

**AMERICAN HIGHWAY USERS ALLIANCE**

# **Unclogging America's Arteries 2015**

**Prescriptions for Healthier Highways**



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CPCS Transcom Inc. (CPCS) conducted this study and prepared the final report for the American Highway Users Alliance. CPCS is a management consulting firm specializing in transportation sector strategy, economic analysis, and policy. With more than 100 professionals in 15 global offices, CPCS has an established track record of providing clear, high quality advice to government and corporate clients.

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Since 1932, the American Highway Users Alliance has represented motorists, RV enthusiasts, truckers, bus companies, motorcyclists, and a broad cross-section of businesses that depend on safe and efficient highways to transport their families, customers, employees, and products. Highway Users members pay the fuel taxes and other user fees that fund the federal highway program. We advocate public policies that dedicate highway user revenue to improved safety and mobility.

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# FOREWORD

## WHAT IS *UNCLOGGING AMERICA'S ARTERIES 2015*?

**U**nclogging America's Arteries 2015 utilizes vehicle speed data to identify the 50 worst highway bottlenecks across the nation, highlighting the benefits of improving the top 30. Our nation's top bottlenecks bring passenger and freight traffic to a crawl on key Interstate and freeway facilities every day, across the country, and negatively affect U.S. economic competitiveness, the environment, and quality of life. For drivers of personal and commercial vehicles in affected regions these bottlenecks are very real and the impacts of constant and crushing delays have significant implications on their productivity and health.

## HOW DID WE IDENTIFY THE BOTTLENECKS?

To identify the bottlenecks, CPCS Transcom Inc. (CPCS), a management consulting firm specializing in transportation strategy and policy, utilized the latest observed vehicle speed data from the HERE/ATRI dataset. This is the same data that is processed into the Federal Highway Administration's (FHWA) National Performance Management Research Dataset (NPMRDS), which is then made available to state departments of transportation (DOTs) and metropolitan planning organizations (MPOs). The GPS probe-based data are collected from smartphones, personal navigation devices (PNDs) and vehicles. As part of the analysis, the American Highway Users Alliance and CPCS contacted state DOTs to validate the findings and better understand the nature and precise location of the nation's top bottlenecks.



**Our nation's top bottlenecks bring passenger and freight traffic to a crawl and negatively affect U.S. economic competitiveness, the environment, and quality of life.**

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# FOREWORD

## WHAT DOES IT MEAN FOR U.S. ECONOMIC COMPETITIVENESS AND QUALITY OF LIFE?

Some of the bottlenecks stretch for miles, bringing traffic flow to a crawl for many hours of the day—even well outside traditional peak commuting hours. Others are shorter, yet persistently slow—frustrating travelers and adding significant costs to freight deliveries. This situation is untenable for the world’s largest economy. To unclog America’s arteries will require significant investments—not only in capacity but also in the form of improved operations and technologies to lessen impacts and get traffic moving. This report comes at a critical time: with the U.S. Congress poised to advance the first long-term highway bill since 2005, States will have a much greater ability to plan and implement major congestion relief projects. Reinvesting in our critical infrastructure advances national economic competitiveness, safety, the environment, and quality of life for millions of Americans. |

With the U.S. Congress poised to advance the *first long-term highway bill since 2005*, States will have a much greater ability to plan and implement major congestion relief projects.



# EXECUTIVE SUMMARY

**SEVERE CONGESTION** continues to stymie passenger and freight movement on many of America's critical urban Interstates and freeways. This 2015 update to *Unclogging America's Arteries* identifies the 50 worst highway bottlenecks in the U.S. and demonstrates that the cost of doing nothing is too significant to ignore.<sup>1</sup>

## **BOTTLENECKS IMPOSE MASSIVE DELAYS AND COSTS ON U.S. DRIVERS AND BUSINESSES.**

This study assessed congestion on urban Interstates and other access controlled highways using observed vehicle speed data from 2014. The top 30 metro-area bottlenecks each cause at least one million hours of delay per year, and three million on average.<sup>2</sup> The worst bottleneck in Chicago, Illinois experiences nearly 17 million hours of delay per year. We profile these hotspots in detail. Drivers stuck on these roads altogether experience delays of about 91 million hours every year, the equivalent of 45,500 person-work years.<sup>3</sup> The lost value of time to the economy from congestion in this handful of locations is upwards of 2.4 billion dollars annually—or enough each year to fund several major transportation solutions to alleviate congestion.<sup>4</sup>

## **SEVERE LOCALIZED BOTTLENECKS STAND OUT.**

The top bottlenecks are mostly concentrated in our largest cities. The nation's worst bottleneck is a 12-mile stretch of the Kennedy Expressway (I-90) in Chicago, between the "Circle" Interchange (with I-290) and the Edens Junction (at I-94). It was among the most severe even in 2004, and outranks the others in our 2015 list both in terms of total delays as well as queue length.<sup>5</sup> Eleven of the 30 most severe bottlenecks are in the Los Angeles region, six of them among the top 10. The New York metropolitan area is home to five bottlenecks in the top 30. The I-35 corridor running through downtown Austin, Texas is number 10 on the list with about 3 million hours of annual total delay.

**\$39 BILLION**

Present value of time savings over 20 years if we fix the nation's worst 30 bottlenecks

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<sup>1</sup> See our [2004 report](#). See also Federal Highway Administration (FHWA), Texas A&M Transportation Institute (TTI), and American Transportation Research Institute (ATRI) for a series of relevant studies.

<sup>2</sup> Annual figures assume 260 travel weekdays hours per year. Weekends are not included in our study.

<sup>3</sup> Employed persons on average work 8 hours a day for about 250 days a year, according to the US Bureau of Labor Statistics Time of Use Survey (2014)

<sup>4</sup> Using the average value of a volunteer hour in each state, for 260 weekdays driven in a year. This is likely an underestimate even for this small number of locations.

<sup>5</sup> For ranking bottlenecks, we define our main congestion metric of Daily Total Delay as the cumulative delays experienced by all vehicles entering and leaving a congestion queue in all hours of a representative non-holiday weekday. This metric accounts for both length of the bottleneck (queue length) and expected volume through that bottleneck over a 24-hour period. See [Appendix C: Methodology](#) for more details.

## America's Top Bottlenecks in 2015



### CONGESTION IS NOT JUST A METROPOLITAN PROBLEM.

Small growing cities and some rural areas also experience high-levels of delays and associated costs. We also identify other bottlenecks in many US states. These congestion zones impose significant costs on local drivers and the local economy.

### ALLEVIATING CONGESTION UNLOCKS ECONOMIC, ENVIRONMENTAL, AND SAFETY BENEFITS.

In addition to freeing up drivers' valuable lost time for other productive work or leisure, reduced congestion saves fuel and curbs greenhouse gas emissions. Eliminating congestion in the nation's top 30 bottlenecks alone can save more than 35 million gallons of fuel every year and reduce by about 740 million pounds the CO<sub>2</sub> emitted from both trucks and passenger cars. These benefits roughly amount to 830 million gallons in fuel savings and 17 billion pounds in avoided CO<sub>2</sub> emissions over the next two decades. The present value of time that could be regained is \$39 billion.

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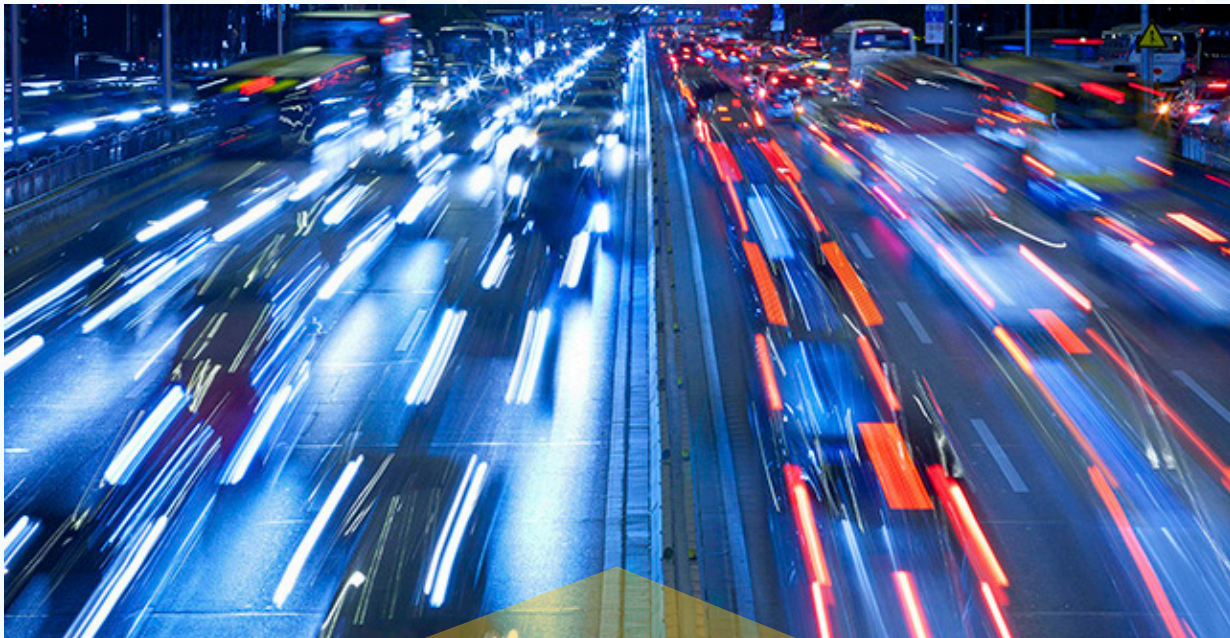
# EXECUTIVE SUMMARY

## TARGETED INVESTMENTS IN TECHNOLOGY AND CAPACITY CAN PROVIDE RELIEF ON THE MOST SEVERE SEGMENTS.

In its 2014 Cost of Congestion report, the American Transportation Research Institute (ATRI) determined that 89 percent of truck-related congestion costs were associated with only 12 percent of road miles traveled.<sup>1</sup> This suggests that efforts can be focused on the most problematic areas. Most of these solutions do not automatically imply large investments in highway capacity additions or mass transit projects. In fact, many solutions are designed to simply make existing capacity more efficient. Information and communications technologies have made it easier than ever before for drivers and system operators to make informed choices, with much of the infrastructure already in place. What is needed is cohesive, systematic thinking with the resolve to infuse resources in cost-effective, high-impact investments. |

## 12 MILES

The estimated length of the country's worst congestion bottleneck, in Chicago on I-90 between the 'Circle' Interchange and Edens Junction.



The available fuel savings for both trucks and passenger cars from eliminating the 30 worst bottlenecks.

## 35 MILLION GALLONS A YEAR

<sup>1</sup> ATRI (2014). Cost of Congestion to the Trucking Industry. Arlington, Virginia.



# RANKINGS

## AMERICA'S TOP 50 BOTTLENECKS

Our study identified the nation's top 50 bottlenecks, listed below.

National Rank	State	Urban Area	Location	Queue Length (miles)	Annual Total Delay (hours)	Annual Lost Value Of Time (US \$)	Annual Fuel Wasted / Potential Savings (gallons)
1	Illinois	Chicago	I90 between Roosevelt Rd and N Nagle Ave	12.0	16,900,000	\$ 418,000,000	6,370,000
2	California	Los Angeles	I405 between SR22 and I605	4.1	7,100,000	\$ 191,000,000	1,819,480
3	California	Los Angeles	I10 between Santa Fe Ave and Crenshaw Blvd	6.9	6,900,000	\$ 187,000,000	2,231,840
4	California	Los Angeles	I405 between Venice Blvd and Wilshire Blvd	5.2	6,300,000	\$ 169,000,000	1,961,960
5	California	Los Angeles	US101 between Franklin Ave and Glendale Blvd	4.4	5,400,000	\$ 146,000,000	1,761,500
6	California	Los Angeles	I110 between Exposition Blvd and Stadium Way	4.3	5,400,000	\$ 145,000,000	1,855,880
7	California	Los Angeles	US101 between Sepulveda Blvd and Laurel Canyon Blvd	3.8	3,600,000	\$ 96,000,000	1,047,800
8	New York and New Jersey	New York	Lincoln Tunnel between 10th Ave and John F Kennedy Blvd	2.6	3,400,000	\$ 87,000,000	1,730,300
9	New York	New York	I95 between I895 and Broadway	3.1	3,000,000	\$ 82,000,000	1,545,700
10	Texas	Austin	I35 between East Riverside Dr and E Dean Keeton St	3.0	3,000,000	\$ 73,000,000	1,776,320
11	California	Los Angeles	I5/I10 between N Mission Rd and US101	2.0	2,300,000	\$ 62,000,000	966,680
12	California	San Francisco	I80 between US101 and Bay Bridge	1.9	2,200,000	\$ 59,000,000	797,680
13	California	Los Angeles	I10 between La Brea Ave and National Blvd	2.2	2,100,000	\$ 57,000,000	551,720
14	California	Los Angeles	I5 between S Eastern Ave and Euclid Ave	2.0	2,100,000	\$ 56,000,000	992,160
15	Massachusetts	Boston	I93 between I90 and US1	1.9	2,100,000	\$ 58,000,000	1,980,680
16	California	Oakland	I80 between I580 and Ashby Ave	2.0	1,900,000	\$ 50,000,000	691,860
17	Washington	Seattle	I5 between Madison St. and Exit 168A	1.6	1,600,000	\$ 45,000,000	619,840

# RANKINGS

## AMERICA'S TOP 50 BOTTLENECKS (CONTINUED)

National Rank	State	Urban Area	Location	Queue Length (miles)	Annual Total Delay (hours)	Annual Lost Value Of Time (US \$)	Annual Fuel Wasted / Potential Savings (gallons)
18	New Jersey	New York	I95 between SR4 and Palisades Interstate Pkwy in Fort Lee	0.9	1,500,000	\$ 38,000,000	810,680
19	New Jersey	New York	Pulaski Skyway between I95 and Central Ave in Newark	1.1	1,400,000	\$ 36,000,000	856,960
20	Florida	Miami	Palmetto Expy between 41st St. and Dolphin Expy	1.7	1,400,000	\$ 30,000,000	647,400
21	New York	New York	I678 between Queens Blvd and Liberty Ave	1.4	1,400,000	\$ 37,000,000	512,980
22	Texas	Houston	I610 between Richmond Ave and Post Oak Blvd	1.3	1,300,000	\$ 31,000,000	509,340
23	Illinois	Chicago	I90 Between I55 and W Pershing Rd	1.2	1,300,000	\$ 31,000,000	678,600
24	Georgia	Atlanta	I75/I85 between Freedom Pkwy NE and North Ave NE	1.3	1,200,000	\$ 27,000,000	392,600
25	Texas	Houston	I69/I59 between Hazard St and Buffalo Speedway	1.3	1,100,000	\$ 28,000,000	613,080
26	Virginia	Washington, DC	I395 between Washington Blvd and George Washington Memorial Pkwy	1.1	1,100,000	\$ 27,000,000	322,660
27	Texas	Dallas	Woodall Rodgers Freeway	1.1	1,100,000	\$ 26,000,000	470,860
28	Massachusetts	Boston	I93 between Edge Hill Rd and West St	1.2	1,000,000	\$ 28,000,000	362,700
29	California	Los Angeles	I405 between Burbank Blvd and Ventura Blvd	1.0	1,000,000	\$ 26,000,000	339,820
30	California	Los Angeles	US101 between SR110 and Alameda St	1.0	1,000,000	\$ 26,000,000	434,200
31	New Jersey	New York	US1&9 between Wilson Ave and I78	0.8	800,000	\$ 21,000,000	291,720
32	Florida	Miami	Dolphin Expy between 72nd Ave and Palmetto Expy	0.5	800,000	\$ 17,000,000	405,080
33	New York	New York	Brooklyn Bridge	0.9	800,000	\$ 21,000,000	577,460
34	Texas	Houston	US290 between I610 and Mangum Rd	0.9	800,000	\$ 19,000,000	405,860

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# RANKINGS

## AMERICA'S TOP 50 BOTTLENECKS (CONTINUED)

National Rank	State	Urban Area	Location	Queue Length (miles)	Annual Total Delay (hours)	Annual Lost Value Of Time (US \$)	Annual Fuel Wasted / Potential Savings (gallons)
35	Colorado	Denver	I25 between Santa Fe Dr and S Logan St	0.8	700,000	\$ 18,000,000	356,980
36	Pennsylvania	Philadelphia	I76 at US1 between City Ave and Roosevelt Blvd	0.8	700,000	\$ 16,000,000	263,120
37	New Jersey	New York	Pulaski Skyway between Tonnelle Ave and Broadway	0.7	600,000	\$ 15,000,000	347,620
38	Virginia	Norfolk	US58 at Martin Luther King Fwy in Portsmouth	0.6	600,000	\$ 16,000,000	210,600
39	Florida	Miami	Dolphin Expy between 17th Ave and 22nd Ave	0.6	500,000	\$ 11,000,000	158,080
40	California	Los Angeles	I10 between I5 and US101	0.6	500,000	\$ 13,000,000	240,240
41	Virginia	Washington, DC	I495 at the Dulles Toll Road	0.5	500,000	\$ 12,000,000	146,900
42	New York	New York	Long Island Expressway (I495) near I-278 between 58th St and 48th St.	0.4	400,000	\$ 10,000,000	117,260
43	Texas	Dallas	I30 between St. Paul St. and I45	0.4	400,000	\$ 9,000,000	174,200
44	Virginia	Washington, DC	I395 from Duke St to halfway between Duke St and Edsall Rd	0.3	300,000	\$ 8,000,000	83,720
45	Florida	Tampa	I4 between N 22nd St and N Nebraska Ave	0.4	300,000	\$ 7,000,000	191,100
46	Illinois	Chicago	I94 between I90 interchange and N Elston Ave	0.3	300,000	\$ 7,000,000	106,860
47	Pennsylvania	Philadelphia	I676 between I76 interchange and N 24th St	0.3	300,000	\$ 6,000,000	112,580
48	Texas	Dallas	US75 between N Haskell Avenue and SR366	0.3	200,000	\$ 6,000,000	127,920
49	Georgia	Atlanta	T. Harvey Mathis Pkwy between Johnson Ferry Rd NE and I285	0.3	200,000	\$ 6,000,000	73,580
50	Massachusetts	Boston	I90 from Dorchester Ave to A St	0.3	200,000	\$ 7,000,000	135,720

# ACRONYMS



AADTT	annual average daily truck traffic
AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
AHUA	American Highway Users Alliance
ATRI	American Transportation Research Institute
CO <sub>2</sub>	carbon dioxide
DMS	Dynamic Message Signs
DOT	Department of Transportation
FFS	free-flow speed
FHWA	Federal Highway Administration
GPS	global positioning system
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HPMS	Highway Performance Monitoring System
ITS	Intelligent Transportation Systems
MPO	metropolitan planning organizations
MTS	maximum throughput speed
NAFTA	North American Free Trade Agreement
NPMRDS	National Performance Management Research Data Set
SR	State Route
TMC	traffic message channel
TTI	Texas A&M Transportation Institute
VMT	vehicle-miles traveled