103 |
| Total (2010–2015) Jobs Created (person-years) | 516 |
| Earnings (2011 \$) | \$25,681,721 |
| Output (2011 \$) | \$61,098,798 |
| TOTAL IMPACTS | |
| Avg. Annual Jobs Created (full-time equivalent) | 269 |
| Total (2010–2015) Jobs Created (person-years) | 1,347 |
| Earnings (2011 \$) | \$67,037,374 |
| Output(2011 \$) | \$159,487,090 |

Source: Calculations are based on IMPLAN multipliers (MIG, Inc.) <http://implan.com/v4/index.php>

Table 6: Direct Jobs by Calendar Year Quarter

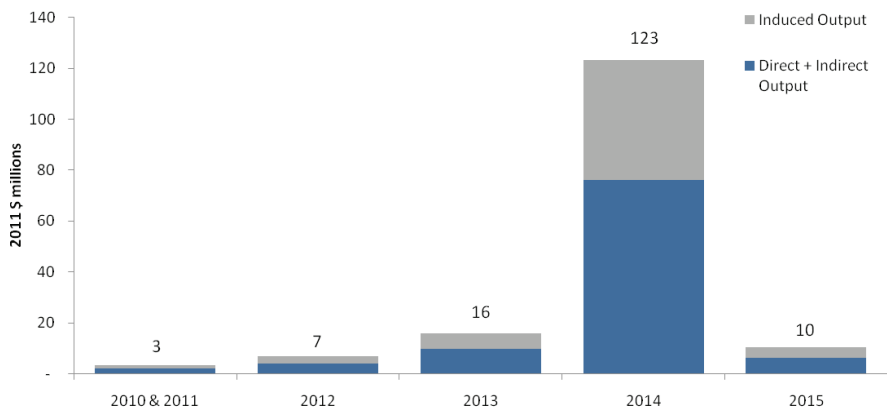
| Year | Quarter | Jobs |
|------|---------|------|
| 2010 | | 17 |
| 2011 | | 0 |
| 2012 | Q1 | 0 |
| | Q2 | 3 |
| | Q3 | 16 |
| | Q4 | 16 |
| 2013 | Q1 | 10 |
| | Q2 | 8 |
| | Q3 | 7 |
| | Q4 | 58 |
| 2014 | Q1 | 161 |
| | Q2 | 160 |
| | Q3 | 160 |
| | Q4 | 160 |
| 2015 | | 55 |

Figure 10: Average Annual Employment per Year During Construction



Source: Calculations are based on IMPLAN multipliers (MIG, Inc.)

Figure 11: Economic Output Generated by Contract



Source: Calculations are based on IMPLAN multipliers (MIG, Inc.)

number of jobs created include manufacturing (241 person years) professional services (99 person years), real estate and rentals (99 person years), retail (88 person years), and finance and insurance (75 person years).

It is also important to consider the quality of the jobs that would be created by the project, which can be measured by the average level of compensation. The average job generated by this project would receive compensation around \$49,750/year, which is above

the 2009 average US per capita income of \$27,041 (2009 \$) and well above the county's 2009 per capita income of \$24,171 (2009 \$). This indicates that the project will help stimulate the regional economy.

The amount of short-term economic activity generated by the project is shown in **Figure 11**. In total, the project would generate \$159 million in real economic output (measured in 2011 dollars), with 3 million dollars of economic output

generated in 2010, \$7 million output generated in 2012, \$16 million generated in 2013 and \$123 million in 2014. The remaining \$10 million of economic output would be generated in 2015.

4. Project Schedule

The schedule that frames the timeline for the aforementioned impacts is the construction schedule developed by ODOT. Major project milestones are shown in **Table 7**. The detailed schedule, calculated by the critical path method, is posted on the project website.

The National Environmental Policy Act (NEPA) process is underway and expected to be completed in March 2012. The project schedule clearly indicates that construction work can be completed by February 2015.

Table 7: Milestones in Claremore Project

| Target Date | Task |
|----------------|-----------------------|
| October 2011 | TIGER 3 submittal |
| March 2012 | NEPA complete |
| June 2013 | Final design complete |
| June 2013 | Obligate funds |
| September 2013 | Construction letting |
| February 2015 | Construction complete |

Source: ODOT, Claremore Construction Schedule, 2011

C. Benefit-Cost Analysis

1. Methodology

The formal benefit-cost analysis (BCA) has been conducted using best practices for BCA in transportation planning, and reflects all TIGER III grant application guidelines. It is important to note that a formal BCA is not a comprehensive measure of a project's total economic impact, as many benefits cannot be readily quantified or occur under conditions of uncertainty.

However, to the maximum extent possible given available data, the formal BCA prepared in connection with this TIGER grant application reflects quantifiable economic benefits. It covers four of the five major long term impact areas identified in the TIGER grant application guidelines. These include:

- **Safety:** eliminating five at-grade public railroad crossings in downtown Claremore, a relatively high traffic area, will yield measurable safety benefits in terms of reduced fatalities, injuries, and other collisions.
- **Long Term Economic Competitiveness:** reducing rail freight delays for two major Class I railroads serving the Tulsa metropolitan area, northeastern Oklahoma, and the wider Oklahoma, Arkansas, Kansas, and Missouri regions will allow industries and agricultural

enterprises to reduce transportation costs, improve their logistics practices, and expand markets for both domestic and international shipments. This will support permanent jobs and improve the competitive position of domestic manufacturers and agricultural enterprises. The rail improvement will make the proposed transmodal facility more efficient, and will improve freight rail efficiency at the Claremore North Business Park as well, if that development proceeds to add rail access as planned. Reduced auto and truck travel times and costs will also make the local and regional roads - as well as the people and businesses that depend on them - more efficient.

- **Sustainability:** reducing idling at public railroad crossings will reduce fuel consumption and vehicle emissions at the crossings.
- **Livability:** the City of Claremore, an important tourism and employment center in the Tulsa metropolitan area, will benefit greatly from fewer and less lengthy traffic back-ups within the central core of the city, better emergency response times, and elimination of a major development barrier within the city itself. The project boosts the local economy and quality of life by enhancing multimodal options for people and freight.

Given the caveats, the computed benefit-cost ratio for the Claremore Railroad Grade-Separation Project is 2.52 using a three percent discount rate, and 1.14 using a discount rate of seven percent. The cost-benefit analysis compares the capital construction costs to the quantifiable benefits of the project including:

- a. Maintenance cost savings;
- b. Travel delay savings for vehicles;
- c. Fuel cost savings for vehicles;
- d. Travel delay savings for rail traffic;
- e. Safety benefits; and
- f. Emissions reduction benefits from reduced idling.

2. Discount Rates

Federal TIGER guidance recommends that applicants discount future benefits and costs to 2011 present values using a real discount rate of three percent when the funds currently dedicated to the project would be other public expenditures. This is the largely the case for this project, although two percent of the project costs are being provided by BNSF. The BCA ratio using a seven percent discount rate is also presented to show that the project's long term benefits outweigh the project's short term construction costs even using the seven percent opportunity cost of money in the private sector.

3. Cost Benefit Results

Table 8 summarizes the costs and the quantifiable benefits of the project in terms of Present Value. Detailed analysis of costs and benefits, including data sources and methodology descriptions are available on the project website.

As shown in **Table 8**, the present value of the project’s capital cost is between \$48.2 million and \$43.3 million, depending on the

discount rate. At the three percent discount rate, benefits exceed costs by more than two and a half times (2.52). At the seven percent discount rate benefits exceed costs by 1.14.

Maintenance Cost Savings

The annual operating and maintenance cost for the new overpass structure will be less than the annual upkeep on the

existing at-grade public railroad crossings. To ensure safety, the existing at-grade railroad crossings require an average maintenance and upkeep of \$15,914 per year per crossing. The diamond interchange sees a great deal of use during the course of the year: and to maintain a state of good repair requires an average of \$64,927 per year.

In comparison, the project provides five overpass structures (four vehicular underpasses and one bridge over the UPRR). Each of the bridges costs \$2,000 annually to maintain.

Combined with track maintenance costs, the overall net maintenance savings after the improvement averages \$137,700 per year. The present value of this savings is also shown in **Table 9**.

Travel Time and Fuel Savings for Vehicles

One of the major benefits of the BNSF overpass is the travel time savings that auto and truck drivers will experience. This results from two project benefits:

- Elimination of train-related delays at the four BNSF

Table 8: Calculation of Benefit Cost Ratio and Net Present Value (in thousands of \$2011)

| Costs | Present Value at 3% | Present Value at 7% |
|--|----------------------------|----------------------------|
| Construction Cost | \$48,204 | \$43,340 |
| Maintenance Costs | \$876 | \$406 |
| Residential Value Offset | (\$2,597) | (\$345) |
| TOTAL COSTS | \$46,483 | \$43,402 |
| Evaluated Benefits | | |
| Maintenance Costs Avoided (for existing BNSF at-grade crossings) | \$4,167 | \$2,003 |
| Vehicle Travel Time Savings | \$32,237 | \$12,671 |
| Vehicle Fuel Cost Savings | \$3,776 | \$1,373 |
| Rail Travel Time Savings | \$36,190 | \$16,098 |
| Safety Benefits | \$38,958 | \$16,867 |
| Emissions Savings | \$1,923 | \$613 |
| TOTAL EVALUATED BENEFITS | \$117,251 | \$49,625 |
| NET PRESENT VALUE | \$70,768 | \$6,223 |
| BENEFIT/COST RATIO | 2.52 | 1.14 |

Table 9: Annual Maintenance Costs in 2011\$

| | Vehicular Crossings | BNSF–UPRR Crossing | Track Maintenance | TOTAL Annual Maintenance Costs | Present Value of Benefits 2015-2064 | |
|--------------------------------|---------------------|--------------------|-------------------|--------------------------------|-------------------------------------|--------------------|
| | | | | | 3% Disc. Rate | 7% Disc. Rate |
| No Build | \$ 79,568 | \$ 64,927 | \$ 31,827 | \$ 176,322 | \$ 24,166,944 | \$ 2,003,006 |
| Build | \$ 8,000 | \$ 2,000 | \$ 28,644 | \$ 38,644 | \$ 875,598 | \$ 405,867 |
| Net Maintenance Savings | | | | \$ 137,677 | \$ 3,291,346 | \$1,597,139 |

intersections that are to be grade-separated and at one intersection scheduled for closure.

- Reduced per-train delay times for vehicles at the eight UPRR intersections, which will remain at-grade.

Significant time savings at the UPRR crossings are achieved because of the elimination of the diamond crossing and resultant free flow of train traffic. Specifically, savings at these intersections will result from the UPRR trains being able to run at higher speeds, and there will no longer be a stop order for UPRR trains if BNSF trains are in the vicinity. This reduces the length of vehicular traffic delay caused by an individual UPRR train.

Auto-related travel time savings for the first year of project operation are estimated at 21,617 hours for the UPRR at-grade crossings, and 27,795 hours at the eliminated BNSF at-grade crossings. This represents a total annual savings of 49,412 hours. With traffic growth rates of 1.45 percent per year, and the effect of additional rail traffic compounding delays, annual travel time savings for vehicles is projected to reach 100,000 hours by 2040.

There would be some interference with vehicular traffic during the project's construction years. However, the delay from construction activities will be minor – detours for a blocked intersection would be only a short distance away given that most of the BNSF at-grade rail crossings are less than 1,000 feet apart. Further, construction could

be done in off-peak periods to minimize delays. Additional work, such as removing the old crossings and re-paving the roadways would be done one lane at a time to reduce interference with traffic flow.

Using average wage rates and hourly truck driver wages recommended in the TIGER website guidance, and assuming 30 percent of travel is work-related, the present value of travel time savings from 2015 to 2064 is \$32.2 million (using a three percent discount rate). Using a seven percent discount rate, the value is \$12.7 million.

In addition to travel time savings, vehicle operators will benefit from the reduced fuel usage resulting from less delay and less time spent idling at rail crossings. An estimated 2.2 million gallons of fuel will be saved between 2015 and 2064. Using fuel price projections from the Energy Information Administration, the present value of this fuel savings is \$3.8 million (using a three percent discount rate) and \$1.4 million (using a seven percent discount rate) (**Table 8**).

Travel Time Savings for Rail Traffic

With the removal of the at-grade diamond interlocker and five at-grade railroad crossings, trains traveling on both rail lines will be able to travel at faster speeds, and without stop requirements. The result will be shorter travel times for both BNSF and UPRR trains. This savings is estimated at 924 hours in the first year of operation (2015).

As a result of the intersection of autos, trucks, and freight trains, delays and congestion produce air pollutants in the Tulsa region, which is already threatened with ozone non-attainment status. The [Grade Separated Freight Railway] project is expected to produce savings to numerous emissions categories, as well as fuel savings ... and these alone justify the project.

J.D. Strong, Secretary of Environment, State of Oklahoma

The value of train time savings was developed based on the hourly variable costs to railroads of running trains, valued at \$1,370 per hour in 2011 dollars. There would be additional value for the train's customers (those shipping and receiving the coal, grain, and other commodities carried); however, these benefits were not assessed for this analysis. Many of the shipped items – while vital for ranching and power generation – are not considered to be items highly sensitive to changes in shipping times.

The resulting present value of train time savings for 2015 to 2064 is \$36.2 million (using a three percent discount rate). Using a seven percent discount rate, the value is \$16.1 million, as shown in **Table 8**.

It is likely that these values are underestimated because of the lack of adequate information on the future value of shipments and the future growth of train

An elevated railroad track will help ensure that precious minutes are not wasted in emergency situations and will improve the safety of the community.

*Chad Smith, Principal Chief,
Cherokee Nation*

traffic. The train traffic growth rate is assumed to be 0.75 percent annually in this analysis. In future years the planned transload facility in north Claremore may greatly increase both the number of trains going through Claremore, and the value of the goods they are carrying.

Safety Benefits

The project is expected to eliminate all rail-related accidents at the at-grade public railroad crossings that are being closed or separated. In the 11 years between 1998 and 2008, there have been nine accidents at the BNSF crossings: two involved fatalities, five involved injuries and the remaining two accidents resulted in property damage.

The benefit cost analysis (BCA) assumes that without the overpass, accidents will occur at the same rate (ten accidents every 11 years under current traffic levels) and at the same average severity (two out of ten accidents will be fatal, five will involve injuries). As noted, Claremore is a growing city, and the safety benefits are expected to grow at the same rate as traffic along these five roads. The forecasted motor vehicle traffic growth along the BNSF crossings averages approximately 1.45 percent per year.

While additional safety benefits would likely result from reduced interference with safe intersection operations upstream of the BNSF rail crossings, this analysis only quantifies the benefits of removing all rail-vehicle crashes at the BNSF at-grade public railroad crossings.

Guidance for the TIGER III grant suggests a valuation of \$6.2 million for each fatal accident. Injuries are valued at an average value of \$113,102, and the property damage only crashes are valued at \$5,129. The present value of the avoided accidents

for 2015 to 2064 is \$39.0 million (using a three percent discount rate) or \$16.9 million (using a seven percent discount rate).

Emissions Reduction Benefits

As vehicular idling and delays are reduced, and speeds increase, the amount of vehicle emissions will be substantially reduced. The estimates include reduction in volatile organic compound emissions of 23.59 grams per vehicle hour, a reduction in nitrogen oxides of 5.8 grams per hour, a reduction in carbon monoxide of 324.64 grams per hour, a reduction in carbon dioxide of 13.2 pounds per hour, and a reduction in particulate matter of a little over one gram per truck hour.

Emissions calculations for 2015 traffic levels are shown in **Table 10**. The values of the pollutants are those recommended in the TIGER guidance, inflated to 2011 dollars. The present value of the resulting yearly stream of benefits is shown in **Table 8** (\$1.9 million using a three percent discount rate and \$0.6 million using a seven percent discount rate).

Table 10: Valuation of Daily Emissions Reduction Benefits in the First Full Year of Project Operation (2016)

| Pollutant | VOC | NO _x | CO | CO ₂ | PM | TOTAL |
|---|----------------|-----------------|-------------|----------------------------------|--------------|-----------------|
| Value per ton | \$1,857 | \$4,370 | \$0 | \$53.22 (increases over time) | \$183,560 | |
| Reduction resulting from project (pounds per day) | 7.2 | 1.8 | 99.8 | 1,837.6 | 0.023 | 1,946.4 |
| Reduction (tons) | 0.0032 | 0.0008 | 0.0445 | 0.8334 | 0.000010 | 0.8820 |
| Daily Value | \$6.01 | \$3.48 | \$0.00 | \$44.35 | \$1.87 | \$55.71 |
| Annual Value | \$2,194 | \$1,269 | \$ - | \$16,188 | \$684 | \$20,335 |

Other Non-Quantifiable Costs and Benefits

- Additional benefits to employers from reduced congestion includes a more productive workforce. Reduced delays will also make it easier to attract employees, improving retention and making it easier to retain and grow businesses in this part of the Tulsa metropolitan area.
- Improved development potential at a 100-acre retail commercial zoned property located south of Archer Street, west of SH 66. The Claremore Economic Development Director stated that with the elimination of conflicts at major at-grade public railroad crossings, “the accessibility and attractiveness of the parcel will increase geometrically.”
- With increased rail freight speeds, the concurrent development of a Transload Facility in the Claremore North Industrial Park, and available real estate experiencing improved access opportunities after the grade separation project is in place, the City is expected to attract other commercial and light industrial development. Several available tracts are served by City services and utilities. Likely prospects include machinery manufacturing, petroleum products manufacturing, transportation equipment manufacturing, tourism, and freight and port service businesses.
- Quality of life: As indicated in **Figure 12**, vital public and health services such as

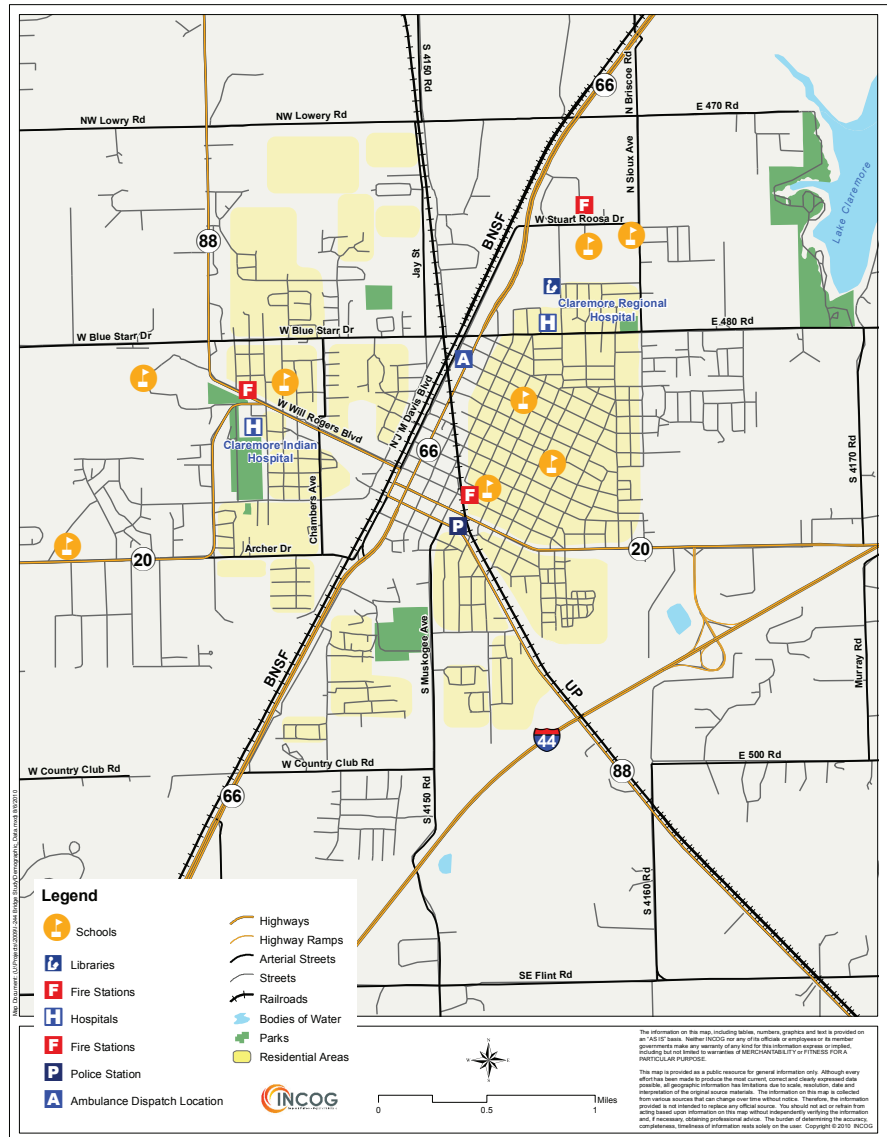


Figure 12: Public Services, Health Services and Claremore neighborhoods

hospitals, police and fire, and schools, will be within easier and more predictable reach of area residents after the project’s completion. Other livability benefits include reduced noise and easier interactions between neighborhoods.

- A potential tradeoff with the project would be the elimination of the industrial rail access track parallel to

the existing BNSF tracks near Will Rogers Boulevard. When the grade of the main railroad track is raised, access to this track will be eliminated. Two businesses are served by this track, and various options to continue service to these businesses are being explored. One possible option would be for the UPRR to deliver the rail cars to these customers using the existing connection track near Blue Starr Drive. Another

possibility is for the businesses to move the shipping portion of their operations to the city's North Industrial Park. It is assumed that the benefits generated by retaining these existing businesses will offset the costs of relocation or reconfiguring shipping arrangements.

While these listed benefits cannot be included in the calculated annual benefit streams that are the basis of this benefit-cost analysis, the benefits are real. Claremore residents, workers, farmers and manufacturers in the region, will experience these benefits, both in the near term and for generations to come.

D. Plan for Evaluation of Project Performance

The project's effectiveness relative to achievement of short term economic recovery goals can be assessed by utilizing information from ODOT's periodic Maintenance of Effort (MOE) reports. These reports help gauge performance on a number of items, including obligation of funds, number of direct and indirect jobs created or sustained, opportunities for low income and minority workers, and opportunities for Disadvantaged Business Enterprises (DBEs), among other factors.

It is difficult to ascertain long term benefits directly and solely attributable to this project. In some cases, benefits may be evident several years after completion of construction. The

following relate to the five long term outcomes:

- **State of Good Repair:** Information on new facility maintenance and a state of good repair can be measured by rail inspection information submitted to FRA.
- **Economic Competitiveness:** The project's contribution to improved economic activity can be measured by changes in per capita income, unemployment measures, and net gain in employment in the county or metropolitan area, etc.
- **Livability:** The project's effect on quality of life can be measured by a comparison of "before and after". Train travel times, train horn noise levels, motor vehicle travel times, miles (and use) of pedestrian and bicycle paths, public safety response times, etc. can be tracked and analyzed over time.
- **Sustainability:** The Tulsa metropolitan area is on the brink of being defined as a nonattainment area for not meeting National Ambient Air Quality Standards (NAAQS) for ozone. Measurement of ozone levels at nearby air-quality monitoring stations can provide an indicator of this project's contribution to reduced ozone levels.
- **Safety:** The project's safety benefits can be measured by reviewing and comparing collision data as collected and maintained by the Oklahoma DOT, FHWA, FMSCA, and FRA.

E. Innovation

Not applicable.

F. Partnerships—Disciplinary Integration and Stakeholder Collaboration

1. Disciplinary Integration

Several groups in Rogers County serve as solid links between contractors and suppliers who need employees and individuals who are unemployed or underemployed and need work. The Northeast Workforce Investment Board, a seven county board in northeast Oklahoma, connects their workforce recruitment efforts with the needs of area businesses. The Rogers County Workforce Oklahoma Center serves both employers and job seekers. The workforce center has staff that specifically focuses on veterans. Recent veteran clients have typically been under 25, transitioning from the Department of Defense as a first career, and experiencing some injury or disability. The center staff has a wide array of databases, training referral sources, etc., to assist these individuals in returning to the workforce.

The Northeast Technology Center works closely with area industries and the Oklahoma Manufacturing Alliance to discern needed skill sets. Then, it customizes training programs at its various campuses to meet these needs. Rogers State University also serves as a network and training resource to assist with matching needs of employers and potential employees. The university runs

an economic and community development program (known as the Innovation Center) whose mission is to foster economic development and address educational needs of area business and industry. The technology and business incubator provides small business counseling services, entrepreneurial training, networking opportunities, workspace, mentoring and more.

The common denominator of all these groups is that they have appropriate resources to communicate with community, business and industry leaders to explain their programs, and to discern employment needs. Additionally, the agencies work with job seekers to assess available skills and preferences. These agencies will provide valuable assistance to economically disadvantaged individuals about possible job or other opportunities as this project advances. ODOT will work directly with these agencies to afford opportunities to their clients.

2. Stakeholder Collaboration

This project has evolved over many years. Numerous individuals and community groups have participated in the process of identifying and clarifying the issues and possible solutions related to the complex maze of transportation facilities. The Claremore Industrial and Economic Development Authority (CIEDA) and the city of Claremore are working together on various projects, and in October 2009 were notified of the award of

a \$250,000 stimulus grant for upgrading the city's traffic control system. Funds will be utilized along the SH 66 corridor to help implement a traffic optimization/synchronization system. The first system element includes the replacement of incandescent signal light bulbs with LED lights at 10 traffic signal locations. This will result in a savings for both maintenance and operations. The city also plans to upgrade the signal controllers at seven intersections. The signal control system will be connected with a wireless network that will monitor all intersections and the adjacent train tracks. The system will improve intersection operations, reduce traffic delay, and therefore carbon emissions in the project vicinity. Related studies indicate possible delay reductions up to 40 percent and vehicle emission reductions of 22 percent (FHWA Traffic Signal Timing Manual FHWA, USDOT, 2008).

By reducing east-west congestion throughout Claremore, the freight railroad grade separation project will complement this current effort to reduce traffic congestion and carbon emissions along SH 66. Together these two projects can substantially ease local traffic flow for residents and greatly reduce Claremore's carbon footprint

Over the past ten years, an estimated 40 plus meetings have been held in the Rogers County area addressing issues related to the railroad and safety, growth, quality of life, and smooth transit in and through the area.

The Livability section outlines railroad and highway studies that reviewed various alternatives and explicitly involved the public through community forums, public meetings, and various information exchanges. Each has helped pave the way for the proposed project.

The broad community support for the recommended solution speaks to the fruitfulness of the multi-year dialogue. The city of Claremore, the Claremore Industrial and Economic Development Authority (CIEDA) and the Cherokee Nation have provided project leadership and support. Support letters from many community groups and individuals, including the following, are available on the project website:

- BNSF Railway
- UPRR
- Cherokee Nation
- City of Claremore
- Oklahoma State Senate, District 2, Hon. Sean Burrage
- Claremore Police Chief
- Claremore Industrial and Economic Development Authority
- Fire Chief and Emergency Management Director, City of Claremore
- Rogers State University, President Larry Rice
- Oklahoma Department of Transportation.

V. PROJECT READINESS AND NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) SCHEDULE

A. Project Schedule

The project schedule with environmental, engineering, design, and construction phases is summarized by year in **Table 11**.

B. Environmental Approvals

The National Environmental Policy Act (NEPA) is expected to be completed in March 2012.

An Environmental Assessment has been initiated for the project, and initial public involvement is complete.

The NEPA document will need to be approved by the Federal Highway Administration (FHWA). The Federal Railroad Administration has agreed to participate as a Cooperating Agency in the environmental review process. The project is not expected to significantly affect the natural, social or economic environment; and a finding of no significant impact (FONSI) is expected. No other state or local environmental requirements/issues are anticipated.

C. Legislative and Planning Issues

There are no legislative hurdles to clear. The project is consistent with state, Metropolitan Planning Organization (MPO) and local plans.

D. Technical and Financial Feasibility

Appropriate assurances from ODOT are included to support the technical and financial feasibility of the project. Documentation regarding the planning documents and technical and financial feasibility is available on the project website.

Table 11: Construction Schedule for Freight Rail Grade Separation Project, Annual Summary

| Uses of Funds - CLAREMORE (In thousands of 2011 dollars) | CALENDAR YEAR | | | | |
|---|--------------------|--------------------|--------------------|---------------------|---------------------|
| | 2010-2011 Total | 2012 Total | 2013 Total | 2014-2015 Total | PROJECT TOTAL |
| Prel Engin/Env. Studies | \$1,115,000 | | - | - | \$1,115,000 |
| Final Engineering | | 596,000 | 79,000 | | 675,000 |
| Final Design | - | 375,000 | 235,000 | | 610,000 |
| Easement Acquisition & Utility Reloc. | - | 1,239,010 | 700,000 | | 1,939,010 |
| Construction Management | - | | | 3,007,000 | 3,007,000 |
| Construction | - | | 4,212,790 | 40,818,550 | 45,031,340 |
| TOTAL | \$1,115,000 | \$2,210,010 | \$5,226,790 | \$43,825,550 | \$52,377,350 |

Source: Claremore Project Schedule, ODOT, 2011; www.okladot.state.us/tiger/tiger_2011_claremore/index.htm

VI. MATERIAL CHANGES TO PRE-APPLICATION FORM

The pre-application listed non-federal funds committed to the project as \$45,467,000. After further clarification of available non-federal funds, the final application lists non-federal funds in the amount of \$38,444,850.

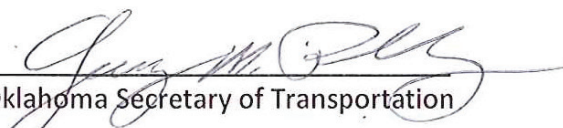
The pre-application project cost estimate was \$59,400,000. After recent refinement of cost estimates, the total project cost in the final application is estimated at \$52,377,350.

VII. FEDERAL WAGE CERTIFICATIONS

As the applicant for TIGER funds, the ODOT will comply with federal wage rate requirements of Subchapter IV of Chapter 31, USC Title 40, as per the FY 2011 Continuing Appropriations Act. A statement to this effect is included below.



As required in the Notice of Funding Availability for the Department of Transportation's National Infrastructure Investments (**TIGER III**) Under the Full-Year Continuing Appropriations, 2011, as printed in the Federal Register, Vol. 76, No. 156, Friday, August 12, 2011, The **Oklahoma Department of Transportation** states and assures that it will comply with the requirements of subchapter IV of chapter 31 of title 40, United States Code, the Federal wage rate requirements.


 Oklahoma Secretary of Transportation

9-15-11

Date