SEPTEMBER 2011

2011 URBAN MOBILITY REPORT

Texas Transportation Institute

POWERED BY INRIX TRAFFIC

UTCM
University Transportation Center for Mobility
Texas Transportation Institute

TTI's 2011 URBAN MOBILITY REPORT
Powered by INRIX Traffic Data

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2011 Urban Mobility Report

For the complete report and congestion data on your city, see: http://mobility.tamu.edu/ums.

Congestion is a significant problem in America's 439 urban areas. And, although readers and policy makers may have been distracted by the economy-based congestion reductions in the last few years, the 2010 data indicate the problem will not go away by itself – action is needed.

- First, the problem is very large. In 2010, congestion caused urban Americans to travel 4.8 billion hours more and to purchase an extra 1.9 billion gallons of fuel for a congestion cost of $101 billion. (see Exhibit 1)
- Second, 2008 was the best year for congestion in recent times (see Exhibit 2); congestion was worse in 2009 and 2010.
- Third, there is only a short-term cause for celebration. Prior to the economy slowing, just 4 years ago, congestion levels were much higher than a decade ago; these conditions will return with a strengthening economy.

There are many ways to address congestion problems; the data show that these are not being pursued aggressively enough. The most effective strategy is one where agency actions are **complemented** by efforts of businesses, manufacturers, commuters and travelers. There is no **rigid prescription** for the "best way"—**each region** must identify the projects, programs and policies that achieve goals, solve problems and capitalize on opportunities.

Exhibit 1. Major Findings of the 2011 Urban Mobility Report (439 U.S. Urban Areas)

(Note: See page 2 for description of changes since the 2010 Report)

Measures of…	1982	2000	2005	2009	2010
… Individual Congestion					
Yearly delay per auto commuter (hours)	14	35	39	34	34
Travel Time Index	1.09	1.21	1.25	1.20	1.20
Commuter Stress Index	--	--	--	1.29	1.30
"Wasted" fuel per auto commuter (gallons)	6	14	17	14	14
Congestion cost per auto commuter (2010 dollars)	$301	$701	$814	$723	$713
… The Nation's Congestion Problem					
Travel delay (billion hours)	1.0	4.0	5.2	4.8	4.8
"Wasted" fuel (billion gallons)	0.4	1.6	2.2	1.9	1.9
Truck congestion cost (billions of 2010 dollars)	--	--	--	$24	$23
Congestion cost (billions of 2010 dollars)	$21	$79	$108	$101	$101
… The Effect of Some Solutions					
Yearly travel delay saved by:					
Operational treatments (million hours)	8	190	312	321	327
Public transportation (million hours)	381	720	802	783	796
Fuel saved by:					
Operational treatments (million gallons)	1	79	126	128	131
Public transportation (million gallons)	139	294	326	313	303
Yearly congestion costs saved by:					
Operational treatments (billions of 2010$)	$0.2	$3.1	$6.5	$6.7	$6.9
Public transportation (billions of 2010$)	$6.9	$12.0	$16.9	$16.5	$16.8

Yearly delay per auto commuter – The extra time spent traveling at congested speeds rather than free-flow speeds by private vehicle drivers and passengers who typically travel in the peak periods.
Travel Time Index (TTI) – The ratio of travel time in the peak period to travel time at free-flow conditions. A Travel Time Index of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.
Commuter Stress Index – The ratio of travel time for the peak direction to travel time at free-flow conditions. A TTI calculation for only the most congested direction in both peak periods.
Wasted fuel – Extra fuel consumed during congested travel.
Congestion cost – The yearly value of delay time and wasted fuel.

The Congestion Trends
(And the New Data Providing a More Accurate View)

The 2011 *Urban Mobility Report* is the 2nd prepared in partnership with INRIX, a leading private sector provider of travel time information for travelers and shippers. This means the 2011 Urban Mobility Report has millions of data points resulting in an average speed on almost every mile of major road in urban America for almost every hour of the day. For the congestion analyst, this is an awesome amount of information. For the policy analyst and transportation planner, these congestion problems can be described in detail and solutions can be targeted with much greater specificity and accuracy.

The INRIX speed data is combined with traffic volume data from the states to provide a much better and more detailed picture of the problems facing urban travelers. This one-of-its-kind data combination gives the Urban Mobility Report an unrivaled picture of urban traffic congestion.

INRIX (*1*) anonymously collects traffic speed data from personal trips, commercial delivery vehicle fleets and a range of other agencies and companies and compiles them into an average speed profile for most major roads. The data show conditions for every day of the year and include the effect of weather problems, traffic crashes, special events, holidays, work zones and the other congestion causing (and reducing) elements of today's traffic problems. TTI combined these speeds with detailed traffic volume data (*2*) to present an estimate of the scale, scope and patterns of the congestion problem in urban America.

The new data and analysis changes the way the mobility information can be presented and how the problems are evaluated. Key aspects of the 2011 report are summarized below.

- Hour-by-hour speeds collected from a variety of sources on every day of the year on most major roads are used in the 101 detailed study areas and the 338 other urban areas. For more information about INRIX, go to www.inrix.com.
- The data for all 24 hours makes it possible to track congestion problems for the midday, overnight and weekend time periods.
- Truck freight congestion is explored in more detail thanks to research funding from the National Center for Freight and Infrastructure Research and Education (CFIRE) at the University of Wisconsin (http://www.wistrans.org/cfire/).
- A new wasted fuel estimation process was developed to use the more detailed speed data. The procedure is based on the Environmental Protection Agency's new modeling procedure-Motor Vehicle Emission Simulator (MOVES). While this model does not capture the second-to-second variations in fuel consumption due to stop-and-go driving, it, along with the INRIX hourly speed data, provides a better estimate than previous procedures based on average daily traffic speeds.
- One new congestion measure is debuted in the 2011 Urban Mobility Report. Total travel time is the sum of delay time and free-flow travel time. It estimates the amount of time spent on the road. More information on total travel time can be found at: http://mobility.tamu.edu/resources/

Exhibit 2. National Congestion Measures, 1982 to 2010

Year	Travel Time Index	Delay per Commuter (hours)	Total Delay (billion hours)	Fuel Wasted (billion gallons)	Total Cost (2010$ billion)	Hours Saved (million hours)		Gallons Saved (million gallons)		Dollars Saved (billions of 2010$)	
						Operational Treatments & HOV Lanes	Public Transp	Operational Treatments & HOV Lanes	Public Transp	Operational Treatments & HOV Lanes	Public Transp
1982	1.09	14.4	0.99	0.36	20.6	8	381	1	139	0.2	6.9
1983	1.09	15.7	1.09	0.40	22.3	10	389	3	142	0.2	7.1
1984	1.10	16.9	1.19	0.44	24.3	14	403	5	149	0.3	7.3
1985	1.11	19.0	1.38	0.51	28.0	19	427	6	160	0.3	7.6
1986	1.12	21.1	1.59	0.60	31.2	25	404	8	156	0.4	7.0
1987	1.13	23.2	1.76	0.68	34.6	32	416	11	161	0.6	7.2
1988	1.14	25.3	2.03	0.79	39.7	42	508	14	197	0.7	8.8
1989	1.16	27.4	2.22	0.87	43.8	51	544	17	214	0.8	9.5
1990	1.16	28.5	2.35	0.93	46.4	58	542	20	216	0.9	9.4
1991	1.16	28.5	2.41	0.96	47.4	61	536	21	216	1.0	9.3
1992	1.16	28.5	2.57	1.02	50.5	69	527	24	211	1.1	9.1
1993	1.17	29.6	2.71	1.07	53.1	77	520	27	208	1.2	9.0
1994	1.17	30.6	2.82	1.12	55.4	86	541	30	217	1.4	9.4
1995	1.18	31.7	3.02	1.21	59.7	101	569	35	232	1.7	9.9
1996	1.19	32.7	3.22	1.30	63.8	116	589	40	241	1.9	10.3
1997	1.19	33.8	3.40	1.37	67.1	132	607	46	249	2.2	10.6
1998	1.20	33.8	3.54	1.44	68.9	150	644	52	267	2.4	11.0
1999	1.21	34.8	3.80	1.55	73.9	173	683	59	285	2.8	11.7
2000	1.21	34.8	3.97	1.63	79.2	190	720	79	294	3.1	12.0
2001	1.22	35.9	4.16	1.71	82.6	215	749	89	307	3.7	12.9
2002	1.23	36.9	4.39	1.82	87.2	239	758	101	314	4.2	13.2
2003	1.23	36.9	4.66	1.93	92.4	276	757	115	311	4.8	13.3
2004	1.24	39.1	4.96	2.06	100.2	299	798	127	331	5.5	14.8
2005	1.25	39.1	5.22	2.16	108.1	325	809	135	336	6.3	15.9
2006	1.24	39.1	5.25	2.18	110.0	359	845	150	354	7.2	17.3
2007	1.24	38.4	5.19	2.20	110.3	363	889	152	372	7.6	18.9
2008	1.20	33.7	4.62	1.88	97.0	312	802	126	326	6.5	16.9
2009	1.20	34.0	4.80	1.92	100.9	321	783	128	313	6.7	16.5
2010	1.20	34.4	4.82	1.94	100.9	327	796	131	303	6.9	16.8

Note: For more congestion information see Tables 1 to 9 and http://mobility.tamu.edu/ums.

One Page of Congestion Problems

In many regions, traffic jams can occur at any daylight hour, many nighttime hours and on weekends. The problems that travelers and shippers face include extra travel time, unreliable travel time and a system that is vulnerable to a variety of irregular congestion-producing occurrences. All of these are a much greater problem now than in 1982. Some key descriptions are listed below. See data for your city at mobility.tamu.edu/ums/congestion_data.

Congestion costs are increasing. The congestion "invoice" for the cost of extra time and fuel in 439 urban areas was (all values in constant 2010 dollars):

- In 2010 – $101 billion
- In 2000 – $79 billion
- In 1982 – $21 billion

Congestion wastes a massive amount of time, fuel and money. In 2010:

- 1.9 billion gallons of wasted fuel (equivalent to about 2 months of flow in the Alaska Pipeline).
- 4.8 billion hours of extra time (equivalent to the time Americans spend relaxing and thinking in 10 weeks).
- $101 billion of delay and fuel cost (the negative effect of uncertain or longer delivery times, missed meetings, business relocations and other congestion-related effects are not included).
- $23 billion of the delay cost was the effect of congestion on truck operations; this does not include any value for the goods being transported in the trucks.
- The cost to the average commuter was $713 in 2010 compared to an inflation-adjusted $301 in 1982.

Congestion affects people who make trips during the peak period.

- Yearly peak period delay for the average commuter was 34 hours in 2010, up from 14 hours in 1982.
- Those commuters wasted 14 gallons of fuel in the peak periods in 2010 – a week's worth of fuel for the average U.S. driver – up from 6 gallons in 1982.
- Congestion effects were even larger in areas with over one million persons – 44 hours and 20 gallons in 2010.
- "Rush hour" – possibly the most misnamed period ever – lasted 6 hours in the largest areas in 2010.
- Fridays are the worst days to travel. The combination of work, school, leisure and other trips mean that urban residents earn their weekend after suffering 200 million more delay hours than Monday.
- 60 million Americans suffered more than 30 hours of delay in 2010.

Congestion is also a problem at other hours.

- Approximately 40 percent of total delay occurs in the midday and overnight (outside of the peak hours of 6 to 10 a.m. and 3 to 7 p.m.) times of day when travelers and shippers expect free-flow travel. Many manufacturing processes depend on a free-flow trip for efficient production; it is difficult to achieve the most desirable outcome with a network that may be congested at any time of day.

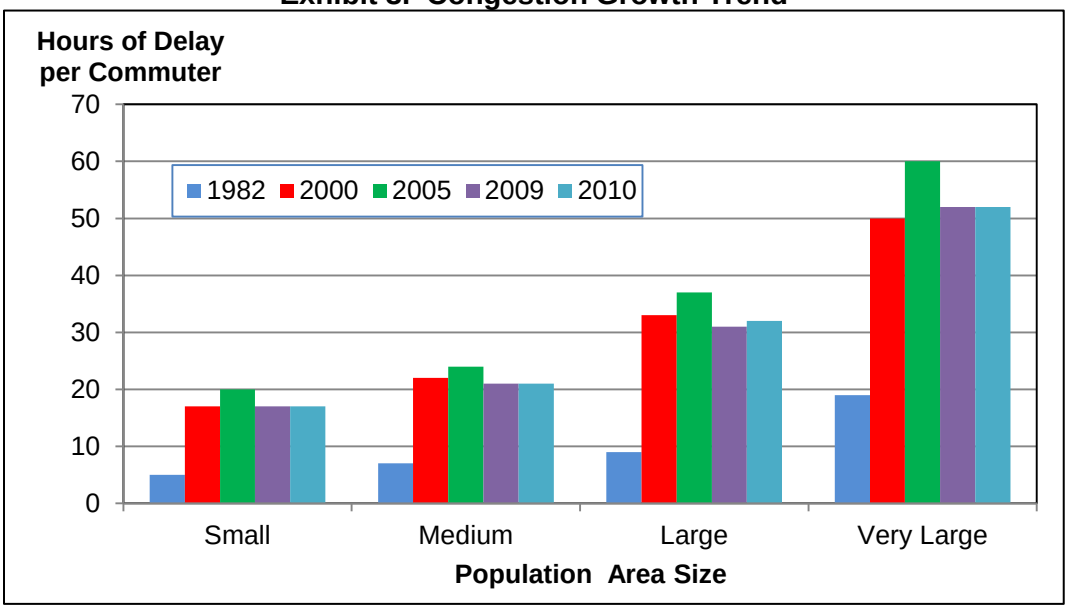
More Detail About Congestion Problems

Congestion, by every measure, has increased substantially over the 29 years covered in this report. The recent decline in congestion brought on by the economic recession has been reversed in most urban regions. This is consistent with the pattern seen in some metropolitan regions in the 1980s and 1990s; economic recessions cause fewer goods to be purchased, job losses mean fewer people on the road in rush hours and tight family budgets mean different travel decisions are made. As the economy recovers, so does traffic congestion. In previous regional recessions, once employment began a sustained, significant growth period, congestion increased as well.

The total congestion problem in 2010 was approximately near the levels recorded in 2004; growth in the number of commuters means that the delay per commuter is less in 2010. This "reset" in the congestion trend, and the low prices for construction, should be used as a time to promote congestion reduction programs, policies and projects.

Congestion is worse in areas of every size – it is not just a big city problem. The growing delays also hit residents of smaller cities (Exhibit 3). Regions of all sizes have problems implementing enough projects, programs and policies to meet the demand of growing population and jobs. Major projects, programs and funding efforts take 10 to 15 years to develop.

Exhibit 3. Congestion Growth Trend



Small = less than 500,000
Medium = 500,000 to 1 million
Large = 1 million to 3 million
Very Large = more than 3 million

Think of what else could be done with the 34 hours of extra time suffered by the average urban auto commuter in 2010:

- 4 vacation days
- The time the average American spends eating and drinking in a month.

And the 4.8 billion hours of delay is the equivalent of more than 1,400 days of Americans playing Angry Birds – this is a lot of time.

Congestion builds through the week from Monday to Friday. The two weekend days have less delay than any weekday (Exhibit 4). Congestion is worse in the evening but it can be a problem all day (Exhibit 5). Midday hours comprise a significant share of the congestion problem (approximately 30% of total delay).

Exhibit 4. Percent of Delay for Each Day

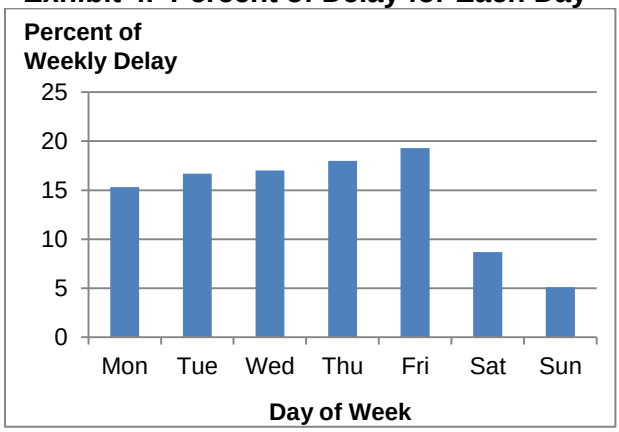
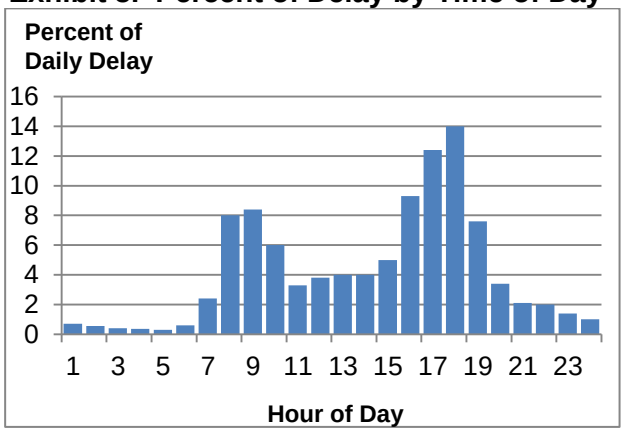
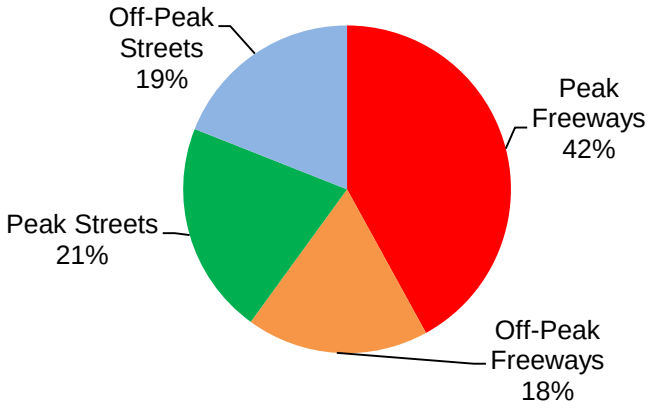


Exhibit 5. Percent of Delay by Time of Day



Freeways have more delay than streets, but not as much as you might think (Exhibit 6).

Exhibit 6. Percent of Delay for Road Types



The "surprising" congestion levels have logical explanations in some regions.

The urban area congestion level rankings shown in Tables 1 through 9 may surprise some readers. The areas listed below are examples of the reasons for higher than expected congestion levels.

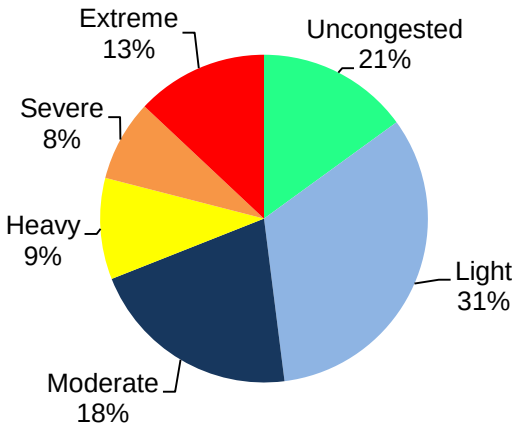
- *Work zones* – Baton Rouge. Construction, even when it occurs in the off-peak, can increase traffic congestion.
- *Smaller urban areas with a major interstate highway* – Austin, Bridgeport, Salem. High volume highways running through smaller urban areas generate more traffic congestion than the local economy causes by itself.
- *Tourism* – Orlando, Las Vegas. The traffic congestion measures in these areas are divided by the local population numbers causing the per-commuter values to be higher than normal.
- *Geographic constraints* – Honolulu, Pittsburgh, Seattle. Water features, hills and other geographic elements cause more traffic congestion than regions with several alternative routes.

Travelers and shippers must plan around congestion more often.

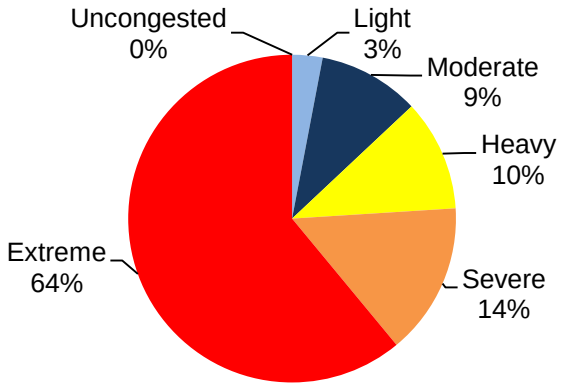
- In all 439 urban areas, the worst congestion levels affected only 1 in 9 trips in 1982, but almost 1 in 4 trips in 2010 (Exhibit 7).
- The most congested sections of road account for 78% of peak period delays, with only 21% of the travel (Exhibit 7).
- Delay has grown about five times larger overall since 1982.

Exhibit 7. Peak Period Congestion and Congested Travel in 2010

Vehicle travel in congestion ranges



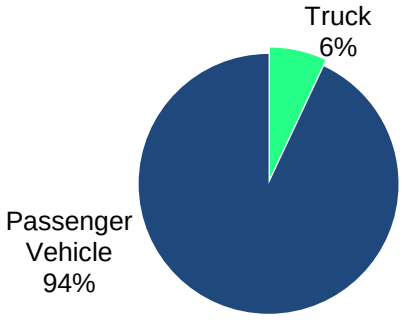
Travel delay in congestion ranges



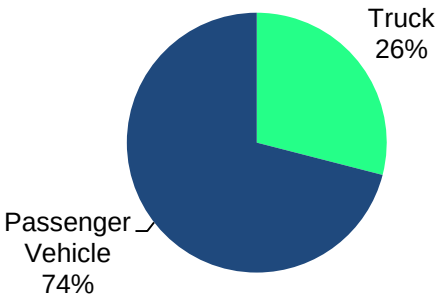
While **trucks** only account for about 6 percent of the miles traveled in urban areas, they are **almost 26 percent of the urban "congestion invoice."** In addition, the cost in Exhibit 8 only includes the cost to operate the truck in heavy traffic; the extra cost of the commodities is not included.

Exhibit 8. 2010 Congestion Cost for Urban Passenger and Freight Vehicles

Travel by Vehicle Type



Congestion Cost by Vehicle Type



The Future of Congestion

As Yogi Berra said, “I don’t like to make predictions, especially about the future…” But with a few clearly stated assumptions, this report provides some estimates of the near-future congestion problem. Basically, these assumptions relate to the growth in travel and the amount of effort being made to accommodate that growth, as well as address the current congestion problem. In summary, the outlook is not sunshine and kittens.

- Population and employment growth—two primary factors in rush hour travel demand—are projected to grow slightly slower from 2010 to 2020 than in the previous ten years.
- The combined role of the government and private sector will yield approximately the same rate of transportation system expansion (both roadway and public transportation). (The analysis assumed that policies and funding levels will remain about the same).
- The growth in usage of any of the alternatives (biking, walking, work or shop at home) will continue at the same rate.
- Decisions as to the priorities and level of effort in solving transportation problems will continue as in the recent past.
- The period before the economic recession was used as the indicator of the effect of growth. The years from 2000 to 2006 had generally steady economic growth in most U.S. urban regions; these years are assumed to be a good indicator of the future level of investment in solutions and the resulting increase in congestion.

If this “status quo” benchmark is applied to the next five to ten years, a rough estimate of future congestion can be developed. The congestion estimate for any single region will be affected by the funding, project selections and operational strategies; the simplified estimation procedure used in this report will not capture these variations. Combining all the regions into one value for each population group, however, may result in a balance between estimates that are too high and those that are too low.

- The national congestion cost will grow from $101 billion to $133 billion in 2015 and $175 billion in 2020 (in 2010 dollars).
- Delay will grow to 6.1 billion hours in 2015 and 7.7 billion hours in 2020.
- The average commuter will see their cost grow to $937 in 2015 and $1,232 in 2020 (in 2010 dollars). They will waste 37 hours and 16 gallons in 2015 and 41 hours and 19 gallons in 2020.
- Wasted fuel will increase to 2.5 billion gallons in 2015 and 3.2 billion gallons in 2020.
- If the price of gasoline grows to $5 per gallon, the congestion-related fuel cost would grow to $13 billion in 2015 and $16 billion in 2020.

Freight Congestion and Commodity Value

Trucks carry goods to suppliers, manufacturers and markets. They travel long and short distances in peak periods, middle of the day and overnight. Many of the trips conflict with commute trips, but many are also to warehouses, ports, industrial plants and other locations that are not on traditional suburb to office routes. Trucks are a key element in the just-in-time (or lean) manufacturing process; these business models use efficient delivery timing of components to reduce the amount of inventory warehouse space. As a consequence, however, trucks become a mobile warehouse and if their arrival times are missed, production lines can be stopped, at a cost of many times the value of the truck delay times.

Congestion, then, affects truck productivity and delivery times and can also be caused by high volumes of trucks, just as with high car volumes. One difference between car and truck congestion costs is important; a significant share of the $23 billion in truck congestion costs in 2010 was passed on to consumers in the form of higher prices. The congestion effects extend far beyond the region where the congestion occurs.

The 2010 Urban Mobility Report, with funding from the National Center for Freight and Infrastructure Research and Education (CFIRE) at the University of Wisconsin and data from USDOT's Freight Analysis Framework (*6*), developed an estimate of the value of commodities being shipped by truck to and through urban areas and in rural regions. The commodity values were matched with truck delay estimates to identify regions where high values of commodities move on congested roadway networks.

Table 5 points to a correlation between commodity value and truck delay—higher commodity values are associated with more people; more people are associated with more traffic congestion. Bigger cities consume more goods, which means a higher value of freight movement. While there are many cities with large differences in commodity and delay ranks, only 17 urban areas are ranked with commodity values much higher than their delay ranking.

The Table also illustrates the role of long corridors with important roles in freight movement. Some of the smaller urban areas along major interstate highways along the east and west coast and through the central and Midwestern U.S., for example, have commodity value ranks much higher than their delay ranking. High commodity values and lower delay might sound advantageous—lower congestion levels with higher commodity values means there is less chance of congestion getting in the way of freight movement. At the areawide level, this reading of the data would be correct, but in the real world the problem often exists at the road or even intersection level—and solutions should be deployed in the same variety of ways.

Possible Solutions

Urban and rural corridors, ports, intermodal terminals, warehouse districts and manufacturing plants are all locations where truck congestion is a particular problem. Some of the solutions to these problems look like those deployed for person travel—new roads and rail lines, new lanes on existing roads, lanes dedicated to trucks, additional lanes and docking facilities at warehouses and distribution centers. New capacity to handle freight movement might be an even larger need in coming years than passenger travel capacity. Goods are delivered to retail and commercial stores by trucks that are affected by congestion. But "upstream" of the store shelves, many manufacturing operations use just-in-time processes that rely on the ability of trucks to maintain a reliable schedule. Traffic congestion at any time of day causes potentially costly disruptions. The solutions might be implemented in a broad scale to address freight traffic growth or targeted to road sections that cause freight bottlenecks.

Other strategies may consist of regulatory changes, operating practices or changes in the operating hours of freight facilities, delivery schedules or manufacturing plants. Addressing customs, immigration and security issues will reduce congestion at border ports-of-entry. These technology, operating and policy changes can be accomplished with attention to the needs of all stakeholders and can produce as much from the current systems and investments as possible.

The Next Generation of Freight Measures

The dataset used for Table 5 provides origin and destination information, but not routing paths. The *2011 Urban Mobility Report* developed an estimate of the value of commodities in each urban area, but better estimates of value will be possible when new freight models are examined. Those can be matched with the detailed speed data from INRIX to investigate individual congested freight corridors and their value to the economy.

Congestion Relief – An Overview of the Strategies

We recommend a ***balanced and diversified approach*** to reduce congestion – one that focuses on more of everything. It is clear that our current investment levels have not kept pace with the problems. Population growth will require more systems, better operations and an increased number of travel alternatives. And most urban regions have big problems now – more congestion, poorer pavement and bridge conditions and less public transportation service than they would like. There will be a different mix of solutions in metro regions, cities, neighborhoods, job centers and shopping areas. Some areas might be more amenable to construction solutions, other areas might use more travel options, productivity improvements, diversified land use patterns or redevelopment solutions. In all cases, the solutions need to work together to provide an interconnected network of transportation services.

More information on the possible solutions, places they have been implemented, the effects estimated in this report and the methodology used to capture those benefits can be found on the website http://mobility.tamu.edu/solutions.

- **Get as much service as possible from what we have** – Many low-cost improvements have broad public support and can be rapidly deployed. These management programs require innovation, constant attention and adjustment, but they pay dividends in faster, safer and more reliable travel. Rapidly removing crashed vehicles, timing the traffic signals so that more vehicles see green lights, improving road and intersection designs, or adding a short section of roadway are relatively simple actions.
- **Add capacity in critical corridors** – Handling greater freight or person travel on freeways, streets, rail lines, buses or intermodal facilities often requires "more." Important corridors or growth regions can benefit from more road lanes, new streets and highways, new or expanded public transportation facilities, and larger bus and rail fleets.
- **Change the usage patterns** – There are solutions that involve changes in the way employers and travelers conduct business to avoid traveling in the traditional "rush hours." Flexible work hours, internet connections or phones allow employees to choose work schedules that meet family needs and the needs of their jobs.
- **Provide choices** – This might involve different routes, travel modes or lanes that involve a toll for high-speed and reliable service—a greater number of options that allow travelers and shippers to customize their travel plans.
- **Diversify the development patterns** – These typically involve denser developments with a mix of jobs, shops and homes, so that more people can walk, bike or take transit to more, and closer, destinations. Sustaining the "quality of life" and gaining economic development without the typical increment of mobility decline in each of these sub-regions appear to be part, but not all, of the solution.
- **Realistic expectations** are also part of the solution. Large urban areas will be congested. Some locations near key activity centers in smaller urban areas will also be congested. But congestion does not have to be an all-day event. Identifying solutions and funding sources that meet a variety of community goals is challenging enough without attempting to eliminate congestion in all locations at all times.

Congestion Solutions – The Effects

The *2011Urban Mobility Report* database includes the effect of several widely implemented congestion solutions. These strategies provide faster and more reliable travel and make the most of the roads and public transportation systems that have been built. These solutions use a combination of information, technology, design changes, operating practices and construction programs to create value for travelers and shippers. There is a double benefit to efficient operations-travelers benefit from better conditions and the public sees that their tax dollars are being used wisely. The estimates described in the next few pages are a reflection of the benefits from these types of roadway operating strategies and public transportation systems.

Benefits of Public Transportation Service

Regular-route public transportation service on buses and trains provides a significant amount of peak-period travel in the most congested corridors and urban areas in the U.S. If public transportation service had been discontinued and the riders traveled in private vehicles in 2010, the 439 urban areas would have suffered an additional 796 million hours of delay and consumed 300 million more gallons of fuel (Exhibit 9). The value of the additional travel delay and fuel that would have been consumed if there were no public transportation service would be an additional $16.8 billion, a 17% increase over current congestion costs in the 439 urban areas.

There were approximately 55 billion passenger-miles of travel on public transportation systems in the 439 urban areas in 2010 (*4*). The benefits from public transportation vary by the amount of travel and the road congestion levels (Exhibit 9). More information on the effects for each urban area is included in Table 3.

Exhibit 9. Delay Increase in 2010 if Public Transportation Service Were Eliminated – 439 Areas

Population Group and Number of Areas	Average Annual Passenger-Miles of Travel (Million)	Reduction Due to Public Transportation			
		Hours of Delay Saved (Million)	Percent of Base Delay	Gallons of Fuel (Million)	Dollars Saved ($ Million)
Very Large (15)	41,481	681	24	271	14,402
Large (33)	5,867	74	7	23	1,518
Medium (32)	1,343	12	3	2	245
Small (21)	394	3	3	1	62
Other (338)	5,930	26	5	6	584
National Urban Total	55,015	796	16	303	$16,811

Source: Reference (*4*) and Review by Texas Transportation Institute

Better Traffic Flow

Improving transportation systems is about more than just adding road lanes, transit routes, sidewalks and bike lanes. It is also about operating those systems efficiently. Not only does congestion cause slow speeds, it also decreases the traffic volume that can use the roadway; stop-and-go roads only carry half to two-thirds of the vehicles as a smoothly flowing road. This is why simple volume-to-capacity measures are not good indicators; actual traffic volumes are low in stop-and-go conditions, so a volume/capacity measure says there is no congestion problem. Several types of improvements have been widely deployed to improve traffic flow on existing roadways.

Five prominent types of operational treatments are estimated to relieve a total of 327 million hours of delay (6% of the total) with a value of $6.9 billion in 2010 (Exhibit 10). If the treatments were deployed on all major freeways and streets, the benefit would expand to almost 740 million hours of delay (14% of delay) and more than $15 billion would be saved. These are significant benefits, especially since these techniques can be enacted more quickly than significant roadway or public transportation system expansions can occur. The operational treatments, however, are not large enough to replace the need for those expansions.

Exhibit 10. Operational Improvement Summary for All 439 Urban Areas

Population Group and Number of Areas	Reduction Due to Current Projects			Delay Reduction if In Place on All Roads (Million Hours)
	Hours of Delay Saved (Million)	Gallons of Fuel Saved (Million)	Dollars Saved ($ Million)	
Very Large (15)	235	103	4,948	580
Large (33)	60	21	1,264	82
Medium (32)	12	3	245	31
Small (21)	3	1	62	7
Other (338)	17	3	356	36
TOTAL	327	131	$6,875	736

Note: This analysis uses nationally consistent data and relatively simple estimation procedures. Local or more detailed evaluations should be used where available. These estimates should be considered preliminary pending more extensive review and revision of information obtained from source databases (*2, 5*).

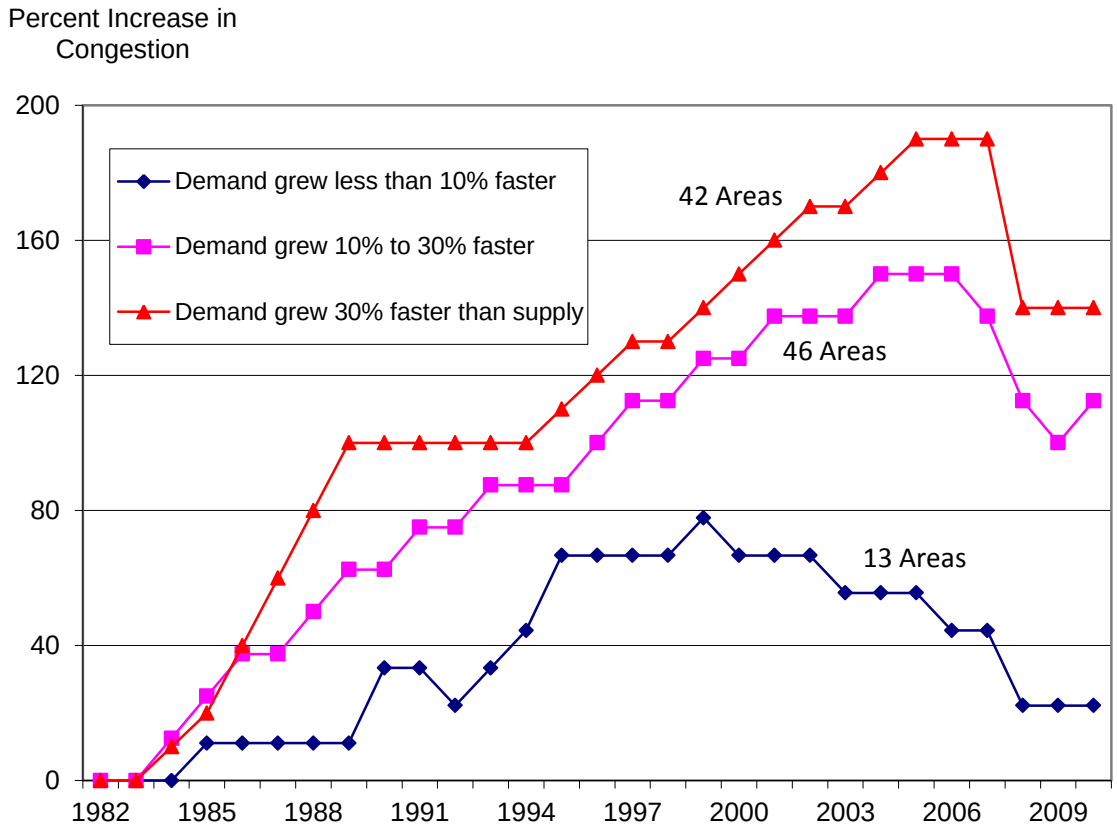
More information about the specific treatments and examples of regions and corridors where they have been implemented can be found at the website http://mobility.tamu.edu/resources/

More Capacity

Projects that provide more road lanes and more public transportation service are part of the congestion solution package in most growing urban regions. New streets and urban freeways will be needed to serve new developments, public transportation improvements are particularly important in congested corridors and to serve major activity centers, and toll highways and toll lanes are being used more frequently in urban corridors. Capacity expansions are also important additions for freeway-to-freeway interchanges and connections to ports, rail yards, intermodal terminals and other major activity centers for people and freight transportation.

Additional roadways reduce the rate of congestion increase. This is clear from comparisons between 1982 and 2010 (Exhibit 11). Urban areas where capacity increases matched the demand increase saw congestion grow much more slowly than regions where capacity lagged behind demand growth. It is also clear, however, that if only areas were able to accomplish that rate, there must be a broader and larger set of solutions applied to the problem. Most of these regions (listed in Table 9) were not in locations of high economic growth, suggesting their challenges were not as great as in regions with booming job markets.

Exhibit 11. Road Growth and Mobility Level



Source: Texas Transportation Institute analysis, see and
http://mobility.tamu.edu/ums/report/methodology/

Total Travel Time

Another approach to measuring some aspects of congestion is the total time spent traveling in the peak periods. The measure can be used with other *Urban Mobility Report* statistics in a balanced transportation and land use pattern evaluation program. As with any measure, the analyst must understand the components of the measure and the implications of its use. In the *Urban Mobility Report* context where trends are important, values for cities of similar size and/or congestion levels can be used as comparisons. Year-to-year changes for an area can also be used to help an evaluation of long-term policies. The measure is particularly well-suited for long-range scenario planning as it shows the effect of the combination of different transportation investments and land use arrangements.

Some have used total travel time to suggest that it shows urban residents are making poor home and job location decisions or are not correctly evaluating their travel options. There are several factors that should be considered when examining values of total travel time.

- Travel delay – The extra travel time due to congestion
- Type of road network – The mix of high-speed freeways and slower streets
- Development patterns – The physical arrangement of living, working, shopping, medical, school and other activities
- Home and job location – Distance from home to work is a significant portion of commuting
- Decisions and priorities – It is clear that congestion is not the only important factor in the location and travel decisions made by families

Individuals and families frequently trade one or two long daily commutes for other desirable features such as good schools, medical facilities, large homes or a myriad of other factors.

Total travel time (see Table 4) can provide additional explanatory power to a set of mobility performance measures. It provides some of the desirable aspects of accessibility measures, while at the same time being a travel time quantity that can be developed from actual travel speeds. Regions that are developed in a relatively compact urban form will also score well, which is why the measure may be particularly well-suited to public discussions about regional plans and how investments support can support the attainment of goals.

Preliminary Calculation for 2011 Report

The calculation procedures and base data used for the total travel time measure in the *2011 Urban Mobility Report* are a first attempt at combining several datasets that have not been used for these purposes. There are clearly challenges to a broader use of the data; the data will be refined in the next few years. Any measure that appears to suggest that Jackson, Mississippi has the second worst traffic conditions and Baltimore is 67th requires some clarification. The measure is in peak period minutes of road travel per auto commuter, so some of the problem may be in the estimates of commuters. Other problems may be derived from the local street travel estimates that have not been extensively used. Many of the values in Table 4 are far in excess of the average commuting times reported for the regions (for example, the time for a one-way commute multiplied by two trips per day).

More information about total travel time measure can be found at:
http://mobility.tamu.edu/resources/

Using the Best Congestion Data & Analysis Methodologies

The base data for the *2011 Urban Mobility Report* come from INRIX, the U.S. Department of Transportation and the states (*1, 2, 4*). Several analytical processes are used to develop the final measures, but the biggest improvement in the last two decades is provided by INRIX data. The speed data covering most major roads in U.S. urban regions eliminates the difficult process of estimating speeds and dramatically improves the accuracy and level of understanding about the congestion problems facing US travelers.

The methodology is described in a series of technical reports (*7, 8, 9, 10*) that are posted on the mobility report website: http://mobility.tamu.edu/ums/report/methodology/.

- The INRIX traffic speeds are collected from a variety of sources and compiled in their National Average Speed (NAS) database. Agreements with fleet operators who have location devices on their vehicles feed time and location data points to INRIX. Individuals who have downloaded the INRIX application to their smart phones also contribute time/location data. The proprietary process filters inappropriate data (e.g., pedestrians walking next to a street) and compiles a dataset of average speeds for each road segment. TTI was provided a dataset of hourly average speeds for each link of major roadway covered in the NAS database for 2007 to 2010 (approximately 1 million centerline miles in 2010).
- Hourly travel volume statistics were developed with a set of procedures developed from computer models and studies of real-world travel time and volume data. The congestion methodology uses daily traffic volume converted to average hourly volumes using a set of estimation curves developed from a national traffic count dataset (*11*).
- The hourly INRIX speeds were matched to the hourly volume data for each road section on the FHWA maps.
- An estimation procedure was also developed for the INRIX data that was not matched with an FHWA road section. The INRIX sections were ranked according to congestion level (using the Travel Time Index); those sections were matched with a similar list of most to least congested sections according to volume per lane (as developed from the FHWA data) (*2*). Delay was calculated by combining the lists of volume and speed.
- The effect of operational treatments and public transportation services were estimated using methods similar to previous Urban Mobility Reports.
- The trend in delay from years 1982 to 2007 from the previous Urban Mobility Report methodology was used to create the updated urban delay values.

Future Changes

There will be other changes in the report methodology over the next few years. There is more information available every year from freeways, streets and public transportation systems that provides more descriptive travel time and volume data. Congested corridor data and travel time reliability statistics are two examples of how the improved data and analysis procedures can be used. In addition to the travel speed information from INRIX, some advanced transit operating systems monitor passenger volume, travel time and schedule information. These data can be used to more accurately describe congestion problems on public transportation and roadway systems.

Concluding Thoughts

Congestion has gotten worse in many ways since 1982:

- Trips take longer and are less reliable.
- Congestion affects more of the day.
- Congestion affects weekend travel and rural areas.
- Congestion affects more personal trips and freight shipments.

The *2011 Urban Mobility Report* points to a $101 billion congestion cost, $23 billion of which is due to truck congestion—and that is only the value of wasted time, fuel and truck operating costs. Congestion causes the average urban resident to spend an extra 34 hours of travel time and use 14 extra gallons of fuel, which amounts to an average cost of $713 per commuter. The report includes a comprehensive picture of congestion in all 439 U.S. urban areas and provides an indication of how the problem affects travel choices, arrival times, shipment routes, manufacturing processes and location decisions.

The economic slowdown points to one of the basic rules of traffic congestion—if fewer people are traveling, there will be less congestion. Not exactly "man bites dog" type of findings. Before everyone gets too excited about the decline in congestion, consider these points:

- The decline in driving after more than a doubling in the price of fuel was the equivalent of about 1 mile per day for the person traveling the average 12,000 annual miles.
- Previous recessions in the 1980s and 1990s saw congestion declines that were reversed as soon as the economy began to grow again. And we think 2008 was the best year for mobility in the last several; congestion was worse in 2009 and 2010.

Anyone who thinks the congestion problem has gone away should check the past.

Solutions and Performance Measurement

There are solutions that work. There are significant benefits from aggressively attacking congestion problems—whether they are large or small, in big metropolitan regions or smaller urban areas and no matter the cause. Performance measures and detailed data like those used in the *2011 Urban Mobility Report* can guide those investments, identify operating changes that should be made and provide the public with the assurance that their dollars are being spent wisely. Decision-makers and project planners alike should use the comprehensive congestion data to describe the problems and solutions in ways that resonate with traveler experiences and frustrations.

All of the potential congestion-reducing strategies are needed. Getting more productivity out of the existing road and public transportation systems is vital to reducing congestion and improving travel time reliability. Businesses and employees can use a variety of strategies to modify their times and modes of travel to avoid the peak periods or to use less vehicle travel and more electronic "travel." In many corridors, however, there is a need for additional capacity to move people and freight more rapidly and reliably.

The good news from the *2011 Urban Mobility Report* is that the data can improve decisions and the methods used to communicate the effects of actions. The information can be used to study congestion problems in detail and decide how to fund and implement projects, programs and policies to attack the problems. And because the data relate to everyone's travel experiences, the measures are relatively easy to understand and use to develop solutions that satisfy the transportation needs of a range of travelers, freight shippers, manufacturers and others.

National Congestion Tables

Table 1. What Congestion Means to You, 2010

Urban Area	Yearly Delay per Auto Commuter		Travel Time Index		Excess Fuel per Auto Commuter		Congestion Cost per Auto Commuter	
	Hours	Rank	Value	Rank	Gallons	Rank	Dollars	Rank
Very Large Average (15 areas)	**52**		**1.27**		**25**		**1,083**	
Washington DC-VA-MD	74	1	1.33	2	37	1	1,495	2
Chicago IL-IN	71	2	1.24	13	36	2	1,568	1
Los Angeles-Long Beach-Santa Ana CA	64	3	1.38	1	34	3	1,334	3
Houston TX	57	4	1.27	6	28	4	1,171	4
New York-Newark NY-NJ-CT	54	5	1.28	3	22	7	1,126	5
San Francisco-Oakland CA	50	7	1.28	3	22	7	1,019	7
Boston MA-NH-RI	47	9	1.21	20	21	11	980	9
Dallas-Fort Worth-Arlington TX	45	10	1.23	16	22	7	924	11
Seattle WA	44	12	1.27	6	23	6	942	10
Atlanta GA	43	13	1.23	16	20	12	924	11
Philadelphia PA-NJ-DE-MD	42	14	1.21	20	17	18	864	14
Miami FL	38	15	1.23	16	18	16	785	19
San Diego CA	38	15	1.19	23	20	12	794	17
Phoenix AZ	35	23	1.21	20	20	12	821	16
Detroit MI	33	27	1.16	37	17	18	687	26

Very Large Urban Areas—over 3 million population.
Large Urban Areas—over 1 million and less than 3 million population.
Medium Urban Areas—over 500,000 and less than 1 million population.
Small Urban Areas—less than 500,000 population.
Yearly Delay per Auto Commuter—Extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.
Travel Time Index—The ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.
Excess Fuel Consumed—Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.
Congestion Cost—Value of travel time delay (estimated at $8 per hour of person travel and $88 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon for gasoline and diesel).
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 1. What Congestion Means to You, 2010, Continued

Urban Area	Yearly Delay per Auto Commuter		Travel Time Index		Excess Fuel per Auto Commuter		Congestion Cost per Auto Commuter	
	Hours	Rank	Value	Rank	Gallons	Rank	Dollars	Rank
Large Average (32 areas)	**31**		**1.17**		**11**		**642**	
Baltimore MD	52	6	1.19	23	22	7	1,102	6
Denver-Aurora CO	49	8	1.24	13	24	5	993	8
Minneapolis-St. Paul MN	45	10	1.23	16	20	12	916	13
Austin TX	38	15	1.28	3	10	27	743	23
Orlando FL	38	15	1.18	26	12	23	791	18
Portland OR-WA	37	19	1.25	9	10	27	744	22
San Jose CA	37	19	1.25	9	13	22	721	25
Nashville-Davidson TN	35	23	1.18	26	10	27	722	24
New Orleans LA	35	23	1.17	34	11	26	746	20
Virginia Beach VA	34	26	1.18	26	9	31	654	30
San Juan PR	33	27	1.25	9	12	23	665	29
Tampa-St. Petersburg FL	33	27	1.16	37	18	16	670	28
Pittsburgh PA	31	31	1.18	26	8	36	641	32
Riverside-San Bernardino CA	31	31	1.18	26	17	18	684	27
San Antonio TX	30	34	1.18	26	9	31	591	35
St. Louis MO-IL	30	34	1.10	56	14	21	642	31
Las Vegas NV	28	36	1.24	13	7	41	532	42
Milwaukee WI	27	38	1.18	26	7	41	541	38
Salt Lake City UT	27	38	1.11	51	7	41	512	45
Charlotte NC-SC	25	42	1.17	34	8	36	539	39
Jacksonville FL	25	42	1.09	68	7	41	496	50
Raleigh-Durham NC	25	42	1.14	43	9	31	537	40
Sacramento CA	25	42	1.19	23	8	36	507	46
Indianapolis IN	24	49	1.17	34	6	49	506	47
Kansas City MO-KS	23	52	1.11	51	7	41	464	55
Louisville KY-IN	23	52	1.10	56	6	49	477	52
Memphis TN-MS-AR	23	52	1.12	48	7	41	477	52
Cincinnati OH-KY-IN	21	60	1.13	45	6	49	427	60
Cleveland OH	20	64	1.10	56	5	58	383	65
Providence RI-MA	19	67	1.12	48	7	41	365	71
Columbus OH	18	72	1.11	51	5	58	344	79
Buffalo NY	17	77	1.10	56	5	58	358	73

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Excess Fuel Consumed—Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.
Congestion Cost—Value of travel time delay (estimated at $16 per hour of person travel and $88 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon for gasoline and diesel).
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 1. What Congestion Means to You, 2010, Continued

Urban Area	Yearly Delay per Auto Commuter		Travel Time Index		Excess Fuel per Auto Commuter		Congestion Cost per Auto Commuter	
	Hours	Rank	Value	Rank	Gallons	Rank	Dollars	Rank
Medium Average (33 areas)	**21**		**1.11**		**5**		**426**	
Baton Rouge LA	36	21	1.25	9	9	31	832	15
Bridgeport-Stamford CT-NY	36	21	1.27	6	12	23	745	21
Honolulu HI	33	27	1.18	26	6	49	620	33
Colorado Springs CO	31	31	1.13	45	9	31	602	34
New Haven CT	28	36	1.13	45	7	41	559	36
Birmingham AL	27	38	1.15	41	10	27	556	37
Hartford CT	26	41	1.15	41	6	49	501	49
Albuquerque NM	25	42	1.10	56	4	66	525	44
Charleston-North Charleston SC	25	42	1.16	37	8	36	529	43
Oklahoma City OK	24	49	1.10	56	4	66	476	54
Tucson AZ	23	52	1.11	51	5	58	506	47
Allentown-Bethlehem PA-NJ	22	57	1.07	79	4	66	432	59
El Paso TX-NM	21	60	1.16	37	4	66	427	60
Knoxville TN	21	60	1.06	85	5	58	423	62
Omaha NE-IA	21	60	1.09	68	4	66	389	64
Richmond VA	20	64	1.06	85	5	58	375	68
Wichita KS	20	64	1.07	79	4	66	379	67
Grand Rapids MI	19	67	1.05	94	4	66	372	69
Oxnard-Ventura CA	19	67	1.12	48	6	49	383	65
Springfield MA-CT	18	72	1.08	73	4	66	355	75
Tulsa OK	18	72	1.08	73	4	66	368	70
Albany-Schenectady NY	17	77	1.08	73	6	49	359	72
Lancaster-Palmdale CA	16	79	1.10	56	3	81	312	84
Sarasota-Bradenton FL	16	79	1.09	68	4	66	318	82
Akron OH	15	83	1.05	94	3	81	288	85
Dayton OH	14	87	1.06	85	3	81	277	88
Indio-Cathedral City-Palm Springs CA	14	87	1.11	51	2	89	279	87
Fresno CA	13	91	1.07	79	3	81	260	92
Rochester NY	13	91	1.05	94	2	89	241	94
Toledo OH-MI	12	93	1.05	94	3	81	237	95
Bakersfield CA	10	96	1.07	79	2	89	232	96
Poughkeepsie-Newburgh NY	10	96	1.04	99	2	89	205	97
McAllen TX	7	101	1.10	56	1	100	125	101

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Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 1. What Congestion Means to You, 2010, Continued

Urban Area	Yearly Delay per Auto Commuter		Travel Time Index		Excess Fuel per Auto Commuter		Congestion Cost per Auto Commuter	
	Hours	Rank	Value	Rank	Gallons	Rank	Dollars	Rank
Small Average (21 areas)	**18**		**1.08**		**4**		**363**	
Columbia SC	25	42	1.09	68	8	36	533	41
Little Rock AR	24	49	1.10	56	6	49	490	51
Cape Coral FL	23	52	1.10	56	4	66	464	55
Beaumont TX	22	57	1.08	73	4	66	445	58
Salem OR	22	57	1.09	68	5	58	451	57
Boise ID	19	67	1.10	56	3	81	345	78
Jackson MS	19	67	1.06	85	4	66	418	63
Pensacola FL-AL	18	72	1.08	73	3	81	350	77
Worcester MA	18	72	1.06	85	6	49	354	76
Greensboro NC	16	79	1.06	85	4	66	358	73
Spokane WA	16	79	1.10	56	4	66	329	80
Boulder CO	15	83	1.14	43	5	58	288	85
Brownsville TX	15	83	1.04	99	2	89	321	81
Winston-Salem NC	15	83	1.06	85	3	81	314	83
Anchorage AK	14	87	1.05	94	2	89	272	90
Provo UT	14	87	1.08	73	2	89	274	89
Laredo TX	12	93	1.07	79	2	89	264	91
Madison WI	12	93	1.06	85	2	89	246	93
Corpus Christi TX	10	96	1.07	79	2	89	194	98
Stockton CA	9	99	1.02	101	1	100	184	99
Eugene OR	8	100	1.06	85	2	89	171	100
101 Area Average	**40**		**1.21**		**17**		**829**	
Remaining Areas	**16**		**1.12**		**3**		**327**	
All 439 Urban Areas	**34**		**1.20**		**14**		**713**	

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Yearly Delay per Auto Commuter—Extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.

Travel Time Index—The ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.

Excess Fuel Consumed—Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.

Congestion Cost—Value of travel time delay (estimated at $16 per hour of person travel and $88 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon for gasoline and diesel).

Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.

Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 2. What Congestion Means to Your Town, 2010

Urban Area	Travel Delay		Excess Fuel Consumed		Truck Congestion Cost		Total Congestion Cost	
	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ million)	Rank	($ million)	Rank
Very Large Average (15 areas)	**187,872**		**90,718**		**895**		**3,981**	
Los Angeles-Long Beach-Santa Ana CA	521,449	1	278,318	1	2,254	2	10,999	1
New York-Newark NY-NJ-CT	465,564	2	190,452	2	2,218	3	9,794	2
Chicago IL-IN	367,122	3	183,738	3	2,317	1	8,206	3
Washington DC-VA-MD	188,650	4	95,365	4	683	5	3,849	4
Dallas-Fort Worth-Arlington TX	163,585	5	80,587	5	666	6	3,365	5
Houston TX	153,391	6	76,531	6	688	4	3,203	6
Miami FL	139,764	7	66,104	7	604	9	2,906	7
Philadelphia PA-NJ-DE-MD	134,899	8	55,500	8	659	7	2,842	8
Atlanta GA	115,958	11	53,021	10	623	8	2,489	9
San Francisco-Oakland CA	120,149	9	53,801	9	484	11	2,479	10
Boston MA-NH-RI	117,234	10	51,806	11	459	13	2,393	11
Phoenix AZ	81,829	15	47,180	12	467	12	1,913	12
Seattle WA	87,919	12	46,373	13	603	10	1,905	13
Detroit MI	87,572	13	43,941	14	382	15	1,828	15
San Diego CA	72,995	18	38,052	16	321	16	1,541	18

Very Large Urban Areas—over 3 million population.
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Travel Delay—Value of extra travel time during the year (estimated at $16 per hour of person travel).
Excess Fuel Consumed—Value of increased fuel consumption due to travel in congested conditions rather than free-flow conditions (estimated using state average cost per gallon).
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Table 2. What Congestion Means to Your Town, 2010, Continued

Urban Area	Travel Delay		Excess Fuel Consumed		Truck Congestion Cost		Total Congestion Cost	
	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ million)	Rank	($ million)	Rank
Large Average (32 areas)	**33,407**		**11,968**		**148**		**688**	
Baltimore MD	87,199	14	36,303	17	449	14	1,853	14
Denver-Aurora CO	80,837	16	40,151	15	319	17	1,659	16
Minneapolis-St. Paul MN	78,483	17	34,689	18	300	18	1,595	17
Tampa-St. Petersburg FL	53,047	19	28,488	19	210	21	1,097	19
St. Louis MO-IL	47,042	21	23,190	20	283	19	1,034	20
San Juan PR	50,229	20	17,731	22	174	25	1,012	21
Riverside-San Bernardino CA	40,875	25	22,387	21	229	20	902	22
Pittsburgh PA	41,081	24	10,951	25	200	23	850	23
Portland OR-WA	41,743	23	10,931	26	185	24	850	23
San Jose CA	42,846	22	14,664	23	133	28	842	25
Orlando FL	38,260	26	11,883	24	207	22	811	26
Virginia Beach VA	36,538	27	9,301	28	98	40	693	27
Austin TX	31,038	28	8,425	30	119	32	617	28
Sacramento CA	29,602	30	9,374	27	123	30	603	29
San Antonio TX	30,207	29	8,883	29	105	37	593	30
Nashville-Davidson TN	26,475	33	6,971	34	142	26	556	31
Milwaukee WI	26,699	32	7,086	33	127	29	549	32
Las Vegas NV	27,386	31	7,428	31	83	45	530	33
Kansas City MO-KS	24,185	34	7,147	32	119	32	501	34
Cincinnati OH-KY-IN	23,297	35	5,889	38	120	31	486	35
New Orleans LA	20,565	39	6,218	37	135	27	453	36
Indianapolis IN	20,800	38	5,253	43	119	32	443	37
Raleigh-Durham NC	19,247	40	6,586	36	75	46	418	39
Cleveland OH	21,380	36	5,530	40	115	35	417	40
Charlotte NC-SC	17,730	43	5,228	44	101	39	378	41
Jacksonville FL	18,005	42	5,461	41	84	44	371	42
Memphis TN-MS-AR	17,197	44	5,038	45	87	42	358	43
Louisville KY-IN	17,033	45	4,574	47	61	50	357	44
Salt Lake City UT	18,366	41	4,713	46	85	43	353	45
Providence RI-MA	15,539	48	5,335	42	45	59	302	49
Columbus OH	14,651	51	3,904	48	53	51	289	51
Buffalo NY	11,450	56	3,257	52	51	54	234	56

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Table 2. What Congestion Means to Your Town, 2010, Continued

Urban Area	Travel Delay		Excess Fuel Consumed		Truck Congestion Cost		Total Congestion Cost	
	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ million)	Rank	($ million)	Rank
Medium Average (33 areas)	**9,513**		**2,216**		**42**		**193**	
Bridgeport-Stamford CT-NY	21,233	37	6,857	35	102	38	441	38
Baton Rouge LA	14,577	52	3,295	51	66	49	331	46
Oklahoma City OK	16,848	46	2,847	57	110	36	329	47
Birmingham AL	15,832	47	5,639	39	71	47	326	48
Hartford CT	15,072	49	3,462	50	52	52	295	50
Honolulu HI	15,035	50	2,774	58	42	61	287	52
Tucson AZ	11,412	57	2,342	61	39	64	262	53
Richmond VA	13,800	53	3,105	53	92	41	262	53
New Haven CT	11,643	55	3,032	54	49	56	235	55
Albuquerque NM	10,477	58	1,724	69	37	66	231	57
Colorado Springs CO	11,897	54	3,552	49	69	48	228	58
El Paso TX-NM	10,452	59	1,971	64	52	52	214	59
Allentown-Bethlehem PA-NJ	9,777	60	1,777	66	43	60	197	60
Charleston-North Charleston SC	9,160	62	2,852	56	51	54	195	61
Oxnard-Ventura CA	9,009	64	2,869	55	39	64	184	62
Tulsa OK	9,086	63	1,861	65	42	61	183	63
Omaha NE-IA	9,299	61	1,737	68	23	78	173	65
Sarasota-Bradenton FL	8,015	67	2,240	62	32	69	161	66
Springfield MA-CT	8,305	66	1,975	63	27	76	161	66
Albany-Schenectady NY	7,467	71	2,384	60	32	69	156	69
Grand Rapids MI	7,861	68	1,595	72	35	67	155	70
Knoxville TN	7,518	70	1,622	70	32	69	151	71
Dayton OH	7,096	73	1,470	73	28	74	140	73
Lancaster-Palmdale CA	6,906	74	1,069	80	22	80	132	74
Wichita KS	6,858	75	1,460	74	21	81	131	75
Fresno CA	5,999	78	1,200	77	21	81	124	77
Rochester NY	6,377	76	1,229	76	29	73	123	78
Akron OH	6,198	77	1,042	81	21	81	120	79
Indio-Cathedral City-Palm Springs CA	5,633	80	983	82	28	74	116	80
Bakersfield CA	4,005	90	925	84	31	72	91	84
Poughkeepsie-Newburgh NY	4,271	85	809	88	20	85	87	87
Toledo OH-MI	4,223	86	951	83	18	88	85	88
McAllen TX	2,598	96	475	96	9	99	50	96

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Table 2. What Congestion Means to Your Town, 2010, Continued

Urban Area	Travel Delay		Excess Fuel Consumed		Truck Congestion Cost		Total Congestion Cost	
	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ million)	Rank	($ million)	Rank
Small Average (21 areas)	**4,166**		**881**		**21**		**86**	
Columbia SC	8,515	65	2,723	59	47	57	181	64
Cape Coral FL	7,600	69	1,366	75	41	63	158	68
Little Rock AR	7,345	72	1,615	71	33	68	149	72
Jackson MS	5,488	81	1,124	78	47	57	128	76
Worcester MA	5,639	79	1,777	66	19	86	111	81
Provo UT	5,056	82	695	90	18	88	97	82
Pensacola FL-AL	4,699	83	888	86	19	86	93	83
Greensboro NC	4,104	87	1,110	79	26	77	90	85
Spokane WA	4,306	84	923	85	23	78	90	85
Winston-Salem NC	4,054	89	837	87	21	81	84	89
Salem OR	3,912	91	787	89	18	88	80	90
Beaumont TX	3,814	92	615	91	17	92	77	91
Boise ID	4,063	88	578	92	10	98	75	92
Madison WI	3,375	93	533	94	18	88	70	93
Anchorage AK	3,013	94	512	95	13	96	61	94
Stockton CA	2,648	95	394	98	15	93	55	95
Brownsville TX	2,323	98	326	100	15	93	50	96
Corpus Christi TX	2,432	97	469	97	13	96	50	96
Laredo TX	2,041	99	378	99	15	93	46	99
Boulder CO	1,612	100	541	93	3	101	30	100
Eugene OR	1,456	101	315	101	7	100	30	100
101 Area Total	**4,288,547**		**1,835,371**		**19,989**		**89,881**	
101 Area Average	**42,461**		**18,172**		**198**		**890**	
Remaining Area Total	**534,712**		**107,964**		**2,846**		**11,011**	
Remaining Area Average	**1,582**		**319**		**8**		**33**	
All 439 Areas Total	**4,823,259**		**1,943,335**		**22,835**		**100,892**	
All 439 Areas Average	**10,987**		**4,427**		**52**		**230**	

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Table 3. Solutions to Congestion Problems, 2010

Urban Area	Operational Treatment Savings				Public Transportation Savings		
	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)
Very Large Average (15 areas)		**15,636**		**$330.0**	**45,381**		**$960.0**
Los Angeles-Long Beach-Santa Ana CA	r,i,s,a,h	63,652	1	1,342.6	33,606	4	708.8
New York-Newark NY-NJ-CT	r,i,s,a,h	46,192	2	971.7	377,069	1	7,932.1
Houston TX	r,i,s,a,h	15,896	3	332.0	7,082	12	147.9
Chicago IL-IN	r,i,s,a	15,821	4	353.6	91,109	2	2,036.5
Washington DC-VA-MD	r,i,s,a,h	14,922	5	304.5	35,567	3	725.7
San Francisco-Oakland CA	r,i,s,a,h	14,679	6	302.9	28,431	6	586.6
Miami FL	i,s,a,h	12,065	7	250.9	9,276	10	192.9
Dallas-Fort Worth-Arlington TX	r,i,s,a,h	10,334	8	212.6	6,137	15	126.2
Philadelphia PA-NJ-DE-MD	r,i,s,a,h	8,851	9	186.5	26,082	7	549.5
Seattle WA	r,i,s,a,h	7,411	11	161.3	14,377	8	312.8
San Diego CA	r,i,s,a	6,340	12	133.8	6,460	13	136.3
Atlanta GA	r,i,s,a,h	5,603	13	120.3	8,589	11	184.4
Boston MA-NH-RI	i,s,a	4,988	14	101.8	32,477	5	662.9
Phoenix AZ	r,i,s,a,h	4,619	17	107.5	2,519	22	58.6
Detroit MI	r,i,s,a	3,170	22	66.2	1,937	25	40.4

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Table 3. Solutions to Congestion Problems, 2010, Continued

Urban Area	Operational Treatment Savings				Public Transportation Savings			
	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)	
Large Average (32 areas)		**1,934**		**$40.0**	**2,304**		**$47.0**	
Minneapolis-St. Paul MN	r,i,s,a,h	7,593	10	154.3	5,360	18	109.0	
Denver-Aurora CO	r,i,s,a,h	4,720	15	96.8	6,376	14	130.8	
Baltimore MD	i,s,a	4,644	16	98.7	13,924	9	295.8	
Tampa-St. Petersburg FL	i,s,a	3,873	18	80.1	1,021	36	21.1	
Portland OR-WA	r,i,s,a,h	3,701	19	75.4	5,581	17	113.7	
Riverside-San Bernardino CA	r,i,s,a,h	3,636	20	80.2	1,140	35	25.2	
San Jose CA	r,i,s,a	3,501	21	68.8	1,896	26	37.2	
Virginia Beach VA	i,s,a,h	2,936	23	55.7	1,300	33	24.7	
Sacramento CA	r,i,s,a,h	2,750	24	56.0	1,367	30	27.8	
Orlando FL	i,s,a	2,254	25	47.8	1,399	29	29.7	
Milwaukee WI	r,i,s,a	2,033	26	41.8	1,849	28	38.0	
St. Louis MO-IL	i,s,a	1,975	27	43.4	2,805	21	61.7	
Austin TX	i,s,a	1,541	28	30.6	1,941	24	38.5	
Las Vegas NV	i,s,a	1,526	29	29.5	1,317	32	25.5	
Pittsburgh PA	i,s,a	1,482	30	30.7	5,058	19	104.7	
New Orleans LA	i,s,a	1,280	31	28.2	1,879	27	41.4	
San Juan PR	s,a	1,217	32	24.5	5,798	16	116.8	
Kansas City MO-KS	i,s,a	1,145	33	23.7	442	47	9.2	
San Antonio TX	i,s,a	1,095	34	21.5	1,366	31	26.8	
Jacksonville FL	i,s,a	1,055	35	21.8	398	51	8.2	
Nashville-Davidson TN	i,s,a	1,040	36	21.9	509	45	10.7	
Charlotte NC-SC	i,s,a	803	39	17.1	665	42	14.2	
Raleigh-Durham NC	i,s,a	796	40	17.3	685	41	14.8	
Salt Lake City UT	r,i,s,a	759	42	14.8	3,251	20	63.3	
Cleveland OH	i,s,a	729	44	14.3	2,098	23	41.1	
Cincinnati OH-KY-IN	r,i,s,a	715	45	14.9	1,255	34	26.2	
Memphis TN-MS-AR	i,s,a	662	49	13.8	414	49	8.6	
Columbus OH	r,i,s,a	472	54	9.3	310	56	6.1	
Louisville KY-IN	i,s,a	449	55	9.3	426	48	8.8	
Indianapolis IN	i,s,a	447	56	9.5	360	54	7.7	
Providence RI-MA	i,s,a	324	62	6.3	747	40	14.5	
Buffalo NY	i,s,a	287	65	5.9	804	38	16.4	

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Table 3. Solutions to Congestion Problems, 2010, Continued

Urban Area	Operational Treatment Savings				Public Transportation Savings			
	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)	
Medium Average (33 areas)		**363**		**$7.0**	**263**		**$5.0**	
Bridgeport-Stamford CT-NY	i,s,a	887	37	18.4	306	57	6.4	
Baton Rouge LA	i,s,a	872	38	19.7	140	82	3.2	
Honolulu HI	i,s,a	767	41	14.6	463	46	8.8	
Birmingham AL	i,s,a	745	43	15.3	198	72	4.1	
Albuquerque NM	i,s,a	705	46	15.3	212	67	4.6	
Omaha NE-IA	i,s,a	687	47	12.8	152	79	2.8	
Tucson AZ	i,s,a	673	48	15.5	362	53	8.3	
El Paso TX-NM	i,s,a	659	50	13.5	764	39	15.7	
Hartford CT	i,s,a	625	51	12.2	957	37	18.7	
Richmond VA	i,s,a	544	52	10.3	571	43	10.8	
Sarasota-Bradenton FL	i,s,a	509	53	10.2	116	85	2.3	
Fresno CA	r,i,s,a	429	57	8.8	185	74	3.8	
Colorado Springs CO	i,s,a	411	59	8.0	389	52	7.6	
New Haven CT	i,s,a	384	60	7.8	269	58	5.4	
Knoxville TN	i,s,a	318	63	6.4	51	93	1.0	
Charleston-North Charleston SC	i,s,a	298	64	6.3	106	87	2.2	
Oxnard-Ventura CA	i,s,a	239	66	4.9	156	78	3.2	
Allentown-Bethlehem PA-NJ	r,i,s,a	235	67	4.7	254	59	5.1	
Wichita KS	i,s,a	231	68	4.4	211	68	4.0	
Albany-Schenectady NY	i,s,a	211	70	4.4	323	55	6.7	
Indio-Cathedral City-Palm Springs CA	i,s,a	193	73	4.0	157	77	3.2	
Oklahoma City OK	i,s,a	184	76	3.6	113	86	2.2	
Rochester NY	i,s,a	167	78	3.2	221	64	4.3	
Grand Rapids MI	s,a	163	79	3.2	250	61	5.0	
Bakersfield CA	i,s,a	157	80	3.6	200	70	4.6	
Dayton OH	s,a	157	80	3.1	198	72	3.9	
Springfield MA-CT	i,s,a	154	83	3.0	240	62	4.7	
Lancaster-Palmdale CA	s,a	147	84	2.8	571	43	10.9	
Tulsa OK	i,s,a	58	93	1.2	44	96	0.9	
Poughkeepsie-Newburgh NY	s,a	54	94	1.1	173	76	3.5	
Toledo OH-MI	i,s,a	48	95	1.0	146	80	2.9	
Akron OH	i,s,a	43	96	0.8	143	81	2.8	
McAllen TX	s,a	16	101	0.3	25	100	0.5	

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Urban Area	Operational Treatment Savings				Public Transportation Savings		
	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)
Small Average (21 areas)		**142**		**$3.0**	**132**		**$3.0**
Little Rock AR	i,s,a	428	58	8.7	21	101	0.4
Cape Coral FL	i,s,a	382	61	8.0	132	83	2.7
Provo UT	i,s,a	225	69	4.3	49	94	0.9
Greensboro NC	i,s,a	205	71	4.5	118	84	2.6
Winston-Salem NC	i,s,a	203	72	4.2	39	97	0.8
Spokane WA	i,s,a	193	73	4.1	406	50	8.5
Jackson MS	s,a	189	75	4.4	53	92	1.2
Worcester MA	s,a	179	77	3.5	54	91	1.1
Columbia SC	i,s,a	155	82	3.3	254	59	5.4
Stockton CA	i,s,a	120	85	2.5	178	75	3.7
Salem OR	s,a	91	86	1.8	203	69	4.2
Beaumont TX	s,a	89	87	1.8	37	99	0.7
Anchorage AK	s,a	84	88	1.7	214	66	4.3
Eugene OR	i,s,a	78	89	1.6	217	65	4.5
Pensacola FL-AL	s,a	74	90	1.5	45	95	0.9
Boise ID	i,s,a	72	91	1.3	39	97	0.7
Madison WI	s,a	71	92	1.5	227	63	4.7
Brownsville TX	s,a	43	96	0.9	199	71	4.3
Laredo TX	i,s,a	40	98	0.9	102	88	2.3
Boulder CO	s,a	36	99	0.7	84	90	1.6
Corpus Christi TX	s,a	23	100	0.5	94	89	1.9
101 Area Total		**309,455**		**6,518.0**	**765,886**		**16,151.0**
101 Area Average		**3,095**		**65.0**	**7,583**		**160.0**
All Urban Areas Total		**327,157**		**6,875.0**	**795,668**		**16,811.0**
All Urban Areas Average		**745**		**15.0**	**1,812**		**39.0**

Very Large Urban Areas—over 3 million population.
Large Urban Areas—over 1 million and less than 3 million population.
Medium Urban Areas—over 500,000 and less than 1 million population.
Small Urban Areas—less than 500,000 population.
Operational Treatments—Freeway incident management (i), freeway ramp metering (r), arterial street signal coordination (s), arterial street access management (a) and high-occupancy vehicle lanes (h).
Public Transportation—Regular route service from all public transportation providers in an urban area.
Delay savings are affected by the amount of treatment or service in each area, as well as the amount of congestion and the urban area population.
Congestion Cost Savings—Value of delay, fuel and truck congestion cost.
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 4. Other Congestion Measures, 2010

Urban Area	Total Peak Period Travel Time		Delay per Non-Peak Traveler		Commuter Stress Index	
	Minutes	Rank	Hours	Rank	Value	Rank
Very Large Area (15 areas)	**107**		**13**		**1.38**	
Washington DC-VA-MD	120	4	17	2	1.48	2
Chicago IL-IN	102	26	19	1	1.34	11
Los Angeles-Long Beach-Santa Ana CA	107	18	16	3	1.57	1
Houston TX	106	20	14	6	1.40	4
New York-Newark NY-NJ-CT	116	6	11	13	1.39	5
San Francisco-Oakland CA	105	21	12	9	1.42	3
Boston MA-NH-RI	109	15	11	13	1.31	19
Dallas-Fort Worth-Arlington TX	96	37	14	6	1.34	11
Seattle WA	101	28	10	22	1.39	5
Atlanta GA	127	1	11	13	1.34	11
Philadelphia PA-NJ-DE-MD	105	22	12	9	1.29	22
Miami FL	106	19	12	9	1.32	18
San Diego CA	94	42	10	22	1.29	22
Phoenix AZ	99	32	10	22	1.30	21
Detroit MI	109	16	11	13	1.20	44

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Yearly Delay per Non-Peak Traveler—Extra travel time during midday, evening and weekends divided by the number of private vehicle travelers who do not typically travel in the peak periods.

Commuter Stress Index—The ratio of travel time in the peak period to the travel time at free-flow conditions for the peak directions of travel in both peak periods. A value of 1.40 indicates a 20-minute free-flow trip takes 28 minutes in the most congested directions of the peak periods.

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Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 4. Other Congestion Measures, 2010, Continued

Urban Area	Total Peak Period Travel Time		Delay per Non-Peak Traveler		Commuter Stress Index	
	Minutes	Rank	Hours	Rank	Value	Rank
Large Area Average (32 areas)	**93**		**9**		**1.25**	
Baltimore MD	83	67	16	3	1.28	26
Denver-Aurora CO	90	52	15	5	1.34	11
Minneapolis-St. Paul MN	100	30	10	22	1.33	17
Austin TX	82	69	8	45	1.38	8
Orlando FL	120	3	13	8	1.23	35
Portland OR-WA	85	62	8	45	1.38	8
San Jose CA	82	70	9	29	1.39	5
Nashville-Davidson TN	114	8	11	13	1.25	31
New Orleans LA	84	65	10	22	1.20	44
Virginia Beach VA	96	38	12	9	1.29	22
San Juan PR	61	91	9	29	1.34	11
Tampa-St. Petersburg FL	104	24	11	13	1.22	36
Pittsburgh PA	80	74	11	13	1.21	40
Riverside-San Bernardino CA	88	58	9	29	1.29	22
San Antonio TX	95	40	8	45	1.27	28
St. Louis MO-IL	109	13	9	29	1.15	62
Las Vegas NV	92	48	10	22	1.34	11
Milwaukee WI	88	59	8	45	1.27	28
Salt Lake City UT	76	79	9	29	1.20	44
Charlotte NC-SC	110	12	7	60	1.26	30
Jacksonville FL	108	17	8	45	1.14	63
Raleigh-Durham NC	115	7	8	45	1.20	44
Sacramento CA	82	68	7	60	1.28	26
Indianapolis IN	112	10	9	29	1.22	36
Kansas City MO-KS	101	29	7	60	1.17	53
Louisville KY-IN	88	56	8	45	1.17	53
Memphis TN-MS-AR	95	39	9	29	1.17	53
Cincinnati OH-KY-IN	93	45	6	74	1.20	44
Cleveland OH	91	49	5	85	1.16	58
Providence RI-MA	85	63	6	74	1.18	49
Columbus OH	86	61	5	85	1.18	49
Buffalo NY	92	46	6	74	1.14	63

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Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 4. Other Congestion Measures, 2010, Continued

Urban Area	Total Peak Period Travel Time		Delay per Non-Peak Traveler		Commuter Stress Index	
	Minutes	Rank	Hours	Rank	Value	Rank
Medium Area Average (33 areas)	**83**		**7**		**1.16**	
Baton Rouge LA	91	51	11	13	1.31	19
Bridgeport-Stamford CT-NY	92	47	8	45	1.35	10
Honolulu HI	73	83	9	29	1.24	32
Colorado Springs CO	81	73	11	13	1.17	53
New Haven CT	79	75	9	29	1.21	40
Birmingham AL	102	25	9	29	1.22	36
Hartford CT	94	41	7	60	1.21	40
Albuquerque NM	82	72	8	45	1.21	40
Charleston-North Charleston SC	88	57	9	29	1.24	32
Oklahoma City OK	117	5	10	22	1.16	58
Tucson AZ	113	9	9	29	1.18	49
Allentown-Bethlehem PA-NJ	79	76	9	29	1.09	83
El Paso TX-NM	69	88	7	60	1.24	32
Knoxville TN	112	11	8	45	1.09	83
Omaha NE-IA	94	43	8	45	1.13	67
Richmond VA	102	27	8	45	1.08	92
Wichita KS	84	64	6	74	1.12	71
Grand Rapids MI	94	44	6	74	1.10	79
Oxnard-Ventura CA	73	82	6	74	1.18	49
Springfield MA-CT	89	53	8	45	1.12	71
Tulsa OK	97	35	7	60	1.11	75
Albany-Schenectady NY	75	80	7	60	1.11	75
Lancaster-Palmdale CA	37	101	6	74	1.14	63
Sarasota-Bradenton FL	73	84	7	60	1.12	71
Akron OH	67	89	5	85	1.07	97
Dayton OH	89	55	5	85	1.09	83
Indio-Cathedral City-Palm Springs CA	54	97	5	85	1.22	36
Fresno CA	77	78	4	95	1.11	75
Rochester NY	82	71	4	95	1.08	92
Toledo OH-MI	87	60	4	95	1.08	92
Bakersfield CA	57	94	4	95	1.09	83
Poughkeepsie-Newburgh NY	72	86	5	85	1.05	100
McAllen TX	60	92	3	100	1.13	67

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Yearly Delay per Non-Peak Traveler—Extra travel time during midday, evening and weekends divided by the number of private vehicle travelers who do not typically travel in the peak periods.

Commuter Stress Index—The ratio of travel time in the peak period to the travel time at free-flow conditions for the peak directions of travel in both peak periods. A value of 1.40 indicates a 20-minute free-flow trip takes 28 minutes in the most congested directions of the peak periods.

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Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 4. Other Congestion Measures, 2010, Continued

Urban Area	Total Peak Period Travel Time		Delay per Non-Peak Traveler		Commuter Stress Index	
	Minutes	Rank	Hours	Rank	Value	Rank
Small Area Average (21 areas)	**80**		**7**		**1.11**	
Columbia SC	104	23	9	29	1.12	71
Little Rock AR	109	14	7	60	1.16	58
Cape Coral FL	89	54	9	29	1.13	67
Beaumont TX	96	36	8	45	1.13	67
Salem OR	66	90	9	29	1.11	75
Boise ID	71	87	7	60	1.17	53
Jackson MS	126	2	7	60	1.09	83
Pensacola FL-AL	98	33	8	45	1.10	79
Worcester MA	100	31	7	60	1.10	79
Greensboro NC	98	34	7	60	1.09	83
Spokane WA	91	50	6	74	1.14	63
Boulder CO	52	98	6	74	1.16	58
Brownsville TX	56	96	6	74	1.08	92
Winston-Salem NC	83	66	5	85	1.07	97
Anchorage AK	50	100	6	74	1.07	97
Provo UT	73	81	7	60	1.09	83
Laredo TX	56	95	5	85	1.08	92
Madison WI	73	85	5	85	1.09	83
Corpus Christi TX	78	77	5	85	1.10	79
Stockton CA	52	99	4	95	1.03	101
Eugene OR	59	93	3	100	1.09	83
101 Area Average	**90**		**11**		**1.30**	
Remaining Area Average			**7**		**1.12**	
All 439 Area Average			**10**		**1.30**	

Very Large Urban Areas—over 3 million population.
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Total Travel Time—Travel time during the typical weekday peak period for people who commute in private vehicles in the urban area.

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Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 5. Truck Commodity Value and Truck Delay, 2010

Urban Area	Total Delay		Truck Delay			Truck Commodity Value	
	(1000 Hours)	Rank	(1000 Hours)	Rank	Congestion Cost ($ million)	($ million)	Rank
Very Large Average (15 areas)	**187,872**		**12,120**		**895**	**206,375**	
Chicago IL-IN	367,122	3	31,378	1	2,317	357,816	3
Los Angeles-Long Beach-Santa Ana CA	521,449	1	30,347	2	2,254	406,939	2
New York-Newark NY-NJ-CT	465,564	2	30,185	3	2,218	475,730	1
Houston TX	153,391	6	9,299	4	688	230,769	4
Washington DC-VA-MD	188,650	4	9,204	5	683	95,965	17
Dallas-Fort Worth-Arlington TX	163,585	5	9,037	6	666	227,514	5
Philadelphia PA-NJ-DE-MD	134,899	8	8,970	7	659	172,905	7
Atlanta GA	115,958	11	8,459	8	623	189,488	6
Miami FL	139,764	7	8,207	9	604	153,596	9
Phoenix AZ	81,829	15	8,139	10	603	129,894	12
San Francisco-Oakland CA	120,149	9	6,558	11	484	130,852	11
Seattle WA	87,919	12	6,296	12	467	150,998	10
Boston MA-NH-RI	117,234	10	6,227	13	459	128,143	13
Detroit MI	87,572	13	5,186	15	382	159,328	8
San Diego CA	72,995	18	4,316	17	321	85,686	20

Very Large Urban Areas—over 3 million population.
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Travel Delay—Travel time above that needed to complete a trip at free-flow speeds for all vehicles.
Truck Delay—Travel time above that needed to complete a trip at free-flow speeds for large trucks.
Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the urban area.
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas

Table 5. Truck Commodity Value and Truck Delay, 2010, Continued

Urban Area	Total Delay		Truck Delay			Truck Commodity Value	
	(1000 Hours)	Rank	(1000 Hours)	Rank	Congestion Cost ($million)	($ million)	Rank
Large Average (32 areas)	**33,407**		**2,024**		**148**	**62,310**	
Baltimore MD	87,199	14	6,103	14	449	94,943	19
Denver-Aurora CO	80,837	16	4,324	16	319	76,023	22
Minneapolis-St. Paul MN	78,483	17	4,073	18	300	95,819	18
St. Louis MO-IL	47,042	21	3,841	19	283	107,010	15
Riverside-San Bernardino CA	40,875	25	3,080	20	229	108,218	14
Orlando FL	38,260	26	2,856	21	207	63,106	32
Tampa-St. Petersburg FL	53,047	19	2,842	22	210	61,906	33
Pittsburgh PA	41,081	24	2,755	23	200	69,290	25
Portland OR-WA	41,743	23	2,546	24	185	64,964	30
San Juan PR	50,229	20	2,417	25	174	23,130	60
Nashville-Davidson TN	26,475	33	1,961	26	142	65,449	29
New Orleans LA	20,565	39	1,859	27	135	34,270	50
San Jose CA	42,846	22	1,815	28	133	52,079	36
Milwaukee WI	26,699	32	1,746	29	127	66,629	28
Sacramento CA	29,602	30	1,688	30	123	51,883	37
Cincinnati OH-KY-IN	23,297	35	1,660	31	120	64,323	31
Indianapolis IN	20,800	38	1,657	32	119	83,984	21
Kansas City MO-KS	24,185	34	1,641	33	119	72,545	23
Austin TX	31,038	28	1,636	34	119	32,824	52
Raleigh-Durham NC	19,247	40	1,569	35	115	49,468	40
San Antonio TX	30,207	29	1,428	37	105	50,600	39
Charlotte NC-SC	17,730	43	1,383	38	101	68,196	26
Virginia Beach VA	36,538	27	1,344	40	98	43,056	42
Memphis TN-MS-AR	17,197	44	1,195	42	87	98,356	16
Louisville KY-IN	17,033	45	1,170	43	85	55,226	35
Jacksonville FL	18,005	42	1,158	44	84	41,508	44
Las Vegas NV	27,386	31	1,141	45	83	35,458	49
Cleveland OH	21,380	36	1,016	46	75	67,808	27
Salt Lake City UT	18,366	41	823	50	61	56,160	34
Columbus OH	14,651	51	727	51	53	69,664	24
Buffalo NY	11,450	56	698	55	51	48,387	41
Providence RI-MA	15,539	48	610	59	45	21,633	61

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Table 5. Truck Commodity Value and Truck Delay, 2010, Continued

Urban Area	Total Delay		Truck Delay			Truck Commodity Value	
	(1000 Hours)	Rank	(1000 Hours)	Rank	Congestion Cost ($ million)	($ million)	Rank
Medium Average (33 areas)	**9,513**		**578**		**42**	**18,478**	
Baton Rouge LA	14,577	52	1,519	36	110	32,636	54
Bridgeport-Stamford CT-NY	21,233	37	1,380	39	102	11,205	73
Tucson AZ	11,412	57	1,287	41	92	28,654	58
Birmingham AL	15,832	47	971	47	71	38,401	45
Albuquerque NM	10,477	58	963	48	69	14,035	67
Oklahoma City OK	16,848	46	912	49	66	37,779	46
Hartford CT	15,072	49	716	52	52	42,403	43
El Paso TX-NM	10,452	59	714	53	52	31,703	55
Charleston-North Charleston SC	9,160	62	701	54	51	10,552	76
New Haven CT	11,643	55	676	56	49	8,276	86
Allentown-Bethlehem PA-NJ	9,777	60	597	60	43	15,827	65
Honolulu HI	15,035	50	595	61	42	10,125	78
Tulsa OK	9,086	63	562	63	42	28,827	57
Richmond VA	13,800	53	530	64	39	37,643	47
Oxnard-Ventura CA	9,009	64	529	65	39	9,187	83
Colorado Springs CO	11,897	54	509	66	37	6,546	91
Albany-Schenectady NY	7,467	71	484	67	35	32,655	53
Grand Rapids MI	7,861	68	446	69	32	37,551	48
Sarasota-Bradenton FL	8,015	67	446	69	32	7,591	89
Knoxville TN	7,518	70	439	71	32	11,989	72
Bakersfield CA	4,005	90	425	72	31	10,838	75
Fresno CA	5,999	78	396	73	29	9,474	81
Indio-Cathedral City-Palm Springs CA	5,633	80	389	74	28	5,455	94
Dayton OH	7,096	73	382	75	28	33,645	51
Springfield MA-CT	8,305	66	378	76	27	9,238	82
Omaha NE-IA	9,299	61	314	79	23	8,668	85
Lancaster-Palmdale CA	6,906	74	303	80	22	2,728	99
Rochester NY	6,377	76	295	81	21	26,077	59
Akron OH	6,198	77	290	82	21	9,828	80
Wichita KS	6,858	75	280	84	21	7,901	87
Poughkeepsie-Newburgh NY	4,271	85	272	85	20	13,714	68
Toledo OH-MI	4,223	86	247	90	18	10,950	74
McAllen TX	2,598	96	125	99	9	7,678	88

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Table 5. Truck Commodity Value and Truck Delay, 2010, Continued

Urban Area	Total Delay		Truck Delay			Truck Commodity Value	
	(1000 Hours)	Rank	(1000 Hours)	Rank	Congestion Cost ($ million)	($ million)	Rank
Small Average (21 areas)	**4,166**		**288**		**21**	**12,275**	
Columbia SC	8,515	65	651	57	47	12,404	70
Jackson MS	5,488	81	648	58	47	16,984	64
Cape Coral FL	7,600	69	567	62	41	5,962	93
Little Rock AR	7,345	72	457	68	33	15,221	66
Greensboro NC	4,104	87	362	77	26	50,964	38
Spokane WA	4,306	84	323	78	23	7,230	90
Winston-Salem NC	4,054	89	287	83	21	8,679	84
Pensacola FL-AL	4,699	83	261	86	19	6,339	92
Worcester MA	5,639	79	259	87	19	10,115	79
Salem OR	3,912	91	256	88	18	3,864	97
Madison WI	3,375	93	252	89	18	17,361	63
Provo UT	5,056	82	240	91	18	12,681	69
Beaumont TX	3,814	92	236	92	17	20,504	62
Laredo TX	2,041	99	212	93	15	30,799	56
Brownsville TX	2,323	98	206	94	15	2,380	100
Stockton CA	2,648	95	203	95	15	10,264	77
Anchorage AK	3,013	94	183	96	13	4,454	96
Corpus Christi TX	2,432	97	172	97	13	12,327	71
Boise ID	4,063	88	137	98	10	4,772	95
Eugene OR	1,456	101	98	100	7	3,658	98
Boulder CO	1,612	100	47	101	3	820	101
101 Area Average	**42,461**		**2,690**		**198**	**58,981**	
Remaining Area Average	**1,582**		**119**		**9**	**3,183**	
All 439 Area Average	**10,987**		**710**		**52**	**16,021**	

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Table 6. State Truck Commodity Value, 2010

State	Total Truck Commodity Value ($ million)	Rural Truck Commodity Value ($ million)	Urban Truck Commodity Value ($ million)
Alabama	225,316	140,281	85,035
Alaska	17,161	12,082	5,079
Arizona	266,930	102,058	164,872
Arkansas	160,049	130,440	29,609
California	1,235,308	295,145	940,164
Colorado	153,998	62,081	91,917
Connecticut	110,515	7,578	102,937
Delaware	35,030	12,397	22,633
Florida	552,621	138,470	414,151
Georgia	417,906	182,728	235,178
Hawaii	16,307	5,592	10,715
Idaho	57,974	47,004	10,970
Illinois	548,431	174,621	373,810
Indiana	368,446	199,151	169,296
Iowa	157,013	130,758	26,255
Kansas	142,534	100,076	42,458
Kentucky	222,880	146,951	75,929
Louisiana	217,425	101,396	116,029
Maine	44,693	36,143	8,550
Maryland	205,976	51,098	154,878
Massachusetts	164,871	10,433	154,438
Michigan	348,470	101,493	246,977
Minnesota	189,643	86,720	102,923
Mississippi	155,821	121,572	34,249
Missouri	297,147	150,722	146,425
Montana	41,673	39,489	2,184
Nebraska	96,020	84,448	11,572
Nevada	78,514	37,075	41,440
New Hampshire	38,649	23,312	15,338
New Jersey	295,927	12,901	283,026
New Mexico	111,128	91,403	19,725
New York	482,018	111,566	370,451
North Carolina	373,822	146,171	227,652
North Dakota	47,109	42,718	4,391

Total Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the state.
Rural Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the rural areas of the state.
Urban Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the urban areas of the state.

Table 6. State Truck Commodity Value, 2010, Continued

State	Total Truck Commodity Value ($ million)	Rural Truck Commodity Value ($ million)	Urban Truck Commodity Value ($ million)
Ohio	447,564	177,760	269,805
Oklahoma	205,346	137,892	67,453
Oregon	153,382	82,144	71,239
Pennsylvania	443,946	195,660	248,286
Rhode Island	21,139	3,786	17,353
South Carolina	192,648	97,765	94,883
South Dakota	44,693	39,879	4,813
Tennessee	349,114	156,776	192,337
Texas	1,150,012	441,184	708,828
Utah	143,138	60,146	82,992
Vermont	24,158	21,648	2,510
Virginia	253,058	110,587	142,471
Washington	273,611	91,855	181,756
West Virginia	85,762	62,040	23,722
Wisconsin	326,741	190,205	136,536
Wyoming	48,921	46,372	2,549
District of Columbia	9,059	-	9,059
Puerto Rico	38,653	3,494	35,159

Total Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the state.
Rural Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the rural areas of the state.
Urban Truck Commodity Value—Value of all commodities moved by truck estimated to be traveling in the urban areas of the state.

Table 7. Congestion Trends – Wasted Hours (Yearly Delay per Auto Commuter, 1982 to 2010)

Urban Area	Yearly Hours of Delay per Auto Commuter					Long-Term Change 1982 to 2010	
	2010	2009	2005	2000	1982	Hours	Rank
Very Large Average (15 areas)	**52**	**52**	**60**	**50**	**19**	**33**	
Washington DC-VA-MD	74	70	83	73	20	54	1
Chicago IL-IN	71	70	77	55	18	53	2
New York-Newark NY-NJ-CT	54	42	51	35	10	44	3
Dallas-Fort Worth-Arlington TX	45	48	51	40	7	38	6
Boston MA-NH-RI	47	48	57	44	13	34	8
Seattle WA	44	44	51	49	10	34	8
Houston TX	57	58	55	45	24	33	10
Atlanta GA	43	44	58	52	13	30	11
Philadelphia PA-NJ-DE-MD	42	39	42	32	12	30	11
San Diego CA	38	37	46	35	8	30	11
San Francisco-Oakland CA	50	49	74	60	20	30	11
Miami FL	38	39	45	38	10	28	16
Los Angeles-Long Beach-Santa Ana CA	64	63	82	76	39	25	23
Detroit MI	33	33	41	36	14	19	36
Phoenix AZ	35	36	44	34	24	11	79

Very Large Urban Areas—over 3 million population.
Large Urban Areas—over 1 million and less than 3 million population.
Medium Urban Areas—over 500,000 and less than 1 million population.
Small Urban Areas—less than 500,000 population.
Yearly Delay per Auto Commuter—Extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 7. Congestion Trends – Wasted Hours (Yearly Delay per Auto Commuter, 1982 to 2010), Continued

Urban Area	Yearly Hours of Delay per Auto Commuter					Long-Term Change 1982 to 2010	
	2010	2009	2005	2000	1982	Hours	Rank
Large Average (32 areas)	**31**	**31**	**37**	**33**	**9**	**22**	
Baltimore MD	52	50	57	41	11	41	4
Minneapolis-St. Paul MN	45	43	54	48	6	39	5
Denver-Aurora CO	49	47	53	47	12	37	7
Austin TX	38	39	52	36	9	29	15
Riverside-San Bernardino CA	31	30	37	24	3	28	16
San Juan PR	33	33	34	26	5	28	16
Orlando FL	38	41	44	47	11	27	19
Portland OR-WA	37	36	42	38	11	26	21
San Antonio TX	30	30	33	30	4	26	21
Las Vegas NV	28	32	32	24	5	23	26
Salt Lake City UT	27	28	25	27	6	21	27
Charlotte NC-SC	25	26	25	19	5	20	31
Raleigh-Durham NC	25	25	31	26	5	20	31
San Jose CA	37	35	54	53	17	20	31
Virginia Beach VA	34	32	41	37	14	20	31
Kansas City MO-KS	23	21	30	33	4	19	36
St. Louis MO-IL	30	31	38	44	11	19	36
Tampa-St. Petersburg FL	33	34	34	27	14	19	36
Memphis TN-MS-AR	23	24	28	24	5	18	43
Milwaukee WI	27	25	31	32	9	18	43
Nashville-Davidson TN	35	35	43	36	17	18	43
New Orleans LA	35	31	26	25	17	18	43
Cincinnati OH-KY-IN	21	19	28	29	4	17	50
Cleveland OH	20	19	17	20	3	17	50
Providence RI-MA	19	19	26	19	2	17	50
Columbus OH	18	17	19	15	2	16	56
Sacramento CA	25	24	35	27	9	16	56
Jacksonville FL	25	26	31	26	10	15	61
Indianapolis IN	24	25	30	31	10	14	68
Louisville KY-IN	23	22	25	25	9	14	68
Buffalo NY	17	17	21	16	4	13	74
Pittsburgh PA	31	33	37	35	18	13	74

Very Large Urban Areas—over 3 million population.
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Small Urban Areas—less than 500,000 population.
Yearly Delay per Auto Commuter—Extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 7. Congestion Trends – Wasted Hours (Yearly Delay per Auto Commuter, 1982 to 2010), Continued

Urban Area	Yearly Hours of Delay per Auto Commuter					Long-Term Change 1982 to 2010	
	2010	2009	2005	2000	1982	Hours	Rank
Medium Average (33 areas)	**21**	**21**	**24**	**22**	**7**	**14**	
Baton Rouge LA	36	37	37	31	9	27	19
Bridgeport-Stamford CT-NY	36	35	47	44	11	25	23
Colorado Springs CO	31	31	53	45	6	25	23
Hartford CT	26	24	27	26	5	21	27
New Haven CT	28	29	34	34	7	21	27
Birmingham AL	27	28	31	30	7	20	31
Honolulu HI	33	31	32	25	14	19	36
Oklahoma City OK	24	25	23	23	5	19	36
El Paso TX-NM	21	21	28	20	3	18	43
Omaha NE-IA	21	20	18	16	3	18	43
Oxnard-Ventura CA	19	19	23	16	2	17	50
Albuquerque NM	25	26	33	30	9	16	56
Richmond VA	20	19	17	13	4	16	56
Allentown-Bethlehem PA-NJ	22	22	24	24	7	15	61
Charleston-North Charleston SC	25	27	28	25	10	15	61
Grand Rapids MI	19	19	19	18	4	15	61
Knoxville TN	21	21	23	26	6	15	61
Albany-Schenectady NY	17	18	19	14	3	14	68
Tulsa OK	18	18	16	15	4	14	68
Wichita KS	20	20	19	19	6	14	68
Akron OH	15	16	19	22	3	12	77
Tucson AZ	23	23	28	19	11	12	77
Rochester NY	13	12	13	12	3	10	83
Toledo OH-MI	12	12	17	19	2	10	83
Bakersfield CA	10	11	7	4	1	9	86
Springfield MA-CT	18	19	19	18	9	9	86
Dayton OH	14	15	15	19	7	7	89
Sarasota-Bradenton FL	16	17	20	19	9	7	89
Fresno CA	13	14	16	18	7	6	93
McAllen TX	7	7	7	6	1	6	93
Poughkeepsie-Newburgh NY	10	11	10	8	5	5	96
Lancaster-Palmdale CA	16	18	17	12	19	-3	100
Indio-Cathedral City-Palm Springs CA	14	14	20	15	22	-8	101

Very Large Urban Areas—over 3 million population. Medium Urban Areas—over 500,000 and less than 1 million population.
Large Urban Areas—over 1 million and less than 3 million population. Small Urban Areas—less than 500,000 population.
Yearly Delay per Auto Commuter—Extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.
Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.
Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 7. Congestion Trends – Wasted Hours (Yearly Delay per Auto Commuter, 1982 to 2010), Continued

Urban Area	Yearly Hours of Delay per Auto Commuter					Long-Term Change 1982 to 2010	
	2010	2009	2005	2000	1982	Hours	Rank
Small Average (21 areas)	**18**	**18**	**20**	**17**	**5**	**13**	
Columbia SC	25	25	20	17	4	21	27
Little Rock AR	24	24	23	17	5	19	36
Salem OR	22	24	32	30	4	18	43
Beaumont TX	22	21	26	18	5	17	50
Boise ID	19	21	24	20	2	17	50
Jackson MS	19	19	20	12	3	16	56
Cape Coral FL	23	23	28	23	8	15	61
Pensacola FL-AL	18	19	21	16	3	15	61
Brownsville TX	15	14	10	8	1	14	68
Greensboro NC	16	15	19	24	3	13	74
Laredo TX	12	12	8	7	1	11	77
Winston-Salem NC	15	16	20	13	4	11	79
Worcester MA	18	20	22	22	7	11	79
Spokane WA	16	16	17	22	6	10	83
Provo UT	14	14	14	11	5	9	86
Madison WI	12	11	7	6	5	7	89
Stockton CA	9	9	10	7	2	7	89
Boulder CO	15	15	28	28	9	6	93
Corpus Christi TX	10	10	11	9	5	5	96
Eugene OR	8	9	14	15	5	3	98
Anchorage AK	14	14	21	20	16	-2	99
101 Area Average	**40**	**40**	**46**	**40**	**14**	**26**	
Remaining Area Average	**16**	**18**	**20**	**20**	**10**	**6**	
All 439 Area Average	**34**	**34**	**39**	**35**	**14**	**20**	

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Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 8. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2010)

Urban Area	Travel Time Index					Point Change in Peak-Period Time Penalty 1982 to 2010	
	2010	2009	2005	2000	1982	Points	Rank
Very Large Average (15 areas)	**1.27**	**1.26**	**1.32**	**1.27**	**1.12**	**15**	
Washington DC-VA-MD	1.33	1.30	1.35	1.31	1.11	22	1
Seattle WA	1.27	1.24	1.33	1.31	1.08	19	4
Dallas-Fort Worth-Arlington TX	1.23	1.22	1.27	1.20	1.05	18	6
New York-Newark NY-NJ-CT	1.28	1.27	1.37	1.28	1.10	18	6
Los Angeles-Long Beach-Santa Ana CA	1.38	1.38	1.42	1.39	1.21	17	12
Chicago IL-IN	1.24	1.25	1.29	1.21	1.08	16	15
San Francisco-Oakland CA	1.28	1.27	1.40	1.34	1.13	15	16
Atlanta GA	1.23	1.22	1.28	1.25	1.08	15	17
San Diego CA	1.19	1.18	1.25	1.20	1.04	15	17
Miami FL	1.23	1.23	1.31	1.27	1.09	14	20
Boston MA-NH-RI	1.21	1.20	1.32	1.26	1.09	12	25
Philadelphia PA-NJ-DE-MD	1.21	1.19	1.22	1.18	1.09	12	25
Phoenix AZ	1.21	1.20	1.21	1.18	1.10	11	29
Houston TX	1.27	1.25	1.33	1.26	1.18	9	38

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Small Urban Areas—less than 500,000 population.

Travel Time Index—The ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.

Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.

Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 8. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2010), Continued

Urban Area	Travel Time Index					Point Change in Peak-Period Time Penalty 1982 to 2010	
	2010	2009	2005	2000	1982	Points	Rank
Large Average (31 areas)	**1.17**	**1.17**	**1.21**	**1.19**	**1.07**	**10**	
Austin TX	1.28	1.28	1.32	1.23	1.08	20	2
Portland OR-WA	1.25	1.23	1.27	1.26	1.06	19	4
Las Vegas NV	1.24	1.26	1.29	1.25	1.06	18	6
Minneapolis-St. Paul MN	1.23	1.21	1.33	1.31	1.05	18	6
San Juan PR	1.25	1.25	1.24	1.21	1.07	18	6
Denver-Aurora CO	1.24	1.22	1.28	1.26	1.07	17	12
Riverside-San Bernardino CA	1.18	1.16	1.19	1.13	1.01	17	12
San Antonio TX	1.18	1.16	1.21	1.18	1.03	15	17
Baltimore MD	1.19	1.17	1.19	1.14	1.05	14	20
Sacramento CA	1.19	1.18	1.26	1.20	1.05	14	20
San Jose CA	1.25	1.23	1.31	1.30	1.12	13	23
Milwaukee WI	1.18	1.16	1.17	1.18	1.06	12	25
Charlotte NC-SC	1.17	1.17	1.20	1.19	1.06	11	29
Indianapolis IN	1.17	1.18	1.15	1.15	1.06	11	29
Orlando FL	1.18	1.20	1.22	1.23	1.07	11	29
Cincinnati OH-KY-IN	1.13	1.12	1.14	1.15	1.03	10	34
Raleigh-Durham NC	1.14	1.13	1.17	1.13	1.04	10	34
Columbus OH	1.11	1.11	1.11	1.09	1.02	9	38
Providence RI-MA	1.12	1.14	1.18	1.15	1.03	9	38
Virginia Beach VA	1.18	1.19	1.24	1.21	1.09	9	42
Cleveland OH	1.10	1.10	1.12	1.15	1.03	7	49
Kansas City MO-KS	1.11	1.10	1.15	1.18	1.04	7	49
Memphis TN-MS-AR	1.12	1.13	1.18	1.18	1.05	7	49
Nashville-Davidson TN	1.18	1.15	1.20	1.18	1.11	7	54
Buffalo NY	1.10	1.10	1.13	1.11	1.04	6	57
Salt Lake City UT	1.11	1.12	1.16	1.18	1.05	6	57
Louisville KY-IN	1.10	1.10	1.12	1.11	1.06	4	72
Jacksonville FL	1.09	1.12	1.17	1.13	1.06	3	79
New Orleans LA	1.17	1.15	1.19	1.19	1.14	3	79
Pittsburgh PA	1.18	1.17	1.22	1.22	1.15	3	79
Tampa-St. Petersburg FL	1.16	1.16	1.18	1.15	1.13	3	79
St. Louis MO-IL	1.10	1.12	1.17	1.21	1.08	2	93

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Table 8. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2010), Continued

Urban Area	Travel Time Index					Point Change in Peak-Period Time Penalty 1982 to 2010	
	2010	2009	2005	2000	1982	Points	Rank
Medium Average (33 areas)	**1.11**	**1.11**	**1.12**	**1.11**	**1.04**	**7**	
Bridgeport-Stamford CT-NY	1.27	1.25	1.26	1.24	1.07	20	2
Baton Rouge LA	1.25	1.24	1.21	1.19	1.07	18	6
El Paso TX-NM	1.16	1.15	1.18	1.16	1.03	13	23
Oxnard-Ventura CA	1.12	1.12	1.12	1.08	1.01	11	28
Birmingham AL	1.15	1.14	1.15	1.12	1.04	11	29
Colorado Springs CO	1.13	1.12	1.18	1.18	1.03	10	34
Hartford CT	1.15	1.13	1.17	1.18	1.05	10	34
McAllen TX	1.10	1.09	1.08	1.07	1.01	9	38
Honolulu HI	1.18	1.18	1.18	1.15	1.09	9	42
New Haven CT	1.13	1.15	1.15	1.15	1.04	9	42
Oklahoma City OK	1.10	1.09	1.07	1.07	1.02	8	46
Omaha NE-IA	1.09	1.08	1.10	1.08	1.02	7	49
Charleston-North Charleston SC	1.16	1.15	1.17	1.16	1.09	7	54
Bakersfield CA	1.07	1.08	1.08	1.05	1.01	6	57
Tulsa OK	1.08	1.07	1.05	1.06	1.02	6	57
Albany-Schenectady NY	1.08	1.10	1.10	1.07	1.03	5	65
Albuquerque NM	1.10	1.13	1.16	1.17	1.05	5	65
Indio-Cathedral City-Palm Springs CA	1.11	1.13	1.12	1.08	1.06	5	65
Fresno CA	1.07	1.07	1.08	1.10	1.03	4	72
Toledo OH-MI	1.05	1.05	1.07	1.08	1.01	4	72
Tucson AZ	1.11	1.11	1.15	1.12	1.07	4	72
Wichita KS	1.07	1.08	1.06	1.06	1.03	4	72
Akron OH	1.05	1.05	1.08	1.09	1.02	3	79
Allentown-Bethlehem PA-NJ	1.07	1.08	1.08	1.09	1.04	3	79
Grand Rapids MI	1.05	1.06	1.05	1.06	1.02	3	79
Lancaster-Palmdale CA	1.10	1.11	1.10	1.07	1.07	3	79
Richmond VA	1.06	1.06	1.07	1.06	1.03	3	79
Sarasota-Bradenton FL	1.09	1.10	1.11	1.11	1.06	3	79
Springfield MA-CT	1.08	1.09	1.09	1.09	1.05	3	79
Knoxville TN	1.06	1.06	1.09	1.10	1.04	2	93
Rochester NY	1.05	1.07	1.07	1.06	1.03	2	93
Dayton OH	1.06	1.06	1.07	1.08	1.05	1	97
Poughkeepsie-Newburgh NY	1.04	1.04	1.05	1.04	1.03	1	97

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Table 8. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2010), Continued

Urban Area	Travel Time Index					Point Change in Peak-Period Time Penalty 1982 to 2010	
	2010	2009	2005	2000	1982	Points	Rank
Small Average (21 areas)	**1.08**	**1.08**	**1.08**	**1.08**	**1.03**	**5**	
Boulder CO	1.14	1.13	1.14	1.15	1.05	9	42
Boise ID	1.10	1.12	1.15	1.12	1.02	8	46
Little Rock AR	1.10	1.10	1.08	1.07	1.02	8	46
Columbia SC	1.09	1.09	1.07	1.06	1.02	7	49
Beaumont TX	1.08	1.08	1.06	1.05	1.02	6	57
Laredo TX	1.07	1.07	1.06	1.05	1.01	6	57
Provo UT	1.08	1.06	1.05	1.04	1.02	6	57
Salem OR	1.09	1.10	1.12	1.12	1.03	6	57
Greensboro NC	1.06	1.05	1.07	1.08	1.01	5	65
Pensacola FL-AL	1.08	1.07	1.10	1.09	1.03	5	65
Spokane WA	1.10	1.10	1.10	1.14	1.05	5	65
Winston-Salem NC	1.06	1.06	1.07	1.05	1.01	5	65
Corpus Christi TX	1.07	1.07	1.07	1.06	1.03	4	72
Jackson MS	1.06	1.07	1.09	1.06	1.02	4	72
Cape Coral FL	1.10	1.12	1.12	1.10	1.07	3	79
Madison WI	1.06	1.06	1.05	1.05	1.03	3	79
Worcester MA	1.06	1.07	1.09	1.09	1.03	3	79
Brownsville TX	1.04	1.04	1.07	1.07	1.02	2	93
Eugene OR	1.06	1.07	1.13	1.13	1.05	1	97
Stockton CA	1.02	1.02	1.05	1.03	1.01	1	97
Anchorage AK	1.05	1.05	1.06	1.05	1.05	0	101
101 Area Average	**1.21**	**1.20**	**1.25**	**1.22**	**1.09**	**12**	
Remaining Areas	**1.08**	**1.09**	**1.12**	**1.10**	**1.04**	**4**	
All 439 Urban Areas	**1.20**	**1.20**	**1.25**	**1.21**	**1.09**	**11**	

Very Large Urban Areas—over 3 million population.
Large Urban Areas—over 1 million and less than 3 million population.
Medium Urban Areas—over 500,000 and less than 1 million population.
Small Urban Areas—less than 500,000 population.

Travel Time Index—The ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.

Note: Please do not place too much emphasis on small differences in the rankings. There may be little difference in congestion between areas ranked (for example) 6th and 12th. The actual measure values should also be examined.

Also note: The best congestion comparisons use multi-year trends and are made between similar urban areas.

Table 9. Urban Area Demand and Roadway Growth Trends

Less Than 10% Faster (13)	10% to 30% Faster (46)	10% to 30% Faster (cont.)	More Than 30% Faster (40)	More Than 30% Faster (cont.)
Anchorage AK	Allentown-Bethlehem PA-NJ	Memphis TN-MS-AR	Akron OH	Minneapolis-St. Paul MN
Boulder CO	Baton Rouge LA	Milwaukee WI	Albany-Schenectady NY	New Haven CT
Dayton OH	Beaumont TX	Nashville-Davidson TN	Albuquerque NM	New York-Newark NY-NJ-CT
Greensboro NC	Boston MA-NH-RI	Oklahoma City OK	Atlanta GA	Omaha NE-IA
Indio-Cath City-P Springs CA	Brownsville TX	Pensacola FL-AL	Austin TX	Orlando FL
Lancaster-Palmdale CA	Buffalo NY	Philadelphia PA-NJ-DE-MD	Bakersfield CA	Oxnard-Ventura CA
Madison WI	Cape Coral FL	Phoenix AZ	Baltimore MD	Providence RI-MA
New Orleans LA	Charleston-N Charleston SC	Portland OR-WA	Birmingham AL	Raleigh-Durham NC
Pittsburgh PA	Charlotte NC-SC	Richmond VA	Boise ID	Riverside-S Bernardino CA
Poughkeepsie-Newburgh NY	Cleveland OH	Rochester NY	Bridgeport-Stamford CT-NY	Sacramento CA
Provo UT	Corpus Christi TX	Salem OR	Chicago IL-IN	San Antonio TX
St. Louis MO-IL	Detroit MI	Salt Lake City UT	Cincinnati OH-KY-IN	San Diego CA
Wichita KS	El Paso TX-NM	San Jose CA	Colorado Springs CO	San Francisco-Oakland CA
	Eugene OR	Seattle WA	Columbia SC	San Juan PR
	Fresno CA	Spokane WA	Columbus OH	Sarasota-Bradenton FL
	Grand Rapids MI	Springfield MA-CT	Dallas-Ft Worth-Arlington TX	Stockton CA
	Honolulu HI	Tampa-St. Petersburg FL	Denver-Aurora CO	Washington DC-VA-MD
	Houston TX	Toledo OH-MI	Hartford CT	
	Indianapolis IN	Tucson AZ	Jacksonville FL	
	Jackson MS	Tulsa OK	Laredo TX	
	Kansas City MO-KS	Virginia Beach VA	Las Vegas NV	
	Knoxville TN	Winston-Salem NC	Little Rock AR	
	Louisville KY-IN	Worcester MA	Los Angeles-L Bch-S Ana CA	
	McAllen TX		Miami FL	

Note: See Exhibit 12 for comparison of growth in demand, road supply and congestion.

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