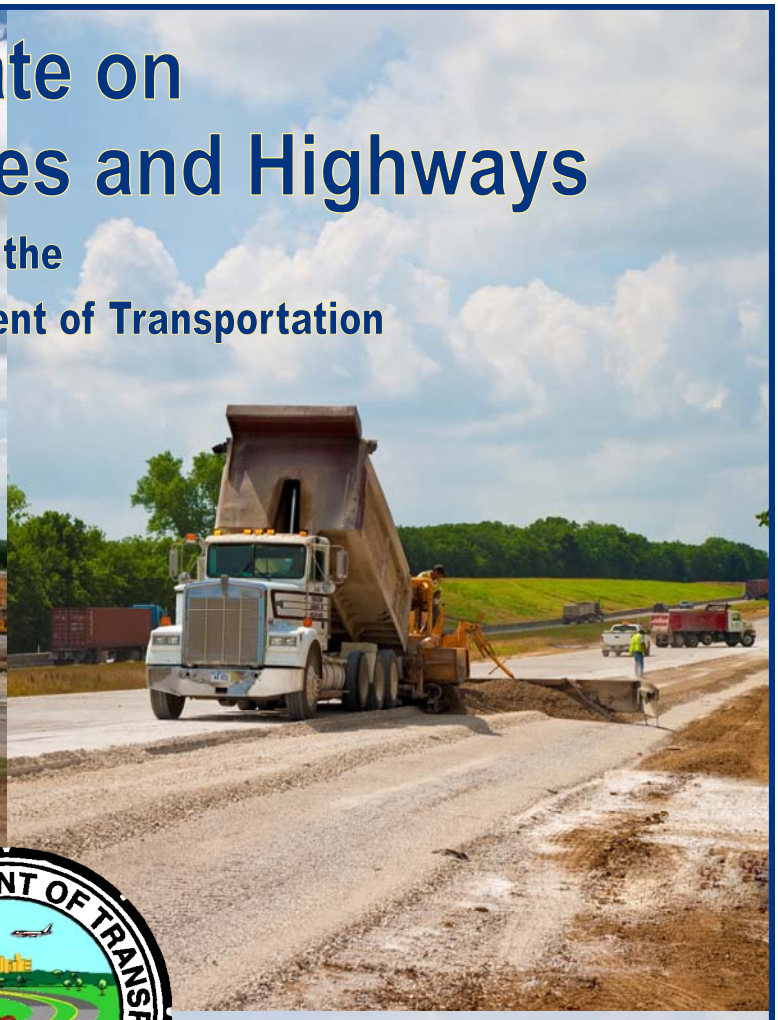
Update on Oklahoma Bridges and Highways

by the

Oklahoma Department of Transportation



Nov. 7, 2011

Oklahoma Bridges and Highways

Oklahoma's State Highway Transportation Infrastructure

Preface

The State owned highway system in Oklahoma is comprised of the State numbered route highways, the US numbered route highways and the interstate highway system. The state system of highways encompasses 12,265 centerline miles as measured in one direction along the dividing stripe of two lane facilities and in one direction along the general median of multilane facilities. Transportation on our highways is also facilitated via 6,788 bridge structures that span major rivers and lakes, named and unnamed perennial streams and creeks, other roads and highways and railroads. On the average, passenger vehicles, buses and light and heavy trucks traveled more than 66 million vehicle miles each day (daily vehicle miles traveled or DVMT) in 2010 on the non-toll highways in the State of Oklahoma.

As the information in this update is considered, it is important to reflect on the conditions, experiences and occurrences that previously defined a highway system in a state of unmanageable disrepair along with the initiative, efforts and dedication that have fueled the improvements we are witnessing today.

While improvements are occurring, Oklahoma's highway system bridge and pavement problems are readily recognized and are a direct result of many years of "deferred maintenance" due to a lack of funding. From 1985 to 2005 state transportation investment was quite simply flat. As a result the condition of the infrastructure experienced a consistent, downward spiral and decline that will take many years of committed, focused and dedicated resources to correct. Prior to 2005 the problem was quickly becoming overwhelming with no viable solution. At that time highway pavements were deteriorating at a rate beyond repair, let alone reconstruction and more than 1,500 of our highway bridges were structurally deficient or functionally obsolete. In January 2006, 137 of those bridge structures across Oklahoma were posted as unable to carry a legally loaded truck.

Understanding that a world class transportation system is the cornerstone of a vibrant economy, a defining quality of life element and a leading factor in growing and attracting new business, the Oklahoma Legislature clearly decided that investing in transportation infrastructure should be a priority of state government. In 2005 these policy makers set about the important business of reversing the devastating trend of the previous 20 years and several pieces of landmark transportation legislation were subsequently crafted and passed. These transportation funding initiatives have introduced new state resources reserved for the construction, care and maintenance of our transportation infrastructure and are unequivocally responsible for the positive results being experienced by travelers on the state highway system.

If these trends are sustained and enhanced, these growing revenue streams represent the true turning point for the future of Oklahoma's transportation assets. Today, the Department is afforded the opportunity to develop an investment strategy and direct a multi-faceted plan that wisely and transparently dedicates the available state and federal transportation resources in a balanced manner. This strategy represents a monumental effort to return not only Oklahoma's bridges, but the highway system as a whole to a state of good function, safety and repair and keep it that way.

Please enjoy the progress described in this update, understand the challenges that lie ahead and most importantly, accept our deepest appreciation for your interest in and support for Oklahoma's transportation system.

Oklahoma Bridges

Oklahoma's Transportation Infrastructure

Condition and Needs Summary

Oklahoma's bridge problem is well recognized. Of the more than 6,700 bridges on the state highway system, 1,290 are either too narrow to support today's traffic or have structural deficiencies, or both. Over the last several decades, Oklahoma consistently ranked at or near the bottom of the list of states with the nation's worst bridge conditions. Crumbling transportation infrastructure and deficient bridges have a detrimental impact on Oklahoma commerce, job creation and economic growth and can even endanger our citizens.

The Oklahoma Department of Transportation has accelerated bridge replacement efforts through a focused and concerted effort made possible by additional state funding provided by the Legislature. This effort has allowed the Department to replace or rehab 626 bridges since January 2006. Even with this progress and our best efforts to gain control of the bridge infrastructure deterioration curve, the conditional problems caused by 20 years of flat state transportation funding continue. An evaluation of the most recent bridge inspection cycle and December 31, 2010 reporting reveals that an estimated 293 structurally deficient bridges were still unfunded in the 2011-2018 Construction Work Plan.

The current 2012-2019 Construction Work Plan includes the replacement or major rehabilitation of 799 bridges which includes an additional 126 that are structurally deficient.

Proposed bridge replacements / major rehabilitations in the 8 Year Construction Work Plan 799
416 structurally deficient bridges are included.

The Department has always envisioned the development of an aggressive bridge rehabilitation program formulated to effect badly needed improvements on marginal bridges, but never possessed the resources required to launch a meaningful initiative. The Department has instituted a bridge specific program designed to be flexible and somewhat reactive. This bridge rehabilitation program allows the Department to stretch our scarce regular maintenance dollars farther. At the same time, the program has proven effective in slowing or stemming further deterioration or functional decline of borderline bridge infrastructure and enhances the ability to manage these transportation assets in a manner that maximizes their life cycle.

Annual investment in bridge rehabilitation.....$30 Million

While these efforts exemplify the wise investment of the available resources, today the Department recognizes 294 bridges that are not in the current 2012-2019 Construction Work Plan in need of complete rehabilitation or replacement including 167 that are currently structurally deficient. Also, we must consider that a continuing long term annual bridge replacement commitment will be required to keep pace with the projected aging and deterioration rates of our current inventory.

Low Sufficiency, Narrow and Structurally Deficient bridges not funded…….....294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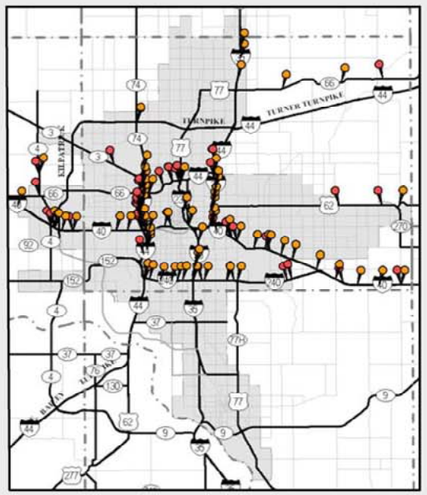
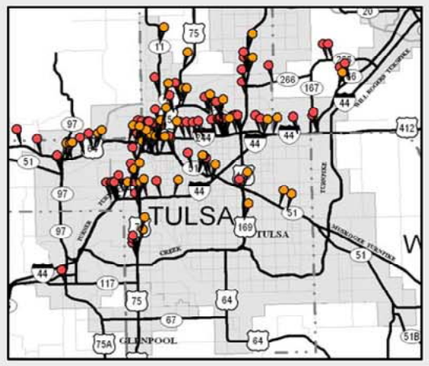


Oklahoma City Metro Area Inset



Tulsa Metro Area Inset

Structurally Deficient (706)*

Functionally Obsolete (580)*

* as of December 2010

County Line

2000 Urban Area

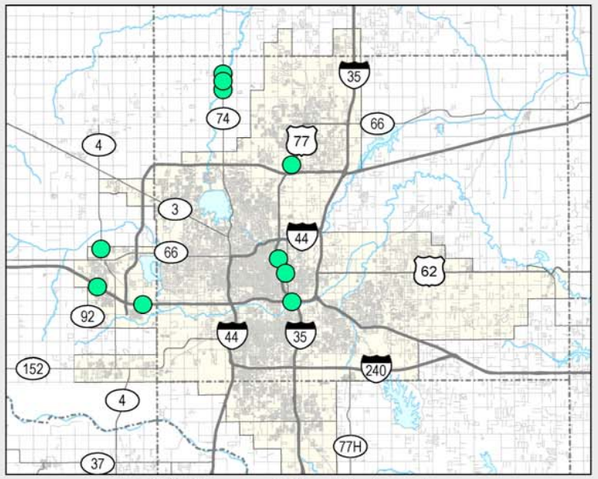
STRUCTURALLY DEFICIENT / FUNCTIONALLY OBSOLETE BRIDGES

***STATE HIGHWAY SYSTEM BRIDGES ONLY**

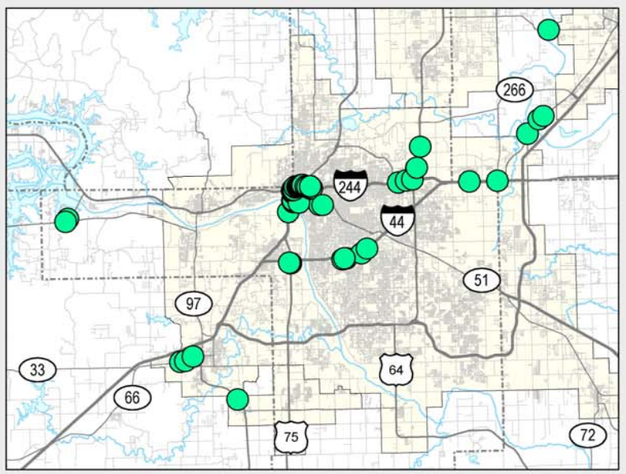
NOTE: The information provided is generated from the National Bridge Inventory system therefore, some of the identified bridges are either under construction or have been recently finished construction

N W E S

October 2011



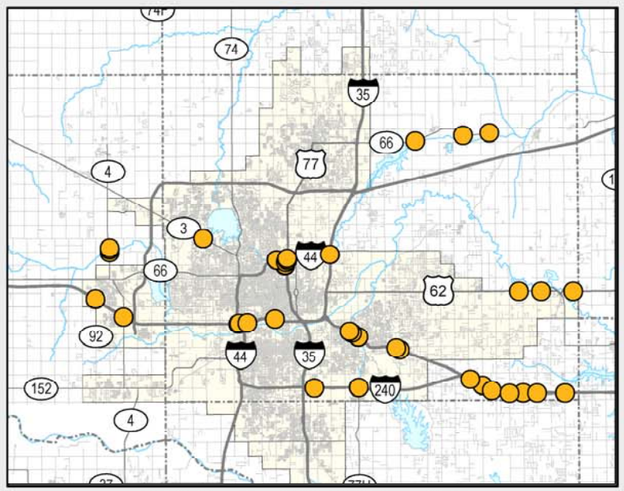
Oklahoma City Metro Area



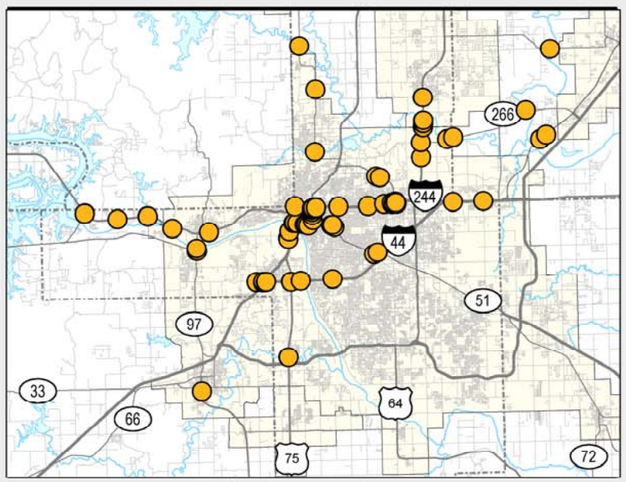
Tulsa Metro Area

626 Bridge Replacements/Major Rehabilitation Projects Completed or Under Construction between January 2006 and October 2011

OCTOBER 2011



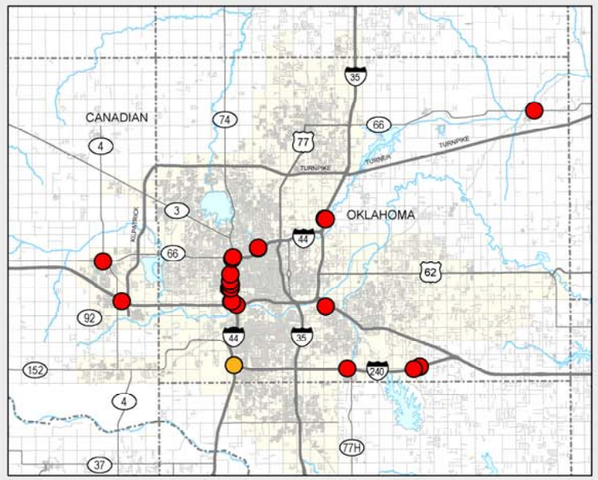
Oklahoma City Metro Area



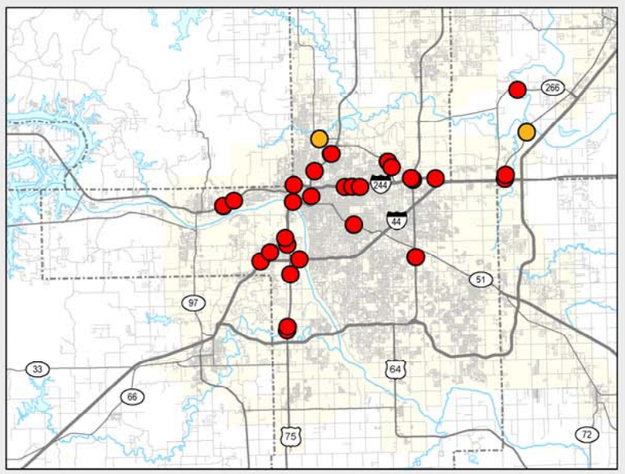
Tulsa Metro Area

8 Year Construction Workplan
799 Bridge Replacements/Major Rehabilitation
Fiscal Years 2012 - 2019

OCTOBER 2011



Oklahoma City Metro Area



Tulsa Metro Area

Narrow or Low Sufficiency

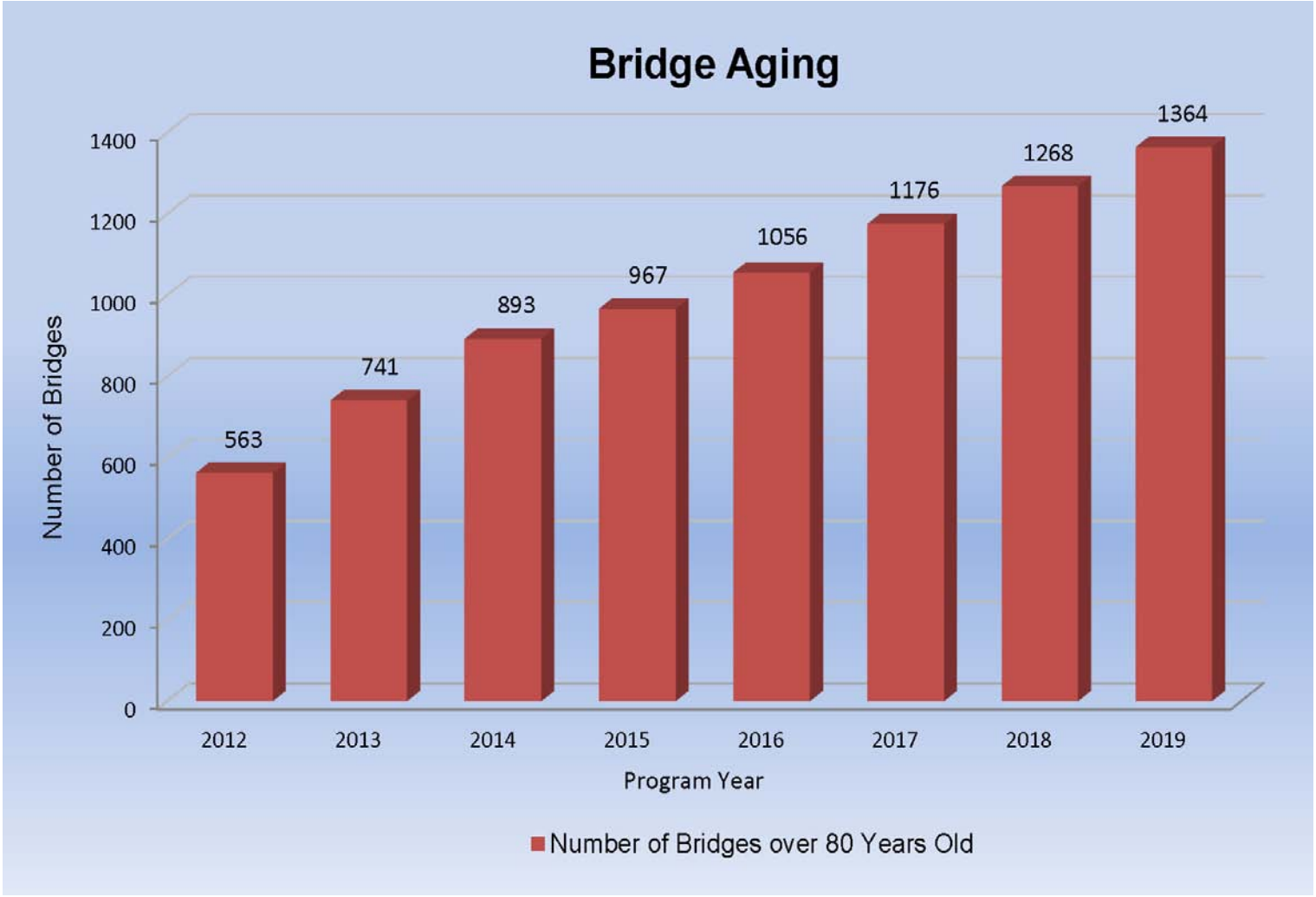
Structurally Deficient

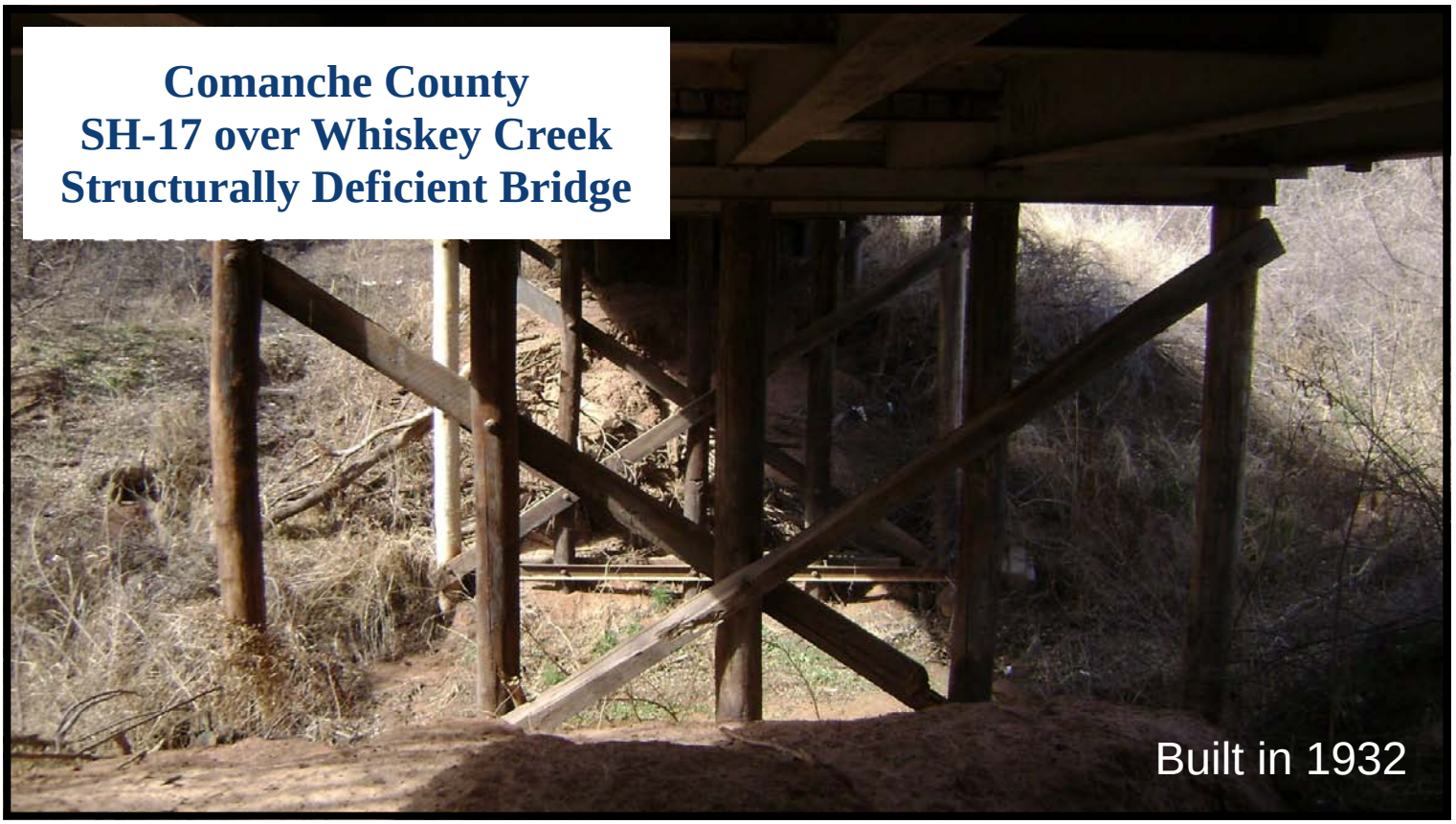
HIGHWAY SYSTEM NEEDS

127 NARROW OR LOW SUFFICIENCY BRIDGES AND
167 STRUCTURALLY DEFICIENT BRIDGES
ODOT HAS IDENTIFIED AS CRITICAL THAT ARE NOT IN THE 8 YEAR WORK PLAN

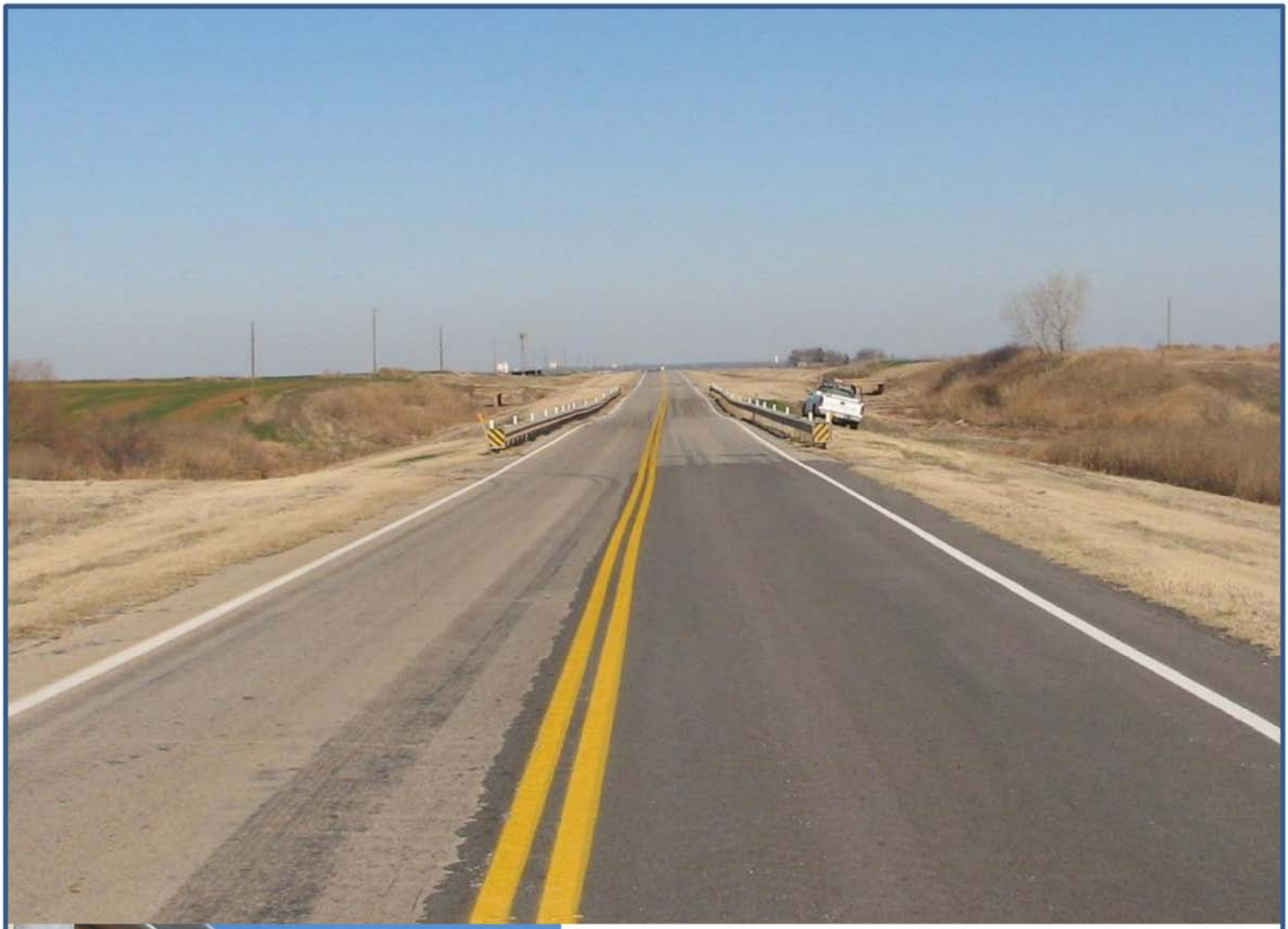
N W E S

October 2011


Bridge Aging
Number of Bridges
1400
1200
1000
800
600
400
200
0
563
741
893
967
1056
1176
1268
1364
2012
2013
2014
2015
2016
2017
2018
2019
Program Year
Number of Bridges over 80 Years Old


Comanche County
SH-17 over Whiskey Creek
Structurally Deficient Bridge
Built in 1932

Johnston County
SH-22 over Butcher Pen Creek
Structurally Deficient Bridge



Alfalfa County
SH-8 over Driftwood Creek
Structurally Deficient Bridge

Woods County
US-281 over Cimarron River
Structurally Deficient Bridge

Highways & Safety

Oklahoma's Transportation Infrastructure

Condition and Needs Summary

Oklahoma's rural nature and historically agricultural based economy has witnessed the conversion of many farm-to-market roads and bridges into highways. While these roads were ideal for transporting livestock and crops to market 70 years ago, they are less than adequate when supporting today's heavier trucks, increased traffic demands and higher operating speeds. Over 4,600 miles of Oklahoma highways are two-lane facilities without paved shoulders.

Shoulders and roadway improvements to two-lane highways without paved shoulders in the 8 Year Construction Work Plan…….…….617 miles

Traffic on our major highways has increased dramatically in the past two decades and is expected to continue to compound for the foreseeable future. The daily vehicle miles traveled on facilities with more than two lanes in 2010 was 47.75 million miles. Improvements to these facilities are often our most expensive and resource consuming projects, but also yield high returns and have an immediate impact on regional traffic patterns. Over 239 miles of interstate pavement have experienced significant rehabilitation or reconstruction since 2003 and an additional 89 miles are included in the Construction Work Plan.

Surface, operational and capacity improvements to high-volume major highways in the 8 Year Construction Work Plan (estimated total investment).....$1.86 Billion

The greatest potential for tragic crossover accidents exists on divided high volume, high speed road and by the end of 2007 crossover collisions were responsible for 39 fatalities. In an effort to dramatically reduce these types of collisions the department began an initiative that same year to install cable median barrier along divided high volume, high speed roads. Beginning with the pilot cable barrier project in 2001 the department has completed or has under construction 480 miles of cable median barrier. By the end of 2010 fatalities resulting from crossover collisions had been reduced by 82%. Although one fatality is one too many, our efforts to protect drivers from crossing open medians has been tremendously successful and will continue where funding is available.

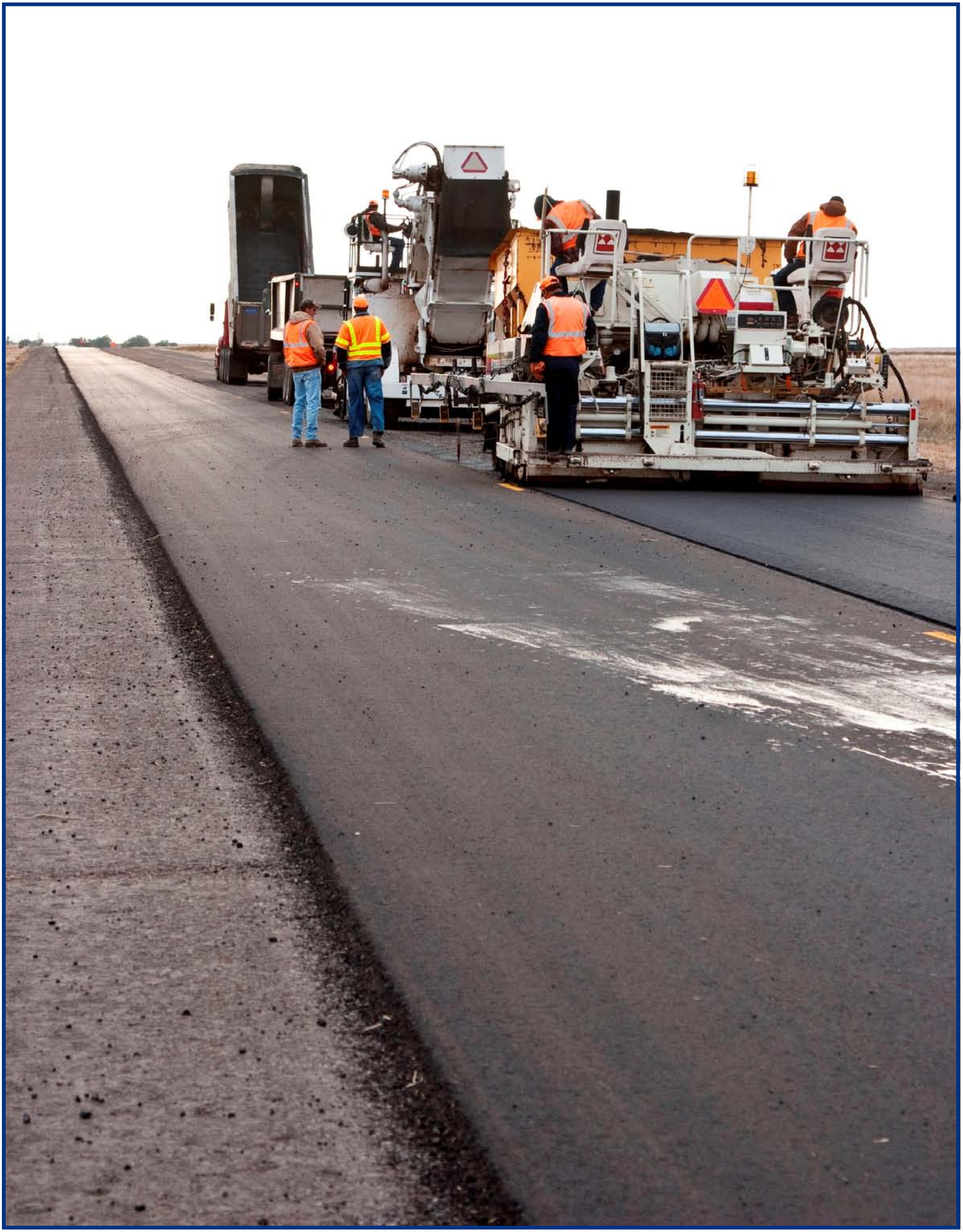
Cable Median Barrier scheduled…….....83 miles

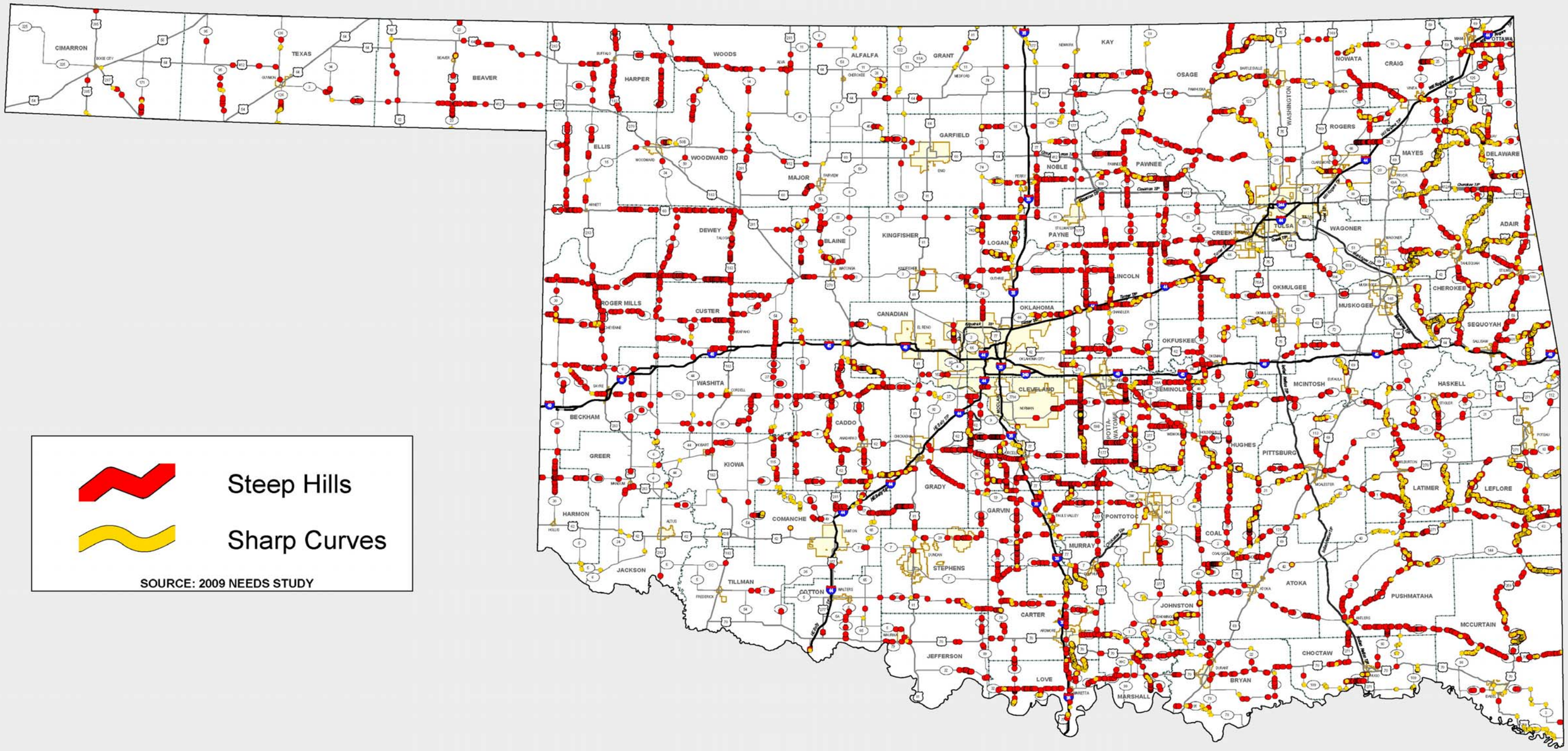
Much like our bridges, our pavement surfaces require systematic rehabilitative attention in order to maximize the life cycle of our highways. In the past it has been impossible for the Department to afford the consideration of such initiatives. As budgetary conditions improve we can invest in and develop a timely surface rehabilitation program with a focus on extending the life of our pavements.

Annual investment in surface rehabilitation.....$65 Million

Based on an evaluation of safety features such as passing opportunities, adequate sight distances, existence of paved shoulders, recovery areas for errant vehicles, and the severity of hills and curves about 31% or approximately 3,859 of our 12,265 miles of highway rate as critical or inadequate which includes 3,360 miles of two-lane highway. Even with the improvements scheduled in the current 8-Year Construction Work Plan over 3,160 miles of inadequate highway will remain unaddressed. To put this distance in the proper perspective, that is the equivalent of driving from Tulsa to Santa Barbara, California and back on a highway with deteriorated pavement or sharp curves, no shoulders, steep hills, blind intersections or high traffic demands. Hundreds of millions of dollars of improvements to our high volume arterial freeways will also go unfunded as the department cannot afford to be proactive or even effectively reactive to these expensive needs. The safety of our transportation system and the traveling public is paramount to our mission and always has our full attention, but many highway safety improvements that could prevent property damage, personal injuries and the tragic loss of life will remain unattended.

Remaining inadequate highways with no improvements scheduled.....3,160 miles





Steep Hills

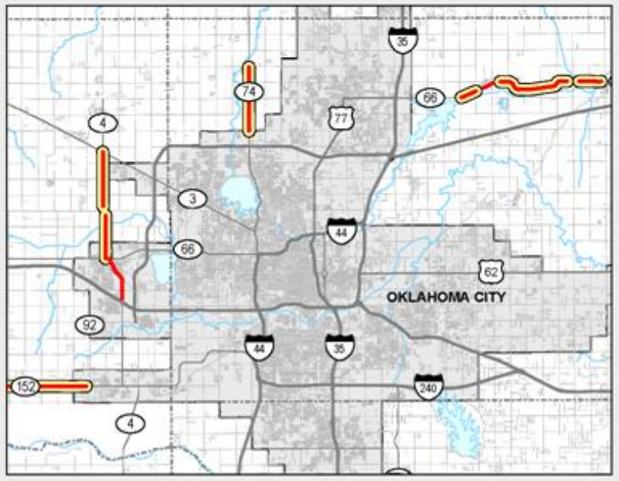
Sharp Curves

SOURCE: 2009 NEEDS STUDY

Steep Hills and Sharp Curves


SCHOOL BUS
YELLOW


SCHOOL BUS



Oklahoma City Metro Area

Tulsa Metro Area

Legend

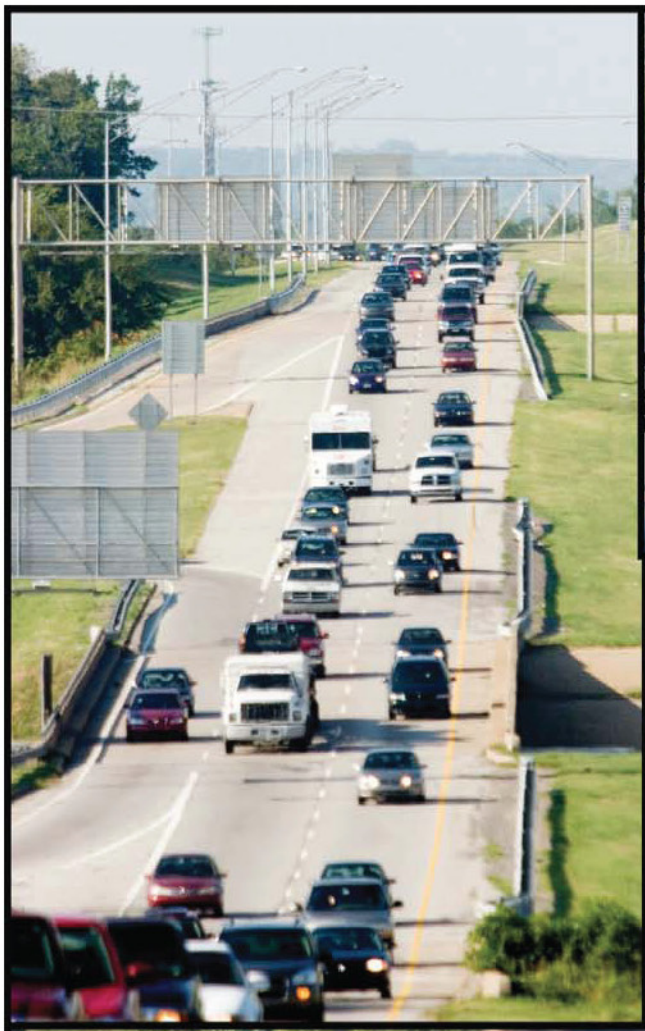
- Two Lane Highway Without Paved Shoulder - 4660 Miles
- HIGHWAY
- COUNTY LINE
- 2012-2019 WorkPlan Construction Projects - 617 Total Miles

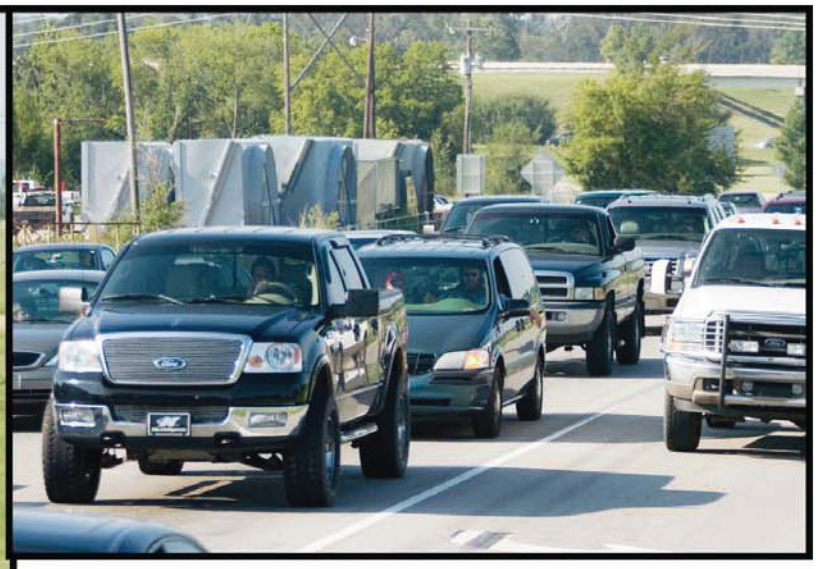
Two Lane Highways Without Paved Shoulders

NOTE: The information provided is generated from the Roadway Inventory system therefore, some of the identified roadways are either under construction or have recently finished construction.

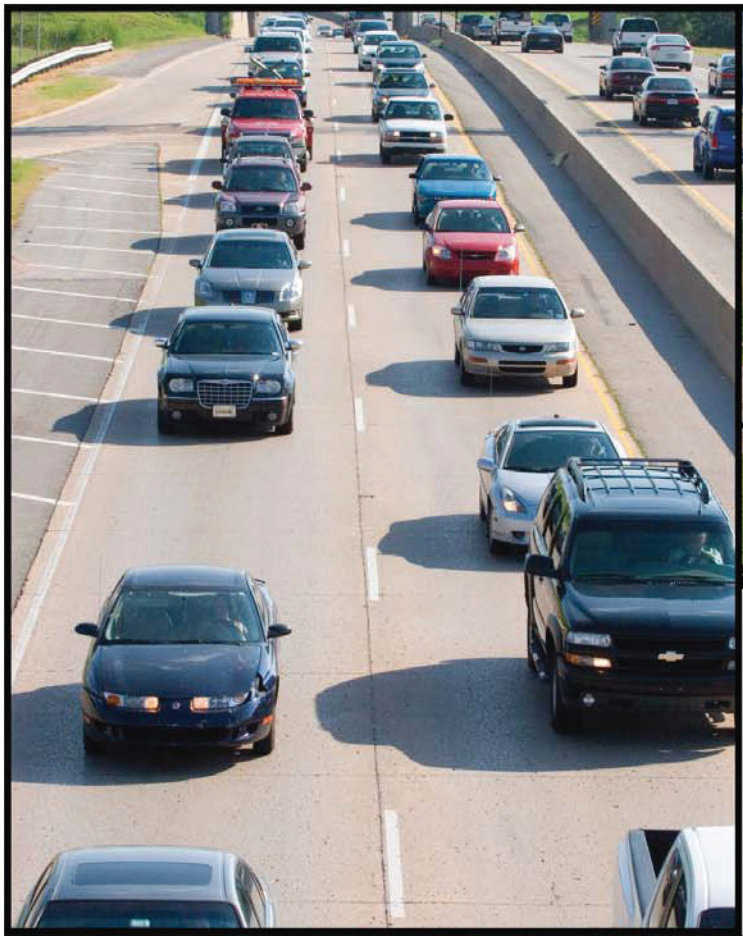
N W E S

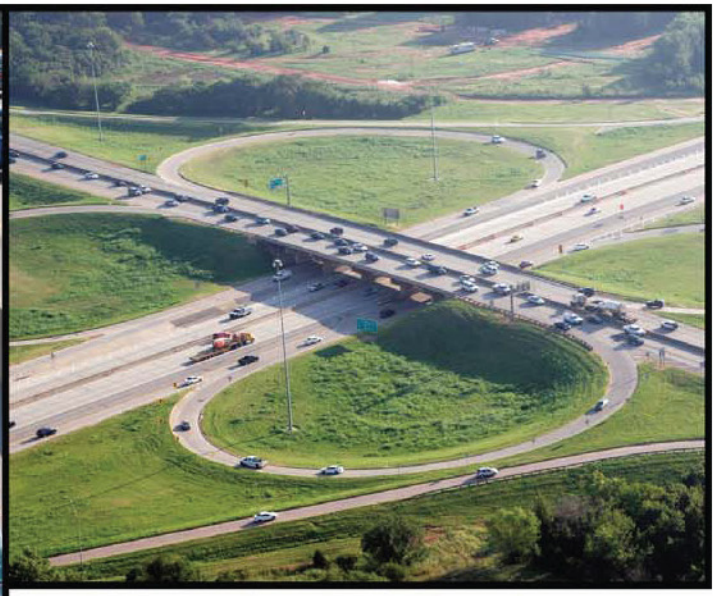
October 2011



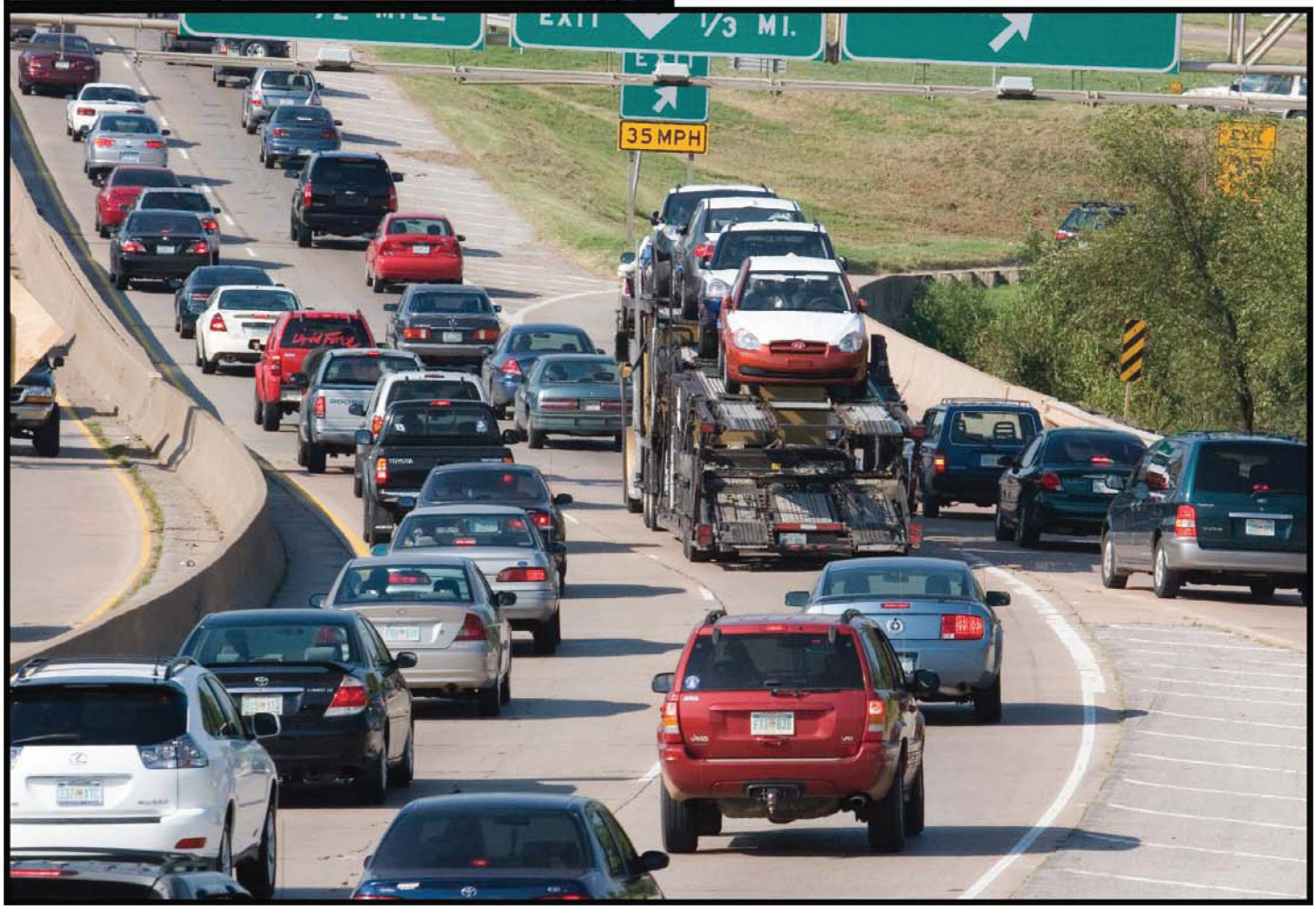


US-75 between
I-44 and the
Creek Turnpike
Current ADT
48,700
Vehicles per Day





I-44/I-235 Interchange
Current ADT
82,000
Vehicles per Day



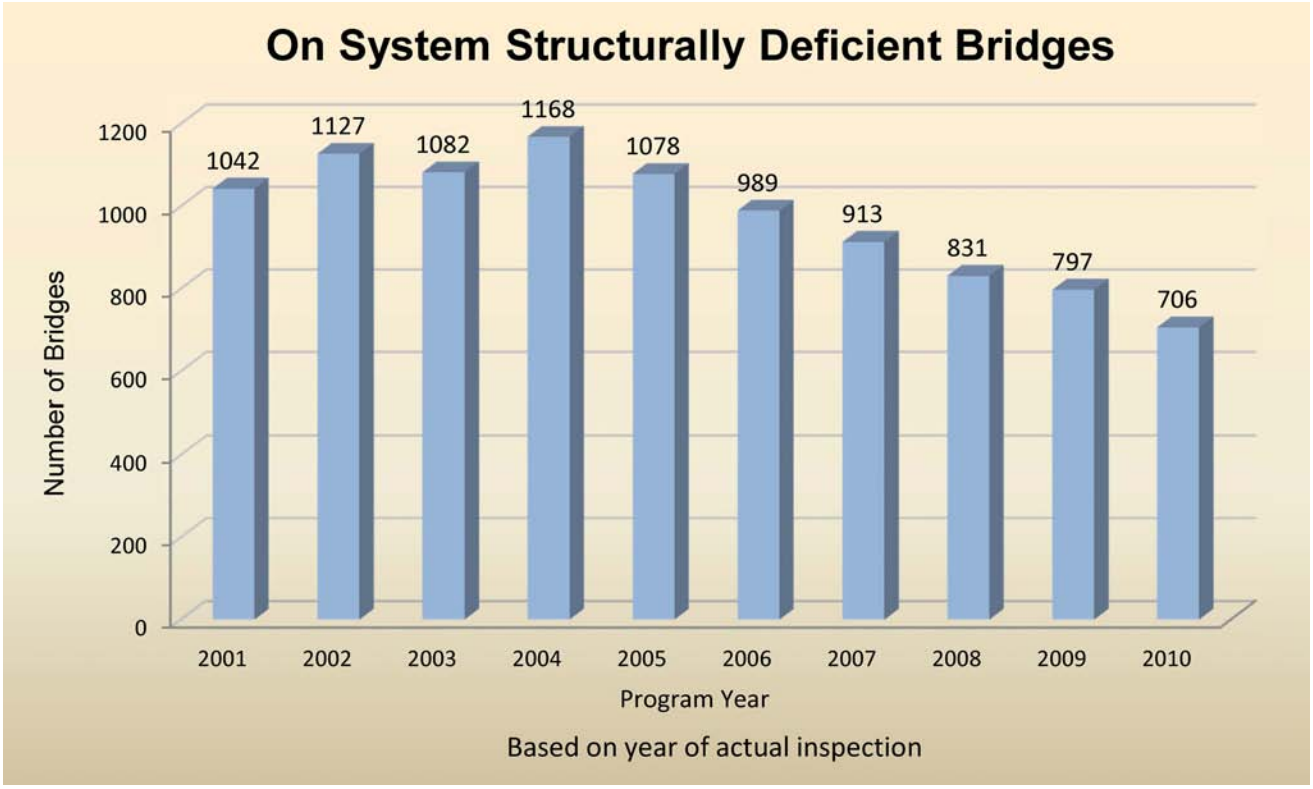
Progress Summary

Performance management, asset management, investment strategy, system analysis, and transparent reporting are primary terms often used in developing and managing business. Today, these primary terms are becoming more and more ingrained in vernacular of government agencies and their operations. The intent is to better report, understand and measure the outcomes associated with the expenditure and investment of public funds. However, identifying the right measures to consistently and accurately collect the necessary data and then communicate the progress of government to the public in an understandable and meaningful manner can be quite difficult. Equally, when good measures are established and widely accepted, the nature of quantifying any gains or losses can be highly complex and difficult to concisely explain.

The Department of Transportation understands the needs of our transportation assets and monitors the effectiveness of our investment strategies on a daily basis. The data collection and analysis necessary to manage the transportation system is indeed extensive, complex, often voluminous and sometimes inconsistent due to changing national collection and reporting criterion. With thoughtful consideration of these complexities, the Department has selected several important and meaningful measures for the purpose of providing a brief progress summary in the context of Oklahoma's bridges and highways. It is anticipated that in the coming years this progress summary will evolve to become a concise snapshot of the progress of the highway and bridge investment strategy.

Structurally Deficient Bridges

A review of the most recent transmittal of the National Bridge Inventory System statistics reveals that Oklahoma has 706 structurally deficient bridges on the highway system or approximately 11% of the almost 6,800 bridges. The structurally deficient bridge numbers have significantly improved from a 2004 peak of 1,168, in large part due to the additional focus and resources provided by the Legislature.



Interstate System

The Interstate System in Oklahoma is a critical transportation link that is the viaduct of commerce which facilitates the movement of goods and services within the state, across the nation and abroad. The 674 total centerline miles of interstate carry a significant percentage of the daily vehicle miles traveled and represent a priority investment strategy component. Since 2003 more than $1.7 billion has been invested resurfacing, rehabilitating or reconstructing the non-toll interstate system including bridges, interchanges and necessary property acquisitions and utility relocations. These improvements represent the scheduled work accomplished as part of our Asset Preservation Plan and our Construction Work Plan.

Non-interstate Highways

The needs of the state transportation infrastructure are constantly assessed and appropriate maintenance, rehabilitation and reconstruction activities are planned and implemented in a fully integrated and systematic manner. Regular maintenance extends the lifecycle of the transportation facilities and timely rehabilitation and reconstruction activities as encompassed by the Construction Work Plan are necessary to leverage those maintenance resources so the efforts are restorative and preventative in nature. The timing of these investments is critical, as resources being directed to infrastructure and facilities that are beyond useful repair does not constitute effective maintenance and will not prevent the eventual, inevitable and costly failure of those elements.

In the context of the 2003 to current Asset Preservation and Construction Work Plan investment strategies, the Department has resurfaced, rehabilitated, constructed or reconstructed non-interstate highway pavements and bridges totaling an infrastructure investment value of more than $3.5 billion including necessary property acquisitions and utility relocations.

NOTES:

NOTES:


Link-Belt