

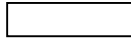









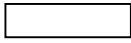





OZARKS TRANSPORTATION ORGANIZATION  
ANNUAL REPORT ON  
PERFORMANCE MEASURES  
2015

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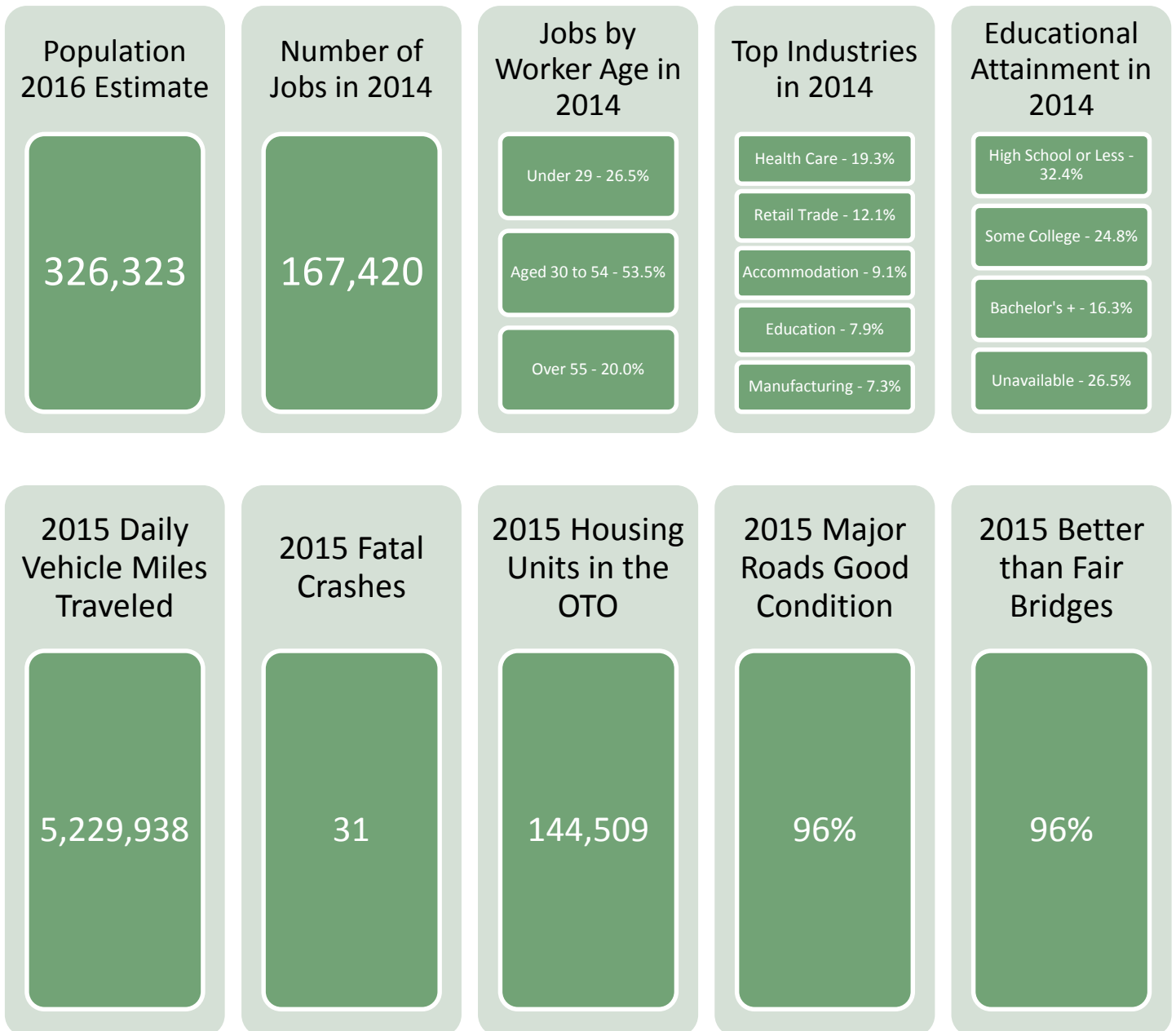
At a Glance:  Improving  Declining  No Change

Performance Measure	Target	2015 Status
Vehicle Miles Traveled per Capita	That VMT per Capita will grow no more than 5 percent from its peak in 2004, at a value of 19, by 2035. Growth should be captured in other modes.	
Modal Balance	Decrease "Drove Alone" to 75 percent for the region by 2035	
Bicycle/Pedestrian Network Completion	If, on average, 4 miles of sidewalk are added each year within the OTO area, but no new roadways, by 2035, the total percent of roadways with sidewalks would be 33.5	
Total Disabling Injury and Fatal Crashes per Million Vehicle Miles Traveled	That disabling injury and fatal crashes/MVMT will continue a downward trend	
On-Time Performance of Transit System	The CU service standard is 90 percent. The system will be considered to have acceptable on-time performance at this 90 percent level	
Percent of Housing Units within ¼-mile of a Bus Route	That the percent of housing units within the CU Transit service area and the OTO area within ¼-mile of a bus route is on the upward trend between now and 2035	
Average Commute Time	Keep the average commute time less than 25 minutes by 2035	
Peak Travel Time	That less than 20 percent of the OTO area roadways will be severely delayed	
Percent of Roadways in Good Condition	That 85 percent or more of the Major Roads in the OTO region are in Good Condition	
Bridge Condition	That the percent of bridges in Fair or Better Condition will stay above 90 percent	
Ozone Levels	That the region will be able to demonstrate transportation conformity for its plans, programs, and projects	

## Introduction

The Ozarks Transportation Organization long range transportation plan, *Journey 2035*, set forth performance measures as a way for OTO to monitor the success of the Plan and the continued transportation-related activities of the OTO and its jurisdictions. *Transportation Plan 2040 continued these measures*. Eleven performance measures were identified with targets for 2035. This report highlights current progress on each measure.

## OTO Region Fast Facts



## 1. Vehicle Miles Traveled per Capita

*A lower value is better.*

### Description

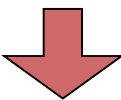
Vehicle Miles Traveled (VMT) is the total number of miles driven by all vehicles within a given time period and geographic area. By comparing VMT to the number of persons in the region, OTO can gauge just how much VMT is changing in relation to the potential number of people driving. VMT is influenced both by the number of vehicles using the roadway system and the trip length of those vehicles, which increases with the geographic area that is urbanized.

### Target

That VMT per Capita will grow no more than 5 percent, to a value of 19 from its peak in 2004, by 2035. Travel growth should be captured in other modes.

### Current Value/Trends

Year	Daily VMT	Population	VMT per Capita
2015	5,229,938	*326,323	16.03
2014	5,061,794	*323,031	15.67
2013	4,933,188	*320,259	15.40
2012	4,954,024	*316,298	15.66
2011	4,931,037	*312,126	15.80
2010	5,010,884	310,283	16.15
2009	4,969,336	*303,720	16.36
2008	5,063,022	*298,910	16.94
2007	5,185,837	*293,385	17.68
2006	5,115,547	*287,216	17.81
2005	4,904,027	*280,622	17.48
2004	4,946,098	*275,796	17.93
2003	4,630,231	*271,251	17.07
2002	4,540,996	*266,874	17.02
*Census Estimate			



### Result

The VMT per capita for 2014 and 2015 have both raised slightly, which is reverse of the trend from 2012-2013. The value of 16.03 VMT/capita, however, remains well below the target maximum of 19.

### Notable Factors

The trend reversal, which started in 2014, could be due to the improving economy and continued low fuel prices. VMT has been rising during this time. Since 2013, Daily VMT has risen by over 6 percent, while the population has grown by less than 2 percent. These local statistics are representative of national trends, where driving has been reaching all-time highs.

## 2. Modal Balance

*A lower value is better for “Drive Alone,” while a higher value is better other modes.*

### Description

Modal balance describes the varying proportions of mode choice at a given time. Modes can include walking, cycling, public transport, carpooling, and private motor vehicle, as well as taxicab, motorcycle, and no travel mode – as in working from home. As an indicator, modal balance provides information on how many types of users there are within the system. As a performance measure, modal balance shows the success of alternative forms of transportation. OTO has decided to focus on a subset of modes –

- Car, Truck, or Van – Drove Alone
- Car, Truck, or Van – Carpooled
- Public Transportation – All
- Bicycle
- Walked
- Worked at Home

This data is derived from the American Community Survey, which asks, “How did this person usually get to work last week?” Respondents are asked to mark the method they used most often if they used more than one mode of transportation during the trip. The American Community Survey collects data on a yearly basis, but on a smaller scale. To maintain reliability in the data in areas with smaller populations, yearly samples are aggregated over multiple years. This also limits the geography for which American Community Survey Data is available. For the OTO region, this data is offered at the County and Place level. In this analysis, the data for all of Christian and Greene Counties have been used, as the information was not available at just an MPO level.

### Target

Decrease “Drove Alone” to 75 percent for the region by 2035.

### Current Value/Trends

Christian and Greene Counties	
2000	82%
2005-2009	82%
2006-2010	82%
2007-2011	83%
2008-2012	83%
2009-2013	83%
2010-2014	83%

### Result

The percentage of those who “Drove Alone” stayed steady between evaluation years, though the desired result is for the percentage to decrease. While this is the case, bicycling, as well as taxicab/motorcycle/other means, did increase during 2010-2014, whereas transit, which increased during the previous time frame, remained steady this time.

### Notable Factors

This data is available from the American Community Survey (ACS) which is delayed in its provision of data compared to the timeframe OTO is analyzing. Also, this ACS data spans a 5-year collection timeframe and includes data from before the Great Recession, which impacted driving behaviors.

### 3. Bicycle/Pedestrian Network Completion

*A higher value is better.*

#### Description

Using aerial photography and data from individual jurisdictions, OTO tracks where sidewalks exist within the OTO study area. This plan recommends sidewalks be located in residential, as well as commercial areas. This performance measure will compare the miles of roadway with sidewalk to the miles of roadway without and will not include roadways with a classification of Expressway or higher. The measure will not distinguish between those roads with sidewalks on one side of the street versus both sides of the street. Sidewalks are usually added to existing roadways at a rate of just a few miles per year. Sidewalks should be included with construction of new roadways.

OTO has also identified the future trail network for the region. This performance measure will be assessed by the miles of completed trails. Only those trails used for transportation will be counted. The Frisco Highline Trail will only be counted to the Greene County northern boundary. Currently, 225 miles of trail are planned for the region.

#### Target

If, on average, 4 miles of sidewalk are added each year within the OTO area, but no new roadways. By 2035, the total percent of roadways with sidewalks would be 33.5.

- 1) That 35 percent of roadways have sidewalks, excluding those with Expressway classification or above.
- 2) That 80 miles of the trail network be completed by 2035.

#### Current Value/Trends

*\*excluding Freeways, Freeway Ramps, and Expressways (per the OTO Major Thoroughfare Plan)*

	2012	2013	2014	2015
<b>Percent Roadway with Sidewalks</b>	29.62	30.50	30.77	30.98
<b>Miles of Existing Greenway Network</b>	53.84	56.04	60.22	62.54



#### Result

Bicycle and pedestrian accommodations continued to increase in the OTO region.

#### Notable Factors

Improvements include new sidewalk in almost every OTO community. Sidewalk improvements were made in new and old developments, near schools, and in the downtown area. MoDOT and City Utilities have also partnered to construct sidewalks to improve access to transit stops.

For the Greenway Network, as more connections are created, previously considered loop trails are becoming part of the larger system.

## 4. Total Disabling Injury and Fatal Crashes per Million Vehicle Miles Traveled

*A lower value is better.*

### Description

Crash rates are defined by crashes per Million Vehicle Miles Traveled (MVMT). This can be an effective way to gauge roadway safety trends. This does not account for how many disabling injuries or fatalities occurred with a single crash, rather, it considers if any disabling injury or fatality was associated with a crash, and then compares that to the vehicle miles traveled. By indexing the number of crashes to vehicle miles traveled, one can take into account the risk involved given the number of miles driven. The more miles one travels, the higher their risk for a crash. This exposure factor is more accurate in determining roadway safety.

### Target

That disabling injury and fatal crashes/MVMT will continue a downward trend as shown in the graphic below.

Year	Annual VMT	Disabling Injury Crashes and Fatal Crashes	Disabling Injury Crashes and Fatal Crashes/ 100MVMT
2015	1,908,927,370	205	10.74
2014	1,847,554,810	202	10.93
2013	1,800,613,620	192	10.66
2012	1,813,172,784	190	10.48
2011	1,799,828,505	198	11.00
2010	1,828,972,660	237	12.96
2009	1,813,807,640	254	14.00
2008	1,853,066,052	220	11.87
2007	1,892,830,505	226	11.94
2006	1,867,174,655	266	14.25
2005	1,789,969,855	244	13.63
2004	1,810,271,868	249	13.75
2003	1,690,034,315	233	13.79
2002	1,657,463,540	233	14.06



### Result

The crash rate in the OTO region has decreased from 2014 to 2015. While disabling injury and fatal crashes were up slightly, Annual VMT has increased at a higher rate, keeping the overall crash rate lower.

### Notable Factors

The Blueprint for Safety and its Southwest District Committee has focused on reducing fatalities on the MoDOT network. Statewide, fatalities are at all-time lows, though the trend is starting to swing the other way. Increased VMT means more people are on the road and are more exposed to the risk of a vehicular crash. Prior values have been adjusted as needed as information becomes more complete.

## 5. On-Time Performance of Transit System

*A higher value is better.*

### Description

The timeliness of each bus route is determined through spot checks by a supervisor. Such checks are performed randomly. Timeliness can help determine if a route needs adjusting, if there are issues at stops along a route, or if there is a broader roadway efficiency issue. Timeliness also demonstrates the reliability of the system. System reliability can be more important to a user than frequency of service.

### Target

The CU service standard is 90 percent. The system will be considered to have acceptable on-time performance at this 90 percent level.

### Current Trends/Values

Source: City Utilities Transit

Year	Percent on Time
2007	89
2008	91
2009	91
2010	94
2011	96
2012	91
2013	93
2014	96
2015	88



### Result

Transit on-time performance has been improving since 2012, which was worse than what was seen in prior years. In 2015, however, on-time performance was lower than it has been since OTO started tracking it in 2007.

### Notable Factors

The methodology for on-time performance contributes to the annual variances in the percent buses are on-time. Through 2014, the method was to perform spot-checks at the transfer station by supervisors with a low sample rate. City Utilities has since purchased automated vehicle location devices for each of their buses. This provides a holistic view of timeliness for the transit system. This allows for buses to be tracked at their timed stops along routes, as well. The 2015 result is the result of this new system. City Utilities feels that they are improving both in their use of the system and in their on-time performance over 2015 and into 2016. This will be the new method of checking on-time performance, so after several years, it would be appropriate to reconsider the target for this measure.



## 6. Percent of Housing Units within ¼-mile of a Bus Route

*A higher value is better.*

### Description

The percent of housing units within a ¼-mile of a bus route is an indicator of how many potential people are available to use the transit system. This measure examines the City Utilities Transit service area at the proximity of housing units to CU bus service.

### Target

That the percent of housing units within the CU Transit service area and the OTO area within ¼-mile of a bus route is on the upward trend between now and 2035.

### Current Trends/Values

Year	OTO Area Housing Units		CU Service Area Housing Units		1/4-mile Relevant Bus Route		% Households w/in 1/4-mile CU Bus Route	
	Number	% Change	Number	% Change	Number	% Change	OTO Area	CU Service Area
2010*	138,623	--	77,620	--	64,871	--	47	84
2012**	140,911	1.65	78,305	0.88	65,329	0.71	46	83
2013**	141,832	0.65	78,547	0.31	65,480	0.23	46	83
2014**	142,882	0.75	78,879	0.42	65,679	0.30	46	83
2015**	144,509	1.14	79,771	1.13	66,304	0.95	46	83

### Result

Based on this analysis, access to transit has not improved since 2011. The target is for an upward trend. For the first time since the measure has been tracked, however, the percentage growth in housing units in the City Utilities service area closely matches the growth of housing units in the OTO as a whole. This means the number of units within a quarter mile of a bus route also had a higher increase. These factors allowed the ratio of housing units near bus routes to be maintained.

### Notable Factors

The number of housing units for the OTO region, as a whole, is static as the data source is the 2010 Census. The OTO is able to use this as a base number, however, and add information from building permit data collected with the Growth Trends document.

The number of housing units in the region increased at a similar rate for the OTO area as a whole compared to the CU Service Area.

\*Based on 2010 U.S. Census Bureau Housing Units

\*\* Based on OTO Growth Trends Building Permit Data plus 2010 U.S. Census Bureau Housing Units

## 7. Average Commute Time

A lower value is better.

### Description

Average commute time is the amount of time taken to travel to work as reported by workers over the age of 16 on the American Community Survey and the decennial Census. This data is not available at the OTO level, so it will include all of Christian and Greene Counties. This measure is an indicator of both the distance commuters are traveling and the potential congestion drivers face during their commute.

### Target

Keep the average commute time less than 25 minutes by 2035.

Blue cells show improvement
Red cells show decline
White cells show no change

### Current Value/Trends

Source: US Census Bureau – American Community Survey, Table S0801

	1980	1990	2000	2005-2009	2007-2011	2008-2012	2009-2013	2010-2014	Difference in Minutes 2009-2013 to 2010-2014
<b>Christian</b>	24.0	27.4	25.1	24.1	24.5	24.9	25.6	25.5	-0.1
<b>Greene</b>	17.2	17.6	19.2	19.5	19.2	18.8	19.0	19.0	0.0
<b>Battlefield</b>	22.1	22.6	23.1	22.7	23.1	22.1	22.7	22.2	-0.5
<b>Fremont Hills</b>	N/A	17.0	19.8	19.7	23.6	23.2	23.8	24.4	0.6
<b>Nixa</b>	20.8	19.1	23.8	21.9	22.4	23.4	24.9	24.4	-0.5
<b>Ozark</b>	21.0	19.2	21.6	22.0	23.1	23.3	23.3	23.8	0.5
<b>Republic</b>	20.5	21.6	25.1	23.4	22.2	22.3	21.5	21.9	0.4
<b>Springfield</b>	15.4	15.7	17.0	17.6	17.3	16.9	17.3	17.3	0.0
<b>Strafford</b>	19.2	20.4	22.4	23.0	23.7	20.8	22.1	22.0	-0.1
<b>Willard</b>	20.6	23.2	23.0	23.8	23.1	24.8	26.1	23.6	-2.5
<b>Average of Greene/Christian</b>	<b>20.6</b>	<b>22.5</b>	<b>22.2</b>	<b>21.8</b>	<b>21.9</b>	<b>21.9</b>	<b>22.3</b>	<b>22.3</b>	-0.1
<b>Average of OTO Cities</b>	<b>19.9</b>	<b>19.9</b>	<b>22.0</b>	<b>21.8</b>	<b>22.3</b>	<b>22.1</b>	<b>22.7</b>	<b>22.5</b>	-0.3



### Result

Overall, commuting times have improved since the prior analysis, with only commuters in Fremont Hills, Ozark, and Republic seeing an increases in commute times and both Greene County and Springfield with no change. The average commute does remain under the target of 25 minutes for the region.

### Notable Factors

As stated earlier, the American Community Survey data spans multiple years, though this latest round is starting to show the recovery from the Great Recession. Several congestion-reducing projects were finished just before and during this timeframe, including the six-laning of US 65 and the interchange of US 60 and US 65. The survey data also covers a much smaller sample of the population than the former Census Long Form. In several instances, the margin of error was larger than the difference between the analysis years.

## 8. Peak Travel Time

*A lower value is better.*


### Description

For 2005, 2008, and 2012, travel time along the roadway system was determined through travel time runs using Global Positioning System (GPS) units. These units collected data to determine the average time it takes to travel a corridor. When the speed of travel drops more than 20 mph below the posted speed limit, a roadway is determined to have significant delay. For the 2016 data, newly installed wi-fi sensing travel time units and cell-phone probe data was used to calculate delay. This also meant more roads were included in the analysis.


### Target

That less than 20 percent of the OTO area roadways will be significantly delayed.



### Current Value/Trends

AM Peak Total				
	2005	2008	2012	2016
 Miles 20+ mph below speed limit	12.85	33.63	25.26	13.71
Total Travel Time Mileage	265.04	343.23	342.57	765.54
Percent Significantly Delayed	5%	10%	7%	2%

PM Peak Total				
	2005	2008	2012	2016
 Miles 20+ mph below speed limit	18.37	46.23	48.93	128.09
Total Travel Time Mileage	264.27	354.8	339.48	765.54
Percent Significantly Delayed	7%	13%	14%	17%

### Result

  AM Peak travel time is improving, but PM Peak travel time is not.

### Notable Factors

The 2005-2012 data is not directly comparable to the 2016 data as they were collected using different methods and the 2016 data covered many more miles of roadway. The prior method of using GPS units allowed for speed to be collected at many more points along a route while the newer sensing units are only placed at more significant intersections, lengthening the segments measured for speed. While this is the case, the current trends of improving AM Peak and worsening PM Peak have continued.

## 9. Percent of Roadways in Good Condition

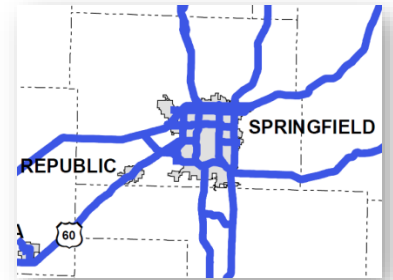
*A higher value is better.*

### Description

The Missouri definition of good condition uses factors such as smoothness and physical distress to determine quality. The goal for the Missouri Department of Transportation is to have 85 percent of all Major Roads in Good Condition. The current OTO values for 2010 are higher than for the entire State of Missouri. Overall, in Missouri, the Major Roads were more than 85 percent good, while in the OTO, 93 percent are considered good. Major Roads are principal arterials, including interstates, freeways and expressways. This map highlights the major roads in the OTO region.

### Major Roads in the OTO Region

Source: Missouri Department of Transportation



### Target

That 85 percent or more of the Major Roads in the OTO region are in Good Condition.

Year	Major % Good
2002	65
2003	61
2004	59
2005	61
2006	78
2007	87
2008	89
2009	91
2010	93
2011	94
2012	94
2013	94
2014	96
2015	96

For MoDOT owned roads only.  
Based on MoDOT Tracker Data.



### Result

The percentage of Major Roads in Good Condition was constant 2011 through 2013 and then increased in 2014, and stayed the same in 2015, continuing to remain above 85 percent.

### Notable Factors

The Smooth Roads Initiative, which started in 2006, is evident in MoDOT's ability to maintaining a Good Condition on the area's major roadways. Also, with MoDOT enacting Sooner, Safer, Sooner and the Bold Direction, Major Road condition in the OTO has continued to improve, staying at a high level. This commitment to taking care of the system is proven.

## 10. Bridge Condition

*A higher value is better.*

### Description

Bridge condition ratings are calculated by taking the lowest sub-rating of the super-structure, sub-structure, and deck. Ratings range from 3 to 9. At a bridge rating of 3, bridges are closed to the public. A bridge rating of 5 is considered Fair, with all primary structural elements as sound, though they may have minor section loss, cracking, spalling, or scour. A bridge rating of 9 is Excellent. The Missouri Department of Transportation does not have a set goal for this measure. This measure shows those bridges which are rated 5 or higher, in Fair or better condition.

### Target

That the percent of bridges in fair or better condition will stay above 90 percent.

	Total Bridges	Total Fair+	Percent Fair+
2001	251	242	96.41
2002	252	242	96.03
2003	253	244	96.44
2004	259	250	96.53
2005	265	256	96.60
2006	270	257	95.19
2007	273	260	95.24
2008	277	262	94.58
2009	287	269	93.73
2010	290	268	92.41
2011	317	298	94.01
2012	328	311	94.82
2013	333	318	95.50
2014	331	316	95.47
2015	331	316	95.47

Includes state and non-state bridges

### Result

The percentage of bridges with Fair or better condition ratings remains above the target of 90 percent. The 2015 results are the exact same as for 2014.

### Notable Factors

The continued focus on taking care of the system and MoDOT's Safe and Sound Bridge Program are both reasons for the region's continued ability to keep the area's bridges in fair or better condition.

## 11. Ozone Levels

*A lower value is better.*

### Description

Ozone is a regulated pollutant under the Clean Air Act and the allowable amount is set by the National Ambient Air Quality Standards. Ozone is measured on a three-year design value. This is based on the 4<sup>th</sup> highest ozone value during each of those three years. Though the standard in place was set at 75 ppb when this measure was adopted, it is now 70 ppb. The standard is reviewed at least once every five years and either stays in place or is adjusted downward. As a metropolitan transportation organization, the OTO is responsible for ensuring that the region complies with transportation conformity requirements. This essentially states that the transportation projects within the non-attainment area are consistent with air quality goals.

### Target

That the region will be able to demonstrate transportation conformity for its plans, programs, and projects.

Years	Value
2002-2004	70
2003-2005	71
2004-2006	71
2005-2007	77
2006-2008	73
2007-2009	69
2008-2010	68
2009-2011	69
2010-2012	74
2011-2013	72
2012-2014	68
2013-2015	61



### Result

As the region has yet to go non-attainment, conformity is not an issue for OTO at this time. The most recent Ozone Design Value is now well within the limits set by EPA through the National Ambient Air Quality Standards. The Design Value has improved since the previous report and voluntary efforts are underway to keep the area in attainment.

### Notable Factors

Weather is a major factor in the area's ozone values and 2012 was a very hot year, with cooler years since. The Ozarks Clean Air Alliance is participating in EPA's Ozone Advance Program to mitigate the impacts of ozone in southwest Missouri. In 2015 City Utilities announced plans to start switching from the use of coal in their James River Power Station to natural gas, in order to remain in compliance with other EPA regulations on coal fired power plants.



**OZARKS TRANSPORTATION ORGANIZATION**  
A METROPOLITAN PLANNING ORGANIZATION

This report was prepared in cooperation with the USDOT, including FHWA and FTA, as well as the Missouri Department of Transportation. The opinions, findings, and conclusions expressed in this are those of the authors and not necessarily those of the Missouri Highways and Transportation Commission, the Federal Highway Administration or the Federal Transit Administration.

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