2009 URBAN MOBILITY REPORT

David Schrank
Associate Research Scientist

and

Tim Lomax
Research Engineer

Texas Transportation Institute
The Texas A&M University System
http://mobility.tamu.edu

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2009 Urban Mobility Report

This summary report describes the scope of the problem and some of the improvement strategies. For the complete report and congestion data on your city, see: http://mobility.tamu.edu/ums.

Congestion is a problem in America's 439 urban areas, and it has gotten worse in regions of all sizes. In 2007, congestion caused urban Americans to travel 4.2 billion hours more and to purchase an extra 2.8 billion gallons of fuel for a congestion cost of $87.2 billion – an increase of more than 50% over the previous decade (Exhibit 1). This was a decrease of 40 million hours and a decrease of 40 million gallons, but an increase of over $100 million from 2006 due to an increase in the cost of fuel and truck delay. Small traffic volume declines brought on by increases in fuel prices over the last half of 2007 caused a small reduction in congestion from 2006 to 2007.

There are many congestion problems but there are also many solutions. **The most effective strategy is one where agency actions are complemented by efforts of businesses, manufacturers, commuters and travelers. The best approach to selecting strategies is to identify projects, programs and policies that solve problems or capitalize on opportunities.** The strategies must address the issue that the problems are not the same in every region or on every day – the variation in travel time is often as frustrating and costly as the regular "daily slog" through traffic jams. The *2009 Urban Mobility Report* clearly demonstrates that all the solutions are not being implemented fast enough.

Exhibit 1. Major Findings for 2009 –
The Important Numbers for the 439 U.S. Urban Areas
(Note: See page 2 for description of changes since 2007 Report)

Measures of…	1982	1997	2006	2007
… Individual Traveler Congestion				
Annual delay per peak traveler (hours)	14	32	37	36
Travel Time Index	1.09	1.20	1.25	1.25
"Wasted" fuel per peak traveler (gallons)	9	21	25	24
Congestion Cost (constant 2007 dollars)	$290	$621	$758	$757
Urban areas with 40+ hours of delay per peak traveler	1	10	27	23
… The Nation's Congestion Problem				
Travel delay (billion hours)	0.79	2.72	4.20	4.16
"Wasted" fuel (billion gallons)	0.50	1.82	2.85	2.81
Congestion cost (billions of 2007 dollars)	$16.7	$53.6	$87.1	$87.2
… Travel Needs Served				
Daily travel on major roads (billion vehicle-miles)	1.68	2.93	3.79	3.82
Annual public transportation travel (billion person-miles)	38.8	42.6	53.4	55.8
… Expansion Needed to Keep Today's Congestion Level				
Lane-miles of freeways and major streets added every year	15,500	16,532	15,032	12,676
Public transportation riders added every year (million)	3,456	3,876	3,779	3,129
… The Effect of Some Solutions				
Travel delay saved by				
Operational treatments (million hours)	7	116	307	308
Public transportation (million hours)	290	455	622	646
Congestion costs saved by				
Operational treatments (billions of 2007 dollars)	$.02	$2.3	$6.4	$6.5
Public transportation (billions of 2007 dollars)	$6.3	$9.3	$13.1	$13.7

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 1.35 indicates a 20-minute free-flow trip takes 27 minutes in the peak.
Delay per Peak Traveler – The extra time spent traveling at congested speeds rather than free-flow speeds divided by the number of persons making a trip during the peak period.
Wasted Fuel – Extra fuel consumed during congested travel.
Vehicle-miles – Total of all vehicle travel (10 vehicles traveling 9 miles is 90 vehicle-miles).
Expansion Needed – Either lane-miles or annual riders to keep pace with travel growth (and maintain congestion).

The Congestion Trends
(And Why A Few Numbers Are Different than Previous Reports)

Each *Urban Mobility Report* reviews procedures, processes, and data used to develop the best estimates of the costs and challenges of traffic congestion, improving them when possible. The methodology was revised in 2008/9 to improve the public transportation methodology. In addition, the benefits from operations treatments were estimated throughout the extent of the study database to improve the relevance of the long-term trends. This caused some numbers from previous reports to change. All of the congestion statistics in the *2009 Urban Mobility Report* have been revised using the new calculation procedures for all years from 1982 so that true trends can be identified (Exhibit 2).

Congestion, by every measure, has increased substantially over the 25 years covered in this report. The most recent two years of the report, however, have seen slower growth or even a decline in congestion. Delay per traveler – the number of hours of extra travel time that commuters spend during rush hours – was 1.3 hours lower in 2007 than 2005. This change would be more hopeful if it was associated with something other than rising fuel prices (which occurred for a short time in 2005 and 2006 before the sustained increase in 2007 and 2008) and a slowing economy. This same kind of slow growth/decline over a few years occurred in the early 1990s when spending and growth in the high-tech and defense sectors of the economy declined dramatically.

The decline means congestion is near the levels recorded in 2003, not exactly a year remembered for trouble-free commuting.

Changes to Congestion Methodology – Highlights

- Public transportation – An improved method for transferring riders back into the roadway network to simulate the effect of eliminating public transportation service resulted in larger delay reduction benefits in the 2009 report. The new methodology was reapplied for all previous years as well. Improvements include using the transit modes in each region to determine the peak travel mileage and alternative routes.
- Operations benefits - The 2009 report estimates the benefits from programs that reduce congestion without adding roadway lanes for every year since 1982. Previous reports included these programs only since 2000. There are fewer data for the pre-2000 period, but general trend information and project-specific reports were used to smooth out what had been a disruptive element the urban area congestion trends.

The base data for this report are from the Federal Highway Administration's Highway Performance Monitoring System (*1*). More information on the methodology is included on the website at: http://mobility.tamu.edu/ums/report/methodology.stm

Exhibit 2. National Congestion Measures, 1982 to 2007

						Hours Saved (million hours)		Gallons Saved (million gallons)		Dollars Saved (billions of $2007)	
Year	Travel Time Index	Delay per Traveler (hours)	Total Delay (billion hours)	Total Fuel Wasted (billion gallons)	Total Cost ($2007 billion)	Operational Treatments & High-Occupancy Vehicle Lanes	Public Transp	Operational Treatments & High-Occupancy Vehicle Lanes	Public Transp	Operational Treatments & High-Occupancy Vehicle Lanes	Public Transp
1982	1.09	13.8	0.79	0.50	16.7	7	290	4	163	0.2	6.3
1983	1.09	14.7	0.87	0.54	18.0	9	296	5	167	0.2	6.4
1984	1.10	15.8	0.95	0.60	19.7	12	306	7	174	0.3	6.6
1985	1.11	12.0	1.10	0.70	22.6	17	324	9	187	0.3	6.9
1986	1.13	20.2	1.27	0.81	25.2	22	306	12	181	0.4	6.3
1987	1.14	21.6	1.41	0.92	27.9	28	315	16	186	0.6	6.5
1988	1.16	24.2	1.62	1.06	32.0	37	384	20	228	0.7	7.9
1989	1.17	25.9	1.78	1.17	35.3	45	411	24	246	0.9	8.5
1990	1.18	26.8	1.88	1.25	37.3	51	409	28	248	1.0	8.4
1991	1.18	26.5	1.93	1.29	38.1	54	404	30	247	1.1	8.3
1992	1.18	27.4	2.05	1.37	40.6	61	397	34	241	1.2	8.1
1993	1.18	28.5	2.17	1.43	42.6	68	391	38	237	1.3	8.0
1994	1.18	28.8	2.26	1.49	44.3	76	407	42	246	1.5	8.3
1995	1.19	30.0	2.42	1.61	47.8	89	427	49	262	1.8	8.8
1996	1.19	31.0	2.58	1.72	51.0	102	442	56	272	2.0	9.1
1997	1.20	31.7	2.73	1.82	53.6	116	455	64	280	2.3	9.3
1998	1.21	31.9	2.83	1.91	55.0	131	482	72	299	2.5	9.7
1999	1.22	33.3	3.04	2.05	58.9	151	511	82	319	2.9	10.3
2000	1.22	33.4	3.18	2.14	63.1	166	538	109	327	3.3	10.9
2001	1.23	34.2	3.33	2.25	65.7	187	559	123	341	3.7	11.3
2002	1.24	35.0	3.52	2.38	69.3	208	566	138	346	4.1	11.4
2003	1.24	35.4	3.73	2.53	73.3	238	558	156	341	4.7	11.2
2004	1.25	36.5	3.97	2.69	79.4	258	591	171	362	5.2	12.1
2005	1.25	37.4	4.18	2.82	85.6	278	595	182	365	5.7	12.4
2006	1.25	36.6	4.20	2.85	87.1	307	622	200	384	6.4	13.1
2007	1.25	36.1	4.16	2.81	87.2	308	646	202	398	6.5	13.7

Note: For more congestion information see Tables 1 to 7 and http://mobility.tamu.edu/ums

One Page of Congestion Problems

Travelers and freight shippers must plan around traffic jams for more of their trips, in more hours of the day and in more parts of town than in 1982. In some cases, this includes weekends and rural areas. Until 2007, mobility problems worsened at a relatively consistent rate during the more than two decades studied.

Congestion costs are increasing. The congestion “invoice” for the cost of extra time and fuel in 439 urban areas (all values in constant 2007 dollars):

- In 2007 – $87.2 billion
- In 2000 – $63.1 billion
- In 1982 – $16.7 billion

Congestion wastes a massive amount of time, fuel and money. In 2007:

- 2.8 billion gallons of wasted fuel (enough to fill 370,000 18-wheeler fuel delivery trucks – bumper-to-bumper from Houston to Boston to Los Angeles)
- 4.2 billion hours of extra time (enough to listen to *War and Peace* being read 160 million times through your car stereo)
- $87.2 billion of delay and fuel cost (The negative effect of uncertain or longer delivery times, missed meetings, business relocations and other congestion results are not included)

Congestion affects the people who typically make trips during the peak period.

- Yearly delay for the average peak-period traveler was 36 hours in 2007 – almost one week of vacation – an increase from 14 hours in 1982 (Exhibit 3).
- That traveler wasted 24 gallons of fuel in 2007 – three weeks worth of fuel for the average U.S. resident – up from 9 gallons in 1982 (Exhibit 4).
- The value for the delay and wasted fuel was almost $760 per traveler in 2007 compared to an inflation-adjusted $290 in 1982.
- Congestion effects were even larger in areas over one million persons – 46 hours and 31 gallons in 2007.

Exhibit 3. Hours of Travel Delay per Peak-Period Traveler

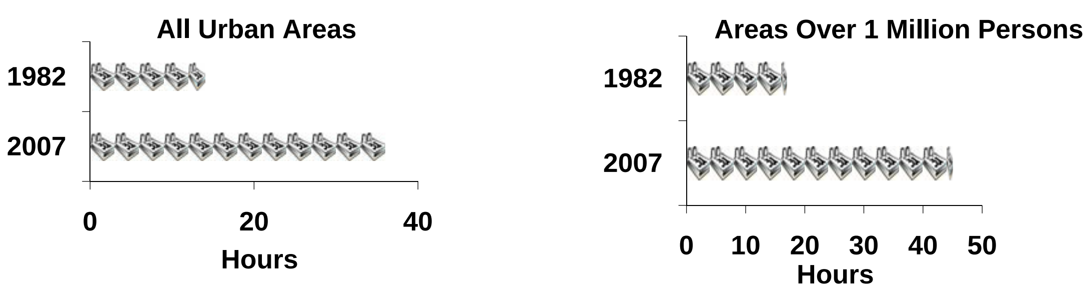
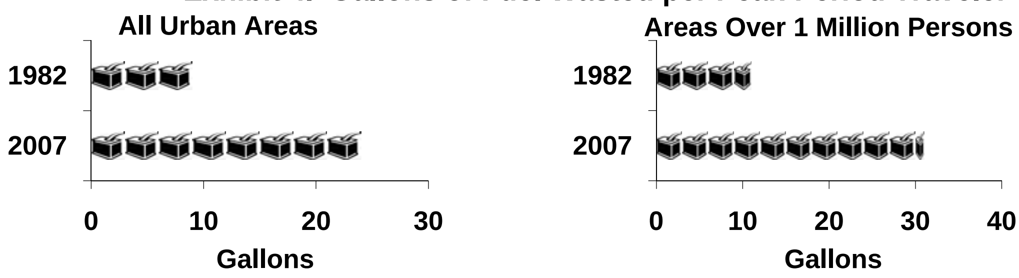


Exhibit 4. Gallons of Fuel Wasted per Peak-Period Traveler



Won't Higher Fuel Prices and the Economic Slowdown Help Solve Congestion Problems?

The *2009 Urban Mobility Report* suggests a tentative "yes" to the fuel price question above, if…
- By "higher" you mean very high – above $4 per gallon for more than a year
- By "solve" you mean slower growth or modest declines in congestion (don't expect to drive at the speed limit on your way to work)

The way most people understand congestion, then, the answer is "no, higher fuel prices are not the answer."

The economic solution, likewise, doesn't hold much hope for those wishing to find the easy answer. Travel may grow slower than in the past, but that will only mean "things get worse slower" – hardly a positive goal statement. The Urban Mobility Report database includes a few similar periods from regional recessions in the past (the northeastern states in the early-to-mid 1980s, Texas in the mid 1980s, California in the early-to-mid 1990s). In every case, when the economy rebounded, so did the congestion problem. An examination of recent fuel price, traffic volume, transit ridership and congestion trends shows (Exhibit 5):
- There is a cycle to traffic volume and fuel prices – they generally go up in the summer and down in the winter.
- There was a small but varying decline in traffic volume in 2008. The largest declines were in rural areas and on the weekends. The smallest declines were in the urban areas on weekdays – where most of the congestion exists.
- Traffic volume began to increase when prices declined in the Fall of 2008.
- Traffic volume and congestion trends during the economic downturn in the last half of 2008 were consistent with previous recessions – slow or no growth in areas with job losses.
- Public transportation ridership was up in early and mid-2008 when fuel prices were at their highest levels (*2*).

None of these events suggest that price increases which are modest and take a long time or price increases that are rapid but decline after a few months will cause any substantial change in travel behavior or cause a dramatic slowdown in congestion growth trends.

Data collected on freeways in 23 urban regions (see Exhibit 5) as part of a 2008 study for the Federal Highway Administration (*3*) found:
- Weekday traffic volumes were down between 2% and 4% from June to December 2008 compared to June to December 2007.
- Traffic congestion for these same time periods was down between 3% and 5%.
- Weekend traffic volumes were down between 4% and 7% between June and November 2008 and the same period in 2007.
- Weekend traffic volumes were down only 2% to 3% in December 2008 (with lower fuel prices).

These values show that dramatic fuel price increases and a falling job market will "solve" only part of the congestion problem.

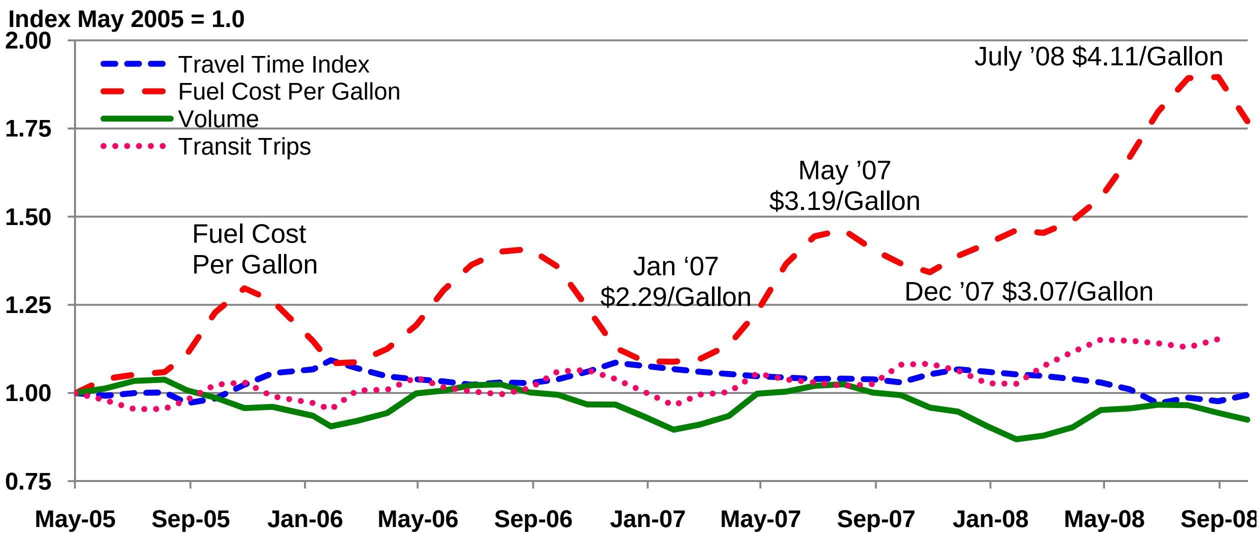
The reason why the travel decline was relatively small (in relation to the price increase) may have been due to the fact that people could adopt several coping strategies:

- Cut back spending in other areas to pay for fuel
- Reduce their percentage of drive-alone trips
- Combine trips, for example, stopping at the store on the way home from work
- Avoid optional trips in "rush hours" (but in many areas this time period was already congested – one would be hard pressed to find a lot of "joy-riding" in rush hour)

Over a relatively short time period, many people are "locked in" to many of their choices and cannot respond rapidly. Consider these factors that made it difficult for people to react to short-term fuel price increases in 2007 and 2008:

- Cannot sell a large car or SUV for the amount of the loan, because trade-in value was low
- Cannot ride public transportation for trips that are not served by transit systems
- Cannot change jobs – many employers were not hiring because the economy was expected to slow down
- Cannot move homes because prices had slipped and it was difficult to obtain a mortgage

Exhibit 5. Congestion, Traffic Volume, Transit Ridership and Fuel Cost – 2005 to 2008

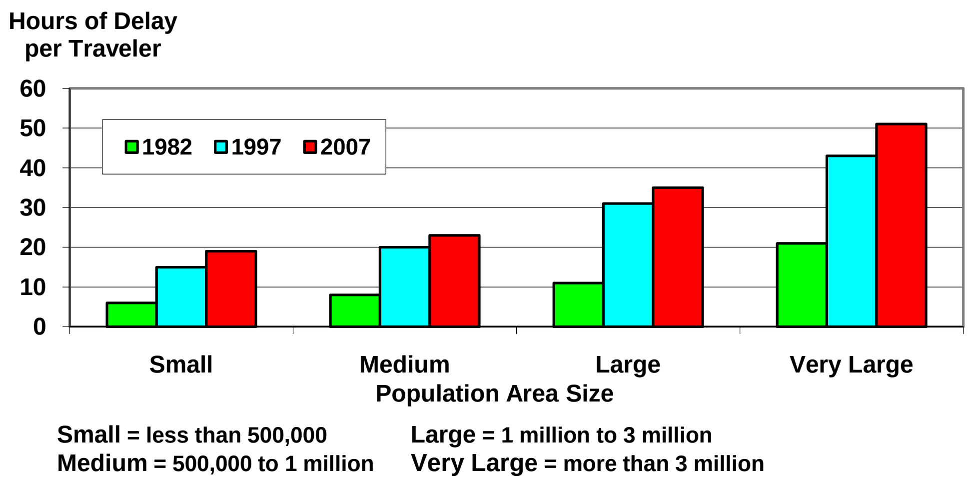


Note: Trends are based on 3-month running averages.

More Detail about Congestion Problems

Congestion is worse in areas of every size – it is not just a big city problem. The growing time delays hit residents of smaller cities as well (Exhibit 6). 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. In 2020, at this rate, congestion problems in cities with 500,000 to 1 million people will resemble today's traffic headaches for areas over 1 million people.

Exhibit 6. Congestion Growth Trend



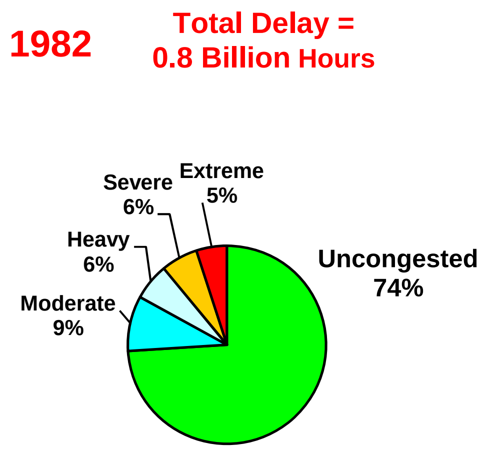
Think of what else could be done with the 36 hours of extra time suffered in congestion by the average urban traveler in 2007:

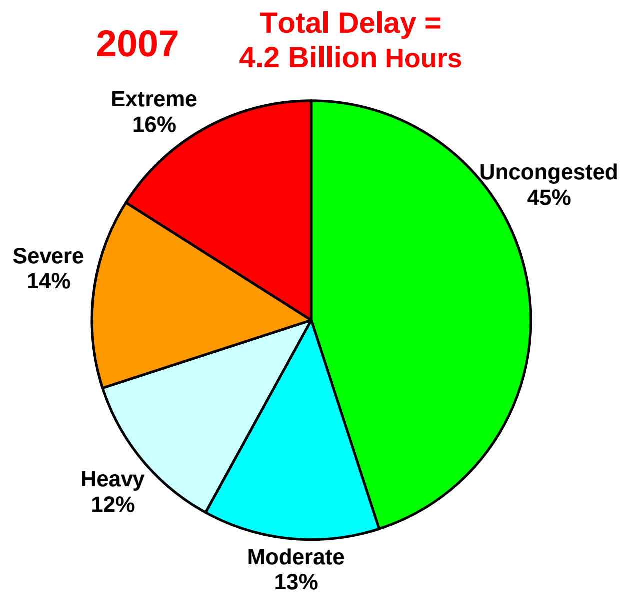
- Almost 5 vacation days
- Almost 13 big league baseball games
- More than 600 average online video clips

Travelers and shippers must plan around congestion more often.

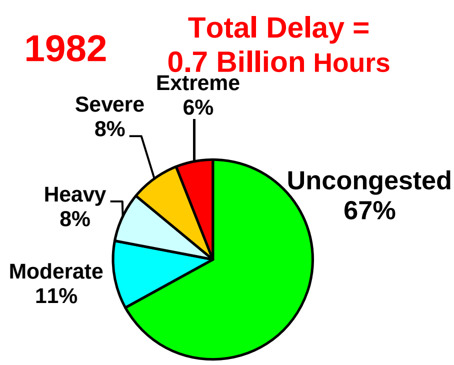
- In all 439 urban areas, the worst congestion levels affected only 1 in 9 trips in 1982, but almost 1 in 3 trips in 2007 (Exhibits 7 and 8).
- Free-flowing traffic is seen less than one-third of the time in urban areas over 1 million population.
- Delay has grown five times larger overall since 1982 and more than four times higher in regions with more than 1 million people.

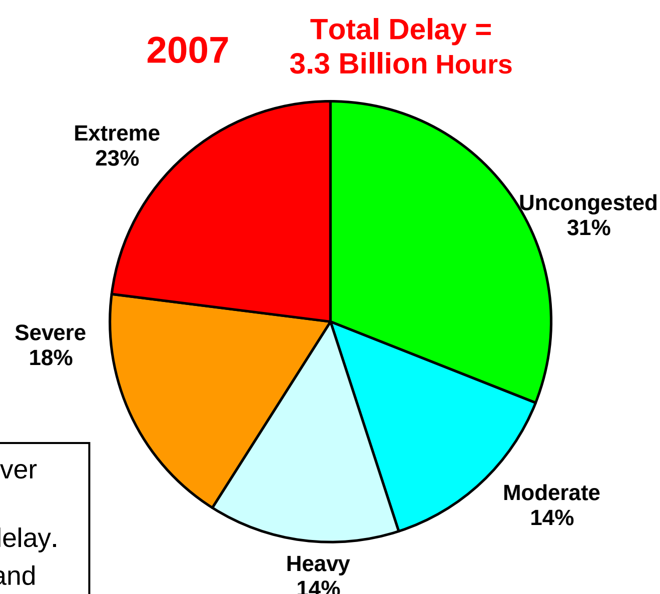
Exhibit 7. Congestion Growth – 1982 to 2007





Urban Areas Over 1 Million Population



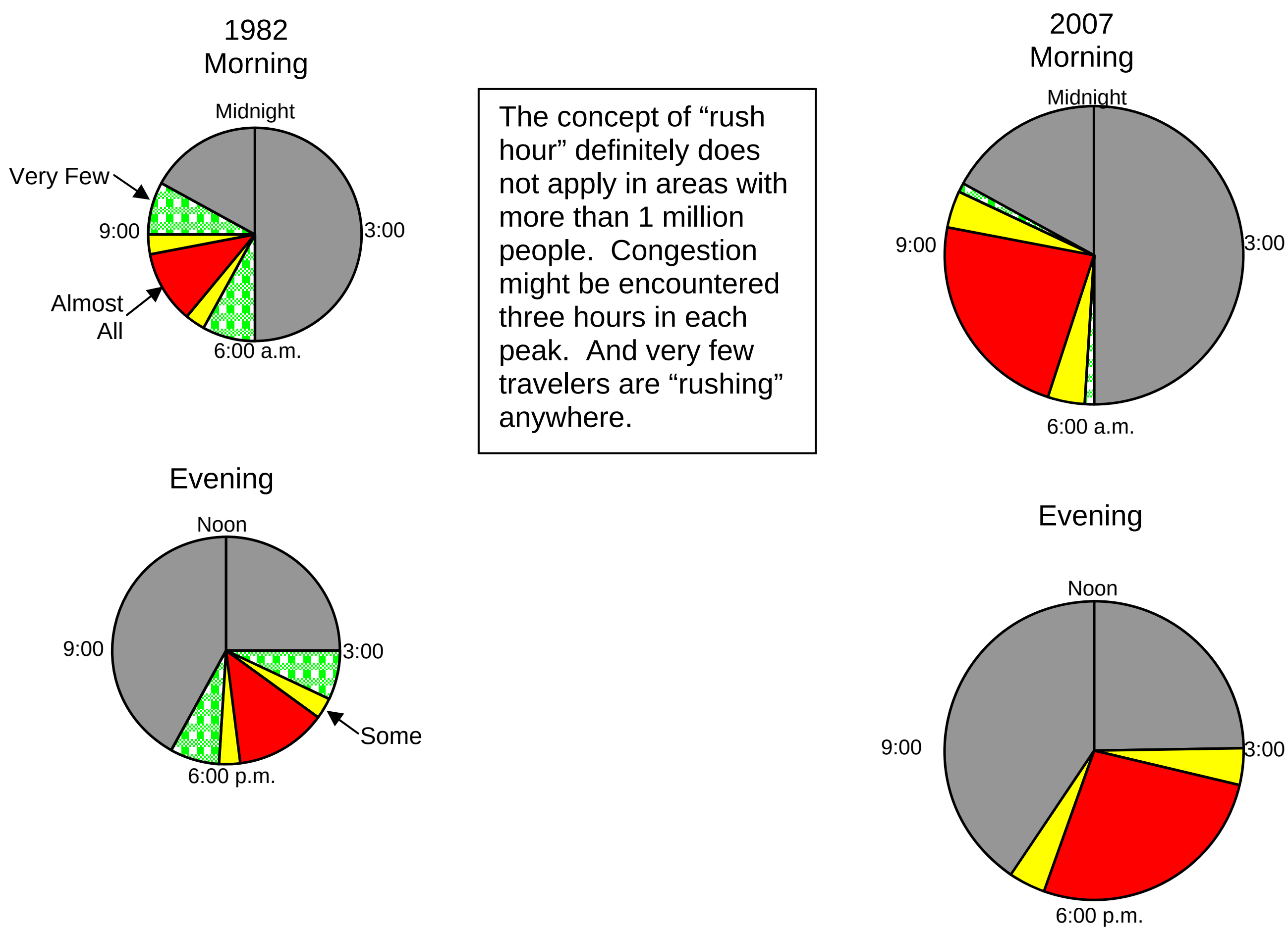


But the problem could be even worse in the regions over 1 million population.

- Operational treatments save 278 million hours of delay.
- And if there were no public transportation service and travelers used their cars, there would be an additional 616 million hours of delay.

The Jam Clock (Exhibit 8) depicts the growth of congested periods within the morning and evening "rush hours."

Exhibit 8. The Jam Clock Shows That It Is Hard To Avoid Congestion in Urban Areas with More than 1 Million Persons



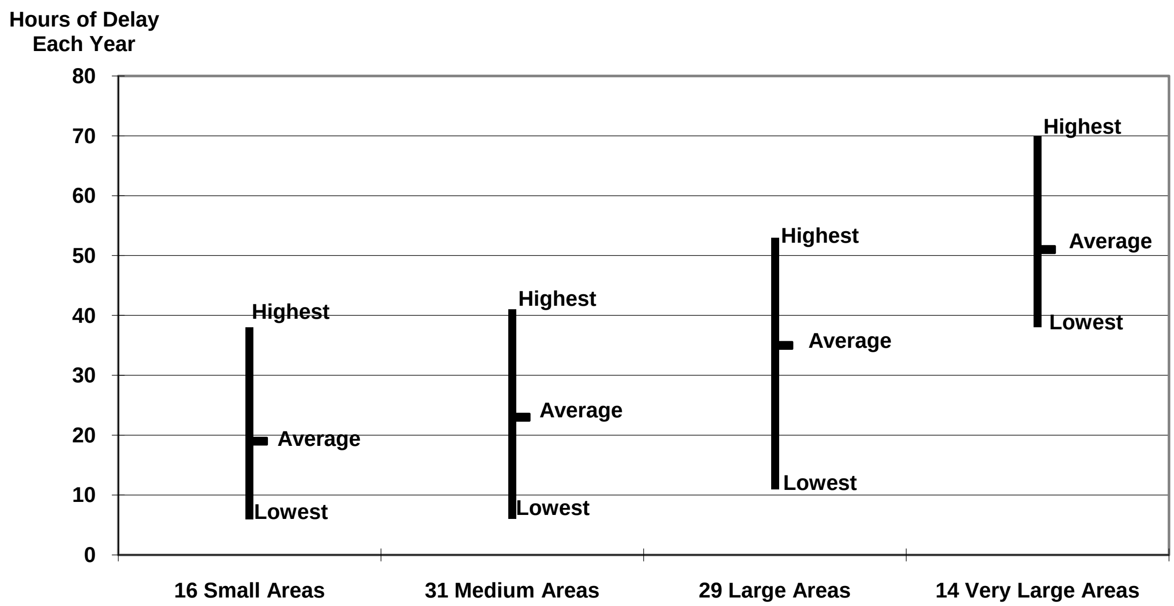
Red – Almost all regions have congestion
Yellow – Some regions have congestion
Green Checked– Very few regions have congestion
Gray – Time period not analyzed

Note: The *2009 Urban Mobility Report* examined 6 to 10 a.m. and 3 to 7 p.m.

Congestion levels vary in cities of the same size. Exhibit 9 shows the wide range in congestion problems in each of the four urban size groups. In all four groups, there is a difference of at least 30 hours of delay per traveler between the most and least congested regions. There are many causes for this range – some natural, some man-made. And some of the differences are the result of investment decisions.

The public and decision-makers at all levels should consider whether there is a match between transportation funding levels, mobility goals and the projects, programs and policies they support to address congestion problems. Every city is different, but the data suggest the current trends are not acceptable.

Exhibit 9. Congestion and Urban Area Size, 2007



Congestion Solutions – An Overview of the Portfolio

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 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 *2009 Urban Mobility Report* database includes the effect of several widely implemented congestion solutions. These provide more efficient and reliable operation of roads and public transportation using a combination of information, technology, design changes, operating practices and construction programs.

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 2007, the 439 urban areas would have suffered an additional 646 million hours of delay and consumed 398 million more gallons of fuel (Exhibit 10), 40% more than a decade ago. 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 $13.7 billion, a 16% increase over current levels in the 439 urban areas.

There were approximately 55 billion passenger-miles of travel on public transportation systems in the 439 urban areas in 2007 (*2*). The benefits from public transportation vary by the amount of travel and the road congestion levels (Exhibit 10). More information on the effects for each urban area is included in Table 3.

Exhibit 10. Delay Increase in 2007 if Public Transportation Service Were Eliminated – 439 Areas

Population Group and Number of Areas	Average Annual Passenger-Miles of Travel (Million)	Delay Reduction Due to Public Transportation		
		Hours of Delay (Million)	Percent of Base Delay	Dollars Saved ($ Million)
Very Large (14)	41,602	557	18	11,874
Large (29)	6,180	59	6	1,226
Medium (31)	1,718	13	4	259
Small (16)	289	2	3	31
Other (349)	6,033	16	3	339
National Urban Total	55,822	646	14	$13,729

Source: Reference (*2*) and Review by Texas Transportation Institute

Better Operations

Five prominent types of operational treatments are estimated to relieve a total of 308 million hours of delay (7% of the total) with a value of $6.5 billion in 2007 (Exhibit 11). If the treatments were deployed on all major freeways and streets, the benefit would expand to about 504 million hours of delay (11% of delay) and more than $10.5 billion would be saved. These are significant benefits, especially since these techniques can be enacted much quicker than significant roadway or public transportation system expansions can occur. The operational treatments, however, do not replace the need for those expansions.

Exhibit 11. Operational Improvement Summary for All 439 Urban Areas

Operations Treatment (Number of Regions with Treatment)	**Delay Reduction from Current Projects**		**Delay Reduction if In Place on All Roads (Million Hours)**
	Hours Saved (Million)	**Dollars Saved ($ Million)**	
Ramp Metering (25)	39.8	851	98.5
Incident Management (272)	143.3	3,060	199.5
Signal Coordination (439)	19.6	404	45.8
Access Management (439)	68.7	1,370	159.7
High-Occupancy Vehicle Lanes (16)	37.0	779	Not Known
TOTAL	308	$6,464	504

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.(*1,4*)

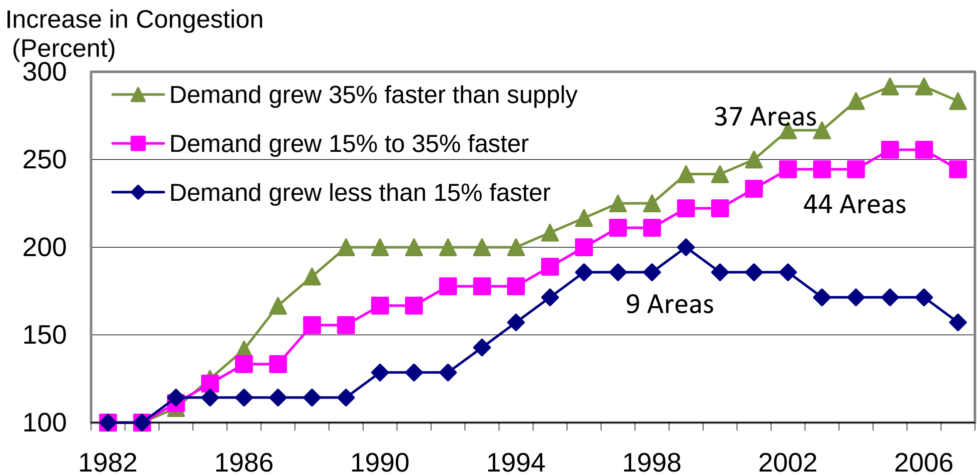
More information about the specific treatments and examples of regions and corridors where they have been implemented can be found at the website http://mobility.tamu.edu/resources/

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 2007 (Exhibit 12). 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 9 areas were able to accomplish that rate, there must be a broader and larger set of solutions applied to the problem. Most of these 9 regions (listed in Table 7) were not in locations of high economic growth, suggesting their challenges were not as great as in regions with booming job markets.

Exhibit 12. Road Growth and Mobility Level



Source: Texas Transportation Institute analysis, see Table 7 and http://mobility.tamu.edu/ums/report/methodology.stm

All Congestion Solutions Are Needed

Most large city transportation and planning agencies are pursuing all of these strategies as well as others. The mix of programs, policies and projects may be different in each city and the pace of implementation varies according to overall funding, commitment, location of problems, public support and other factors. Addressing the range of different problems with an overall strategy that chooses transportation and land development solutions with the greatest benefit for the least cost recognizes the diversity of the problems and opportunities in each region.

Policy-makers and big city residents have learned to expect congestion for 1 or 2 hours in the morning and in the evening. However, agencies should be able to improve the performance and reliability of the service at other hours. But they have not been able to combine the leadership, technical and financial support to expand the system, improve operations and change travel patterns to keep congestion levels from increasing in times of economic growth.

The involvement of business leaders in crafting a set of locally supported solutions would seem to be a very important element in the future. At the strategic end, business leader actions take the form of information development and communication with the public and decision-makers to emphasize the role of transportation in the state and regional economy. On the tactical end, business and community leaders can make the case for small-scale improvements that may not be evident to the operating agencies. And they can support individual workers who wish to choose carpooling, public transportation, flexible work hours, telecommuting or other route or mode options.

Addressing the congestion problems can provide substantial benefits and provide improvements in many sectors of society and the economy. A Texas study (*5*) estimated that solving the congestion problems in the state's urban regions would generate more than $6.50 in economic benefits for every $1.00 spent. Rebuilding transportation facilities to provide more capacity also addresses the need for roadway repair and infrastructure renewal.

Methodology

The base data for the *2009 Urban Mobility Report* come from the U.S. Department of Transportation and the states (*1,4*). Several analytical processes are used to develop the final measures. These are described in a series of technical reports (*6*) that are posted on the mobility report website: http://mobility.tamu.edu/ums/report/methodology.stm.

- The travel and road inventory statistics are analyzed with a set of procedures developed from computer models and studies of real-world travel time and traffic congestion data. The congestion methodology creates a set of base statistics developed from traffic density values. The density data (daily traffic volume per lane of roadway) are converted to average peak-period speeds using a set of estimation curves based on relatively ideal travel conditions – no crashes, breakdowns or weather problems – for the years 1982 to 2007.
- The base estimates, however, do not include the effect of many transportation improvements. The 2009 report addresses this estimation deficiency with methodologies designed to identify the effect of operational treatments and public transportation services. The delay, cost and index measures for all years include these treatments.
- The new estimation procedures for public transportation benefits include more detail than previous reports and provide additional information to analyze the effect of public transportation services.

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. Travel time information is being collected from travelers and shippers on the road network by a variety of public and private data collection sources. Some advanced transit operating systems monitor passenger volume, travel time and schedule information and share those data with freeway monitoring and traffic signal systems. Traffic signals can be retimed immediately by the computers to reduce person congestion (not just vehicle congestion). These data can also be used to more accurately describe congestion problems on public transportation and roadway systems.

Combining Performance Measures

Table 6 illustrates an approach to understanding several of the key measures. The value for each statistic is rated according to the relationship to the average value for the population group. The terms "higher" and "lower" than average congestion are used to characterize the 2007 values and trends from 1982 to 2007. These descriptions do not indicate any judgment about the extent of mobility problems. Urban areas that have better than average rankings may have congestion that residents consider a significant problem. What Table 6 does, however, is provide the reader with some context for the mobility discussion.

Concluding Thoughts

Congestion has gotten worse in many ways since 1982:

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

The *2009 Urban Mobility Report* points to an $87.2 billion congestion cost – and that is only the value of wasted time and fuel. Congestion causes the average peak-period traveler to spend an extra 36 hours of travel time and use 24 gallons of fuel consumption, which amounts to a cost of $760 per traveler. 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 recent rise and then fall in fuel prices and the economic slowdown has disrupted the steady climbing trend seen in the last few congestion reports. Before victory is declared on the congestion or imported fuel issues, however, a few points should be considered:

- 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.
- The “recovery” in miles traveled in Fall 2008 when fuel prices dropped before the economy turned down suggests historical patterns are still in place and congestion will grow again.

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

The good news is that there are solutions that work. There are significant benefits from solving congestion problems – whether they are large or small, in big metropolitan regions or smaller urban areas and no matter the cause. There are performance measures that provide accountability to the public and decision-makers and improve operational effectiveness. Mobility reports in coming years will use more comprehensive datasets and improved analysis tools to capture traveler experiences (and frustration).

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.

Future program decisions should focus on how to use each project, program or strategy to attack the problems, and how much transportation improvement to pursue. The solutions will require more funding – this report clearly describes the shortfall in projects, programs and policies. Focusing on the broad areas of agreement and consensus funding arrangements will provide a base of implementable strategies. Besides the congestion benefits, the construction projects also help rebuild infrastructure elements, a need noted in many analyses over the past decade. The U.S. should begin fixing these problems while crafting an all-encompassing long-term solution.

National Congestion Tables

Table 1. What Congestion Means to You, 2007

Urban Area	Annual Delay per Traveler		Travel Time Index		Wasted Fuel per Traveler	
	Hours	Rank	Value	Rank	Gallons	Rank
Very Large Average (14 areas)	**51**		**1.37**		**35**	
Los Angeles-Long Beach-Santa Ana CA	70	1	1.49	1	53	1
Washington DC-VA-MD	62	2	1.39	4	42	2
Atlanta GA	57	3	1.35	10	40	3
Houston TX	56	4	1.33	11	40	3
San Francisco-Oakland CA	55	5	1.42	3	40	3
Dallas-Fort Worth-Arlington TX	53	6	1.32	12	36	8
Detroit MI	52	9	1.29	20	34	11
Miami FL	47	11	1.37	5	33	12
New York-Newark NY-NJ-CT	44	14	1.37	5	28	20
Phoenix AZ	44	14	1.30	17	31	14
Seattle WA	43	19	1.29	20	30	15
Boston MA-NH-RI	43	19	1.26	25	29	19
Chicago IL-IN	41	21	1.43	2	28	20
Philadelphia PA-NJ-DE-MD	38	29	1.28	24	24	34
Large Average (29 areas)	**35**		**1.23**		**24**	
San Jose CA	53	6	1.36	8	37	7
Orlando FL	53	6	1.30	17	35	9
San Diego CA	52	9	1.37	5	40	3
Tampa-St. Petersburg FL	47	11	1.31	14	30	15
Denver-Aurora CO	45	13	1.31	14	30	15
Riverside-San Bernardino CA	44	14	1.36	8	35	9
Baltimore MD	44	14	1.31	14	32	13
Las Vegas NV	44	14	1.30	17	30	15
Charlotte NC-SC	40	23	1.25	26	27	23
Sacramento CA	39	24	1.32	12	28	20
Austin TX	39	24	1.29	20	27	23
Minneapolis-St. Paul MN	39	24	1.24	28	27	23
Jacksonville FL	39	24	1.23	32	27	23
Indianapolis IN	39	24	1.21	34	27	23
San Antonio TX	38	29	1.23	32	27	23
Portland OR-WA	37	34	1.29	20	26	31
Raleigh-Durham NC	34	36	1.17	43	22	37
Columbus OH	30	40	1.18	39	21	39
Virginia Beach VA	29	41	1.18	39	19	41
Providence RI-MA	29	41	1.17	43	18	42
St. Louis MO-IL	26	47	1.13	52	17	46
Cincinnati OH-KY-IN	25	51	1.18	39	18	42
Memphis TN-MS-AR	25	51	1.12	57	15	52
New Orleans LA	20	61	1.17	43	12	65
Milwaukee WI	18	67	1.13	52	13	60
Pittsburgh PA	15	70	1.09	70	9	71
Kansas City MO-KS	15	70	1.07	80	9	71
Cleveland OH	12	76	1.08	77	8	74
Buffalo NY	11	79	1.07	80	7	77
90 Area Average	**41**		**1.29**		**28**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	24		1.16		15	
301 Urban Areas Under 250,000 Popn	18		1.10		10	
All 439 Urban Areas	**36**		**1.25**		**24**	

Very Large Urban Areas—over 3 million population. Large Urban Areas—over 1 million and less than 3 million population.
Annual Delay per Traveler – Extra travel time for peak-period travel during the year divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.). Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.
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

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, 2007, Continued

Urban Area	Annual Delay per Traveler		Travel Time Index		Wasted Fuel per Traveler	
	Hours	Rank	Value	Rank	Gallons	Rank
Medium Average (31 areas)	**23**		**1.14**		**15**	
Tucson AZ	41	21	1.24	28	26	31
Oxnard-Ventura CA	38	29	1.24	28	27	23
Louisville KY-IN	38	29	1.20	35	26	31
Nashville-Davidson TN	37	34	1.15	48	23	35
Albuquerque NM	34	36	1.18	39	22	37
Bridgeport-Stamford CT-NY	33	38	1.25	26	27	23
Birmingham AL	32	39	1.15	48	21	39
Salt Lake City UT	27	45	1.19	37	18	42
Oklahoma City OK	27	45	1.12	57	17	46
Honolulu HI	26	47	1.24	28	18	42
Omaha NE-IA	26	47	1.16	47	17	46
Sarasota-Bradenton FL	25	51	1.19	37	15	52
Colorado Springs CO	23	54	1.13	52	14	56
Allentown-Bethlehem PA-NJ	22	55	1.14	50	14	56
Grand Rapids MI	22	55	1.10	64	13	60
Tulsa OK	22	55	1.10	64	13	60
Hartford CT	21	60	1.12	57	15	52
Fresno CA	20	61	1.13	52	13	60
Richmond VA	20	61	1.09	70	13	60
El Paso TX-NM	19	64	1.12	57	12	65
New Haven CT	19	64	1.11	63	14	56
Albany-Schenectady NY	19	64	1.10	64	12	65
Poughkeepsie-Newburgh NY	17	68	1.09	70	10	68
Dayton OH	14	73	1.09	70	10	68
Toledo OH-MI	14	73	1.08	77	9	71
Indio-Cathedral City-Palm Springs CA	13	75	1.14	50	8	74
Bakersfield CA	12	76	1.09	70	7	77
Springfield MA-CT	11	79	1.06	85	7	77
Rochester NY	10	83	1.06	85	6	83
Akron OH	9	85	1.07	80	6	83
Lancaster-Palmdale CA	6	89	1.10	64	3	89
Small Average (16 areas)	**19**		**1.10**		**11**	
Charleston-North Charleston SC	38	29	1.20	35	23	35
Cape Coral FL	29	41	1.17	43	17	46
Pensacola FL-AL	28	44	1.13	52	16	50
Knoxville TN	26	47	1.12	57	16	50
Columbia SC	22	55	1.10	64	14	56
Little Rock AR	22	55	1.09	70	15	52
Salem OR	16	69	1.10	64	10	68
Laredo TX	15	70	1.12	57	8	74
Boulder CO	12	76	1.09	70	7	77
Eugene OR	11	79	1.08	77	7	77
Beaumont TX	11	79	1.05	87	7	77
Anchorage AK	10	83	1.07	80	6	83
Corpus Christi TX	9	85	1.05	87	5	86
Spokane WA	9	85	1.05	87	5	86
Brownsville TX	8	88	1.07	80	5	86
Wichita KS	6	89	1.02	90	3	89
90 Area Average	**41**		**1.29**		**28**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	24		1.16		15	
301 Urban Areas Under 250,000 Popn	18		1.10		10	
All 439 Urban Areas	**36**		**1.25**		**24**	

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

Annual Delay per Traveler – Extra travel time for peak-period travel during the year divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.). Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.

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

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) 6^{th} and 12^{th}. 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, 2007 Urban Area Totals

Urban Area	Travel Delay (1000 Hours)	Rank	Excess Fuel Consumed (1000 Gallons)	Rank	Congestion Cost ($ million)	Rank
Very Large Average (14 areas)	**166,900**		**115,654**		**3,549**	
Los Angeles-Long Beach-Santa Ana CA	485,022	1	366,969	1	10,328	1
New York-Newark NY-NJ-CT	379,328	2	238,934	2	8,180	2
Chicago IL-IN	189,201	3	129,365	3	4,207	3
Atlanta GA	135,335	6	95,936	6	2,981	4
Miami FL	145,608	4	101,727	4	2,955	5
Dallas-Fort Worth-Arlington TX	140,744	5	96,477	5	2,849	6
Washington DC-VA-MD	133,862	7	90,801	8	2,762	7
San Francisco-Oakland CA	129,393	8	94,295	7	2,675	8
Houston TX	123,915	9	88,239	9	2,482	9
Detroit MI	116,981	10	76,425	10	2,472	10
Philadelphia PA-NJ-DE-MD	112,074	11	71,262	11	2,316	11
Boston MA-NH-RI	91,052	12	60,986	13	1,996	12
Phoenix AZ	80,456	14	57,200	14	1,891	13
Seattle WA	73,636	15	50,541	15	1,591	15
Large Average (29 areas)	**31,778**		**22,024**		**661**	
San Diego CA	85,392	13	65,734	12	1,786	14
Baltimore MD	56,964	18	41,777	16	1,276	16
Denver-Aurora CO	61,345	16	40,492	17	1,240	17
Tampa-St. Petersburg FL	61,018	17	39,612	18	1,205	18
Minneapolis-St. Paul MN	55,287	19	38,534	20	1,148	19
Riverside-San Bernardino CA	48,135	21	38,537	19	1,083	20
San Jose CA	51,070	20	35,630	21	1,013	21
Orlando FL	41,791	22	27,842	23	850	22
Sacramento CA	39,197	23	28,358	22	806	23
Portland OR-WA	34,418	25	23,969	24	712	24
Las Vegas NV	34,521	24	23,425	25	705	25
St. Louis MO-IL	32,863	26	20,660	27	697	26
San Antonio TX	31,026	27	21,973	26	621	27
Charlotte NC-SC	24,237	29	16,046	31	525	28
Indianapolis IN	23,505	31	16,135	30	522	29
Cincinnati OH-KY-IN	23,832	30	17,307	28	508	30
Virginia Beach VA	24,665	28	16,324	29	501	31
Austin TX	22,777	32	15,578	33	471	32
Jacksonville FL	22,491	33	15,711	32	457	33
Columbus OH	20,428	34	14,519	34	424	35
Raleigh-Durham NC	19,588	37	12,716	37	421	36
Providence RI-MA	19,937	36	12,114	39	386	39
Memphis TN-MS-AR	14,633	43	8,975	44	311	41
Milwaukee WI	14,860	42	10,651	41	307	42
Pittsburgh PA	15,334	41	8,753	45	304	43
Kansas City MO-KS	12,703	47	8,085	49	267	47
New Orleans LA	11,327	50	7,147	51	244	49
Cleveland OH	12,037	49	8,166	48	241	51
Buffalo NY	6,185	66	3,929	67	134	65
90 Area Total	**3,592,338**		**2,473,532**		**75,761**	
90 Areas Average	**39,915**		**27,484**		**842**	
Remaining Areas						
48 Areas Over 250,000 - Total	247,046		161,607		5,387	
48 Areas Over 250,000 - Average	5,147		3,367		112	
301 Areas Under 250,000 - Total	319,331		179,223		6,074	
301 Areas Under 250,000 - Average	1,061		595		20	
All 439 Areas Total	**4,158,715**		**2,814,363**		**87,222**	
All 439 Areas Average	**9,473**		**6,411**		**199**	

Very Large Urban Areas—over 3 million population. Large Urban Areas—over 1 million and less than 3 million population.

Travel Delay – Travel time above that needed to complete a trip at free-flow speeds.

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 $15.47 per hour of person travel and $102.12 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon).

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) 6^{th} and 12^{th}. 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, 2007 Urban Area Totals, Continued

Urban Area	Travel Delay		Excess Fuel Consumed		Congestion Cost	
	(1000 Hours)	Rank	(1000 Gallons)	Rank	($ million)	Rank
Medium Average (31 areas)	**9,002**		**5,879**		**186**	
Nashville-Davidson TN	20,215	35	12,487	38	426	34
Louisville KY-IN	19,015	38	13,024	35	409	37
Tucson AZ	17,321	39	10,883	40	393	38
Bridgeport-Stamford CT-NY	16,077	40	12,759	36	350	40
Oxnard-Ventura CA	14,258	45	10,017	42	298	44
Salt Lake City UT	14,557	44	9,468	43	287	45
Birmingham AL	12,605	48	8,395	46	267	46
Oklahoma City OK	12,826	46	8,262	47	257	48
Albuquerque NM	11,095	51	7,070	52	244	49
Hartford CT	10,147	53	7,201	50	203	53
Richmond VA	10,212	52	6,557	54	202	54
Honolulu HI	10,076	54	7,051	53	199	55
Tulsa OK	9,826	56	5,589	57	192	56
Omaha NE-IA	9,298	57	5,864	56	184	57
Sarasota-Bradenton FL	9,030	58	5,418	58	176	58
Allentown-Bethlehem PA-NJ	7,571	59	4,664	60	154	59
Fresno CA	7,032	64	4,436	61	151	61
Grand Rapids MI	7,324	61	4,335	63	148	62
El Paso TX-NM	7,185	62	4,691	59	147	63
Albany-Schenectady NY	6,082	67	3,842	69	131	66
Colorado Springs CO	6,457	65	3,860	68	129	67
Dayton OH	5,800	68	4,000	66	120	69
New Haven CT	5,728	69	4,225	65	117	70
Poughkeepsie-Newburgh NY	4,739	72	2,886	73	95	73
Toledo OH-MI	3,916	77	2,480	74	83	74
Indio-Cathedral City-Palm Springs CA	4,049	74	2,338	77	82	75
Rochester NY	4,038	75	2,441	75	81	76
Springfield MA-CT	3,989	76	2,422	76	77	77
Bakersfield CA	3,359	78	2,091	79	73	78
Akron OH	3,031	79	2,172	78	63	79
Lancaster-Palmdale CA	2,208	80	1,314	80	44	80
Small Average (16 areas)	**3,444**		**2,090**		**71**	
Charleston-North Charleston SC	9,944	55	6,090	55	207	52
Cape Coral FL	7,451	60	4,347	62	152	60
Knoxville TN	7,166	63	4,295	64	147	64
Columbia SC	5,478	70	3,516	70	121	68
Pensacola FL-AL	5,469	71	3,122	72	106	71
Little Rock AR	4,652	73	3,298	71	97	72
Salem OR	2,069	81	1,224	81	41	81
Laredo TX	1,806	82	1,005	83	37	82
Spokane WA	1,714	83	1,056	82	36	83
Corpus Christi TX	1,629	84	970	84	32	84
Anchorage AK	1,616	85	903	85	32	85
Eugene OR	1,481	86	903	85	30	86
Beaumont TX	1,425	87	866	87	28	87
Wichita KS	1,404	88	793	88	27	88
Boulder CO	953	89	562	89	18	89
Brownsville TX	841	90	486	90	17	89
90 Area Total	**3,592,338**		**2,473,532**		**75,761**	
90 Areas Average	**39,915**		**27,484**		**842**	
Remaining Areas						
48 Areas Over 250,000 - Total	247,046		161,607		5,387	
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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 3. Solutions to Congestion Problems, 2007

Urban Area	Operational Treatment Savings				Public Transportation Savings		
	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)
Very Large Average (14 areas)		**15,413**		**324.6**	**39,784**		**848.2**
Los Angeles-Long Beach-Santa Ana CA	r,i,s,a,h	60,576	1	1,286.1	32,348	3	588.8
New York-Newark NY-NJ-CT	r,i,s,a,h	40,466	2	863.7	319,247	1	6,929.2
San Francisco-Oakland CA	r,i,s,a,h	17,675	3	360.8	31,835	4	658.9
Houston TX	r,i,s,a,h	15,201	4	300.8	5,902	13	103.0
Miami FL	i,s,a,h	13,443	5	269.2	10,026	10	191.1
Dallas-Fort Worth-Arlington TX	r,i,s,a,h	11,186	6	221.8	5,486	14	111.1
Washington DC-VA-MD	r,i,s,a,h	10,517	7	216.1	26,285	5	521.1
Atlanta GA	r,i,s,a,h	9,426	8	215.0	10,474	9	224.8
Chicago IL-IN	r,i,s,a	8,038	10	179.5	48,751	2	1,121.1
Philadelphia PA-NJ-DE-MD	r,i,s,a	7,856	11	165.1	22,538	7	472.6
Seattle WA	r,i,s,a,h	6,802	12	145.6	12,521	8	261.4
Phoenix AZ	r,i,s,a,h	5,359	15	121.4	2,566	21	59.8
Boston MA-NH-RI	i,s,a	4,929	16	106.7	26,266	6	573.8
Detroit MI	r,i,s,a	4,313	19	92.9	2,732	19	57.4
Large Average (29 areas)		**2,149**		**44.6**	**2,029**		**42.3**
San Diego CA	r,i,s,a	8,309	9	170.0	7,832	12	161.7
Riverside-San Bernardino CA	r,i,s,a,h	5,505	13	123.5	1,397	30	27.7
Minneapolis-St. Paul MN	r,i,s,a,h	5,457	14	109.6	3,900	17	79.4
San Jose CA	r,i,s,a	4,396	17	86.4	2,375	22	46.9
Tampa-St. Petersburg FL	i,s,a	4,378	18	86.5	1,250	32	24.3
Sacramento CA	r,i,s,a,h	3,877	20	80.7	1,865	25	37.0
Baltimore MD	i,s,a	3,568	21	79.8	9,474	11	216.0
Denver-Aurora CO	r,i,s,a,h	3,554	22	71.3	5,033	15	101.6
Portland OR-WA	r,i,s,a,h	2,922	23	61.6	4,771	16	98.0
Orlando FL	i,s,a	2,613	24	53.0	1,572	27	31.7
Virginia Beach VA	i,s,a,h	1,947	25	39.5	913	38	18.6
Las Vegas NV	i,s,a	1,661	26	33.0	1,723	26	35.4
Jacksonville FL	i,s,a	1,475	27	30.1	511	43	10.4
San Antonio TX	i,s,a	1,386	28	27.8	1,455	29	29.0
St. Louis MO-IL	i,s,a	1,323	29	27.9	2,031	23	43.2
Milwaukee WI	r,i,s,a	1,296	30	26.7	1,071	35	22.1
Austin TX	i,s,a	1,209	31	25.1	1,472	28	30.6
Columbus OH	r,i,s,a	1,002	32	21.8	451	45	9.5
Memphis TN-MS-AR	i,s,a	965	34	21.2	372	50	7.9
Charlotte NC-SC	i,s,a	910	35	19.8	946	37	20.4
Cincinnati OH-KY-IN	r,i,s,a	793	37	17.1	1,328	31	28.4
Indianapolis IN	i,s,a	697	42	15.5	431	48	9.5
New Orleans LA	i,s,a	675	44	14.6	1,075	34	23.4
Cleveland OH	i,s,a	505	49	10.3	1,227	33	24.6
Raleigh-Durham NC	i,s,a	491	50	10.9	723	39	15.5
Kansas City MO-KS	i,s,a	486	51	10.1	240	55	5.0
Pittsburgh PA	i,s,a	431	55	8.7	1,957	24	39.1
Providence RI-MA	i,s,a	324	57	6.5	989	36	19.1
Buffalo NY	i,s,a	160	65	3.6	451	45	9.8
90 Area Total		**290,824**		**6,105.3**	**630,149**		**13,390.7**
90 Area Average		**3,231**		**68.0**	**7,002**		**149.0**
Remaining Areas							
48 Areas Over 250,000 - Total		8,165		178.9	6,891		150.9
48 Areas Over 250,000 - Average		170		3.7	144		3.1
301 Areas Under 250,000 - Total		9,239		179.6	8,874		187.9
301 Areas Under 250,000 - Average		31		0.6	29		0.6
All 439 Areas Total		**308,319**		**6,463.8**	**645,914**		**13,729.5**
All 439 Areas Average		**702**		**14.7**	**1,471**		**31.3**

Very Large Urban Areas—over 3 million population. Large Urban Areas—over 1 million and less than 3 million 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.
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 3. Solutions to Congestion Problems, 2007, Continued

	Operational Treatment Savings				Public Transportation Savings		
Urban Area	Treatments	Delay (1000 Hours)	Rank	Cost ($ Million)	Delay (1000 Hours)	Rank	Cost ($ Million)
Medium Average (31 areas)		**354**		**7.4**	**414**		**8.4**
Tucson AZ	i,s,a	994	33	22.3	571	41	12.9
Nashville-Davidson TN	i,s,a	893	36	19.6	407	49	8.6
Omaha NE-IA	i,s,a	765	38	15.2	161	67	3.2
Bridgeport-Stamford CT-NY	i,s,a	744	39	16.4	248	53	5.4
Albuquerque NM	i,s,a	734	40	15.8	237	56	5.2
Birmingham AL	i,s,a	723	41	16.6	160	68	3.4
Louisville KY-IN	i,s,a	682	43	14.9	501	44	10.9
Sarasota-Bradenton FL	i,s,a	564	45	10.9	135	73	2.6
Fresno CA	r,i,s,a	529	46	11.3	224	58	4.7
El Paso TX-NM	i,s,a	515	47	10.3	546	42	11.1
Salt Lake City UT	r,i,s,a	513	48	10.5	2,672	20	52.9
Oxnard-Ventura CA	i,s,a	468	52	9.3	257	52	5.3
Hartford CT	i,s,a	440	54	8.9	670	40	13.4
Richmond VA	i,s,a	274	58	5.4	435	47	8.6
Honolulu HI	i,s,a	245	59	4.8	3,045	18	59.2
Allentown-Bethlehem PA-NJ	r,i,s,a	204	61	4.3	202	60	4.1
Colorado Springs CO	i,s,a	197	62	3.8	222	59	4.4
New Haven CT	i,s,a	197	62	4.0	138	71	2.8
Grand Rapids MI	s,a	188	64	3.7	245	54	5.0
Albany-Schenectady NY	i,s,a	145	66	3.2	271	51	5.8
Indio-Cathedral City-Palm Springs CA	i,s,a	145	66	3.0	118	76	2.4
Bakersfield CA	i,s,a	144	68	3.0	175	63	3.8
Oklahoma City OK	i,s,a	131	69	2.7	95	79	1.9
Rochester NY	i,s,a	113	72	2.3	146	69	2.9
Dayton OH	s,a	85	74	1.6	169	65	3.6
Poughkeepsie-Newburgh NY	s,a	82	75	1.6	199	61	4.0
Tulsa OK	i,s,a	78	76	1.6	51	86	1.0
Lancaster-Palmdale CA	s,a	64	78	1.3	190	62	3.7
Springfield MA-CT	i,s,a	64	78	1.3	119	75	2.3
Akron OH	i,s,a	24	86	0.5	73	82	1.5
Toledo OH-MI	i,s,a	23	87	0.5	141	70	3.0
Small Average (16 areas)		**110**		**2.3**	**95**		**2.0**
Cape Coral FL	i,s,a	456	53	9.3	137	72	2.8
Knoxville TN	i,s,a	373	56	8.0	48	87	1.0
Little Rock AR	i,s,a	213	60	4.7	12	90	0.2
Charleston-North Charleston SC	i,s,a	122	70	2.7	117	77	2.4
Pensacola FL-AL	s,a	114	71	2.2	57	84	1.2
Columbia SC	i,s,a	98	73	2.4	170	64	3.9
Spokane WA	i,s,a	75	77	1.6	168	66	3.6
Salem OR	s,a	54	80	1.0	111	78	2.3
Eugene OR	i,s,a	52	81	1.1	230	57	4.7
Anchorage AK	s,a	50	82	1.0	120	74	2.4
Laredo TX	i,s,a	36	83	0.8	94	80	1.9
Wichita KS	i,s,a	32	84	0.6	45	88	0.9
Boulder CO	s,a	26	85	0.5	52	85	1.0
Corpus Christi TX	s,a	23	87	0.5	65	83	1.3
Brownsville TX	s,a	18	89	0.4	75	81	1.5
Beaumont TX	s,a	13	90	0.2	15	89	0.3
90 Area Total		**290,824**		**6,105.3**	**630,149**		**13,390.7**
90 Area Average		**3,231**		**68.0**	**7,002**		**149.0**
Remaining Areas							
48 Areas Over 250,000 - Total		8,165		178.9	6,891		150.9
48 Areas Over 250,000 - Average		170		3.7	144		3.1
301 Areas Under 250,000 - Total		9,239		179.6	8,874		187.9
301 Areas Under 250,000 - Average		31		0.6	29		0.6
All 439 Areas Total		**308,319**		**6463.8**	**645,914**		**13,729.5**
All 439 Areas Average		**702**		**14.7**	**1,471**		**31.3**

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.

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. Congestion Trends – Wasted Hours (Annual Delay per Traveler, 1982 to 2007)

Urban Area	Annual Hours of Delay per Traveler				Long-Term Change 1982 to 2007	
	2007	2006	1997	1982	Hours	Rank
Very Large Average (14 areas)	**51**	**52**	**43**	**21**	**30**	
Washington DC-VA-MD	62	59	52	16	46	1
Dallas-Fort Worth-Arlington TX	53	55	34	10	43	2
Atlanta GA	57	59	56	19	38	5
Miami FL	47	48	35	15	32	11
New York-Newark NY-NJ-CT	44	45	32	12	32	11
San Francisco-Oakland CA	55	58	47	23	32	11
Boston MA-NH-RI	43	44	32	12	31	15
Seattle WA	43	45	52	12	31	15
Detroit MI	52	53	48	24	28	21
Houston TX	56	56	39	29	27	22
Chicago IL-IN	41	43	35	15	26	23
Los Angeles-Long Beach-Santa Ana CA	70	72	69	44	26	23
Philadelphia PA-NJ-DE-MD	38	38	28	16	22	36
Phoenix AZ	44	45	35	35	9	70
Large Average (29 areas)	**35**	**36**	**31**	**11**	**24**	
San Diego CA	52	54	36	12	40	3
Riverside-San Bernardino CA	44	45	26	5	39	4
Orlando FL	53	55	59	18	35	6
Las Vegas NV	44	43	34	10	34	7
Baltimore MD	44	44	32	11	33	9
Minneapolis-St. Paul MN	39	40	38	6	33	9
San Antonio TX	38	40	24	6	32	11
Charlotte NC-SC	40	39	25	10	30	17
San Jose CA	53	55	44	23	30	17
Austin TX	39	39	32	10	29	19
Denver-Aurora CO	45	48	41	16	29	19
Columbus OH	30	32	31	4	26	23
Providence RI-MA	29	26	15	3	26	23
Raleigh-Durham NC	34	32	31	8	26	23
Portland OR-WA	37	38	35	13	24	28
Sacramento CA	39	42	35	15	24	28
Tampa-St. Petersburg FL	47	48	37	24	23	32
Jacksonville FL	39	38	39	17	22	36
Cincinnati OH-KY-IN	25	26	29	5	20	40
Indianapolis IN	39	42	56	19	20	40
Memphis TN-MS-AR	25	28	23	6	19	44
Virginia Beach VA	29	30	31	14	15	56
St. Louis MO-IL	26	30	39	12	14	57
Kansas City MO-KS	15	17	19	3	12	64
Milwaukee WI	18	18	19	7	11	67
Cleveland OH	12	13	18	3	9	70
Buffalo NY	11	12	7	3	8	72
Pittsburgh PA	15	15	18	11	4	82
New Orleans LA	20	20	21	17	3	87
90 Area Average	**41**	**42**	**36**	**16**	**25**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	24	23	19	7	17	
301 Urban Areas Under 250,000 Popn	18	18	16	5	13	
All 439 Urban Areas	**36**	**37**	**32**	**14**	**22**	

Very Large Urban Areas—over 3 million population. Large Urban Areas—over 1 million and less than 3 million population.

Annual Delay per Traveler – Extra travel time for peak-period travel during the year divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.). Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.

Data for all years include effects of operational treatments.

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) 6^{th} and 12^{th}. 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. Congestion Trends – Wasted Hours (Annual Delay per Traveler, 1982 to 2007), Continued

Urban Area	Annual Hours of Delay per Traveler				Long-Term Change 1982 to 2007	
	2007	2006	1997	1982	Hours	Rank
Medium Average (31 areas)	**23**	**24**	**20**	**8**	**15**	
Oxnard-Ventura CA	38	36	21	4	34	7
Birmingham AL	32	33	24	8	24	28
Bridgeport-Stamford CT-NY	33	33	24	9	24	28
Albuquerque NM	34	33	33	11	23	32
Oklahoma City OK	27	24	20	5	22	36
Omaha NE-IA	26	28	19	5	21	39
Louisville KY-IN	38	40	39	18	20	40
Colorado Springs CO	23	26	16	4	19	44
Salt Lake City UT	27	26	28	8	19	44
Hartford CT	21	21	15	4	17	49
Nashville-Davidson TN	37	38	36	20	17	49
Tucson AZ	41	43	29	24	17	49
Albany-Schenectady NY	19	17	9	3	16	52
El Paso TX-NM	19	21	10	3	16	52
Grand Rapids MI	22	23	21	6	16	52
New Haven CT	19	19	15	5	14	57
Richmond VA	20	20	21	6	14	57
Tulsa OK	22	22	18	8	14	57
Allentown-Bethlehem PA-NJ	22	21	25	9	13	61
Honolulu HI	26	24	22	14	12	64
Toledo OH-MI	14	15	14	2	12	64
Sarasota-Bradenton FL	25	27	22	14	11	67
Bakersfield CA	12	13	7	2	10	69
Fresno CA	20	20	18	12	8	72
Akron OH	9	11	13	2	7	74
Poughkeepsie-Newburgh NY	17	18	14	10	7	74
Rochester NY	10	9	8	3	7	74
Dayton OH	14	17	22	10	4	82
Springfield MA-CT	11	12	10	7	4	82
Lancaster-Palmdale CA	6	5	6	12	-6	89
Indio-Cathedral City-Palm Springs CA	13	15	15	20	-7	90
Small Average (16 areas)	**19**	**18**	**15**	**6**	**13**	
Charleston-North Charleston SC	38	35	27	15	23	32
Pensacola FL-AL	28	28	22	5	23	32
Cape Coral FL	29	28	26	9	20	40
Columbia SC	22	19	12	4	18	47
Little Rock AR	22	19	10	4	18	47
Knoxville TN	26	25	39	10	16	52
Laredo TX	15	12	9	2	13	61
Salem OR	16	17	12	3	13	61
Beaumont TX	11	12	6	4	7	74
Boulder CO	12	14	14	6	6	78
Brownsville TX	8	7	4	2	6	78
Spokane WA	9	8	10	3	6	78
Eugene OR	11	11	9	6	5	81
Corpus Christi TX	9	8	7	5	4	82
Wichita KS	6	5	5	2	4	82
Anchorage AK	10	10	9	10	0	88
90 Area Average	**41**	**42**	**36**	**16**	**25**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	24	23	19	7	17	
301 Urban Areas Under 250,000 Popn	18	18	16	5	13	
All 439 Urban Areas	**36**	**37**	**32**	**14**	**22**	

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

Annual Delay per Traveler – Extra travel time for peak-period travel during the year divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.). Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.

Data for all years include effects of operational treatments.

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. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2007)

Urban Area	Travel Time Index 2007	2006	1997	1982	Point Change in Peak-Period Time Penalty Points	Rank
Very Large Average (14 areas)	**1.37**	**1.38**	**1.30**	**1.14**	**23**	
Chicago IL-IN	1.43	1.45	1.33	1.12	31	2
San Francisco-Oakland CA	1.42	1.44	1.30	1.14	28	4
Washington DC-VA-MD	1.39	1.37	1.32	1.11	28	4
New York-Newark NY-NJ-CT	1.37	1.38	1.26	1.10	27	6
Dallas-Fort Worth-Arlington TX	1.32	1.33	1.17	1.05	27	6
Miami FL	1.37	1.37	1.26	1.11	26	8
Los Angeles-Long Beach-Santa Ana CA	1.49	1.51	1.45	1.24	25	10
Atlanta GA	1.35	1.34	1.27	1.10	25	10
Seattle WA	1.29	1.30	1.31	1.07	22	15
Boston MA-NH-RI	1.26	1.27	1.20	1.08	18	24
Philadelphia PA-NJ-DE-MD	1.28	1.27	1.20	1.11	17	26
Detroit MI	1.29	1.29	1.27	1.13	16	27
Phoenix AZ	1.30	1.29	1.21	1.15	15	29
Houston TX	1.33	1.34	1.23	1.19	14	31
Large Average (29 areas)	**1.23**	**1.24**	**1.19**	**1.07**	**16**	
Riverside-San Bernardino CA	1.36	1.36	1.18	1.03	33	1
San Diego CA	1.37	1.38	1.23	1.07	30	3
Sacramento CA	1.32	1.33	1.21	1.06	26	8
Baltimore MD	1.31	1.31	1.20	1.07	24	12
Las Vegas NV	1.30	1.30	1.23	1.06	24	12
San Jose CA	1.36	1.37	1.23	1.13	23	14
Denver-Aurora CO	1.31	1.31	1.26	1.09	22	15
Austin TX	1.29	1.29	1.22	1.07	22	15
Portland OR-WA	1.29	1.29	1.24	1.07	22	15
Orlando FL	1.30	1.31	1.30	1.10	20	20
Minneapolis-St. Paul MN	1.24	1.25	1.21	1.04	20	20
San Antonio TX	1.23	1.23	1.13	1.04	19	22
Charlotte NC-SC	1.25	1.24	1.16	1.07	18	24
Jacksonville FL	1.23	1.22	1.18	1.07	16	27
Columbus OH	1.18	1.19	1.16	1.03	15	29
Cincinnati OH-KY-IN	1.18	1.18	1.18	1.04	14	31
Providence RI-MA	1.17	1.15	1.10	1.03	14	31
Indianapolis IN	1.21	1.21	1.25	1.08	13	36
Raleigh-Durham NC	1.17	1.16	1.12	1.04	13	36
Tampa-St. Petersburg FL	1.31	1.30	1.26	1.20	11	42
Virginia Beach VA	1.18	1.18	1.18	1.07	11	42
Milwaukee WI	1.13	1.12	1.12	1.05	8	54
Memphis TN-MS-AR	1.12	1.13	1.12	1.04	8	54
New Orleans LA	1.17	1.17	1.15	1.11	6	67
St. Louis MO-IL	1.13	1.16	1.19	1.07	6	67
Cleveland OH	1.08	1.09	1.13	1.03	5	72
Kansas City MO-KS	1.07	1.08	1.08	1.02	5	72
Buffalo NY	1.07	1.08	1.04	1.03	4	79
Pittsburgh PA	1.09	1.09	1.09	1.06	3	83
90 Area Average	**1.29**	**1.29**	**1.23**	**1.10**	**19**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	1.16	1.15	1.11	1.05	11	
301 Urban Areas Under 250,000 Popn	1.10	1.11	1.09	1.03	7	
All 439 Urban Areas	**1.25**	**1.25**	**1.20**	**1.09**	**16**	

Very Large Urban Areas—over 3 million population. Large Urban Areas—over 1 million and less than 3 million 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. Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.
Data for all years include the effects of operational treatments.
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. Congestion Trends – Wasted Time (Travel Time Index, 1982 to 2007), Continued

Urban Area	Travel Time Index				Point Change in Peak-Period Time Penalty	
	2007	2006	1997	1982	Points	Rank
Medium Average (31 areas)	**1.14**	**1.14**	**1.11**	**1.05**	**9**	
Oxnard-Ventura CA	1.24	1.23	1.12	1.03	21	19
Bridgeport-Stamford CT-NY	1.25	1.25	1.17	1.06	19	22
Tucson AZ	1.24	1.25	1.16	1.10	14	31
Salt Lake City UT	1.19	1.18	1.18	1.05	14	31
Honolulu HI	1.24	1.23	1.19	1.11	13	36
Albuquerque NM	1.18	1.17	1.18	1.05	13	36
Omaha NE-IA	1.16	1.17	1.11	1.04	12	40
Birmingham AL	1.15	1.15	1.10	1.04	11	42
Colorado Springs CO	1.13	1.14	1.09	1.02	11	42
El Paso TX-NM	1.12	1.13	1.07	1.02	10	46
Oklahoma City OK	1.12	1.10	1.08	1.02	10	46
Louisville KY-IN	1.20	1.22	1.19	1.11	9	51
Sarasota-Bradenton FL	1.19	1.20	1.18	1.10	9	51
Hartford CT	1.12	1.12	1.09	1.03	9	51
Allentown-Bethlehem PA-NJ	1.14	1.13	1.16	1.06	8	54
Fresno CA	1.13	1.13	1.11	1.05	8	54
New Haven CT	1.11	1.11	1.09	1.03	8	54
Albany-Schenectady NY	1.10	1.09	1.04	1.02	8	54
Bakersfield CA	1.09	1.09	1.04	1.01	8	54
Tulsa OK	1.10	1.10	1.09	1.03	7	63
Grand Rapids MI	1.10	1.10	1.10	1.03	7	63
Nashville-Davidson TN	1.15	1.16	1.14	1.09	6	67
Indio-Cathedral City-Palm Springs CA	1.14	1.16	1.12	1.08	6	67
Toledo OH-MI	1.08	1.09	1.08	1.02	6	67
Richmond VA	1.09	1.09	1.08	1.04	5	72
Poughkeepsie-Newburgh NY	1.09	1.09	1.07	1.04	5	72
Akron OH	1.07	1.08	1.08	1.02	5	72
Lancaster-Palmdale CA	1.10	1.10	1.06	1.06	4	79
Rochester NY	1.06	1.07	1.06	1.02	4	79
Dayton OH	1.09	1.10	1.12	1.07	2	86
Springfield MA-CT	1.06	1.07	1.05	1.04	2	86
Small Average (16 areas)	**1.10**	**1.09**	**1.08**	**1.03**	**7**	
Charleston-North Charleston SC	1.20	1.18	1.14	1.08	12	40
Cape Coral FL	1.17	1.15	1.14	1.07	10	46
Pensacola FL-AL	1.13	1.13	1.10	1.03	10	46
Laredo TX	1.12	1.10	1.07	1.02	10	46
Salem OR	1.10	1.10	1.07	1.02	8	54
Columbia SC	1.10	1.08	1.05	1.02	8	54
Knoxville TN	1.12	1.11	1.14	1.05	7	63
Little Rock AR	1.09	1.08	1.04	1.02	7	63
Boulder CO	1.09	1.11	1.10	1.04	5	72
Brownsville TX	1.07	1.07	1.05	1.02	5	72
Eugene OR	1.08	1.08	1.05	1.04	4	79
Beaumont TX	1.05	1.05	1.03	1.02	3	83
Spokane WA	1.05	1.04	1.05	1.02	3	83
Corpus Christi TX	1.05	1.05	1.04	1.03	2	86
Anchorage AK	1.07	1.07	1.06	1.06	1	89
Wichita KS	1.02	1.02	1.02	1.01	1	89
90 Area Average	**1.29**	**1.29**	**1.23**	**1.10**	**19**	
Remaining Areas						
48 Urban Areas Over 250,000 Popn	1.16	1.15	1.11	1.05	11	
301 Urban Areas Under 250,000 Popn	1.10	1.11	1.09	1.03	7	
All 439 Urban Areas	**1.25**	**1.25**	**1.20**	**1.09**	**16**	

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. Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as the comparison threshold.

Data for all years include the effects of operational treatments.

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 6. Summary of Congestion Measures and Trends

Urban Area	Congestion Levels in 2007			Congestion Increase 1982 to 2007	
	Delay per Traveler (Hours)	Travel Time Index	Total Delay (1000 Hours)	Delay per Traveler (Hours)	Total Delay (1000 Hours)
Very Large Average (14 areas)	**51**	**1.37**	**166,900**	**30**	**129,322**
New York-Newark NY-NJ-CT	-	0	++	0	F+
Los Angeles-Long Beach-Santa Ana CA	++	++	++	S	F+
Chicago IL-IN	L-	+	+	S	F+
Miami FL	-	0	-	0	S
Philadelphia PA-NJ-DE-MD	--	--	--	S-	S-
San Francisco-Oakland CA	+	+	-	0	S-
Dallas-Fort Worth-Arlington TX	0	-	-	F+	0
Atlanta GA	+	0	-	F+	S
Washington DC-VA-MD	++	0	-	F+	S-
Boston MA-NH-RI	--	--	--	0	S-
Detroit MI	0	--	--	0	S-
Houston TX	+	-	-	S	S-
Phoenix AZ	-	-	--	S-	S-
Seattle WA	--	--	--	0	S-
Large Average (29 areas)	**35**	**1.23**	**31,778**	**24**	**26,944**
San Diego CA	++	++	++	F+	F+
Minneapolis-St. Paul MN	+	0	++	F+	F+
Baltimore MD	++	++	++	F+	F+
Tampa-St. Petersburg FL	++	++	++	0	F+
St. Louis MO-IL	--	--	0	S-	S
Denver-Aurora CO	++	++	++	F	F+
Riverside-San Bernardino CA	++	++	++	F+	F+
Sacramento CA	+	++	+	0	F+
Pittsburgh PA	--	--	--	S-	S-
Portland OR-WA	0	+	0	0	F
Cleveland OH	--	--	--	S-	S-
San Jose CA	++	++	++	F	F+
Cincinnati OH-KY-IN	--	-	-	S	S-
Virginia Beach VA	-	-	-	S-	S-
Kansas City MO-KS	--	--	--	S-	S-
Milwaukee WI	--	--	--	S-	S-
San Antonio TX	+	0	0	F+	F
Las Vegas NV	++	+	0	F+	F+
Orlando FL	++	+	+	F+	F+
Providence RI-MA	-	-	-	0	S-
Columbus OH	-	-	-	0	S-
Buffalo NY	--	--	--	S-	S-
New Orleans LA	--	-	--	S-	S-
Charlotte NC-SC	+	0	-	F	S-
Indianapolis IN	+	0	-	S	S-
Jacksonville FL	+	0	-	0	S-
Austin TX	+	+	-	F	S-
Memphis TN-MS-AR	--	--	--	S	S-
Raleigh-Durham NC	0	-	--	0	S-
Interval Values – Very Large and Large	5 hours	5 index points	(5 hours x average popn. for group)	5 hours	(5 hours x average popn. for group)

0 – *Average congestion levels or average congestion growth (within 1 interval)*
(Note: Interval – If the difference in values is less than this, it may not indicate a difference in congestion level).

Between 1 and 2 intervals above or below the average
+ *Higher congestion*; F *Faster congestion growth*;
- *Lower congestion*; S *Slower congestion growth*;

More than 2 intervals above or below the average
++ *Much higher congestion*; F+ *Much faster growth*
-- *Much lower congestion*; S- *Much slower growth*

Table 6. Summary of Congestion Measures and Trends, Continued

Urban Area	Congestion Levels in 2007			Congestion Increase 1982 to 2007	
	Delay per Traveler (Hours)	Travel Time Index	Total Delay (1000 Hours)	Delay per Traveler (Hours)	Total Delay (1000 Hours)
Medium Average (31 areas)	**23**	**1.14**	**9,002**	**15**	**7,295**
Nashville-Davidson TN	++	0	++	F	F+
Salt Lake City UT	+	++	++	F	F+
Richmond VA	-	--	+	0	F+
Louisville KY-IN	++	++	++	F+	F+
Hartford CT	-	-	+	F	F+
Bridgeport-Stamford CT-NY	++	++	++	F+	F+
Oklahoma City OK	+	-	++	F+	F+
Tulsa OK	0	-	0	0	F
Tucson AZ	++	++	++	F	F+
Dayton OH	--	--	--	S-	S-
Rochester NY	--	--	--	S-	S-
Birmingham AL	++	0	++	F+	F+
Lancaster-Palmdale CA	--	-	--	S-	S-
Honolulu HI	+	++	+	S	S
El Paso TX-NM	-	-	-	0	S
Oxnard-Ventura CA	++	++	++	F+	F+
Sarasota-Bradenton FL	+	++	0	S-	0
Springfield MA-CT	--	--	--	S-	S-
Omaha NE-IA	+	+	0	F+	F
Fresno CA	-	0	-	S-	S-
Allentown-Bethlehem PA-NJ	0	0	-	S	S-
Akron OH	--	--	--	S-	S-
Grand Rapids MI	0	-	-	0	S
Albany-Schenectady NY	-	-	-	0	S-
Albuquerque NM	++	+	+	F+	F+
New Haven CT	-	-	--	0	S-
Indio-Cathedral City-Palm Springs CA	--	0	--	S-	S-
Toledo OH-MI	--	--	--	S	S-
Poughkeepsie-Newburgh NY	--	--	--	S-	S-
Bakersfield CA	--	--	--	S-	S-
Colorado Springs CO	0	0	-	F	S-
Small Average (16 areas)	**19**	**1.10**	**3,444**	**13**	**2,881**
Knoxville TN	++	+	++	F	F+
Charleston-North Charleston SC	++	++	++	F+	F+
Cape Coral FL	++	++	++	F+	F+
Columbia SC	+	0	++	F+	F+
Wichita KS	--	--	--	S-	S-
Little Rock AR	+	0	+	F+	F+
Spokane WA	--	--	--	S-	S-
Pensacola FL-AL	++	+	++	F+	F+
Corpus Christi TX	--	--	--	S-	S-
Anchorage AK	--	-	--	S-	S-
Eugene OR	--	-	--	S-	S-
Salem OR	-	0	-	0	S-
Beaumont TX	--	--	--	S-	S-
Laredo TX	-	+	--	0	S-
Brownsville TX	--	-	--	S-	S-
Boulder CO	--	0	--	S-	S-
Interval Values – Medium and Small	5 hours	5 index points	(5 hours x average popn. for group)	5 hours	(5 hours x average popn. for group)

0 – *Average congestion levels or average congestion growth (within 1 interval)*
(Note: Interval – If the difference in values is less than this, it may not indicate a difference in congestion level).

Between 1 and 2 intervals above or below the average
\+ *Higher congestion*; F *Faster congestion growth*;
\- *Lower congestion*; S *Slower congestion growth*;

More than 2 intervals above or below the average
++ *Much higher congestion*; F+ *Much faster growth*
-- *Much lower congestion*; S- *Much slower growth*

Table 7. Urban Area Demand and Roadway Growth Trends

Less Than 15% Faster (9)	15% to 35% Faster (44)	More Than 35% Faster (37)
Anchorage AK	Allentown-Bethlehem PA-NJ	Akron OH
Dayton OH	Bakersfield CA	Albany-Schenectady NY
Indio-Cathedral City-Palm Springs CA	Beaumont TX	Albuquerque NM
Lancaster-Palmdale CA	Boulder, CO	Atlanta GA
New Orleans LA	Boston MA-NH-RI	Austin TX
Pittsburgh PA	Brownsville TX	Baltimore MD
Poughkeepsie-Newburgh NY	Buffalo NY	Birmingham AL
St. Louis MO-IL	Charleston-North Charleston SC	Bridgeport-Stamford CT-NY
Wichita KS	Charlotte NC-SC	Cape Coral, FL
	Cleveland OH	Chicago IL-IN
	Corpus Christi TX	Cincinnati OH-KY-IN
	Denver-Aurora CO	Colorado Springs CO
	Detroit MI	Columbia SC
	El Paso TX-NM	Columbus, OH
	Eugene OR	Dallas-Fort Worth-Arlington TX
	Fresno CA	Hartford CT
	Grand Rapids MI	Jacksonville FL
	Honolulu HI	Laredo TX
	Houston TX	Las Vegas NV
	Indianapolis IN	Little Rock AR
	Kansas City MO-KS	Los Angeles-L Bch-Santa Ana CA
	Knoxville TN	Miami FL
	Louisville KY-IN	Minneapolis-St. Paul MN
	Memphis TN-MS-AR	New Haven CT
	Milwaukee WI	New York-Newark NY-NJ-CT
	Nashville-Davidson TN	Orlando FL
	Oklahoma City OK	Oxnard-Ventura CA
	Omaha NE-IA	Pensacola FL-AL
	Philadelphia PA-NJ-DE-MD	Providence RI-MA
	Phoenix AZ	Raleigh-Durham NC
	Portland OR-WA	Riverside-San Bernardino CA
	Richmond VA	Sacramento CA
	Rochester NY	San Antonio TX
	Salem OR	San Diego CA
	Salt Lake City UT	San Francisco-Oakland CA
	San Jose CA	Sarasota-Bradenton FL
	Seattle WA	Washington DC-VA-MD
	Spokane WA	
	Springfield MA-CT	
	Tampa-St. Petersburg FL	
	Toledo OH-MI	
	Tucson AZ	
	Tulsa, OK	
	Virginia Beach VA	

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

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