

2019
UPDATE



BRIDGES AND HIGHWAYS

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Oklahoma Bridges & Highways

Oklahoma's State Highway Transportation Infrastructure

The state-owned highway system in Oklahoma is comprised of the state numbered route highways, the U.S. numbered route highways and the interstate highway system. The state system of highways encompasses 12,254 centerline miles as measured in one direction along the dividing stripe of two lane facilities and in one direction along the general median of multi-lane facilities. Transportation on our highways is also facilitated by more than 6,800 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 trucks traveled more than 73.7 million vehicle miles each day (daily vehicle miles traveled or DVMT) in 2018 on the state-owned highway system.

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 state funding. From 1985 to 2005 transportation investment was 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 the available funding to repair, let alone to reconstruct, and more than 1,500 of our highway bridges were deficient. Out of those bridge structures across Oklahoma, 137 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 leading factor in growing and attracting new business, the Oklahoma Legislature determined that investing in transportation infrastructure should be a priority of state government. In 2005 these policy makers set about the important work of reversing the 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 targeted for the construction, care and maintenance of our transportation infrastructure, which is the state's single largest asset.

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 transparently dedicates the available state transportation resources in a balanced manner. This strategy represents the beginning of a monumental effort to return Oklahoma's bridges and highways to a safe system in a state of good repair and safety and keep it that way for our citizens in the future.

Please enjoy the progress shared 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

Condition and Needs Summary

Oklahoma's bridge problem is well recognized. During the past 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 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 until 2006.

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 rehabilitate 1,556 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 transportation funding continue. An evaluation of the most recent bridge inspection cycle and March 15, 2019 reporting reveals that an estimated 132 structurally deficient bridges were still identified. The current 8-Year Construction Work Plan includes the replacement or major rehabilitation of 657 bridges.

Since January 2006, the department has replaced or rehabilitated:

1,556 BRIDGES

All identified structurally deficient bridges are included in either the 2020-2027 8-Year Construction Work Plan or the 2020-2023 Asset Preservation Plan.



*Proposed Bridge Replacements/
Major Rehabilitations in the 8-Year
Construction Work Plan:*

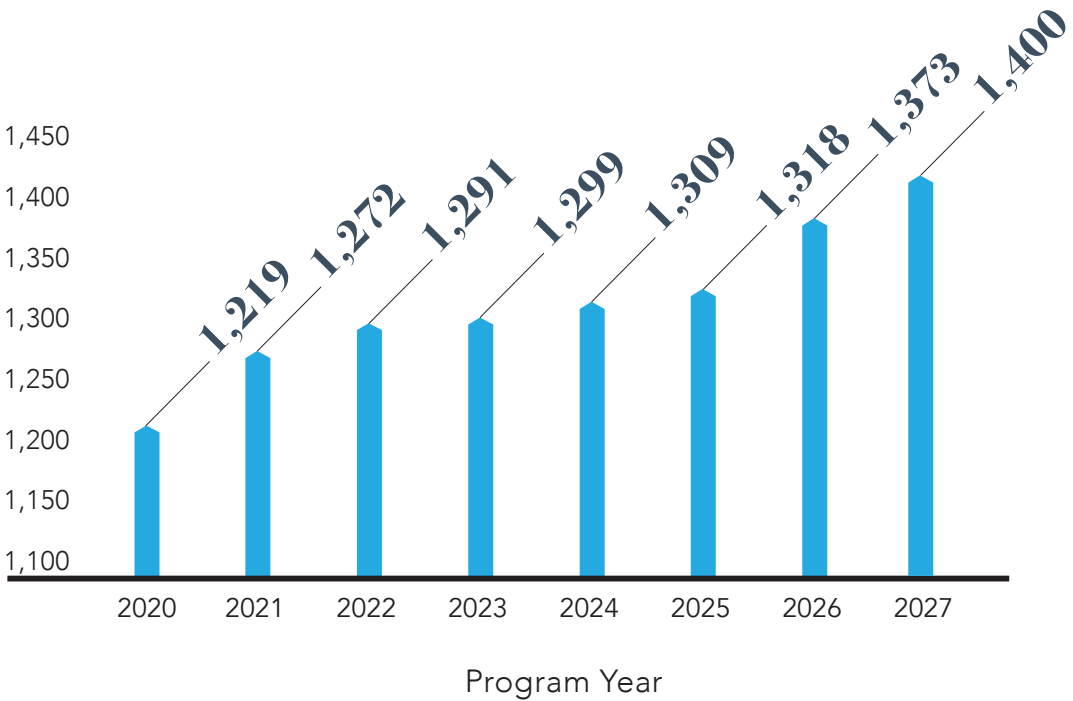
657 BRIDGES

The department has instituted a bridge specific program designed to be flexible and reactive. This bridge rehabilitation program allows the department to stretch our scarce regular maintenance dollars further. At the same time, the program has proven effective in slowing or stemming further deterioration or functional decline of the bridge infrastructure and enhances the ability to manage these transportation assets in a manner that maximizes their life cycle.



Number of Bridges Over
80 Years Old.

Bridge Aging



Annual Investment
in Bridge
Rehabilitation:

\$40 MILLION

*In order to keep pace with
Oklahoma's aging infrastructure,
ODOT must replace or refurbish:*

90 BRIDGES ANNUALLY

While these efforts exemplify the investment of the available resources, today 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 the current bridge inventory.



Before

A Structurally Deficient Bridge:

Has key elements that need to be monitored and/or repaired. The condition of these key elements are rated on a scale of 0 to 9 (with 9 being “excellent” and zero being “failed”). A structurally deficient bridge is one for which the deck (driving surface), the superstructure (supports immediately beneath the driving surface) or the substructure (foundation and supporting posts and piers), or for culvert type bridges, is rated at 4 or less.



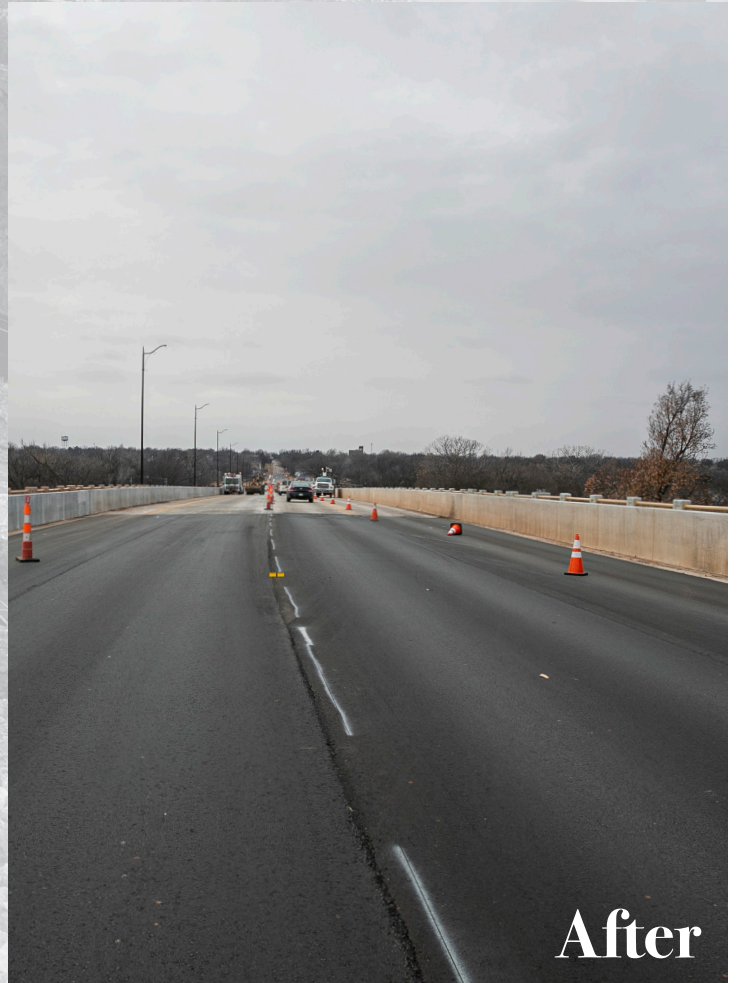


Before

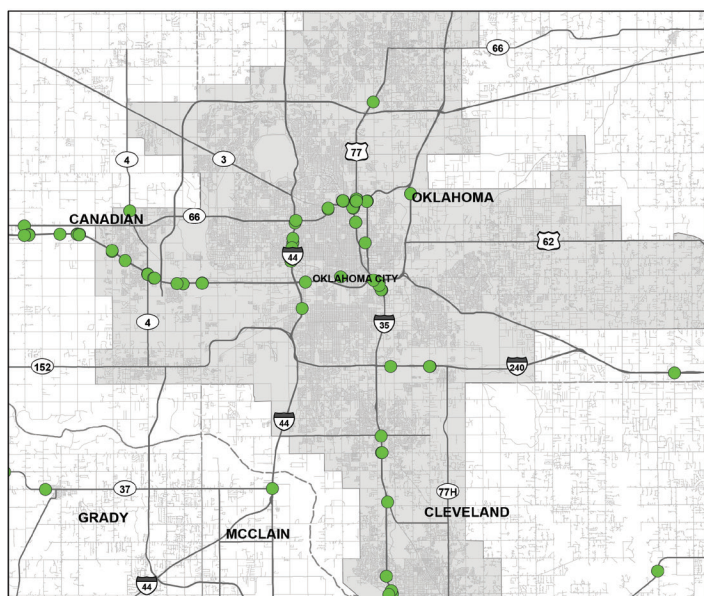
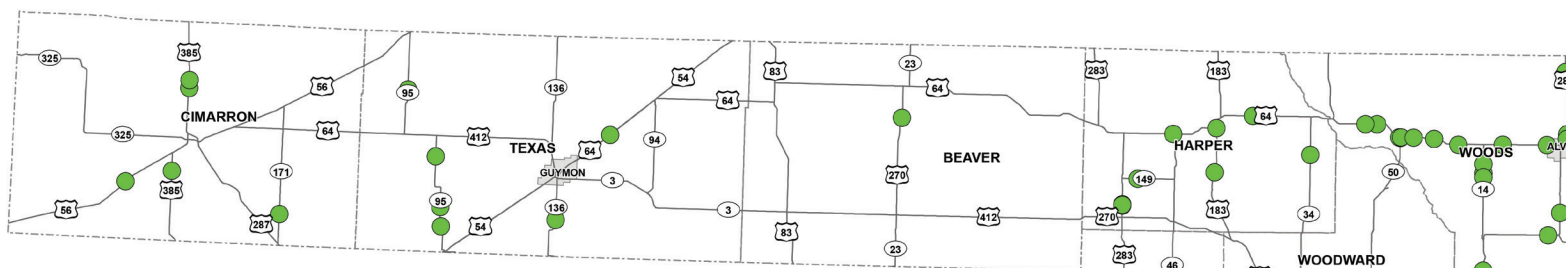
132
Structurally
Deficient Bridges
(as of 2018)



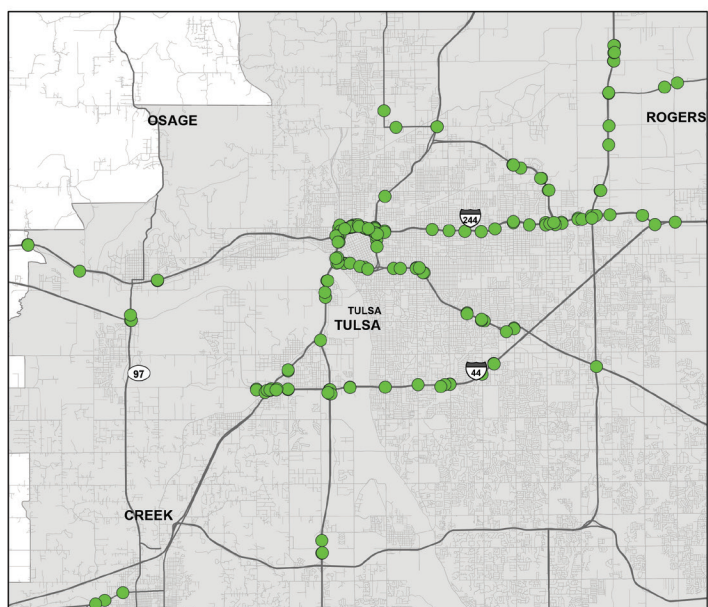
After



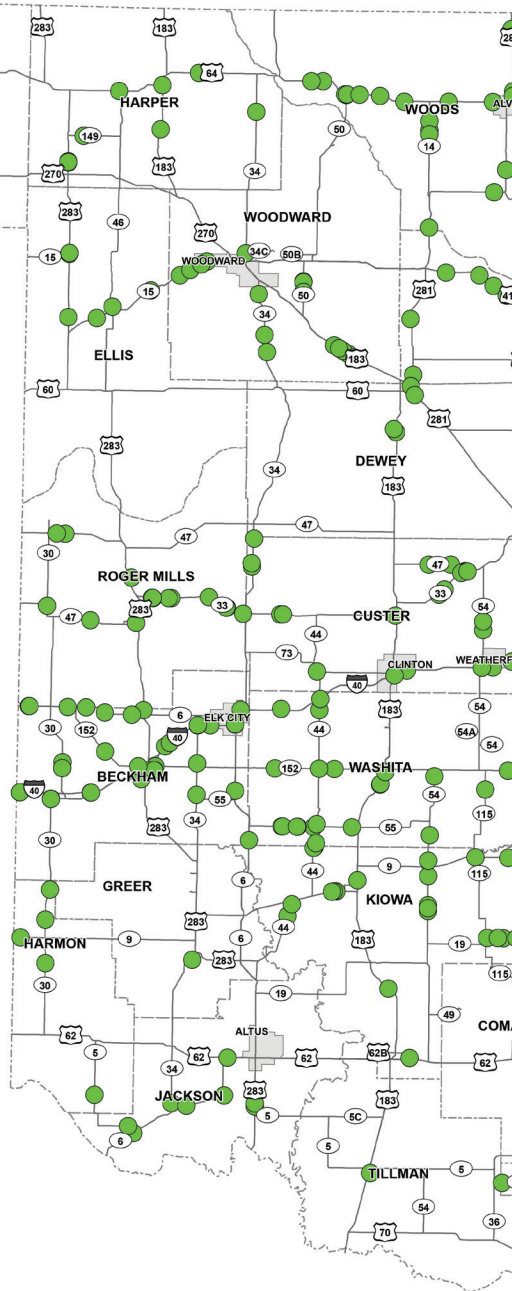
After



Oklahoma City Metro Area

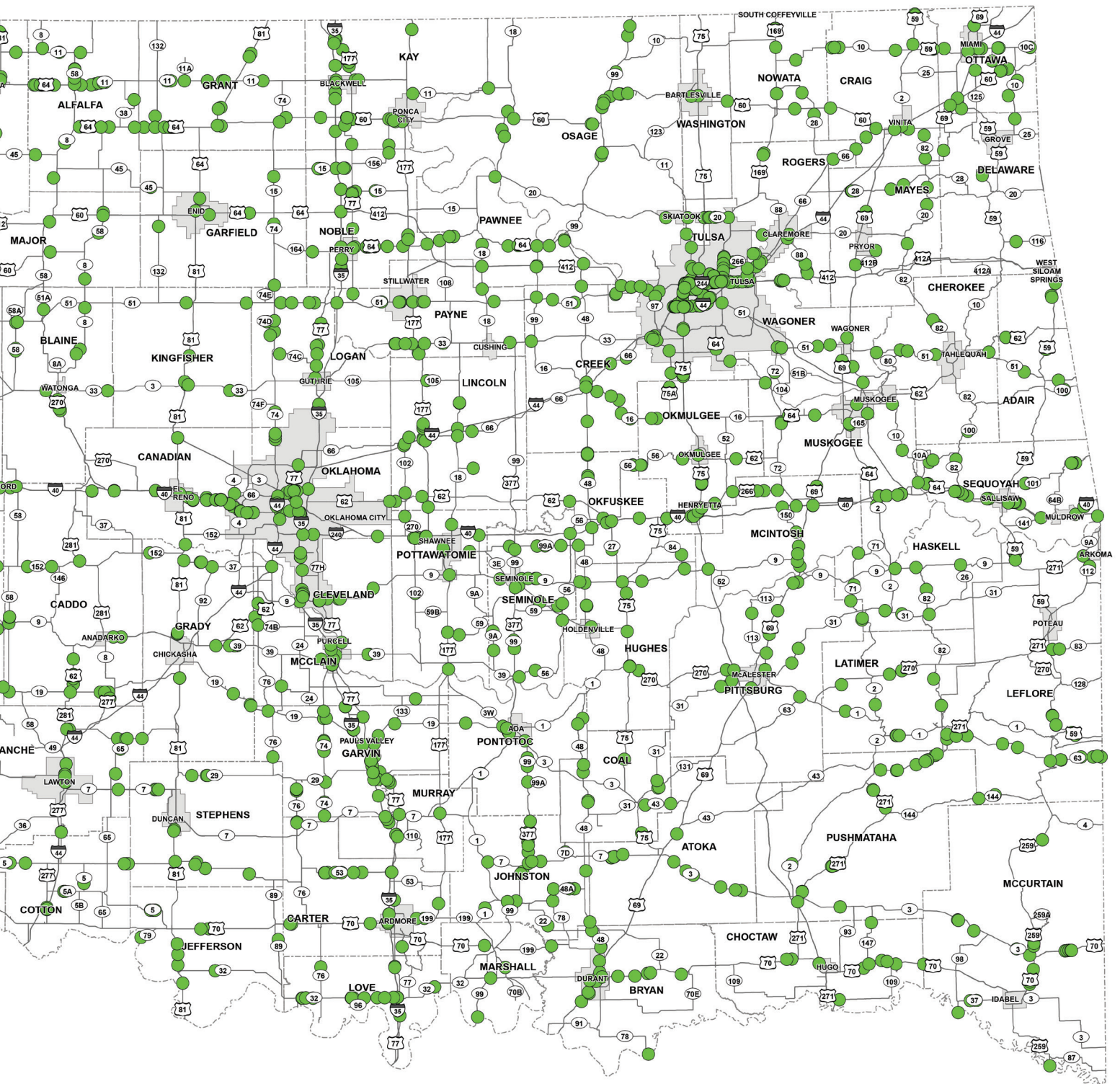


Tulsa Metro Area



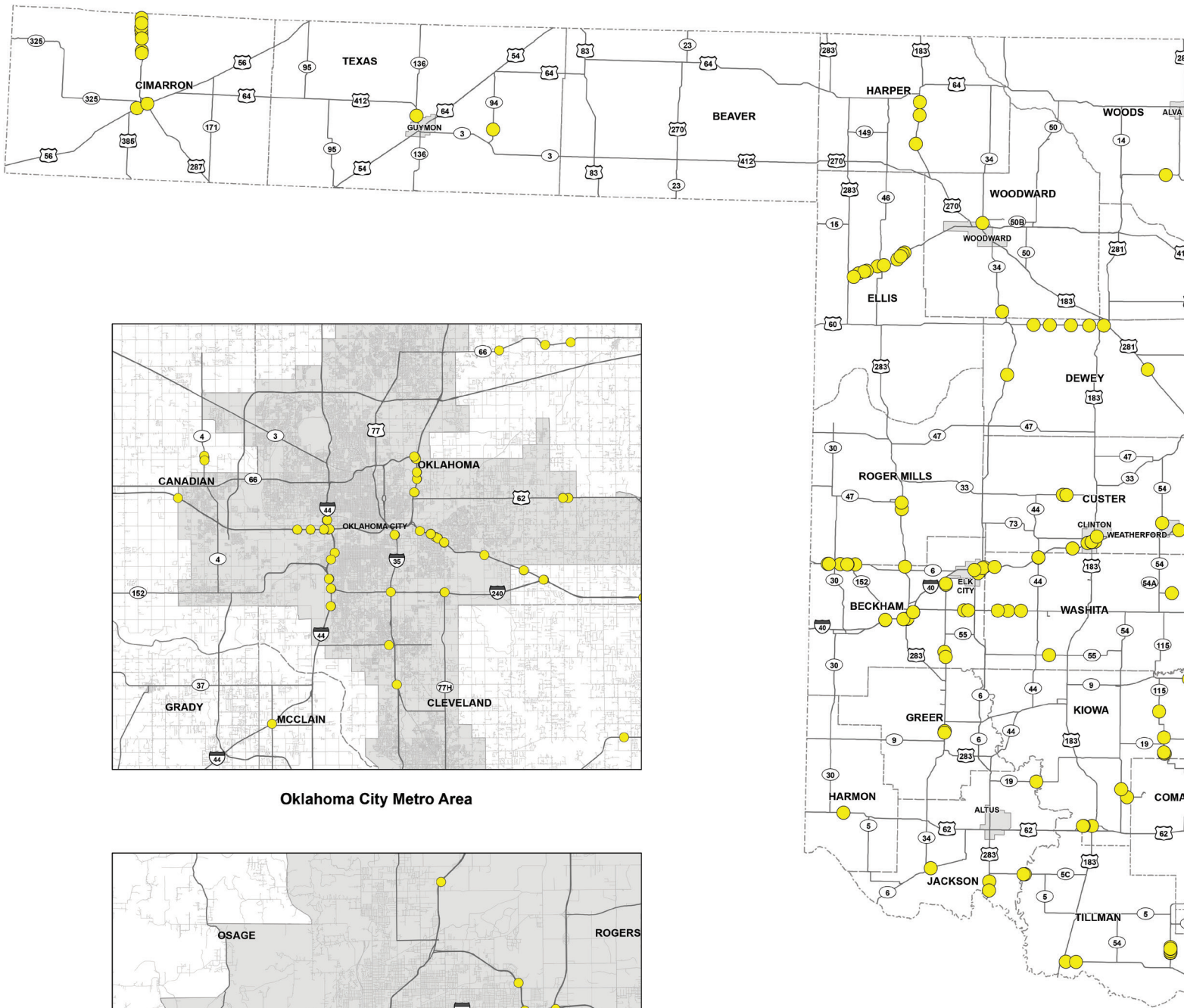
**Completed or
Under Construction
Between January 2006
and October 2019**

- *Replacements / Major Rehabilitation (1,556)*
- *Highways*
- *Urban Areas*
- *Counties*



Bridge Replacements/ Major Rehabilitation Projects

State Highway System Bridges Only
NOTE: The information provided is generated from the National Bridge Inventory system. Some of the identified bridges are either under construction or have been recently constructed.

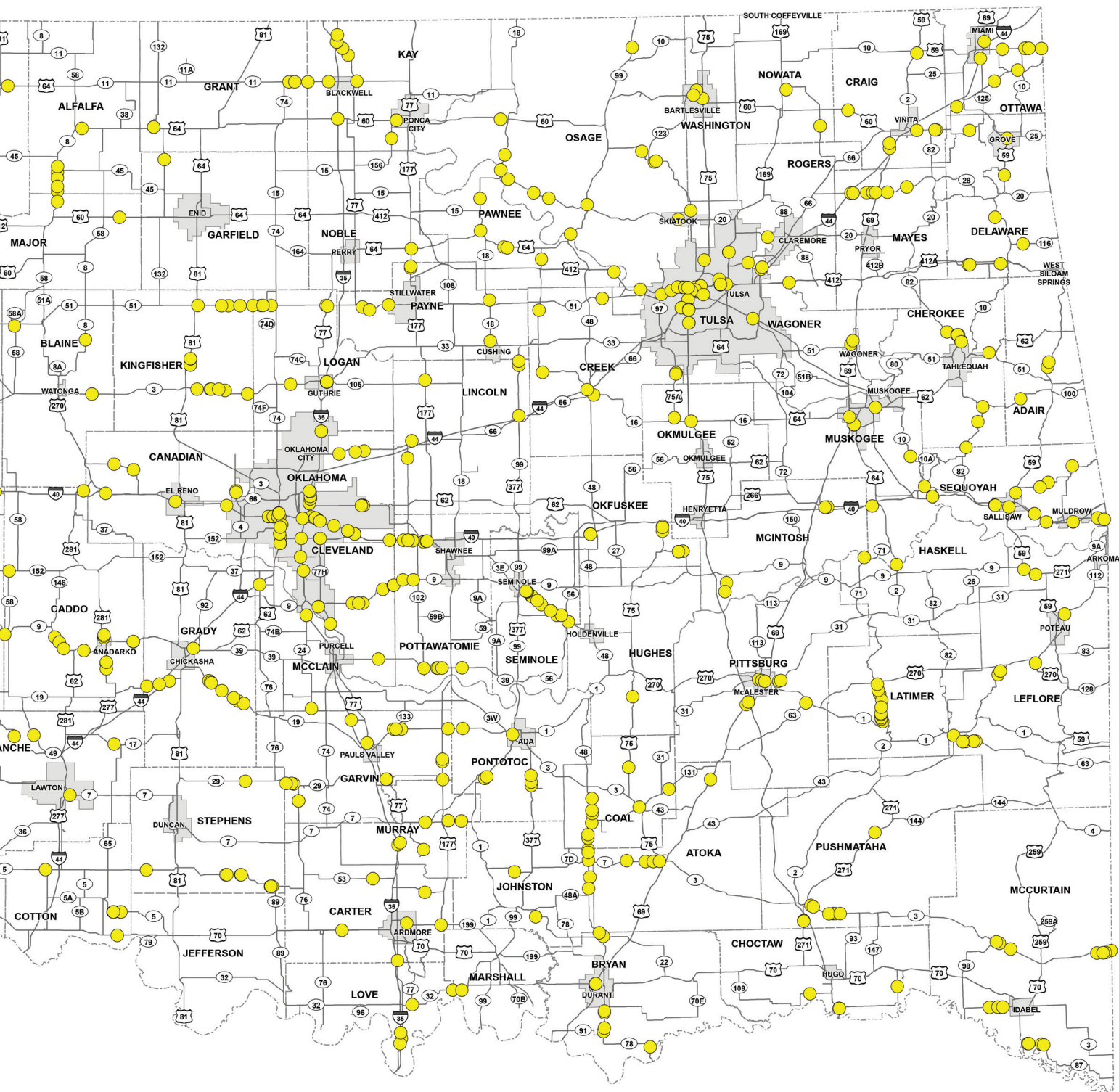


Oklahoma City Metro Area

Tulsa Metro Area

8-Year Construction Work Plan within the fiscal years of 2020-2027

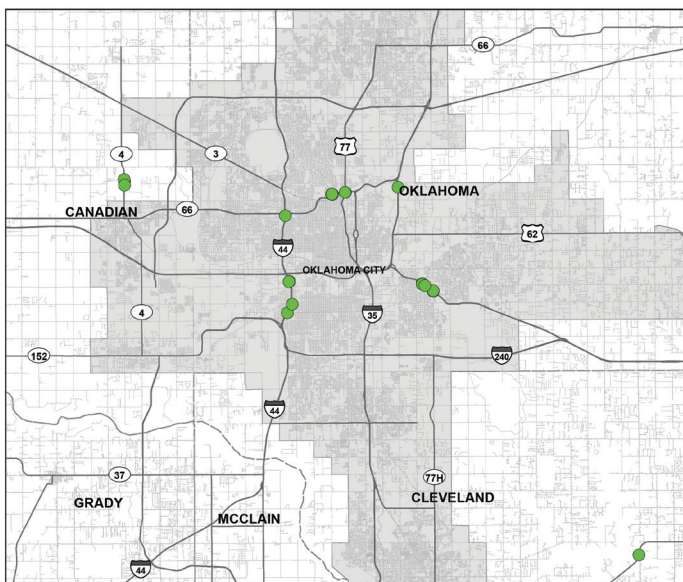
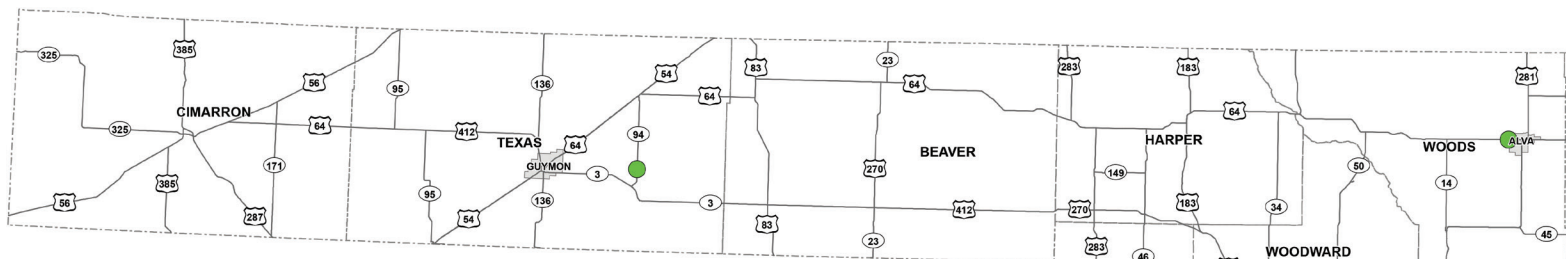
- Replacements/Major Rehab. (657)
- Highways
- Urban Areas
- Counties



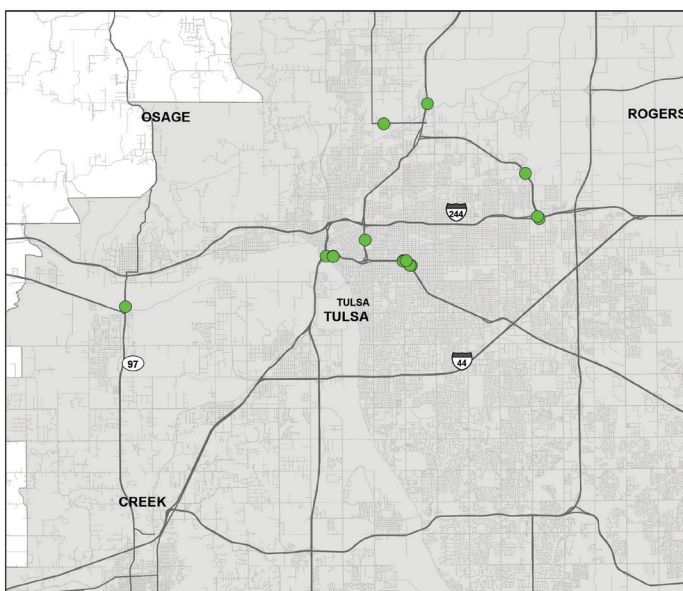
Bridge Replacements/ Major Rehabilitation Projects

State Highway System Bridges Only

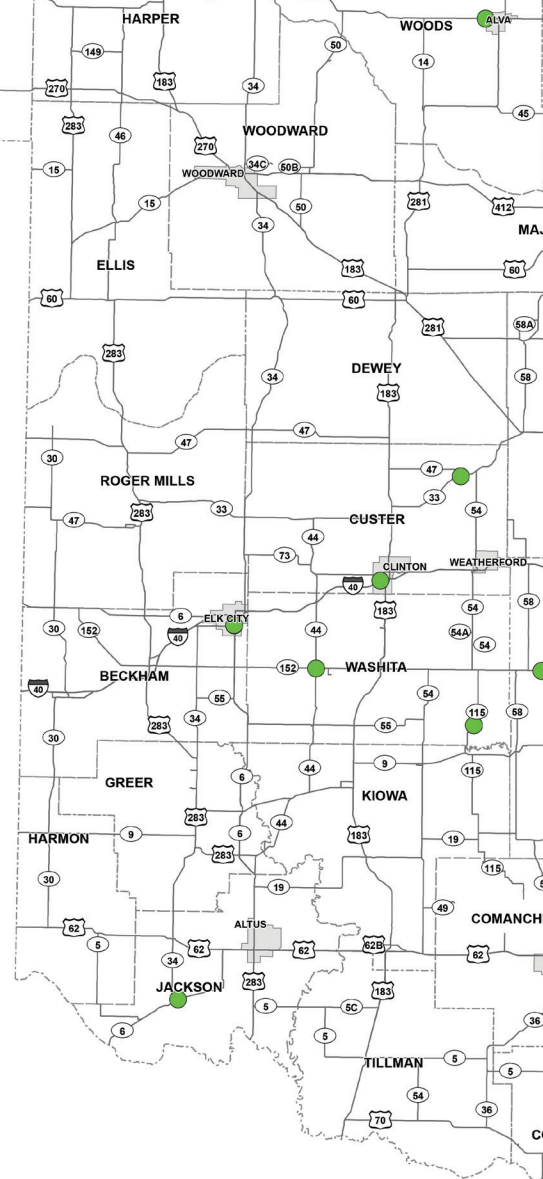
NOTE: The information provided is generated from the National Bridge Inventory system. Some of the identified bridges are either under construction or have been recently constructed.



Oklahoma City Metro Area



Tulsa Metro Area

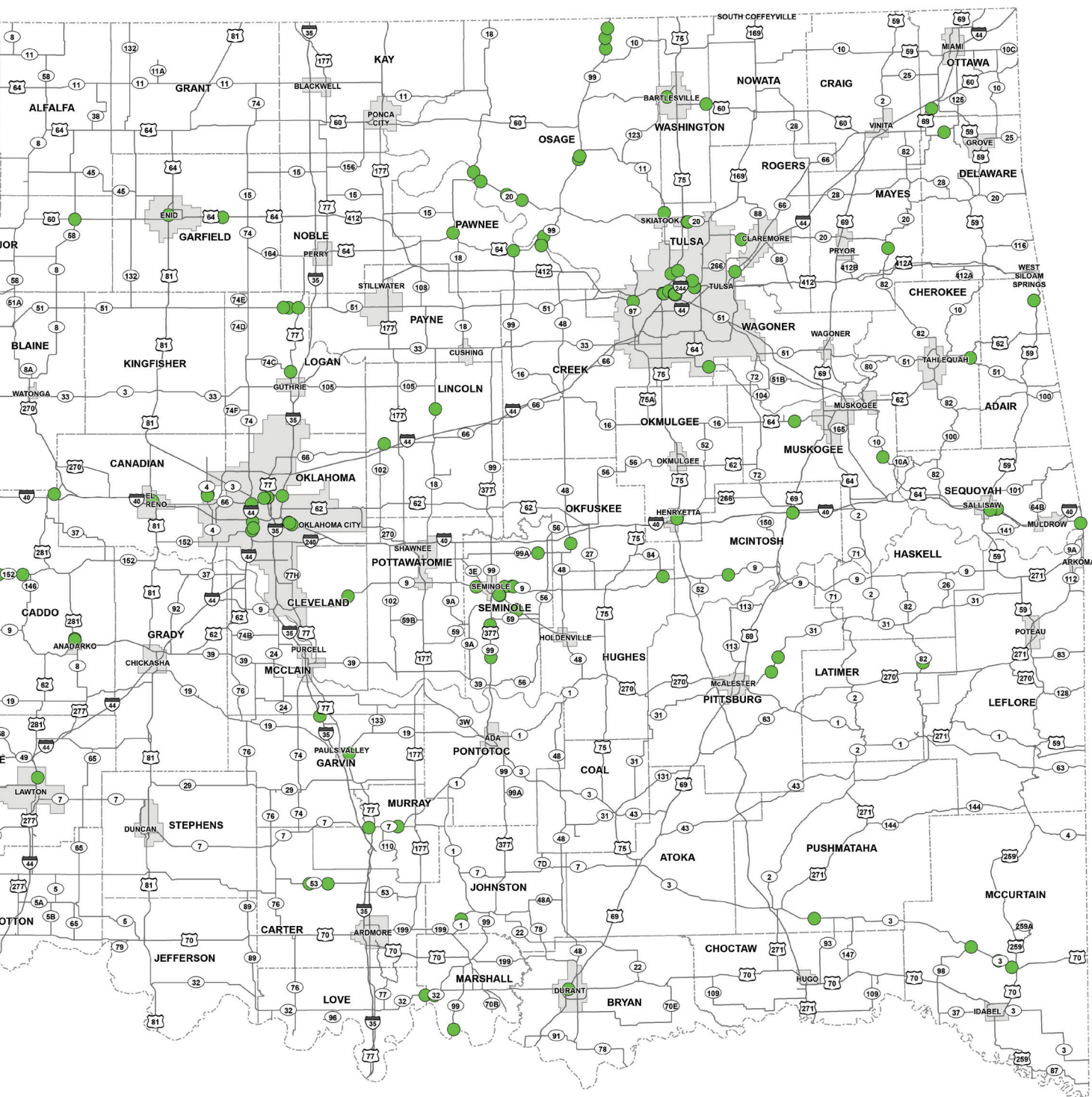


**All are in the 8-Year
Construction Work Plan**
Structurally Deficient (132)

— *Highways*

 Urban Areas

☐ *Counties*



Structurally Deficient Bridges as reported at the end of 2018

State Highway System Bridges Only
NOTE: The information provided is generated from the National Bridge Inventory system. Some of the identified bridges are either under construction or have been recently constructed.

Highways & Safety

Condition and Needs Summary

Oklahoma's rural nature and historically agricultural and energy-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. About 5,303 miles of Oklahoma highways are two-lane facilities with deficient shoulders.



*Shoulders and roadway
improvements to two-lane highways
with deficient shoulders in the
8-Year Construction Work Plan:*

781 MILES

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

\$3.11 BILLION

Current freight plan targeted investment in highway freight mobility projects:

\$413.16 MILLION

Annual investment in surface preservation:

\$75 MILLION

Remaining inadequate highways with no improvements scheduled:

4,103 MILES

Traffic on our major highways has increased dramatically in the past two decades and freight traffic is expected to continue to compound for the foreseeable future. The daily vehicle miles traveled on facilities with more than two lanes in 2018 was 52.98 million miles (71 percent of total miles traveled). Improvements to these facilities are often the most expensive and resource-consuming projects, but also yield high returns and have an immediate impact on regional traffic patterns. Over 505 miles of our 673 miles of interstate pavement have had significant rehabilitation or reconstruction since 2003 and an additional 173 miles are included in the Federal Fiscal Year 2020 through 2027 8-Year Construction Work Plan.

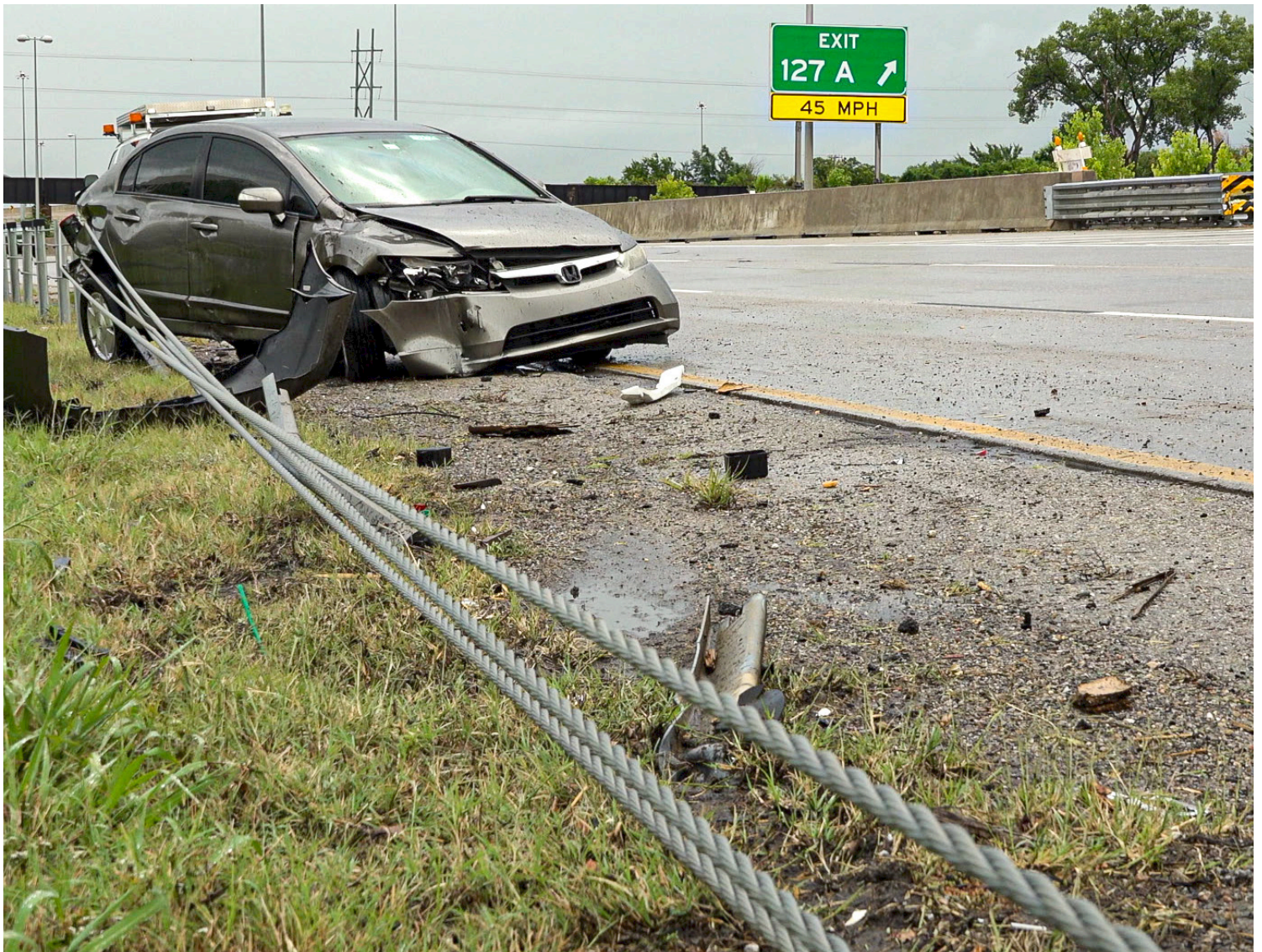
In order to provide a safe, reliable and productive freight transportation system that will support the growing economy and population of the state, an increased focus on freight needs and opportunities is paramount. The current freight plan within the 8-Year Construction Work Plan contains a little more than 54 miles of improvements that are expected to have a significant impact on freight mobility.

Much like our bridges, our pavement surfaces require systematic preservation in order to maximize the life cycle of our highways. Until recently, 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 preservation program with a focus on extending the life of our pavements.

Based on an evaluation of pavement conditions and safety features such as the existence of paved shoulders and recovery areas for errant vehicles, about 44 percent or 5,500 of the 12,254 miles of highway rate as poor which includes 5,303 miles of two-lane highways with deficient shoulders. Even with the improvements scheduled in the current 8-Year Construction Work Plan, more than 4,103 miles of inadequate highway will remain undressed. To put this distance in the proper perspective, that is the equivalent of driving from Los Angeles to New York City and back to Oklahoma City with deteriorated pavement or deficient shoulders. 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 remain.

Safety

While there are many indicators that provide insight into the safety of the transportation system, year-to-date fatalities is the most commonly referenced. Motor vehicle crashes are the number one cause of death and disabling injuries for young Americans under the age of 21. In Oklahoma, the number of highway fatalities for 2018 was 655. There are many variables that affect fatality trends and can be as simple as winter weather or as complex as increasing motorcycle usage and driver behaviors such as distracted driving. These issues are the most difficult to address, and while year-to-date fatalities should be regarded as an important indicator, ODOT asks drivers to be our partners in highway safety by putting away distractions and staying vigilant every time they get behind the wheel.



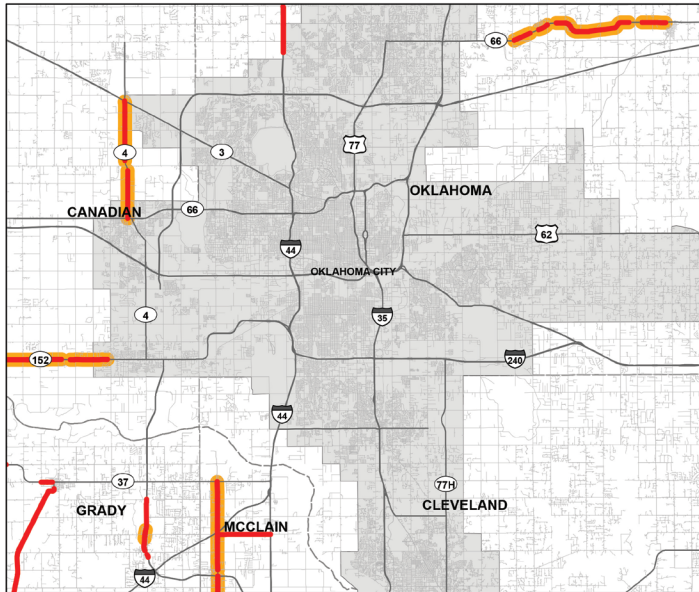
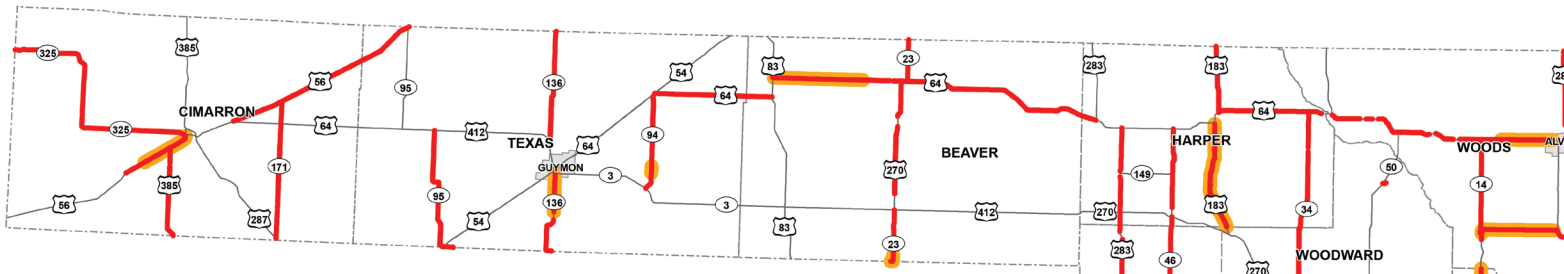
Even when effective countermeasures can be deployed for specific crash types, the results may take years to materialize. For example, in 2001 the department began an initiative to test cable median barrier on divided highways. Based on the outcome of this test, more than 725 miles of cable median barrier have been installed on our divided highways. This has resulted in a dramatic reduction in the number of fatalities caused by cross-over type crashes, reduced from 39 in 2007 to 4 in 2018. Unfortunately, few available countermeasures meet with such definitive success.

Motorcycle Safety

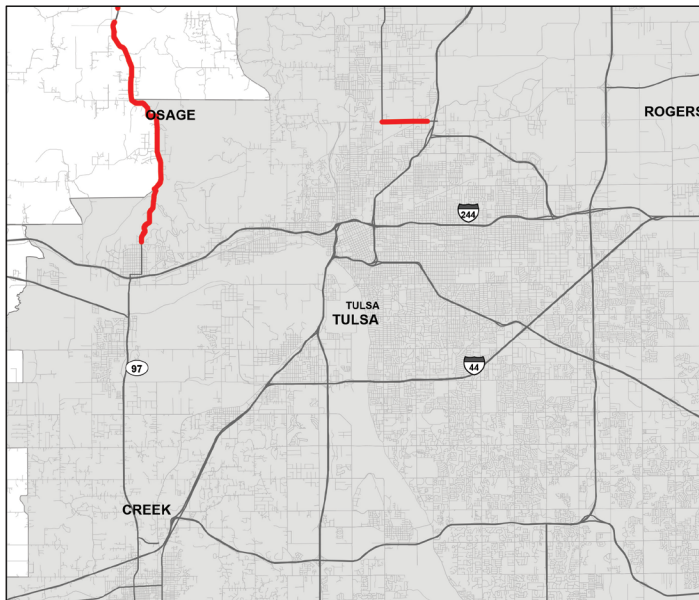
From 2004-2008 Oklahoma experienced an average of 78 motorcycle fatalities annually, which increased to an average of 92 annually from 2009-2013 with a peak of 106 in 2009. In 2018, motorcycle fatalities were 86. Increased motorcycle rider education may play a role in addressing the fatality trend.



*-One Fatality
is One Too Many.*

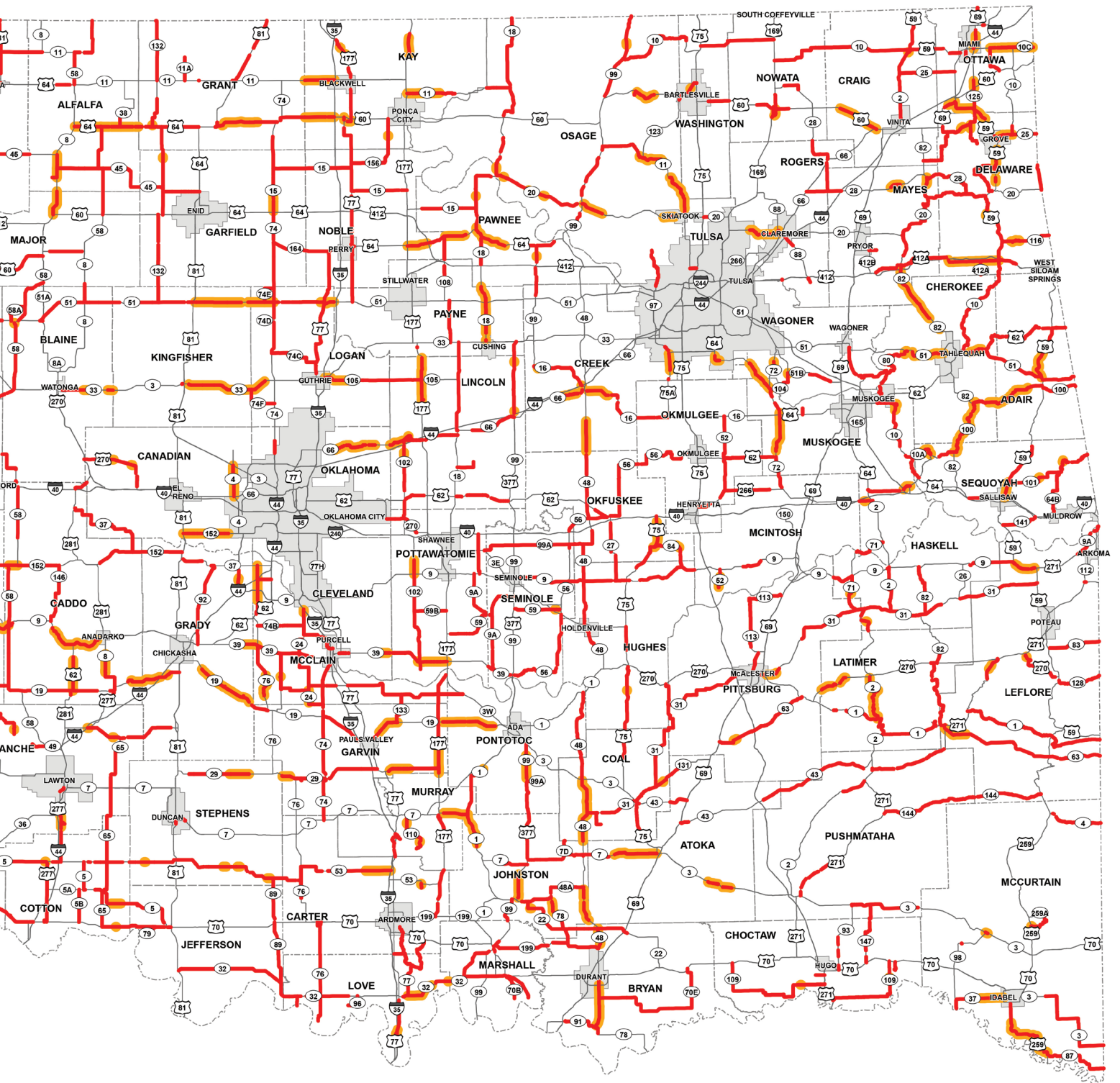


Oklahoma City Metro Area

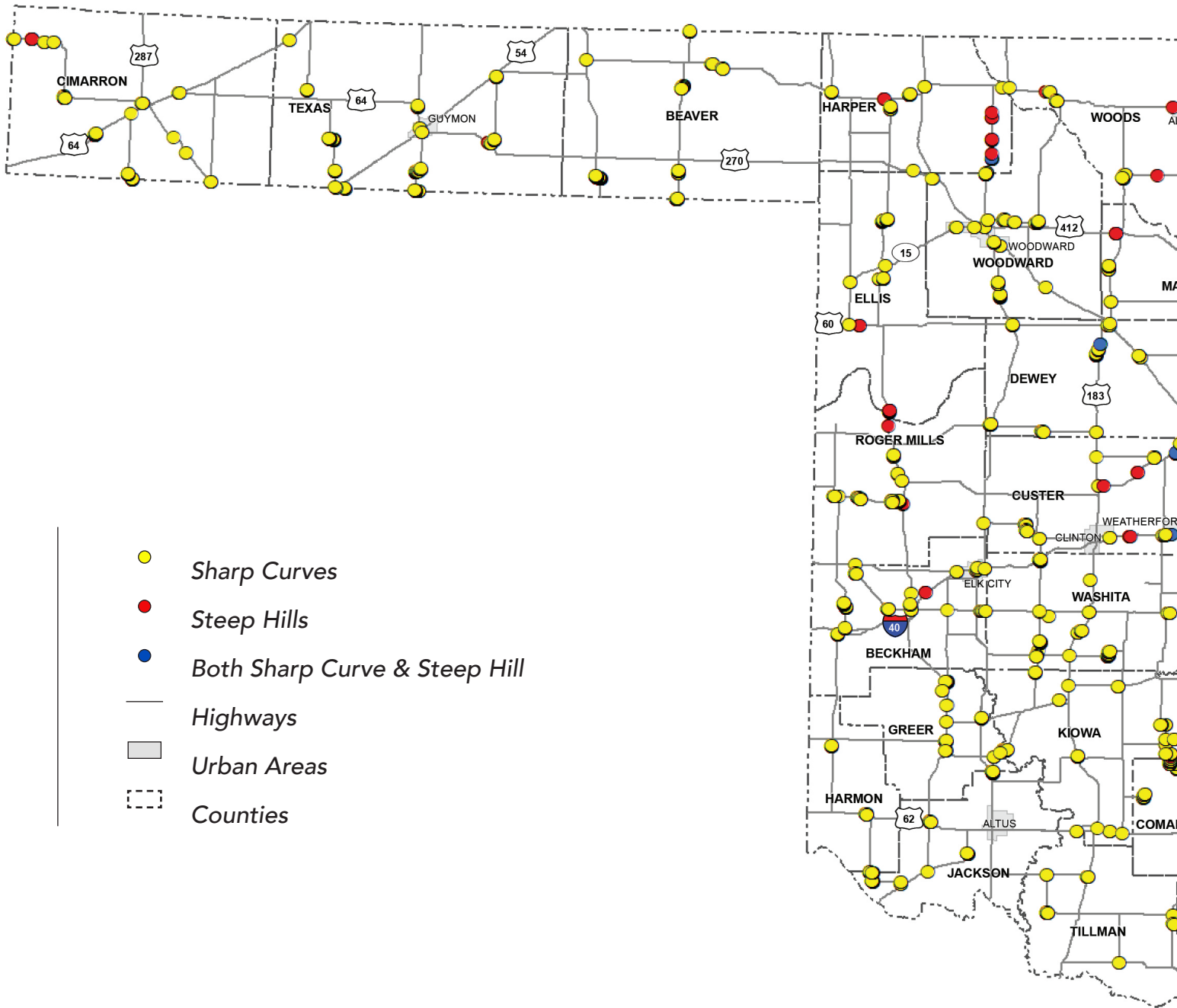


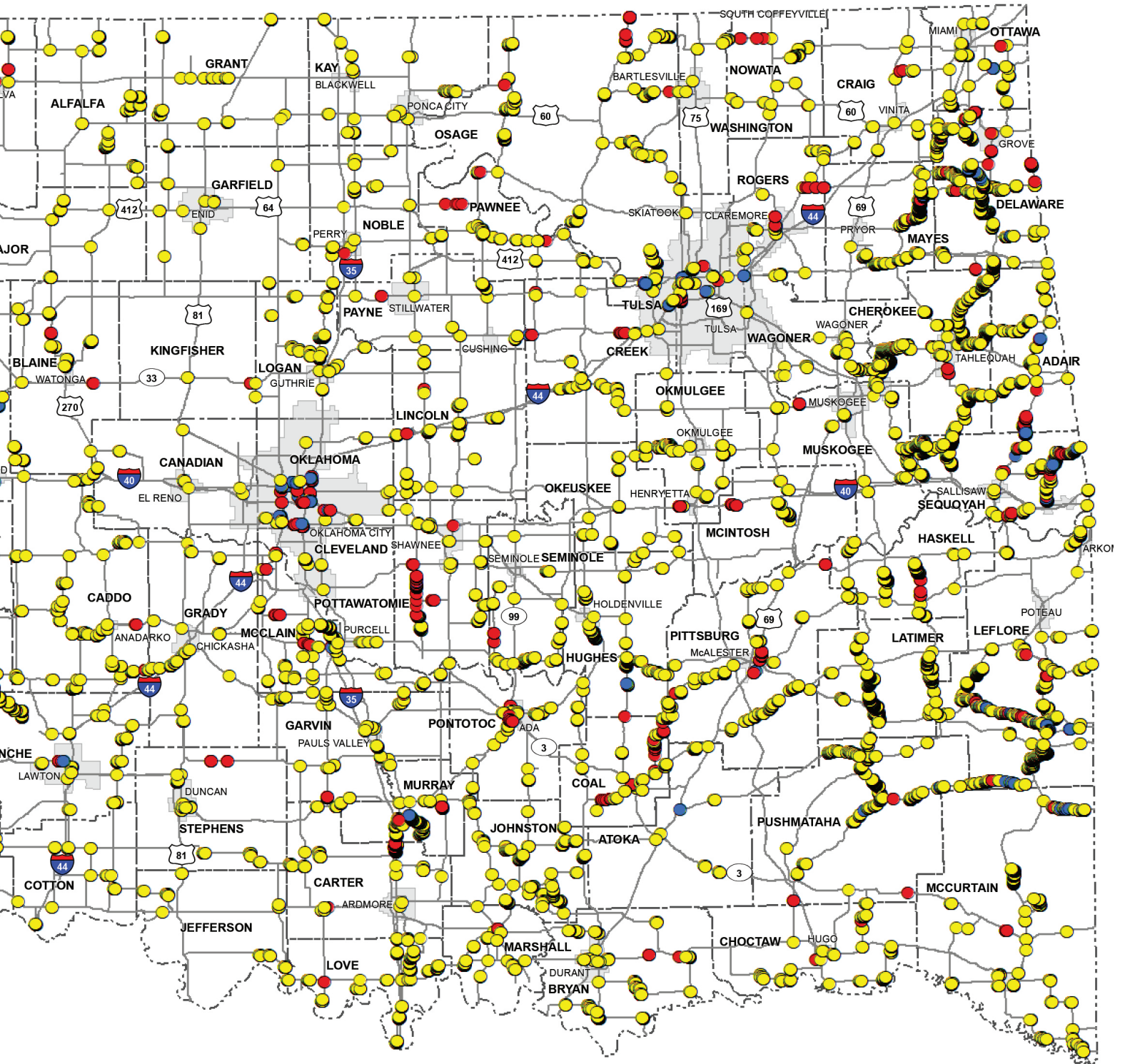
Tulsa Metro Area

- 2 Lane Highways With Deficient Shoulder (5303 mi)
- Work Plan Construction (781mi)
- Highways
- Urban Areas
- Counties



Two-Lane Highways
With Deficient
Shoulders





Steep Hills
& Sharp Curves

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 government agencies and their operations. The intent is to better 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 Oklahoma 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, voluminous and sometimes inconsistent due to changing collection and reporting criterion. With thoughtful consideration of these complexities, the department has selected 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.

Interstate System

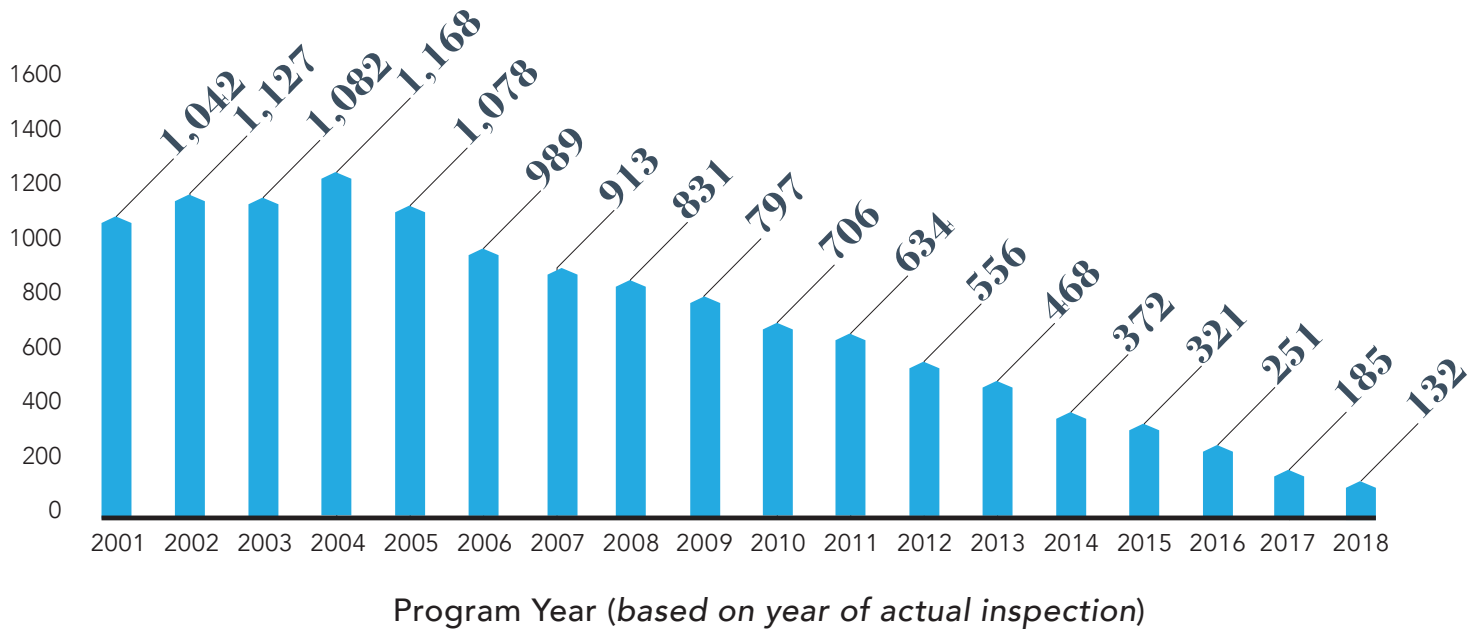
The Interstate System in Oklahoma is the highest class of highway and is designed to be the critical transportation network that is the link of national commerce which facilitates the movement of goods and services within the state, across the nation and abroad. While the 673 miles of interstate account for only 5.5 percent on the centerline miles of our state system, it carries 33.6 percent of daily miles traveled. Since 2003 more than \$3.9 billion has been invested resurfacing, rehabilitating or reconstructing the non-toll interstate system including pavements, bridges, interchanges and necessary property acquisitions and utility relocations. These improvements represent the scheduled work accomplished as part of our Asset Preservation Plan and 8-Year 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 life-cycle of the transportation facilities and timely rehabilitation and reconstruction activities as encompassed in the 8-Year Construction Work Plan and Asset Preservation 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 8-Year 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 \$7.85 billion including necessary property acquisitions and utility relocations.

Number of Bridges



Structurally Deficient Bridges

Since 2000 Oklahoma has consistently ranked as one of the worst states on the national list of structurally deficient bridges. At the most recent peak as reported in December of 2004, 1,168 bridges or a full 17 percent of all highway system bridges were classified as structurally deficient. By comparison, that same year Texas ranked near the best in the nation with less than 2 percent of their more than 32,000 bridges classified as structurally deficient.

The department has placed a priority and focused available resources on this chronic problem in earnest since 2003. With the passage of House Bill 1078 in 2005, which initiated the Rebuilding Oklahoma Access and Driver Safety (ROADS) fund, a more diverse funding pool has been brought to bear. As a result, our structurally deficient bridge numbers are expected to drop to less than 1 percent by the end of the decade. Oklahoma's focus and progress is evident with the December 2018 annual bridge inspection reports revealing that the 706 structurally deficient bridges recorded in 2010 have been reduced to 132 marking a 81.3 percent reduction in structurally deficient bridges.





OKLAHOMA Transportation

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