WHERE WE STAND

Where We Stand ***tracks the health of the St. Louis region compared to 34 peer MSAs.* The peer regions are our domestic competition and provide a consistent yardstick to gauge "Where We Stand."***

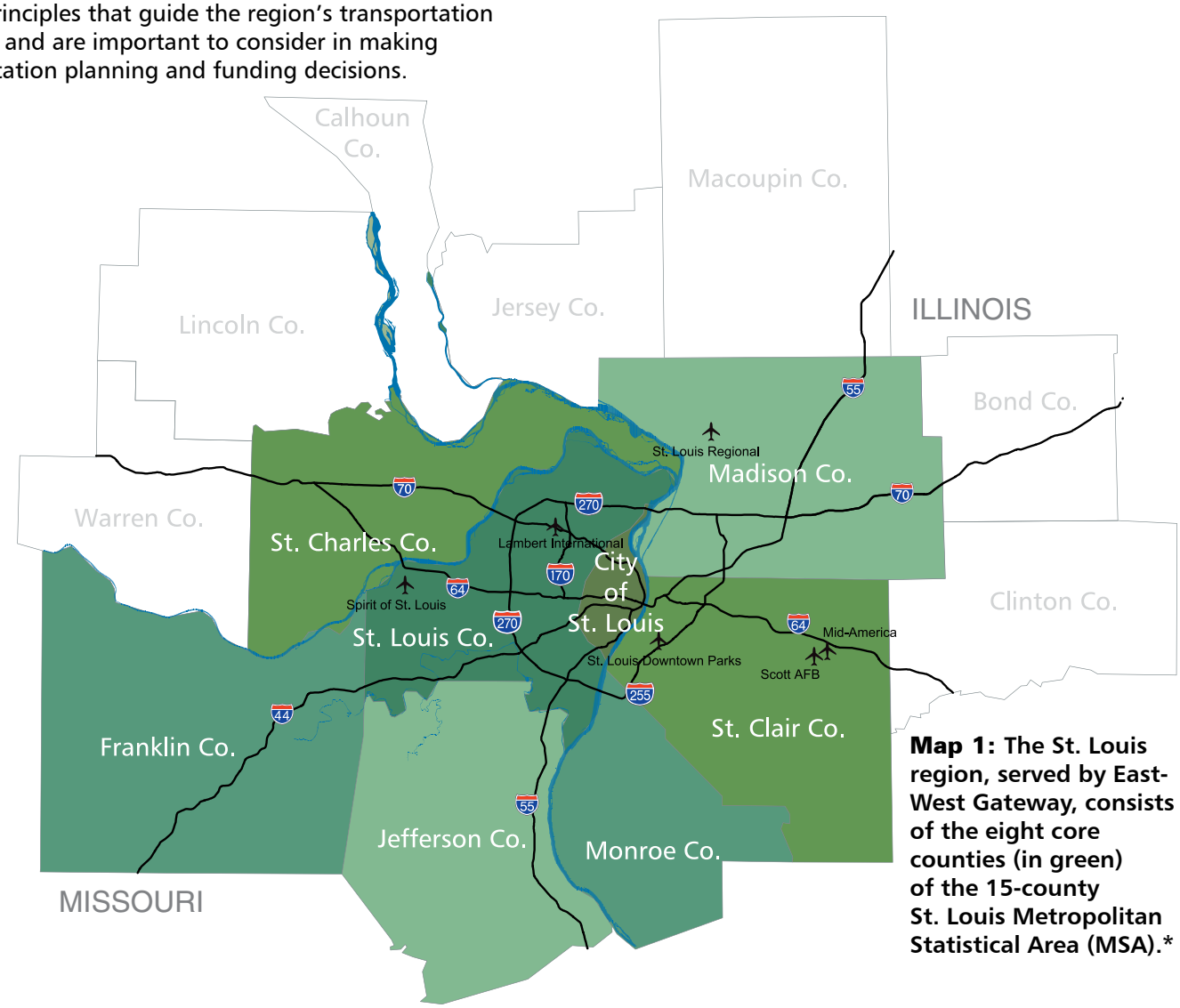
This update provides data on topics that are important to making transportation planning and funding decisions. The data indicates how the region is performing in regards to the principles that guide the St. Louis region's Long-Range Transportation Plan.

6th Edition, Update 8 June 2014

Transportation

In June 2015 East-West Gateway Council of Governments will produce the St. Louis region's next Long Range Transportation Plan (RTP)—Connected 2045. In the year leading up to the publication of the plan, the public will help set priorities that will guide how transportation funding is allocated in the region. This *Where We Stand Update* provides context for these conversations by comparing the St. Louis region to 34 peer regions on a set of data that indicate how the region is performing on the 10 principles that guide the region's transportation planning and are important to consider in making transportation planning and funding decisions.

Compared to the peer regions, St. Louis provides an extensive transportation network with roads and bridges that are in relatively good condition. This network facilitates economic development by providing businesses with low congestion, tremendous freight assets, and a reliable system. The region does not provide as many transportation options as many of the peer regions, contributing to less accessibility and higher transportation costs for residents.



Map 1: The St. Louis region, served by East-West Gateway, consists of the eight core counties (in green) of the 15-county St. Louis Metropolitan Statistical Area (MSA).*

*MSAs (Metropolitan Statistical Areas) are geographic entities delineated by the Office of Management and Budget (OMB). MSAs are areas with "at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties."

Guiding Principles

The *Where We Stand* tables in this report are organized around 10 guiding principles. These principles represent what the people of St. Louis value. They guide the region's transportation planning and allocation of funding. The principles were established through a public engagement process in 2009, *Renewing the Region*, that asked citizens and a range of regional and local leaders what issues are likely to affect the region's growth and prosperity as well as what is most important to them. The principles recognize the importance of transportation to the everyday lives of individuals, the key role it plays in economic growth, and the potential it has to impact environmental assets.

The principles were established for the *Regional Transportation Plan 2040* and carried forward for the 2045 plan. Although the principles are specific to the St. Louis region, they also closely align with the goals of the federal transportation legislation, MAP-21.

MAP-21

Moving Ahead for Progress in the 21st Century Act

Enacted in July 2012, MAP-21 is the federal legislation that guides federal transportation investments. The program provides over $105 billion for surface transportation programs and over $10.6 billion for public transportation for fiscal years 2013 and 2014. Core highway formula programs under MAP-21 include the National Highway Performance Program (NHPP), Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Highway Safety Improvement Program (HSIP). Core programs for public transportation include Urbanized Area Formula Grants, State of Good Repair Grants and New Starts/ Small Starts.

The legislation established the following national performance goals, which closely align with the St. Louis region's Guiding Principles:

- Safety
- Infrastructure condition
- Congestion reduction
- System reliability
- Freight movement and economic vitality
- Environmental sustainability
- Reduced project delivery delays

What is the Regional Transportation Plan?

East-West Gateway Council of Governments (EWG) is the St. Louis region's federally designated Metropolitan Planning Organization (MPO). In accordance with federal law, EWG develops a long-range Regional Transportation Plan (RTP) every four years.

Connected2045—The region's next RTP will be produced in 2015. The plan will include:

- An **investment plan** for major projects using federal transportation funds.
- A listing of Missouri and Illinois departments of transportation and Metro projects that are **priority projects** (affordable within the region's anticipated resources for the next 30 years) and **illustrative projects** (projects the region would like to pursue, if funds become available).
- **Guiding principles** that will be used to evaluate local projects competing for federal funds. These local projects will then be listed in the annual Transportation Improvement Program (TIP). All projects in the TIP must be consistent with the RTP's principles.

More information on *Connected2045* and the region's current long-range plan, *Regional Transportation Plan 2040*, can be found at www.ewgateway.org/trans/longrgplan/longrgplan.htm

Preserve and Maintain the Existing System

One of the major challenges facing states and metropolitan areas is keeping the transportation system in good repair. The decades-long emphasis on system expansion has limited the resources available for rehabilitating and replacing aging system components. Failing pavements, deficient bridges, and deteriorated transit facilities create safety problems, reduce operational efficiency, and negatively impact travel quality. Deferring preservation work is also significantly more expensive than pursuing a regular cycle of maintenance, rehabilitation, and replacement. ~ Regional Transportation Plan 2040.[1]

ROAD NETWORK
Freeway lane-miles per urbanized area square mile, 2011

1	**San Francisco**	**3.0**
2	Los Angeles	3.0
3	Kansas City	2.9
4	**St. Louis**	**2.7**
5	San Diego	2.7
6	Salt Lake City	2.2
7	Denver	2.2
8	Columbus	2.2
9	Seattle	2.1
10	San Antonio	2.1
11	Oklahoma City	2.0
12	New York	2.0
13	Minneapolis	2.0
14	Cleveland	2.0
Average		**1.9**
15	Miami	1.8
16	Portland	1.8
17	Dallas	1.8
18	Louisville	1.8
19	Baltimore	1.8
20	Austin	1.7
21	Houston	1.7
22	Nashville	1.7
23	Cincinnati	1.6
24	Washington DC	1.5
25	Milwaukee	1.5
26	Boston	1.5
27	Detroit	1.4
28	Memphis	1.4
29	Indianapolis	1.4
30	Phoenix	1.4
31	Pittsburgh	1.4
32	Chicago	1.3
33	Philadelphia	1.3
34	Atlanta	1.1
35	**Charlotte**	**0.9**

HIGHER

AVERAGE

LOWER

Source: Urban Mobility Report, 2012, Texas Transportation Institute; U.S. Census 2010

Road Network

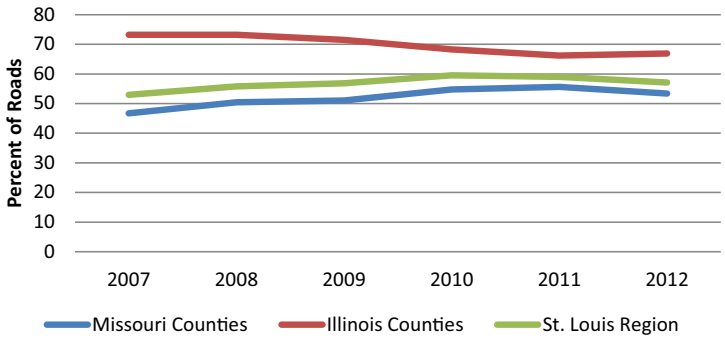
The St. Louis region has one of the most extensive highway systems in the nation with 2,612 lane-miles of freeway. This is the 9th largest number of freeway lane-miles among the peer regions when looking at total miles in each region. Since the regions are of varying sizes, the Road Network Table provides the number of lane-miles per urbanized area square mile.[2] St. Louis has the 4th most freeway lane-miles per urbanized area square mile.

For decades the United States built a road network that helped facilitate economic growth, housing development and the American lifestyle. As the infrastructure ages, preservation of the system has become the St. Louis region's top priority for transportation investment. The region's current long-range transportation plan proposes spending $30.8 billion over the 28 year planning horizon with 87 percent of the funding allocated to preservation and operations.[3]

Pavement Conditions

Missouri and Illinois departments of transportation maintain a total of 10,553 lane-miles on roadways in the St. Louis region. All of the roadways are assessed based on the amount of cracking, rutting, raveling, patching and a number of other deficiencies that characterize the condition of the pavement. The portion of roads rated "good" increased in 2003 when the region began allocating higher levels of funding to preservation.[4] Figure 1 shows that the portion of roads in good condition in the Missouri portion of the region has continued to increase. The portion of roads in good condition in the Illinois portion of the region decreased from 73 percent in 2007 to 67 percent in 2012 but remains higher than the portion in good condition in Missouri.

Figure 1: Percent of State Maintained Roads in Good Condition, St. Louis Region, 2007 to 2012



Source: MoDOT (International Roughness Index), IDOT (Condition Rating Survey)

1 The first paragraph following each guiding principle is from the *Regional Transportation Plan 2040* that East-West Gateway Board of Directors adopted in July 2011. They provide information on what was learned during Renewing the Region initiative and provide context for the long-range transportation plan.
2 "Urbanized Area" is a Census Bureau designation for areas that consist of densely developed territory which contain 50,000 or more people. The St. Louis urbanized area is 978 square miles, including the St. Louis MO-IL and Alton, IL urbanized areas.
3 *State of the System* and *Technical Supplement to Regional Transportation Plan 2040*, July 2011.
4 *Regional Transportation Plan 2040*, July 2011.

Table 1 provides the total lane-miles and portion of the roads that are in good, fair or poor condition by county for the St. Louis region. Franklin and St. Charles counties have less than 50 percent of their roadways in good condition. The interstates in these counties have similar ratings of good condition as in the other counties but the condition of the arterial roads, which have lower rates of vehicles traveling on them, are the ones that tend to be in fair or poor condition.

Table 1: Condition of State Maintained Roads by County, St. Louis Region, 2012

County	Total Lane Miles	Condition (Percent of Total) Good	Fair	Poor
Illinois Counties	**2,934**	**66.9**	**22.3**	**10.8**
Madison	1,533	66.3	20.7	13.0
Monroe	175	66.5	27.3	6.2
St. Clair	1,227	67.7	23.7	8.6
Missouri Counties	**7,619**	**53.4**	**37.5**	**9.1**
Franklin	1,288	35.8	50.0	14.2
Jefferson	1,083	51.8	41.2	7.0
St. Charles	1,282	44.9	42.9	12.2
St. Louis	3,628	62.4	30.9	6.7
City of St. Louis	339	61.0	27.8	11.2
St. Louis Region	**10,553**	**57.1**	**33.3**	**9.6**

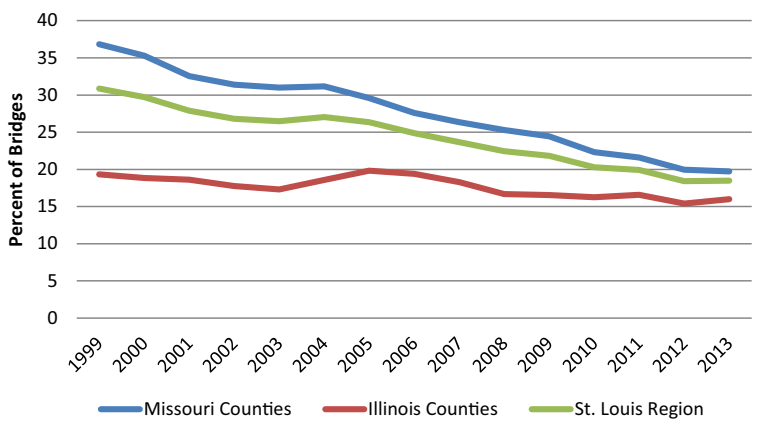
Source: MoDOT (International Roughness Index), IDOT (Condition Rating Survey)

Bridge Conditions

Bridges serve as an integral part of the transportation network. In the St. Louis region, the multitude of rivers and waterways are recognized as cornerstones of the history and vitality of the region. These waterways also require a considerable number of bridges to connect the road network. There are over 4,000 bridges with a total of 3.7 million square meters of deck area in the 15-county St. Louis Metropolitan Statistical Area.[5] Among the peer regions, St. Louis ranks 8th highest for the number of bridges and 9th in the total square meters of deck area for the bridges. The St. Louis region has taken relatively good care of its bridges, ranking 24th for the percent of bridge deck area that is structurally deficient or functionally obsolete. Of the 10 regions with the most bridge deck area, only Miami has a smaller portion of its bridges classified as deficient than St. Louis.

Figure 2 provides the percent of bridges that are deficient in the eight-county region from 1999 to 2013. Over this time period the percent of bridges that are functionally obsolete or structurally deficient reduced substantially while the number of total bridges in the region increased. In 1999, there were 3,012 bridges of which 513 were functionally obsolete and 417 were structurally deficient. In 2013, there were 251 additional bridges but 120 fewer that were functionally obsolete and 207 fewer that were structurally deficient.

Figure 2: Percent of Bridges that are Deficient, 1999 to 2013



Source: FHWA, National Bridge Inventory, 2013

DEFICIENT BRIDGES

Percent of bridge deck area that is structurally deficient or functionally obsolete, 2013

1	**New York**	**63.0**
2	Boston	56.7
3	Pittsburgh	55.2
4	San Francisco	50.4
5	Seattle	49.3
6	Detroit	49.2
7	Chicago	47.1
8	Cleveland	44.7
9	Philadelphia	42.5
10	Los Angeles	41.7
11	Cincinnati	37.4
12	Washington DC	37.1
13	Portland	36.6
14	Dallas	34.2
Average		33.9
15	Charlotte	32.0
16	Houston	30.9
17	Louisville	30.8
18	Milwaukee	30.6
19	Baltimore	30.5
20	Indianapolis	30.1
21	Kansas City	30.0
22	Memphis	29.8
23	Columbus	29.8
24	**St. Louis**	**29.1**
25	Oklahoma City	28.6
26	Denver	27.6
27	Phoenix	26.2
28	San Antonio	24.0
29	Austin	22.7
30	Miami	22.7
31	Nashville	20.9
32	Atlanta	20.3
33	San Diego	19.4
34	Minneapolis	14.6
35	**Salt Lake City**	**9.3**

HIGHER

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Source: FHWA, National Bridge Inventory, 2013

5 Bridge data is provided for the St. Louis 15-county Metropolitan Statistical Area (MSA) for ease of comparison with other metropolitan areas but the East-West Gateway transportation planning and allocation of federal funds applies only to the core eight-counties of the MSA. See Table 2 for bridge data for the eight-county region.

Table 2 provides the number of bridges by county in the St. Louis eight-county region. About half of the bridges in the region are in the three central counties (St. Louis and St. Clair counties and the city of St. Louis). The bridges in these counties also represent about 50 percent of the structurally deficient bridges and 72 percent of the region's functionally obsolete bridges. This is expected since the infrastructure in these areas tends to be older and was built according to older design standards. Neither being structurally deficient nor functionally obsolete means that a bridge is unsafe. Repairs are made to make them safe and unsafe bridges are closed. Identification of bridge deficiencies allows for timely, less costly bridge maintenance and guides investment decisions.

Table 2: Condition of Bridges by County, St. Louis Region, 2013

County	Total Bridges	Functionally Obsolete (percent)	Structurally Deficient (percent)
Illinois Counties	**1,082**	**10.4**	**5.5**
Madison	507	10.1	7.1
Monroe	126	4.8	4.8
St. Clair	449	12.5	4.0
Missouri Counties	**2,181**	**12.8**	**6.9**
Franklin	326	4.9	7.4
Jefferson	375	5.1	7.2
St. Charles	353	5.4	2.6
St. Louis	880	17.4	6.4
City of St. Louis	247	29.6	13.8
St. Louis Region	**3,263**	**12.0**	**6.4**

Note: Does not include bridges built in the last 10 years.
Source: FHWA, National Bridge Inventory, 2013

Bridge Ratings and Classifications

States inspect bridges on public roads at least once every 24 months. Bridges are rated and classified based on the criteria in the National Bridge Inspection Standards (NBIS).

Structurally Deficient: a bridge that is in poor (or worse) condition due to deterioration and/or damage. Structurally deficient bridges are not necessarily unsafe. To remain open, they typically must be repaired or vehicle weight limits must be restricted.

Functionally Obsolete: a bridge that does not meet current design standards due to a change in standards and/or a change in the traffic demand on the structure.

~Federal Highway Administration

Support Public Transportation

Great cities have great transit systems. A healthy regional economy includes a public transportation option for people who need it to get to their jobs, to school and to other essential destinations. Residents who do not ride on transit rely on many who do throughout the region. Public transit spurs economic development, lowers the cost of living for those who use it, and reduces traffic congestion and improves air quality by taking cars off the road.

~ Regional Transportation Plan 2040

Mode Share

There are two primary providers of public transit in the St. Louis region—Bi-State Development Agency (Metro) and Madison County Transit.[6] About 2.3 percent of workers in the St. Louis region use the agencies' bus, light rail, and call-a-ride services as their primary means for commuting to work. The region ranks below the peer region average of 5.2 percent of workers

6 Metro operates MetroBus and MetroLink in the city of St. Louis, St. Louis County and St. Clair County (St. Clair County Transit contracts with Metro for service), and Metro Call-A-Ride in the city of St. Louis and St. Louis County. Madison County Transit provides fixed route bus service throughout Madison County, Illinois as well as service to the East St. Louis MetroLink stop in St. Clair County and to downtown St. Louis.

TRANSIT MODE SHARE
Percent of total workers whose means of transportation is public transit, 2012

1	**New York**	**31.0**	HIGHER
2	San Francisco	15.6	
3	Washington DC	14.1	
4	Boston	12.2	
5	Chicago	11.1	
6	Philadelphia	9.4	
7	Seattle	8.5	
8	Baltimore	6.5	
9	Portland	6.0	
10	Los Angeles	6.0	
11	Pittsburgh	5.5	
Average		**5.2**	AVERAGE
12	Denver	4.4	LOWER
13	Minneapolis	4.3	
14	Miami	4.2	
15	Salt Lake City	3.9	
16	Milwaukee	3.7	
17	Cleveland	3.2	
18	Atlanta	2.9	
19	San Diego	2.8	
20	Houston	2.6	
21	Austin	2.3	
22	**St. Louis**	**2.3**	
23	San Antonio	2.3	
24	Charlotte	2.1	
25	Phoenix	2.1	
26	Louisville	1.8	
27	Cincinnati	1.8	
28	Columbus	1.6	
29	Detroit	1.6	
30	Dallas	1.5	
31	Memphis	1.2	
32	Indianapolis	1.2	
33	Kansas City	1.1	
34	Nashville	1.1	
35	**Oklahoma City**	**0.4**	

Source: American Community Survey, U.S. Census Bureau

using public transit, coming in at 22nd. The regions with the most extensive public transportation systems, and the largest portions of their populations using public transit, tend to be the most densely populated regions.

The portion of the population in the St. Louis region using transit has fluctuated some over the past 10 years but has remained between 2.3 percent (2012) and 2.7 percent (2008). (See Figure 3 on Page 11.)

TRANSIT COVERAGE
Share of working-age residents living in block groups served by transit, 2010

1	**Los Angeles**	**96.0**
2	San Francisco	91.7
3	New York	89.6
4	Salt Lake City	89.0
5	Miami	88.8
6	Seattle	85.3
7	Denver	83.7
8	Portland	83.5
9	San Diego	83.0
10	Washington D.C.	82.5
11	Chicago	78.8
12	Philadelphia	76.9
13	Phoenix	70.5
14	Boston	69.4
15	Baltimore	68.3
16	San Antonio	68.2
17	Milwaukee	67.4
18	Minneapolis	67.0
19	Pittsburgh	66.8
20	Cleveland	66.2
Average		**65.3**
21	Detroit	59.7
22	Louisville	59.5
23	**St. Louis**	**56.6**
24	Columbus	55.7
25	Memphis	51.4
26	Cincinnati	48.0
27	Austin	47.3
28	Kansas City	47.2
29	Dallas	46.3
30	Houston	44.2
31	Charlotte	42.3
32	Indianapolis	41.6
33	Oklahoma City	41.6
34	Atlanta	37.8
35	**Nashville**	**32.2**

Source: Metropolitan Policy Program at Brookings, 2011

TRANSIT SERVICE FREQUENCY
Median wait time for morning rush hour transit service In minutes, 2010

1	**Oklahoma City**	**19.2**
2	Memphis	15.8
3	Nashville	15.7
4	Kansas City	14.2
5	Pittsburgh	14.2
6	Louisville	13.5
7	Charlotte	13.4
8	Indianapolis	13.3
9	Minneapolis	11.6
10	Cincinnati	11.4
11	Columbus	11.4
12	Detroit	11.4
13	**St. Louis**	**11.2**
14	Dallas	11.1
15	Miami	10.6
16	San Antonio	10.4
Average		**10.3**
17	Atlanta	10.2
18	Philadelphia	9.8
19	Cleveland	9.5
20	Phoenix	9.0
21	Boston	8.9
22	Seattle	8.8
23	San Diego	8.7
24	Austin	8.6
25	Salt Lake City	8.5
26	San Francisco	8.5
27	Denver	8.1
28	Baltimore	7.7
29	Portland	7.4
30	Houston	7.3
31	Chicago	7.2
32	Washington D.C.	6.6
33	Milwaukee	6.4
34	Los Angeles	6.2
35	**New York**	**4.5**

Source: Metropolitan Policy Program at Brookings, 2011

HIGHER

AVERAGE

LOWER

Transit Coverage and Connectivity

The Transit Coverage, Transit Service Frequency and Mobility Index tables indicate how extensive the region's public transportation system is and how well the system is meeting the need for transit in the region. Regions in the West and Northeast tend to provide the most extensive transit systems with regions in the Midwest having less coverage and regions in the South providing the lowest levels of coverage. St. Louis has similar coverage to other midwestern regions.

In the St. Louis region 56.6 percent of working age residents live in a community where they are within three-fourths of a mile from at least one transit stop. This is below the peer average of 65.3 percent. The range of transit coverage among the peer regions is sizeable with over 90 percent of residents having access to transit in Los Angeles and San Francisco and less than 40 percent of residents having access in Nashville and Atlanta.

The St. Louis region ranks higher than the peer average for transit service frequency, at 13th with an average wait time for transit service in the morning rush hour of 11.2 minutes, about one minute slower than the peer region average of 10.3 minutes. Three-fourths of the peer regions have wait times of less than 12 minutes with only a few providing considerably more frequent service.

The Mobility Index Table shows how extensive regional transit systems are relative to the need for public transportation, based on the proportion of households without access to a vehicle. The St. Louis region ranks below the peer region average, at 25th with 23 annual transit revenue hours of service per household without a vehicle.

About 9 percent of all households in the St. Louis region do not own an automobile (about 95,700 households). The peer regions range from 31 percent of residents not having access to a vehicle to less than 5 percent. The St. Louis region ranks about average for the peers, at 15th. The regions with the highest proportions of their populations with no access to a vehicle have extensive transit systems, including New York, Philadelphia, Boston, San Francisco and Chicago.

MOBILITY INDEX

Annual transit revenue hours of service per household without a vehicle, 2012

1	**Salt Lake City**	**75.6**
2	Seattle	62.1
3	Denver	58.0
4	Washington D.C.	52.5
5	Los Angeles	46.6
6	San Diego	46.5
7	Austin	46.4
8	San Francisco	42.3
9	Portland	40.4
10	San Antonio	40.3
11	Minneapolis	36.9
12	Chicago	35.0
13	Miami	34.9
14	Houston	34.0
15	Boston	33.1
16	Dallas	33.0
Average		**31.9**
17	Atlanta	30.0
18	Phoenix	29.8
19	Baltimore	29.4
20	Philadelphia	26.6
21	Charlotte	26.3
22	New York	26.0
23	Milwaukee	24.4
24	Pittsburgh	23.3
25	**St. Louis**	**23.0**
26	Louisville	20.8
27	Columbus	19.8
28	Cleveland	18.7
29	Kansas City	17.5
30	Cincinnati	17.2
31	Nashville	16.4
32	Detroit	16.2
33	Indianapolis	14.1
34	Memphis	12.5
35	**Oklahoma City**	**7.2**

Source: National Transit Database; American Community Survey, U.S. Census Bureau

NO-VEHICLE HOUSEHOLDS

Percent of households, 2012

1	**New York**	**31.5**
2	Philadelphia	13.9
3	Boston	13.2
4	San Francisco	12.8
5	Chicago	12.6
6	Baltimore	11.9
7	Cleveland	11.3
8	Milwaukee	11.0
9	Pittsburgh	10.9
10	Washington D.C.	10.4
11	Detroit	9.7
12	Miami	9.2
Average		**9.0**
13	Portland	8.8
14	Los Angeles	8.8
15	**St. Louis**	**8.6**
16	Memphis	8.4
17	Cincinnati	8.3
18	Louisville	8.1
19	Seattle	7.7
20	Minneapolis	7.4
21	Columbus	6.9
22	Indianapolis	6.8
23	San Antonio	6.8
24	Kansas City	6.7
25	Phoenix	6.6
26	Denver	6.4
27	San Diego	6.2
28	Atlanta	6.2
29	Salt Lake City	6.2
30	Charlotte	6.2
31	Oklahoma City	6.0
32	Houston	6.0
33	Nashville	5.5
34	Dallas	5.1
35	**Austin**	**4.7**

Source: American Community Survey, U.S. Census Bureau

HIGHER

AVERAGE

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If Public Transportation was discontinued in the St. Louis region, it is estimated an additional

$66.5 million a year would be lost to congestion, through an additional

2 Hour delay per auto commuter a year,

and **1.3 million** gallons of wasted fuel.

Support Neighborhoods and Communities throughout the Region

A healthy metropolitan economy is comprised of healthy neighborhoods throughout the eight counties. St. Louis is a large, diverse region, with historic and newer rural, suburban and urban communities that all make vital contributions to the metropolitan economy. They support residential life, employment, schools and places to visit for area residents and tourists. Where appropriate to support existing communities, strategic enhancement or expansion to the system may be warranted. ~ Regional Transportation Plan 2040

The St. Louis region is known for its distinct and strong communities. In public engagement efforts for the regional plan for sustainable development, *OneSTL*, a common theme heard from residents throughout the region was the pride they have of their individual communities and their connection to the greater St. Louis metropolitan area.

These strong communities are spread throughout the eight counties and over 8,600 square miles. The transportation network is called on to connect people from their homes to their jobs, to stores, and to entertainment in a way that is affordable and provides residents with choices.

Housing + Transportation Affordability

One way to examine how well the region is meeting the accessibility needs of residents is to look at the combined affordability of housing and transportation (H+T). These two costs are the largest household expenditures for most households. H+T costs indicate how efficiently the transportation network connects people to the places they need to go and if the region is providing people with options to live and work in locations that make sense for them.

The St. Louis region ranks 26th among its peer regions with residents paying an average of 49.2 percent of the median household income on housing and transportation. Although the region fares better than many of its peers, the region is not considered affordable on this measure. A standard definition used for housing affordability has been 30 percent of household income. The Center for Neighborhood Technology (CNT) recognized the importance of measuring housing and transportation costs together and defines "affordability" as the combined cost of housing and transportation at less than 45 percent of household income. About 60 percent of households in the region pay more than 45 percent of their income on these two expenses, leaving a smaller portion of income for all other expenses such as food, education, clothing and entertainment.[7, 8]

HOUSING PLUS TRANSPORTATION AFFORDABILITY

Transportation and housing costs as a percent of median household income, 2005-2009

1	**Miami**	**60.2**
2	Memphis	57.6
3	Los Angeles	56.5
4	San Diego	55.4
5	Oklahoma City	53.1
6	Nashville	52.9
7	Phoenix	52.8
8	Cleveland	52.8
9	Atlanta	52.4
10	Detroit	52.3
11	Dallas	52.2
12	San Antonio	52.2
13	Charlotte	51.9
14	Columbus	51.9
15	Portland	51.8
16	Austin	51.8
17	Houston	51.3
18	Louisville	51.3
Average		**51.0**
19	Milwaukee	50.7
20	Cincinnati	50.7
21	Indianapolis	50.3
22	Salt Lake City	50.2
23	Chicago	50.0
24	Pittsburgh	49.9
25	Kansas City	49.4
26	**St. Louis**	**49.2**
27	Seattle	49.1
28	Denver	49.0
29	San Francisco	48.4
30	Philadelphia	47.9
31	New York	47.9
32	Boston	47.1
33	Minneapolis	47.0
34	Baltimore	46.5
35	**Washington D.C.**	**43.1**

Source: Center for Neighborhood Technology

TRANSPORTATION EXPENSES

As a percent of median household income, 2005-2009

1	**Oklahoma City**	**30.4**
2	Memphis	30.4
3	Nashville	29.0
4	San Antonio	28.6
5	Louisville	28.3
6	Pittsburgh	28.1
7	Charlotte	27.2
8	Cleveland	26.9
9	Cincinnati	26.8
10	Indianapolis	26.8
11	Columbus	26.6
12	Miami	26.2
13	**St. Louis**	**26.2**
14	Kansas City	26.2
15	Atlanta	26.0
16	Houston	26.0
17	Phoenix	25.9
18	Detroit	25.6
19	Austin	25.4
20	Salt Lake City	25.4
Average		**24.6**
21	Milwaukee	24.9
22	Portland	24.4
23	Dallas	23.7
24	San Diego	23.1
25	Los Angeles	22.7
26	Denver	22.1
27	Minneapolis	22.0
28	Chicago	21.8
29	Philadelphia	21.6
30	Seattle	21.4
31	Baltimore	21.3
32	Boston	19.3
33	San Francisco	17.8
34	New York	17.6
35	**Washington D.C.**	**17.2**

Source: Center for Neighborhood Technology

HIGHER

AVERAGE

LOWER

7 U.S. Census Bureau American Community Survey (2005-2009), LEHD, AAA 2011 Your Driving Costs Brochure, East-West Gateway Council of Governments.

8 The *State of the System* report for the *Long-Range Transportation Plan 2040* provides a series of maps that show the lack of affordable options for residents in the region when considering housing and transportation costs and for varying gas price levels. The report can be accessed at http://www.ewgateway.org/pdffiles/Library/Trans/RTP2040/RTP-StateOfTheSystem-2011.pdf

Transportation Expenses

Unlike the region's performance on the H+T Affordability measure, transportation costs in the St. Louis region are less affordable than many of the peer regions. The St. Louis region ranks 13th with average transportation costs accounting for over a quarter (26.2 percent) of the median household income. High transportation costs in St. Louis are due in part to the region's lower than average transit coverage and higher than average use of private vehicles for transportation (See Transportation Choice on Page 11 and Travel Density on Page 18). Regions with more affordable transportation costs tend to be the more densely populated regions and those with extensive public transit systems.

Foster a Vibrant Downtown

Every world-class city boasts a downtown skyline with first class office space, hotels, restaurants, residential choices, entertainment venues, green space, and shopping in a dense, walkable and attractive setting. Whether area residents work downtown or visit for sports or entertainment, they expect downtown to flourish and they take pride in its success. As a key job center, the central business district is an economic engine that provides important linkages among businesses, large and small, the outside world, and the people who live and work in the entire region. ~ Regional Transportation Plan 2040

As often as residents spoke about the pride they have for their local communities in public engagement meetings for OneSTL, they just as frequently spoke about the pride they have of the larger St. Louis area, which is most often represented by downtown St. Louis—where the Gateway Arch is, the Cardinals play, where tourists visit and where people from every corner of the region go to work and play. Residents who live in the urban, suburban and rural parts of the region recognized the importance of a vital downtown to the strength of the entire region.

The amount of employment and population located in downtown are indicators of the strength of the region's central core. In St. Louis, the downtown area has a relatively low number of jobs and population, indicating the need for additional support for this key area of the region.

EMPLOYMENT IN CENTRAL BUSINESS DISTRICT

Share of jobs within 3 miles of central business district, 2010

1	**Salt Lake City**	**31.8**
2	New York	30.9
3	Boston	29.2
4	Louisville	28.9
5	Seattle	27.4
6	Nashville	27.0
7	Oklahoma City	26.4
8	Pittsburgh	25.2
9	San Francisco	25.2
10	Minneapolis	25.1
11	Austin	24.3
12	Miami	24.3
13	Milwaukee	24.1
14	Portland	23.8
15	Charlotte	23.5
16	Washington D.C.	21.8
17	Denver	21.5
18	Columbus	21.2
Average		**20.1**
19	Chicago	19.5
20	Indianapolis	19.5
21	Phoenix	18.1
22	Cincinnati	17.7
23	Baltimore	17.5
24	Kansas City	16.9
25	Cleveland	15.4
26	Philadelphia	15.2
27	San Antonio	13.8
28	Dallas	13.3
29	**St. Louis**	**13.2**
30	Memphis	12.4
31	San Diego	12.3
32	Houston	10.7
33	Atlanta	9.9
34	Los Angeles	9.9
35	**Detroit**	**7.3**

Source: Metropolitan Policy Program at Brookings, 2013

EMPLOYMENT DISPERSAL

Percentage point change in share of jobs within 3 miles of central business district, 2000-2010

1	**Milwaukee**	**1.5**	
2	Chicago	1.0	
3	Boston	0.9	
4	Washington D.C.	0.1	
5	Detroit	0.0	
6	San Francisco	0.0	
7	Los Angeles	-0.1	
8	Atlanta	-0.4	
9	Seattle	-0.6	
10	New York	-0.7	
11	Pittsburgh	-0.9	
12	Minneapolis	-1.0	HIGHER
13	Memphis	-1.2	
14	Louisville	-1.3	
15	San Diego	-1.4	
16	Philadelphia	-1.5	
17	**St. Louis**	**-1.7**	
Average		**-1.8**	AVERAGE
18	Baltimore	-1.8	
19	Cincinnati	-1.9	LOWER
20	Charlotte	-2.0	
21	Cleveland	-2.1	
22	Denver	-2.1	
23	Portland	-2.3	
24	Miami	-2.4	
25	Oklahoma City	-2.4	
26	Columbus	-2.5	
27	Dallas	-2.6	
28	Austin	-2.7	
29	Indianapolis	-2.9	
30	Nashville	-3.0	
31	Houston	-3.3	
32	Kansas City	-3.6	
33	Salt Lake City	-4.2	
34	San Antonio	-5.4	
35	**Phoenix**	**-6.8**	

Source: Metropolitan Policy Program at Brookings, 2013

Employment Dispersal

The St. Louis region is one of the most decentralized regions with only 13.2 percent of jobs within three miles of the central business district (CBD).[9] Over the past decade, St. Louis has seen a decrease of 1.7 percentage points in the portion of jobs that are within three miles of the central business district—in line with the average change among the peers. (See Employment Dispersal Table on Page 9.) Seven of the 10 regions that experienced the largest decrease in the portion of jobs near the CBD also saw the largest increases in total employment over the last decade.

In 2010, 93 percent of the St. Louis MSA's 1.17 million jobs were within 35 miles of the CBD. Table 3 provides the number of jobs within 35 miles of the CBD as well as what portion of those jobs are within three, three to 10 and 10 to 35 miles of the CBD for 2000, 2007 and 2010. The Brookings Metropolitan Policy Program found that St. Louis shares characteristics with other regions that have highly decentralized employment. Regions with a larger number of workers tend to have more decentralized employment patterns, particularly midwestern regions with a history of manufacturing. Additionally, a relationship was found between employment decentralization and the number of jurisdictions within a region. Regions such as Chicago, Detroit, Philadelphia and St. Louis, which have large numbers of local governments, tend to have larger portions of jobs further from the CBD.[10]

Population Dispersal

Similarly, the residents of the St. Louis region are more dispersed throughout the region and less concentrated in the central city than residents are in many of the peer regions. St. Louis ranks 32nd among the 35 peers for the portion of the population that lives in the central city (city of St. Louis). The land area of the city of St. Louis is also a smaller percentage of the total MSA land area than most of the peer regions. At 61.9 square miles, the land area of the city of St. Louis accounts for less than 1 percent of the land area of the MSA, the second smallest proportion among the peers.

Table 3: Employment Dispersal, St. Louis MSA 2000, 2007 and 2010

	2000	2007	2010	Percent Change in Number of Jobs 2000 to 2010
Total Number Of Jobs within 35 miles of CBD	1,149,391	1,168,959	1,083,419	-5.7
Share of Jobs within 3 miles of CBD (Percent)	14.9	13.6	13.2	-16.5
Share of Jobs 3-10 miles from CBD (Percent)	27.5	24.8	25.6	-12.3
Share of Jobs 10-35 miles from CBD (Percent)	57.6	61.6	61.2	0.2

Source: Job Sprawl Stalls: The Great Recession and Metropolitan Employment Location, Metropolitan Policy Program at Brookings, 2013

POPULATION DISPERSAL

Change in population living outside central city, 2000-2012

1	**Detroit**	**23.5**
2	Dallas	18.3
3	Cincinnati	16.8
4	Atlanta	16.5
5	Houston	16.3
6	Salt Lake City	15.8
7	Phoenix	15.4
8	Cleveland	14.9
9	**St. Louis**	**13.3**
10	Austin	12.6
11	Baltimore	11.5
12	Chicago	10.4
13	Louisville	9.1
14	Memphis	8.3
15	Washington D.C.	7.9
16	Kansas City	7.7
17	San Antonio	7.4
18	Minneapolis	7.2
Average		**6.6**
19	Pittsburgh	5.7
20	Denver	5.1
21	Nashville	4.1
22	Portland	3.9
23	Milwaukee	3.9
24	Philadelphia	3.6
25	Seattle	3.5
26	San Diego	3.1
27	San Francisco	1.6
28	Indianapolis	1.4
29	Los Angeles	1.1
30	Miami	0.8
31	Oklahoma City	0.0
32	Columbus	-1.5
33	Boston	-2.4
34	New York	-2.9
35	**Charlotte**	**-34.4**

Source: American Community Survey, U.S. Census Bureau

Note: Current MSA boundaries were utilized. The central city is the city with the largest population.

LARGEST CITY SHARE OF POPULATION

Percent of total, 2012

1	**San Antonio**	**61.9**
2	Memphis	49.1
3	Indianapolis	46.5
4	Louisville	46.5
5	Oklahoma City	46.2
6	Austin	45.9
7	New York	43.5
8	Columbus	43.1
9	Charlotte	42.3
10	San Diego	42.1
11	Milwaukee	38.2
12	Nashville	37.9
13	Houston	34.8
14	Phoenix	34.4
15	Los Angeles	29.6
16	Chicago	28.5
Average		**28.2**
17	Portland	26.4
18	Philadelphia	25.7
19	Denver	24.0
20	Baltimore	22.6
21	Kansas City	22.5
22	Cleveland	18.9
23	Dallas	18.7
24	San Francisco	18.5
25	Seattle	17.9
26	Detroit	16.3
27	Salt Lake City	16.3
28	Cincinnati	13.8
29	Boston	13.7
30	Pittsburgh	13.0
31	Minneapolis	11.7
32	**St. Louis**	**11.3**
33	Washington D.C.	10.9
34	Atlanta	8.2
35	**Miami**	**7.2**

HIGHER

AVERAGE

LOWER

Source: American Community Survey, U.S. Census Bureau

9 Employment data was calculated by the Brookings Institution and includes jobs within a 35 mile buffer of the central business district. According to Brookings, this buffer "captures 95 percent of all jobs located within the 100 largest metro areas. It serves to bound the analysis and helps standardize measures across metro areas of differing geographic size."

10 Kneebone, Elizabeth, *Job Sprawl Stalls: The Great Recession and Metropolitan Employment Location*, Metropolitan Policy Program at Brookings, 2013.

The Population Dispersal Table provides the change in population living outside the central city. Looking at the change over the past decade helps account for the different sizes of the central cities relative to the size of the MSAs but caution still must be used. Some cities, such as Charlotte, Austin and San Antonio, annexed land over the time period which accounts for some of the growth in the central city population in these regions. Additionally, Detroit and Dallas experienced similar changes in the proportion of population living outside the central city but Detroit's change is due to a large decrease of the central city population (26.3 percent) accompanied by a small decrease in the MSA population (3.6 percent) while Dallas saw a small increase in the central city population (4.4 percent) and a large increase in the MSA population (27.7 percent).

The proportion of people in St. Louis living outside the central city increased by 13.3 percent over the last 12 years. This is a combination of an 8.6 percent decrease of population in the city of St. Louis as well as a 5.4 percent increase in the population for the MSA and no growth in the land area of the central city.

Provide More Transportation Choices

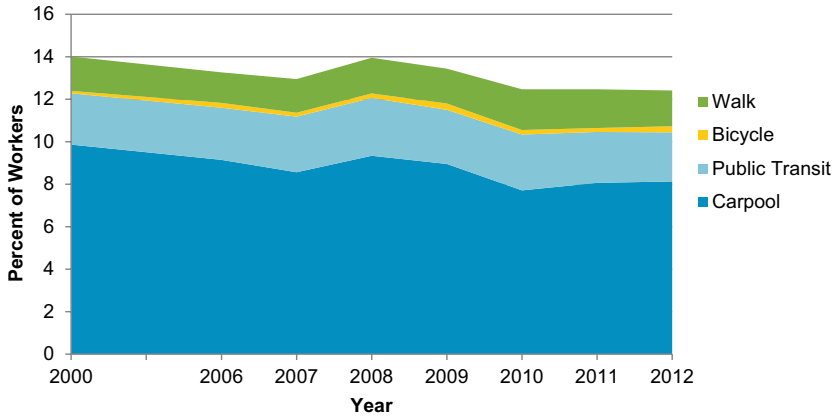
With the growing emphasis on livability and sustainability, it is important to create viable options to automobile use. This suggests an increasing emphasis on public transportation, but also developing more opportunities for walking, bicycling, and telecommuting. All of these will help reduce dependence on foreign oil, improve air and water quality, reduce greenhouse gas emissions, and reduce the ever-growing household cost of transportation. Serious attempts to expand travel options will require closer attention to the interplay of land use and transportation. ~ Regional Transportation Plan 2040

Transportation Choice

The Transportation Choice Table shows the St. Louis region has a relatively small portion of its population that commute via walking, bicycling, public transportation or carpooling; ranking 31st with 12.4 percent of the population using one of these as their primary means for traveling to work. The regions that rank at the top of this chart—New York, San Francisco, Washington D.C., Boston and Chicago are all densely populated and have extensive public transportation systems. In each of these metro areas over 10 percent of commuters use public transit but they also each have a substantial portion of commuters using the other non-auto means of travel.

Some of the regions that rank around the average for the peer regions do not have extensive public transportation systems but have relatively high portions of commuters who carpool to work. In Salt Lake City (12.1 percent), Houston (11.1 percent), San Antonio (11.1 percent), Phoenix (11.0 percent), Austin (11.0 percent) and Atlanta (10.5 percent) over 10 percent of commuters carpool but less than 4 percent of commuters use public transit.

Figure 3: Total Percent of Workers Commuting via Walking, Bicycling, Transit, or Carpooling, St. Louis MSA 2000 to 2012



Sources: U.S. Census and American Community Survey, United States Census Bureau

TRANSPORTATION CHOICE

Total percent of workers commuting via walking, bicycling, transit, or carpooling, 2012

1	**New York**	**44.5**
2	San Francisco	31.9
3	Washington D.C.	28.4
4	Boston	26.0
5	Chicago	23.8
6	Seattle	23.8
7	Philadelphia	21.8
8	Portland	21.8
9	Los Angeles	19.6
10	Salt Lake City	19.0
11	Baltimore	18.4
12	Pittsburgh	18.2
Average		**17.7**
13	Denver	17.0
14	Austin	16.2
15	Miami	16.1
16	Minneapolis	16.1
17	San Diego	16.1
18	Milwaukee	15.9
19	Houston	15.4
20	Phoenix	15.3
21	San Antonio	15.1
22	Atlanta	15.0
23	Charlotte	14.2
24	Cleveland	13.2
25	Memphis	13.1
26	Louisville	13.1
27	Dallas	13.0
28	Oklahoma City	12.5
29	Columbus	12.5
30	Indianapolis	12.5
31	**St. Louis**	**12.4**
32	Cincinnati	12.3
33	Detroit	12.1
34	Nashville	12.0
35	**Kansas City**	**11.5**

HIGHER
AVERAGE
LOWER

Source: American Community Survey, U.S. Census Bureau

Figure 3 shows the portion of workers commuting via these four methods from 2000 to 2012 for the St. Louis MSA. The total percentage decreased from 14.0 percent in 2000 (and 2008) to the current rate of 12.4 percent. From 2000 to 2012, the largest changes were in the percent of people carpooling, which dropped from 9.9 percent to 8.1 percent and the percent of people bicycling, which increased from 0.11 percent to 0.29 percent of commute trips.

Promote Safety and Security

The goal for any transportation system is to move people and goods efficiently, effectively, and safely. Travel safety, as it affects all aspects of the multimodal transportation system, is a continuing priority. There is also the question of system security, or protecting the system against human or naturally caused disasters. Both maximizing safety in everyday usage and securing the system against catastrophic acts are prime considerations for transportation planning and investment decisions.

~ Regional Transportation Plan 2040

Fatality Rate

The number of crashes and fatal crashes on St. Louis roadways has declined but the safety of roads remains a top priority and concern. The St. Louis region has a relatively high number of crash fatalities compared to the peer regions. The Fatality Rate tables provide the number of people who died in a car crash. To compare across the regions, the data is provided per population and per vehicle miles traveled. On both measures, the St. Louis region has higher than average fatality rates. The region ranks 8th with 10.1 fatalities per 100,000 population and 13th with 5.7 fatalities per million daily vehicle miles traveled.

Table 4 shows the crash rate per 1 million vehicle miles traveled (VMT) by county for the St. Louis region from 2005 to 2012. In all counties and the region as a whole, the crash rate steadily decreased over the time period with few year-over-year increases.

FATALITY RATE
Crash fatalities per 100,000 population, 2012

1	**Oklahoma City**	**13.5**
2	Charlotte	12.5
3	Nashville	12.2
4	San Antonio	11.1
5	Memphis	10.8
6	Louisville	10.5
7	Kansas City	10.4
8	**St. Louis**	**10.1**
9	Austin	10.0
10	Pittsburgh	9.7
11	Cincinnati	9.6
12	Atlanta	9.3
13	Houston	9.3
14	Indianapolis	8.9
15	Miami	8.9
16	Dallas	8.7
17	Columbus	8.6
18	Phoenix	8.4
19	Baltimore	8.4
Average		**8.1**
20	Philadelphia	7.5
21	Milwaukee	7.5
22	Detroit	7.3
23	Salt Lake City	7.0
24	San Diego	6.6
25	Washington D.C.	5.8
26	Denver	5.7
27	Los Angeles	5.7
28	Chicago	5.4
29	New York	5.2
30	Portland	5.1
31	Minneapolis	5.0
32	Cleveland	4.9
33	Seattle	4.8
34	Boston	4.7
35	**San Francisco**	**4.4**

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System, 2012

FATALITY RATE
Crash fatalities per million daily vehicle miles traveled (VMT) on freeways and arterials, 2012

1	**Charlotte**	**10.0**
2	Pittsburgh	8.2
3	Austin	7.8
4	Nashville	7.6
5	San Antonio	7.6
6	Oklahoma City	7.4
7	Memphis	6.7
8	Kansas City	6.3
9	Louisville	6.3
10	Cincinnati	6.3
11	Houston	6.1
12	Columbus	5.9
13	**St. Louis**	**5.7**
14	Philadelphia	5.7
15	Phoenix	5.6
16	Indianapolis	5.6
17	Atlanta	5.5
18	Miami	5.4
19	Dallas	5.4
Average		**5.3**
20	Baltimore	5.1
21	Salt Lake City	4.8
22	Chicago	4.5
23	Milwaukee	4.4
24	New York	4.4
25	Portland	4.0
26	Detroit	3.9
27	Washington D.C.	3.7
28	San Diego	3.5
29	Denver	3.5
30	Cleveland	3.3
31	Minneapolis	3.1
32	Los Angeles	2.9
33	Boston	2.8
34	Seattle	2.8
35	**San Francisco**	**2.4**

Source: National Highway Traffic Safety Administration, 2012; Urban Mobility Report, 2012

Note: VMT data is for 2011

HIGHER

AVERAGE

LOWER

Table 4: Crashes per One Million Vehicle Miles Traveled (VMT) by County, St. Louis Region, 2005 to 2012

County	2005	2006	2007	2008	2009	2010	2011	2012
Madison	2.9	2.5	2.6	2.6	1.9	2.0	1.9	1.8
Monroe	2.3	2.2	2.0	2.0	1.6	1.7	1.8	1.5
St. Clair	3.0	3.0	2.9	2.7	2.1	2.2	2.2	2.0
Franklin	2.9	2.8	2.8	2.7	2.7	2.4	2.1	1.6
Jefferson	3.7	3.5	3.3	3.2	3.2	2.5	2.5	2.1
St. Charles	4.2	3.9	3.9	3.5	3.4	2.5	2.6	2.4
St. Louis County	4.3	4.1	4.0	3.8	3.8	2.9	2.8	2.9
City of St. Louis	14.7	13.3	12.6	12.5	12.7	5.9	5.7	7.9
St. Louis Region	**4.4**	**4.1**	**4.0**	**3.9**	**3.7**	**2.9**	**2.8**	**2.8**

Source: IDOT, MoDOT

Support a Diverse Economy throughout the Region

The transportation needs of the regional economy are as diverse as the economy itself. One sector might require the reliable movement of heavy goods into and out of the area; another sector might rely on public transportation for access to labor; and another might necessitate good airline connections to other major cities. A good multimodal transportation system, whose component parts work together as seamlessly as possible, is necessary to sustain and grow the region's economy. It is essential to understand the transportation needs of the various economic sectors throughout the region and target investments to meet those needs. ~ Regional Transportation Plan 2040

Congestion

One way of measuring if the transportation system supports a vital economy is congestion levels. The amount of congestion in a region can indicate the reliability of the system as well as the amount of additional costs commuters and businesses incur due to congestion. Relative to its peers, the St. Louis region has moderate to low levels of congestion, resulting in a transportation system that is considered reliable and presents users with relatively low additional costs.

In 2011, an estimated $121 billion in extra time and fuel was spent in the United States due to congestion in the major urban areas. This includes 5.5 billion hours of extra time and 2.9 billion gallons of wasted fuel. Truck operations account for 22 percent ($27 billion) of these delay costs. It is estimated that costs incurred due to congestion will grow 64 percent to $199 billion by 2020.[11] On average for the 35 peer regions, congestion costs were $923 per auto commuter in 2011. St. Louis ranks 31st on this measure with one of the lowest costs per commuter at $686. Congestion is highest in the most populated regions but the growth in congestion has occurred in regions of all sizes.[12]

Congestion and the associated costs fluctuate with the strength of the economy. When the unemployment rate is high there are less people commuting to work and therefore less congestion. In this regard, higher congestion levels are an indicator of a strong economy but congestion levels can also be lowered through improvements to the system (operations treatments) and increased levels of public transportation service.[13]

ANNUAL CONGESTION COSTS

Dollars per auto commuter, 2011

1	**Washington DC**	**1,398**
2	Los Angeles	1,300
3	New York	1,281
4	San Francisco	1,266
5	Chicago	1,153
6	Boston	1,147
7	Atlanta	1,120
8	Houston	1,090
9	Seattle	1,050
10	Nashville	1,034
11	Philadelphia	1,018
12	Miami	993
13	Dallas	957
14	Denver	937
15	Portland	937
16	Austin	930
17	Indianapolis	930
Average		**923**
18	Baltimore	908
19	Charlotte	898
20	Detroit	859
21	Columbus	847
22	Phoenix	837
23	Memphis	833
24	Pittsburgh	826
25	Cincinnati	814
26	Oklahoma City	803
27	San Antonio	787
28	Louisville	776
29	San Diego	774
30	Minneapolis	695
31	**St. Louis**	**686**
32	Cleveland	642
33	Salt Lake City	620
34	Milwaukee	585
35	**Kansas City**	**584**

HIGHER — AVERAGE — LOWER

Source: Urban Mobility Report, 2012, Texas Transportation Institute; U.S. Census 2010

Table 5: Annual Effects of Congestion Solutions, St. Louis Region and Average for 35 Peer Regions, 2011

	St. Louis Region	Average for 35 Peer Regions
Annual Effects of Operations Treatments		
Delay Reduction (1,000 hours)	2,083	8,186
Delay Reduction per Auto Commuter (hours)	2.0	3.5
Additional Wasted Fuel (1,000 gallons)	906	3,753
Congestion Cost Savings ($ million)	46.9	177.0
Annual Effects of Public Transportation Service		
Delay Reduction (1,000 hours)	2,958	22,856
Delay Reduction per Auto Commuter (hours)	2.0	6.5
Additional Wasted Fuel (1,000 gallons)	1,286	10,664
Congestion Cost Savings ($ million)	66.5	497.1

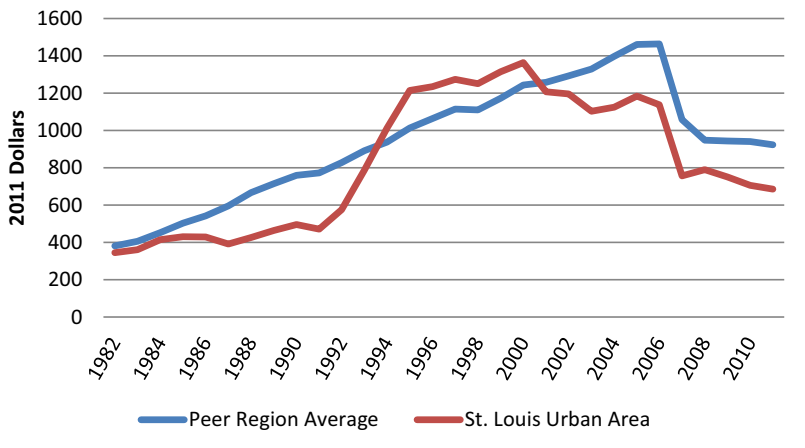
Source: Urban Mobility Report, 2012, Texas Transportation Institute

11 *Urban Mobility Report 2012*, Texas A&M Transportation Institute, December 2012.
12 *Urban Mobility Report 2012*, Texas A&M Transportation Institute, December 2012.
13 Notably, some system improvements such as traffic calming measures can increase congestion while meeting the needs of a community. These are not captured in the *Urban Mobility Report* data.

According to the Texas A&M Transportation Institute, both types of congestion solutions (operations treatments and transportation service) have considerable effects on lowering congestion. In 2011, public transportation decreased congestion costs by an estimated $66.5 million and operations treatments decreased costs by an estimated $46.9 million in the St. Louis region. Table 5 (Page 13) provides a breakdown of these cost savings for the St. Louis region and the average for the 35 peer regions. Public transportation and operations treatments each save every auto commuter in the St. Louis region an estimated two hours annually. On average, these solutions save commuters in the peer regions even more time and money than is realized in St. Louis. The higher savings are due in part to higher levels of congestion in the peer regions, which provides greater opportunity for addressing congestion (and more room for time and cost savings).

Figure 5 shows the change in annual congestion costs per commuter for the St. Louis urban area and the average for the 35 peer regions' urban areas from 1982 to 2011. Congestion costs have increased substantially over the 30 period. In the St. Louis region costs rose from $344 per commuter in 1982 (in 2011 dollars) to $686 in 2011; a 99 percent increase. Comparatively, the average cost per commuter for the peer regions rose 142 percent from $381 to $923.

Figure 5: Annual Congestion Costs per Auto Commuter (2011 Dollars), 1982 to 2011



Source: Urban Mobility Report, 2012, Texas Transportation Institute

Addressing Congestion through Operations Treatments

The Urban Mobility Report tracks the effects of the following five treatments on congestion:

Ramp Meters: modified traffic signals on freeway entrance ramps

Traffic Signal Coordination: coordinate timing of nearby signals

Incident Management Programs: coordinated and planned approach for restoring freeway capacity as quickly as possible after an incident

Arterial Street Access Management: includes consolidating driveways, median turn lanes, acceleration/deceleration lanes

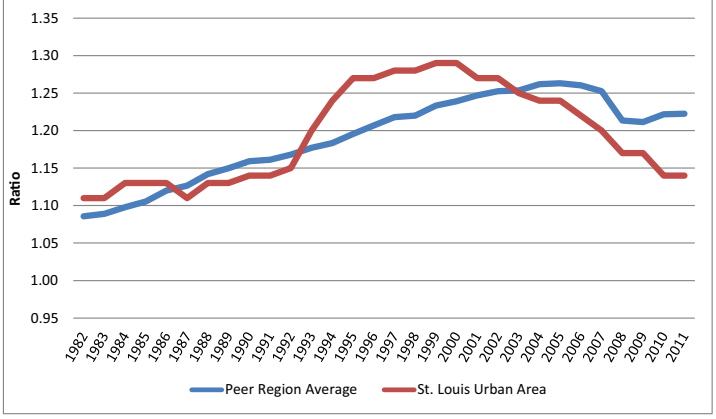
HOV Lanes: roadways, or lanes, designated for high occupancy vehicles, such as buses, vanpools and carpools

System Reliability

The Travel Time Index (TTI) is used to measure system reliability. The TTI is the ratio of travel time in the peak period to the travel time in free-flow conditions. In the St. Louis region, the TTI in 2011 was 1.14. This means that a trip takes an estimated additional 14 percent of time during congested times as it does during non-congested (free flow) times. For example, a trip that takes 20 minutes during times when traffic is flowing freely, would take 22.8 minutes during the peak travel time, when the road is congested.

The St. Louis region ranks well on this measure, ranking 34th in 2011 with one of the lowest ratios of peak to free-flow travel time.

Figure 6: Travel Time Index, 1982 to 2011



Source: Urban Mobility Report, 2012, Texas Transportation Institute

Over the past 20 years the region's TTI increased steadily until about the mid-1990s when it leveled off and hit its peak of 1.29 in 1999 before starting a steady decline that has continued into 2011. From 1982 to 2011, the region's score on the index increased by 2.7 percent, compared to the peer region average increase of 12.7 percent (See Figure 6, Page 14). For St. Louis, the increase on the index was from 1.11 in 1982 to 1.14 in 2011. A 20 minute trip in congestion took a half of a minute longer in 2011 than it would have in 1982. On average for the peer regions, a 20 minute trip took 2.6 minutes longer in 2011 than it took in 1982.

TRAVEL TIME INDEX

Ratio of peak period travel time to free-flow travel time, 2011

1	**Los Angeles**	**1.37**
2	New York	1.33
3	Austin	1.32
4	Washington DC	1.32
5	Boston	1.28
6	Portland	1.28
7	Denver	1.27
8	Dallas	1.26
9	Houston	1.26
10	Philadelphia	1.26
11	Seattle	1.26
12	Chicago	1.25
13	Miami	1.25
14	Atlanta	1.24
15	Pittsburgh	1.24
16	Baltimore	1.23
17	Nashville	1.23
Average		**1.22**
18	San Francisco	1.22
19	Minneapolis	1.21
20	Charlotte	1.20
21	Cincinnati	1.20
22	San Antonio	1.19
23	Columbus	1.18
24	Detroit	1.18
25	Louisville	1.18
26	Memphis	1.18
27	Phoenix	1.18
28	San Diego	1.18
29	Indianapolis	1.17
30	Cleveland	1.16
31	Milwaukee	1.15
32	Oklahoma City	1.15
33	Salt Lake City	1.14
34	**St. Louis**	**1.14**
35	**Kansas City**	**1.13**

Source: Urban Mobility Report, 2012, Texas Transportation Institute; U.S. Census 2010

CHANGE IN TRAVEL TIME INDEX

Percent change, 1982 to 2011

1	**Austin**	**21.1**
2	Washington DC	20.0
3	Portland	19.6
4	Dallas	18.9
5	New York	18.8
6	Denver	17.6
7	Seattle	16.7
8	Baltimore	16.0
9	Chicago	15.7
10	San Antonio	15.5
11	Minneapolis	15.2
12	Atlanta	14.8
13	Columbus	14.6
14	Boston	14.3
15	Cincinnati	14.3
16	Los Angeles	14.2
17	Miami	13.6
18	Philadelphia	13.5
19	San Diego	13.5
Average		**12.7**
20	Charlotte	12.1
21	Oklahoma City	11.7
22	San Francisco	10.9
23	Cleveland	10.5
24	Indianapolis	10.4
25	Memphis	10.3
26	Milwaukee	9.5
27	Phoenix	9.3
28	Nashville	7.9
29	Houston	7.7
30	Kansas City	7.6
31	Salt Lake City	7.5
32	Detroit	7.3
33	Louisville	6.3
34	Pittsburgh	3.3
35	**St. Louis**	**2.7**

Source: Urban Mobility Report, 2012, Texas Transportation Institute; U.S. Census 2010

HIGHER

AVERAGE

LOWER

Support Quality Job Development

In order to grow the metropolitan economy, economic development strategies need to support the growth of wealth producing jobs. Good paying jobs allow residents to save and to return money to the economy through purchases of goods and services, and the payment of taxes benefit the whole economy many times over. Transportation expenditures that serve good quality employment opportunities are a sound investment.

~ Regional Transportation Plan 2040

Access to Jobs

The majority of jobs in the St. Louis region are accessible within a reasonable amount of travel time by automobile but far less accessible for people who live in the outer portions of the region and for those who do not have access to a vehicle.

While auto commuters in the city of St. Louis and St. Louis County can reach over 80 percent of jobs in the region within 45 minutes, far fewer jobs are accessible in this commute time for those who live in the suburban and rural parts of the region. Additionally, persons in these outlying areas have little access to transit.

Average commute times are used to compare access to jobs for the peer regions. St. Louis has a relatively low average commute time. St. Louis ranks 21st with an average commute time of 25.4 minutes. This is just below the average commute time for the peers of 26.6 minutes, only 3.4 minutes longer than the average commute in Oklahoma City (ranked 35th) and almost 10 minutes shorter than the average commute time for residents in New York (ranked 1st).

The Job Access by Transit Table indicates the percent of a region's jobs that the typical resident who lives in a community (block group) with transit coverage can reach via transit within a 90 minute commute time. The St. Louis region's transit system ranks poorly on this indicator, at 26th with only 24.1 percent of jobs accessible within a 90 minute commute. Many people likely consider 90 minutes to be a lengthy commute. For those living in a community served by transit, less than 10 percent of jobs (8.3 percent) in the St. Louis MSA are accessible within 60 minutes by transit and only 3.7 percent within 45 minutes.[14]

AVERAGE COMMUTE TIME
In minutes, 2012

1	**New York**	**35.2**
2	Washington D.C.	34.0
3	Chicago	30.6
4	San Francisco	30.4
5	Baltimore	30.0
6	Atlanta	30.0
7	Boston	29.5
8	Los Angeles	28.9
9	Houston	28.6
10	Philadelphia	28.6
11	Seattle	28.5
12	Miami	28.0
13	Dallas	27.1
14	Denver	26.9
Average		**26.6**
15	Pittsburgh	26.5
16	Nashville	26.3
17	Detroit	26.2
18	Phoenix	25.8
19	Charlotte	25.6
20	Austin	25.5
21	**St. Louis**	**25.4**
22	Indianapolis	25.1
23	Portland	25.1
24	San Antonio	24.9
25	Minneapolis	24.9
26	San Diego	24.6
27	Cleveland	24.6
28	Cincinnati	24.2
29	Louisville	23.7
30	Memphis	23.5
31	Salt Lake City	23.2
32	Milwaukee	23.1
33	Columbus	22.8
34	Kansas City	22.7
35	**Oklahoma City**	**22.0**

Source: American Community Survey, U.S. Census Bureau

JOB ACCESS BY TRANSIT
Share of metropolitan jobs the typical working-age resident can reach via transit within 90 minutes, 2010

1	**Salt Lake City**	**58.9**
2	Milwaukee	48.6
3	Denver	47.5
4	Portland	39.9
5	Austin	39.0
6	San Antonio	37.0
7	Washington D.C.	36.6
8	New York	36.6
9	San Francisco	34.8
10	Columbus	34.1
11	Seattle	33.4
12	Indianapolis	33.1
13	Louisville	32.7
Average		**30.6**
14	Boston	30.2
15	Baltimore	30.2
16	Minneapolis	29.7
17	Charlotte	29.7
18	Houston	29.6
19	Cleveland	29.5
20	San Diego	29.1
21	Cincinnati	27.8
22	Phoenix	27.4
23	Nashville	27.4
24	Memphis	26.2
25	Los Angeles	25.6
26	**St. Louis**	**24.1**
27	Philadelphia	24.0
28	Chicago	23.9
29	Pittsburgh	23.0
30	Oklahoma City	22.7
31	Detroit	21.9
32	Atlanta	21.7
33	Dallas	19.0
34	Kansas City	18.3
35	**Miami**	**16.2**

Source: Metropolitan Policy Program at Brookings, 2011

HIGHER

AVERAGE

LOWER

14 Tomer, Adie, Elizabeth Kneebone, Robert Puentes and Alan Berube, *Missed Opportunity: Transit and Jobs in Metropolitan America*, Metropolitan Policy Program at Brookings, May 2011.

Strengthen Intermodal Connections

The connecting points between transportation modes are critical to the efficient flow of both people and goods. From a people movement perspective, intermodal connections are the points at which public transportation interacts with other modes—walking, bicycling, automobiles, aviation, and even other transit modes—to allow the easy transfer of people from one mode to another. From a freight perspective, these connections occur at points where shipments can be transferred between modes, i.e., truck, barge, pipeline, train, and airplane. Increasing the opportunities for these types of connections enhances the effectiveness of the overall transportation system, providing improvements in both mobility and economic efficiency.

~ Regional Transportation Plan 2040

Intermodal Connectivity

The Transportation Choice (See Page 11), Transportation Expenses (See Page 8), and transit tables (See Pages 5-6) indicate how well regions are providing residents with the ability to choose travel options that rely on multiple modes. The St. Louis region's below average ranking on these measures indicates that residents do not have as many options to use non-auto modes of transportation as some of the peer regions. Commuting via public transit, walking or cycling usually relies on quality connections between multiple modes. The gap between the percent of residents with access to transit (56 percent) and those who use it (2.3 percent) could in part be due to a lack of connections between transit, bike and walk facilities.

Freight

Freight volumes are expected to increase by 60 percent over the next 25 years in the United States.[15] EWG, MoDOT, IDOT and members of the freight community in St. Louis recently completed an evaluation of the regional freight system and are determining how to build on the region's assets in a way that will capture some of the economic activity generated by the growth in the freight industry. Transportation infrastructure plays a key role in facilitating the movement of goods around and through the region via highways, waterways, air and railroads.

The St. Louis Regional Freight Study documents key regional, national and global trends that will influence freight movement and analyzes the ability of the region's infrastructure to support economic opportunity. It documents areas where congestion is a problem, identifies specific locations where one or more modes could align better and focuses attention on 23 specific areas in the region that are key to the freight industry in St. Louis. These freight emphasis areas support about 230,000 jobs, sustain about one-quarter of the regional economic activity ($55.5 billion) and utilize 160 million square feet of industrial and distribution space.

The Freight Tonnage Table indicates the key role the St. Louis region already has in the movement of freight throughout the country. St. Louis ranks 9th among the peer regions with an estimated 316 million tons of freight carried inbound, outbound and within the region in 2011.

The region has many assets that help facilitate the movement of goods that need to be considered as part of regional transportation planning. The St. Louis Regional Freight Study states, "While the St. Louis Region's past and present has been focused on crossing the Mississippi River, its future may be

FREIGHT TONNAGE
Tons in thousands, 2011

1	**Houston**	**1,092,514**	HIGHER
2	Los Angeles	811,308	
3	New York	762,768	
4	Chicago	731,275	
5	San Francisco	435,636	
6	Dallas	409,069	
7	Philadelphia	379,977	
8	Detroit	346,700	
9	**St. Louis**	**315,934**	
10	Atlanta	314,645	
11	Minneapolis	304,299	
12	Seattle	297,763	
Average		**277,566**	AVERAGE
13	Miami	231,904	LOWER
14	Phoenix	221,959	
15	Boston	213,552	
16	Denver	196,778	
17	Indianapolis	184,508	
18	Washington	178,330	
19	Portland	177,960	
20	Pittsburgh	174,409	
21	Cleveland	167,097	
22	Baltimore	164,394	
23	Kansas City	159,199	
24	San Antonio	156,883	
25	Columbus	149,837	
26	Nashville	149,447	
27	Salt Lake City	147,020	
28	Cincinnati	144,673	
29	Austin	113,451	
30	Charlotte	112,802	
31	Milwaukee	101,345	
32	Oklahoma	97,832	
33	Memphis	91,042	
34	San Diego	90,828	
35	**Louisville**	**87,677**	

Source: Federal Highway Administration, Freight Analysis Framework

15 AECOM Technical Services, *St. Louis Regional Freight Study – Final Report*, June 2013, accessed at http://www.ewgateway.org/freight/freight.htm

about intermodal and freight rail capacity improvement, and how they align with the river."[16] The study identifies the following as some of the assets and opportunities upon which the region can build this intermodal network:

- Centrally located with connections to major interstates
- Well-maintained roads
- Relatively inexpensive fuel prices
- New interstate openings have increased the efficiency of the system
- Modest congestion with nominal delays during off-peak hours
- New Mississippi River Bridge and improvements to the Poplar Street Bridge
- Strong east-west connections but weak north-south connections
- Six Class I railroads connect in St. Louis
- Development of high-speed rail between Chicago and St. Louis

Support Air Quality and Environmental Assets

Transportation is tightly interwoven within the entire social, economic, and natural fabric of the region. It is, therefore, only one part of a broader integrated system, with all parts affecting all other parts. Thoughtfully analyzing, planning, and investing in ways that recognize the linkages between those parts is a necessary step toward creating a healthier and more sustainable region. ~ Regional Transportation Plan 2040

Federal Legislation

One of the seven national performance goals for the federal transportation legislation, MAP-21, enacted in 2012, is "environmental sustainability" but federal transportation legislation has long recognized the role that transportation decisions have in protecting the environmental assets of communities. This recognition has been most prominently incorporated into transportation planning through the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, which has provided $30 billion for 29,000 transportation-environmental projects since 1991. More recently, the Partnership for Sustainable Communities was created as an interagency partnership between the federal HUD, DOT and EPA departments. St. Louis received one of the grants through the partnership to create a regional plan for sustainable development. The region's plan, *OneSTL*, brings together partners from throughout the region to better connect transportation, environment and housing planning and development.

Transportation & Air Quality

Transportation accounts for approximately 27 percent of all greenhouse gas (GHG) emissions in the United States, making it the second largest contributing sector.[17] The St. Louis region ranks above average with 8.5 tons of transportation related GHGs emitted per household in 2007.

TRANSPORTATION GHG EMISSIONS
Tons per household, 2007

1	**Nashville**	**9.4**
2	Atlanta	9.4
3	Charlotte	9.2
4	Kansas City	9.0
5	Austin	8.9
6	Cincinnati	8.9
7	Indianapolis	8.8
8	Columbus	8.7
9	Minneapolis	8.7
10	Oklahoma City	8.6
11	Dallas	8.6
12	Salt Lake City	8.6
13	Memphis	8.6
14	**St. Louis**	**8.5**
15	Houston	8.5
16	Louisville	8.4
17	Washington, DC	8.4
18	San Diego	8.4
19	San Antonio	8.4
Average		**8.3**
20	Phoenix	8.3
21	Baltimore	8.3
22	Pittsburgh	8.2
23	Detroit	8.1
24	Portland	8.1
25	Boston	8.1
26	Milwaukee	8.0
27	Seattle	8.0
28	Cleveland	8.0
29	Philadelphia	7.7
30	Chicago	7.7
31	Denver	7.5
32	Miami	7.5
33	San Francisco	7.4
34	Los Angeles	7.2
35	**New York**	**6.5**

Source: Center for Neighborhood Technology

TRAVEL DENSITY
Daily vehicle miles traveled in urban areas per capita, 2011

1	**Oklahoma City**	**24.1**
2	Houston	23.1
3	Indianapolis	23.1
4	Nashville	23.0
5	Kansas City	21.4
6	Charlotte	21.4
7	**St. Louis**	**21.3**
8	Atlanta	21.3
9	Columbus	21.2
10	San Antonio	20.8
11	Detroit	20.6
12	Dallas	20.3
13	Memphis	20.2
14	San Francisco	20.1
15	Louisville	20.0
16	Minneapolis	19.7
17	Washington DC	19.5
18	Los Angeles	19.3
Average		**19.1**
19	San Diego	19.1
20	Cincinnati	19.0
21	Denver	18.6
22	Seattle	18.6
23	Cleveland	18.1
24	Boston	17.9
25	Baltimore	17.9
26	Milwaukee	17.8
27	Phoenix	17.6
28	Austin	17.6
29	Miami	17.2
30	Salt Lake City	16.4
31	Pittsburgh	15.7
32	Portland	15.1
33	Philadelphia	14.9
34	Chicago	13.3
35	**New York**	**12.1**

Source: Urban Mobility Report, 2012, Texas Transportation Institute

HIGHER
AVERAGE
LOWER

16 AECOM Technical Services, *St. Louis Regional Freight Study – Final Report*, June 2013, accessed at http://www.ewgateway.org/freight/freight.htm
17 *Fast Facts: U.S. Transportation Sector Greenhouse Gas Emissions 1990 – 2010*, Office of Transportation and Air Quality, EPA, 2012

Traffic volume is one of the key determinants of GHG emissions from transportation.[18] The Travel Density Table provides the daily vehicle miles traveled (VMT) in urban areas per capita for the peer regions. Again, the St. Louis region ranks above average. The region has one of the highest rates of miles traveled by vehicle per person among the peer regions.

Figure 7 shows the change in average daily VMT per capita for the St. Louis region and the United States on all roads.[19] Over the last thirty years, the VMT per capita increased more in the St. Louis region than in the U.S. but VMT in the region also declined more in the last decade. In St. Louis, VMT per capita was at its highest in 1998, at 33.6 miles per day and declined 18.6 percent to 27.4 miles per day in 2011. VMT per capita in the U.S. reached its peak in 2005, at 27.5 miles per day and then declined 5.3 percent to 26.1 miles per day in 2011.

The Air Quality Table provides the number of days the air quality index exceeded 100 for ozone per year, on average for the three-year period of 2011 to 2013. These are days that are unhealthy for sensitive groups or worse (often referred to as orange, red, purple or maroon days). The St. Louis MSA has the fourth highest number of days with unhealthy air quality.

AIR QUALITY

Number of days air quality index exceeded 100 for ozone, 2011-2013 average

1	**Los Angeles**	**72.3**
2	Dallas	35.3
3	Houston	29.0
4	**St. Louis**	**26.3**
5	Denver	21.3
6	Atlanta	21.3
7	Phoenix	21.0
8	New York	19.3
9	Cincinnati	19.0
10	Kansas City	18.0
11	Oklahoma City	17.0
12	Baltimore	15.7
13	Washington D.C.	15.7
14	Chicago	15.3
15	Louisville	15.0
Average		**14.6**
16	Philadelphia	14.3
17	Memphis	14.0
18	Cleveland	13.7
19	Pittsburgh	13.3
20	Nashville	11.7
21	Detroit	11.3
22	Charlotte	9.7
23	Indianapolis	9.7
24	San Antonio	9.3
25	Columbus	9.0
26	Milwaukee	9.0
27	San Diego	9.0
28	Salt Lake City	7.3
29	Austin	4.0
30	Boston	3.7
31	San Francisco	2.7
32	Minneapolis	1.7
33	Miami	1.3
34	Seattle	0.7
35	**Portland**	**0.3**

Source: U.S. Environmental Protection Agency

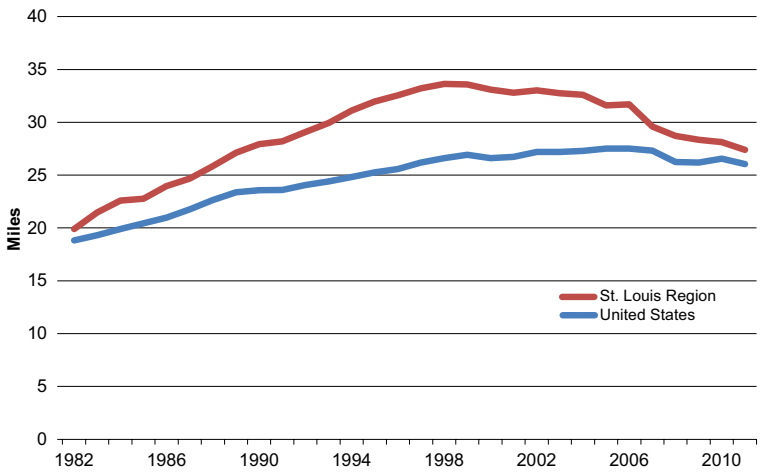
ASTHMA RISK

Index of 13 indicators of risk, 2013

1	**Memphis**	93.5	HIGHER
2	Philadelphia	92.1	
3	Oklahoma City	90.6	
4	Detroit	88.1	
5	Atlanta	86.6	
6	Pittsburgh	85.1	
7	Chicago	84.4	
8	Cleveland	83.8	
9	Louisville	83.3	
10	Milwaukee	82.1	
11	Cincinnati	78.8	
12	Nashville	78.2	
13	Indianapolis	77.3	
14	Washington D.C.	75.2	
Average		74.0	AVERAGE
15	Los Angeles	73.8	LOWER
16	Dallas	73.2	
17	New York	73.2	
18	Salt Lake City	72.9	
19	Columbus	72.3	
20	**St. Louis**	**72.1**	
21	Phoenix	71.9	
22	Kansas City	69.2	
23	Miami	69.0	
24	San Antonio	68.9	
25	Boston	67.7	
26	San Diego	67.3	
27	Houston	67.3	
28	Baltimore	65.6	
29	Minneapolis	65.4	
30	Denver	64.4	
31	Charlotte	63.6	
32	Austin	61.5	
33	Portland	60.0	
34	Seattle	57.6	
35	**San Francisco**	52.9	

Source: Asthma & Allergy Foundation of America

Figure 7: Average Daily VMT Per Capita, 1982 to 2011



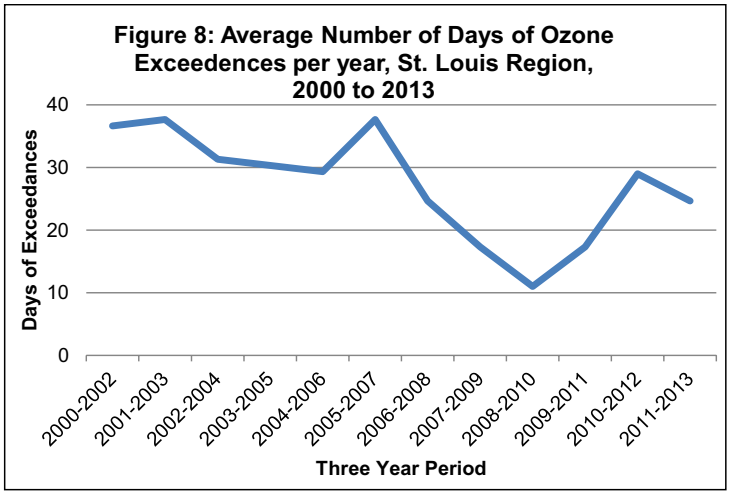
Sources: HPMS, Federal Highway Administration; Traffic Volume Trends, Federal Highway Administration; and Residents Population Estimates, U. S. Census Bureau

18 See *Where We Stand Update: Transportation Emissions*, May 2013 for more details on this topic http://www.ewgateway.org/pdffiles/newsletters/WWS/WWS6EdNo5.pdf

19 The Travel Density Table provides VMT on freeways and arterials while Figure 7 provides VMT on all roads.

Figure 8 provides the air quality for the St. Louis eight-county region from 2000 to 2013. Three- year averages are used due to the extreme variability in the number of unhealthy days on an annual basis. Air quality in the region worsened from an average of 17.3 days of unhealthy air per year for 2007 to 2009 to an average of 24.7 days annually for 2011 to 2013. Looking over a longer time period, the region's air quality improved with 12 fewer days per year of unhealthy air in the 2011 to 2013 time period than in 2000 to 2002.

The effects of poor air quality can be seen in the risk of asthma. The Asthma & Allergy Foundation of America scores MSAs on a range of factors including pollen count, number of ozone days and prevalence of asthma. The results of their scoring are in the Asthma Risk Table. The St. Louis region ranks below average, at 20th with a score of 72.1. This is a substantial improvement over the region's ranking of 1st among the peer regions and score of 100.0 in 2009. Over the last five years, the region's score on the index improved in part due to improved ratings for air quality and smoke-free legislation.



Sources: Air Quality Index, United States Environmental Protection Agency and East-West Gateway Council of Governments

Conclusion

As part of the planning process for the next long range transportation plan, East-West Gateway will ask residents, business owners and local leaders what the priorities should be for the St. Louis region's transportation funding. This *Where We Stand Update* provides data on issues that can help guide these discussions and decisions. While some information is about roads and pavement conditions, the breadth of issues covered in this report touches on the number of things that need to be considered in making transportation planning decisions as well as the impact these decisions have on the region. The transportation system is an important component to the daily lives of individuals, the economic vitality of the region and the quality of the environment. The St. Louis eight-county bi-state region has the opportunity and the challenge to invest these public dollars wisely in a way that adheres to what the people of St. Louis value.

EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

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