THE CONGESTION CON

How more lanes and more money equals more traffic

Transportation for America

This project was conducted under the leadership of Beth Osborne, Rayla Bellis was the primary author of the language in this report, Stephen Lee Davis provided additional language and edits, Chris McCahill assisted in the report analyses, and other input and contributions were provided by Eric Sundquist, Chris McCahill, and Emily Mangan. All graphics & photos by Stephen Lee Davis unless otherwise noted. Cover photo by the North Carolina Department of Transportation on Flickr: https://www.flickr.com/photos/ncdot/6594018375/
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About the data in this report

This report examines changes in population, lane-miles of freeways, and congestion in the 100 largest urbanized areas in the U.S. between 1993 (the earliest year with a complete dataset) and 2017. It also looks at other related changes in those cities like vehicle-miles traveled (VMT) and driving commute travel times.

Measuring delay: To measure congestion, T4America used data collected for the Urban Mobility Report released periodically by the Texas Transportation Institute (TTI). TTI reports several measures of congestion including the total annual hours of delay (travel below free flow speeds) and a "travel time index," which describes the extra time needed for a peak-period trip because of delay.

Other data used in this report: In addition to delay, T4America used population data from TTI for consistency. T4America used data from the Federal Highway Administration (FHWA)'s annual Highway Statistics series to evaluate lane-miles of freeway in each urbanized area, as well as change in VMT. T4America also used FHWA data to evaluate highway spending. T4America evaluated travel times to work using Census data. While lane-miles data is only available for "freeways," a subset of all highways as defined in FHWA's Highway Statistics series, we refer elsewhere to "highways" and "roads" in reference to the broader concepts discussed.

A note on urbanized area boundaries: This report looks at urbanized areas, rather than metropolitan statistical areas, as defined by TTI and FHWA based on Census data. Urbanized area boundaries are established based on minimum residential population density and expand over time as a region's population grows and spreads out. As a result, all three of the primary data points evaluated in this report—population, lane-miles of freeway, and annual hours of delay—capture increases due to both increased density and those expanding geographic boundaries. One implication is that new lane-miles are in some cases annexed by the region, as opposed to newly constructed. Nonetheless, that is the nature of urban sprawl and a key factor driving the growth in congestion in many regions, as discussed later in this report. See Appendix A for more information about this report's methodology.

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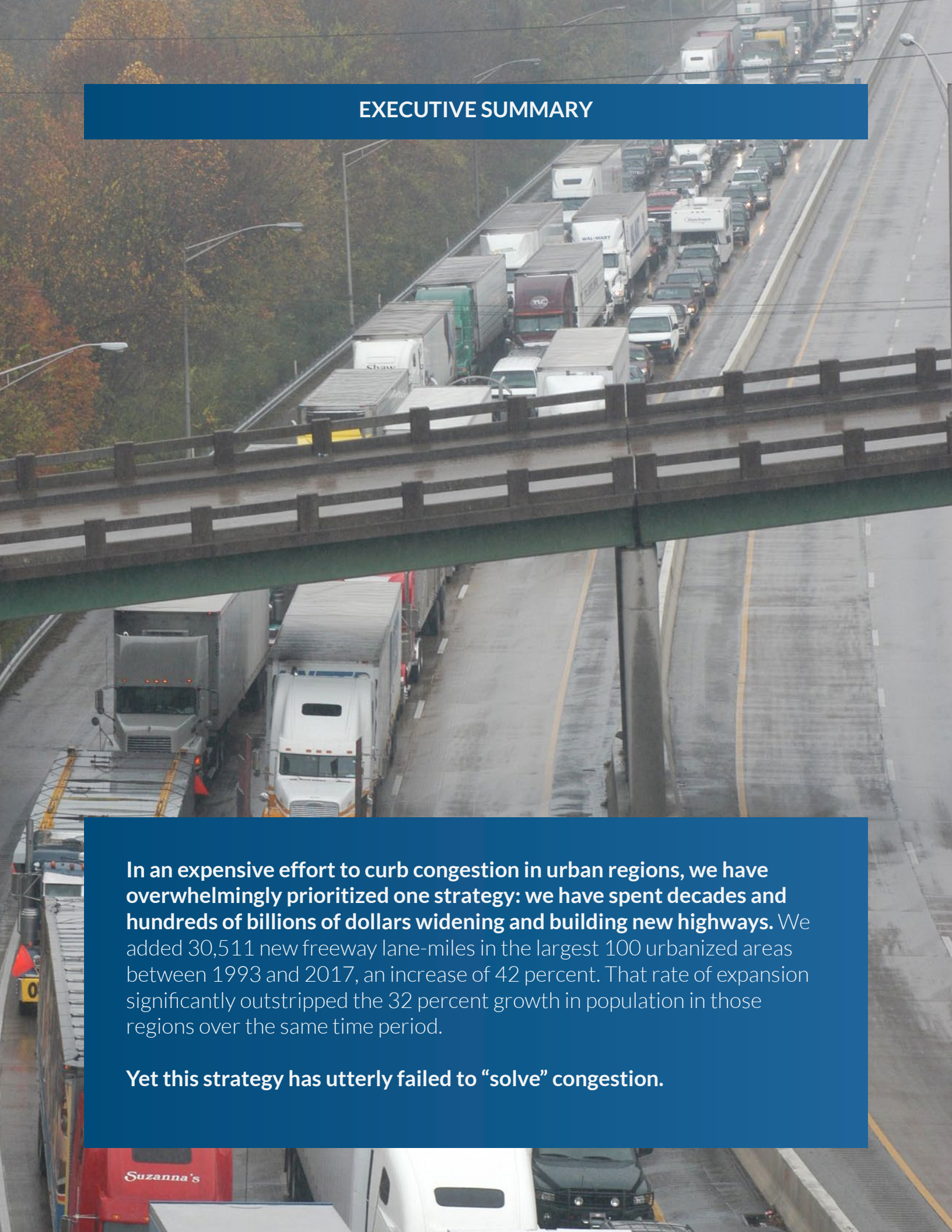


EXECUTIVE SUMMARY

In an expensive effort to curb congestion in urban regions, we have overwhelmingly prioritized one strategy: we have spent decades and hundreds of billions of dollars widening and building new highways. We added 30,511 new freeway lane-miles in the largest 100 urbanized areas between 1993 and 2017, an increase of 42 percent. That rate of expansion significantly outstripped the 32 percent growth in population in those regions over the same time period.

Yet this strategy has utterly failed to "solve" congestion.

Those new lane-miles haven't come cheap. We know that states alone spent **more than $500 billion on highway capital investments** in urbanized areas between 1993-2017, with a sizable portion going toward highway expansion. And the initial construction costs are just the tip of the iceberg. For roads that are already in good condition, it still costs approximately $24,000 per year on average to maintain each lane-mile in a state of good repair, creating significant financial liabilities now and for years into the future.

We are spending billions to widen roads and seeing unimpressive, unpredictable results in return. In those 100 urbanized areas, congestion has grown by a staggering 144 percent, far outpacing population growth. (For this report, congestion is measured as annual hours of delay using data from the Texas Transportation Institute's Urban Mobility Report). Further, the urbanized areas expanding their roads more rapidly aren't necessarily having more success curbing congestion—in fact, in many cases the opposite is true.

Why aren't we reducing congestion?

First, the average person drives significantly more each year in these 100 urbanized areas. Vehicle-miles traveled (VMT) per person increased by 20 percent between 1993-2017. This increase in driving is partially due to how we have allowed these urbanized areas to grow: letting development sprawl, creating greater distances between housing and other destinations, and forcing people to take longer and longer trips on a handful of regional highways to fulfill daily needs. We should be addressing those sources of congestion, but instead, we accept more driving and more traffic as unavoidable outcomes that we must address through costly highway expansion. This is a significantly more expensive and less effective approach than reducing the need to drive or length of trips. And unfortunately, spending billions to expand highways can actually make congestion worse by encouraging people to drive more than they otherwise would, a counterintuitive but well-documented phenomenon known as **induced demand.**

We are spending billions to widen roads and seeing unimpressive, unpredictable results in return.

Eliminating congestion is also simply the wrong goal. While severe congestion can have real negative impacts, congestion is also generally a symptom of a successful, vibrant economy—a sign of a place people want to be. **Instead, we should be focused on providing and improving access.**

What does that mean? The core purpose of transportation infrastructure is to provide access to work, education, healthcare, groceries, recreation, and all other daily needs. Congestion can become a problem when it seriously obstructs access, but may not be a major problem if it doesn't. Car speeds don't necessarily tell us anything about whether or not the transportation network is succeeding at connecting as many people as possible to the things they need, as efficiently as possible. Yet a narrow emphasis on vehicle speed and delay underlies all of the regulations, procedures, and cultural norms behind transportation decisions, from the standards engineers use to design roads to the criteria states use to prioritize projects for funding. This leads us to widen freeways reflexively, almost on autopilot, perpetuating the cycle that produces yet more traffic.

What needs to happen: Five policy recommendations

We need to face the music: we are doubling and tripling down on a failed strategy. We cannot keep relying on the same expensive and ineffective approach. With discussions underway about the next federal transportation legislation—a process that only happens every five years—now is the critical time to make changes before we pour billions more into a solution that doesn't work. This report recommends five key policy changes, many of which could be incorporated into the upcoming transportation reauthorization:

1) Reorient our national program around access—connect people to jobs and services. The only viable way to reduce traffic is to tackle the issue at the source: bring jobs, housing, and other destinations closer together to shorten and reduce the number and length of car trips people need to take. We need to reorient our national transportation program around advancing that goal instead of focusing narrowly on vehicle speed and delay.

2) Require that transportation agencies stop favoring new roads over maintenance. Existing federal law gives states substantial flexibility in how they spend highway dollars. As a result, states continue to spend a significant portion of funding to build new roads at the expense of repair needs. These highway expansions ultimately induce yet more traffic, while simultaneously increasing the cumulative annual price tag to keep the nation's highways in good repair. Congress should require that states focus available funding on our substantial repair backlog.

We need to face the music: we are doubling and tripling down on a failed strategy. We cannot keep relying on the same expensive and ineffective approach.

3) Make short trips walkable by making them safe. Wide, high-speed roads force people to drive for even very short local trips. When local streets—not just highways—are designed to move vehicles at the highest speed possible, it denies people the healthy and affordable option to bike or walk. The 2020 transportation reauthorization should include a policy that roads surrounded by development be designed for speeds of 35 mph or under to create safer conditions for walking and biking.

4) Remove restrictions on pricing and allow DOTs to manage congestion. Instead of treating congestion as a foregone conclusion and spending billions of dollars trying to mitigate it—focusing solely on increasing supply—we should be putting policies in place to help manage demand for driving.

5) Reward infill development and make it easier for localities. Developing on the fringes of urban areas results in a preventable "need" to expand roads to accommodate additional traffic. Yet we are essentially rewarding sprawl when we use limited transportation dollars to try to fix the congestion that results over the longer term. We should instead be orienting transportation funding to reward localities that seek more efficient ways of moving people—by bringing destinations closer together through land use decisions, managing driving demand, and making it easier to travel by other modes.

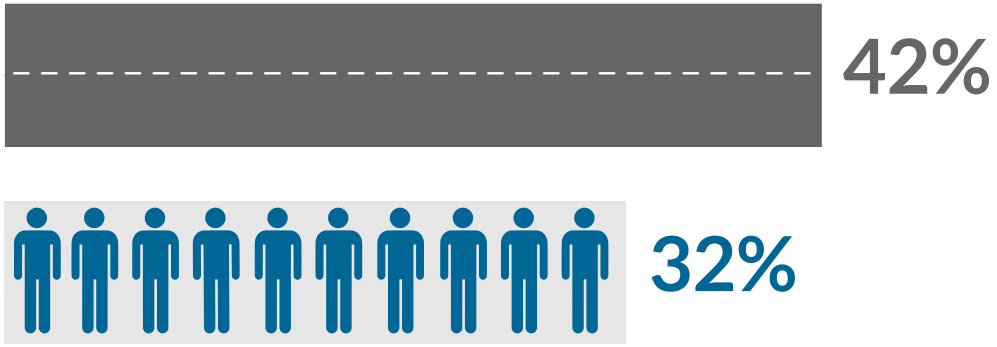
INTRODUCTION

“There is certainly little-to-no evidence that widening roads is helping reduce delay or congestion. Yet we have doubled down on this incredibly costly solution that appears to be completely disconnected from whether or not it can solve the problem.”

We have invested a lot to address congestion

In pursuit of congestion relief in American cities and inner suburbs, we have added **30,511 new freeway lane-miles** of road in the largest 100 urbanized areas in the U.S. between 1993 and 2017, an increase of **42 percent**.[1] That rate of road expansion significantly outstripped the **32 percent** growth in population in those 100 regions over that time.

We have expanded roads at a faster rate than population growth



Growth in freeway lane-miles and population growth in the largest 100 urbanized areas from 1993-2017.

These new roads and lanes haven't come cheap. The Federal Highway Administration estimates that a single new lane-mile of freeway in urban areas can cost anywhere from $4.2 million to $15.4 million to construct, depending on the urbanized area size.[2] And those initial construction costs are just the tip of the iceberg. Each new lane-mile of road costs approximately **$24,000 per year to maintain in a state of good repair**, which means that our current approach also creates significant financial liabilities now and for years into the future, whether or not it "solves" the problem.[3]

Addressing congestion by expanding road capacity creates major financial liabilities

$5 billion per year

$24,000 — estimated annual cost per lane-mile to preserve a good road in a state of good repair

X

223,494 — lane-miles were added to the full public road network from 2009-17

=

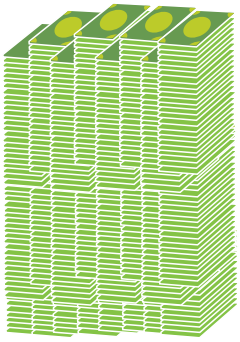
required just to keep these 223,494 new lane-miles in good condition

1 This analysis examines lane-miles of 'freeway,' as defined by the Federal Highway Administration in their Highway Statistics dataset. FHWA does not provide lane-miles data for other road types at the urbanized area level. We refer elsewhere in the report to "highways" and "roads" in reference to the broader concepts discussed. Available from: www.fhwa.dot.gov/policyinformation/statistics.cfm.

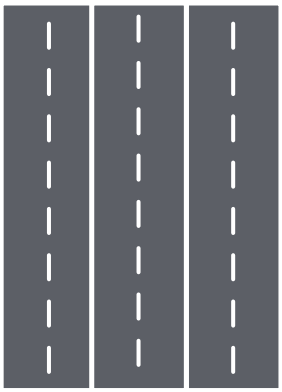
2 Construction cost estimates are from: Federal Highway Administration. (2019). Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance, 23rd Edition (p. A-4). Available from: www.transit.dot.gov/research-innovation/status-nations-highways-bridges-and-transit-condition-and-performance.

3 Transportation for America. (2019). Repair Priorities. Available from: http://t4america.org/maps-tools/repair-priorities/. Note that this cost estimate is based on FHWA data for state-managed roads of various sizes, not just freeways..

We know that states spent more than **$500 billion** on highway capital investments in urbanized areas between 1993-2017, with a sizeable portion going to highway expansions.[4] Add that to all of the funds spent by local agencies, and it's safe to say we are putting serious dollars into the preferred tactics for congestion relief as a nation.



States alone spent $500 billion on capital highway investments in urbanized areas from 1993-2017



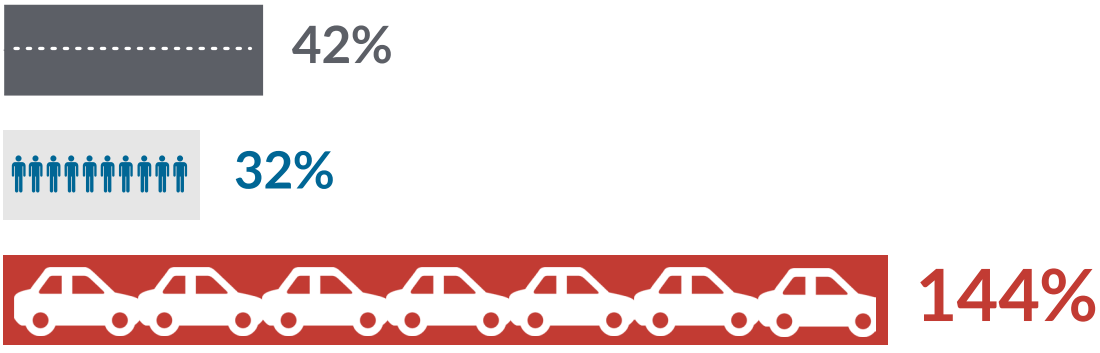
Our main national strategy for addressing congestion is failing to produce results

Put simply, our investments aren't working. With our growth in freeway lane-miles significantly outpacing population growth, you would expect us to at least be keeping pace with congestion in the nation's urban regions, if not reducing it. We aren't. As reported in the Texas Transportation Institute's (TTI) recent Urban Mobility Report, congestion has increased substantially in recent decades by every metric.[5]

In fact, **congestion has grown significantly faster than population**. Between 1993-2017, the total annual hours of delay (the extra time spent traveling at congested rather than free-flow speeds) in the nation's top 100 urbanized areas has increased by a whopping 144 percent.

We are spending billions expanding our roads and failing to see a payoff.

Freeway capacity grew faster than population, yet delay exploded



Change in freeway lane-miles, population growth, and annual hours of delay in the largest 100 urbanized areas from 1993-2017. Delay is defined as extra time spent traveling at congested rather than free-flow speeds. While FHWA only provides data on lane-miles of freeway, TTI's delay metrics capture both freeways and arterial roads.

4 Estimated by summing the total "Capital Outlays" in urbanized areas in Table SF-12 in FHWA's Highway Statistics dataset for years 1993-2017. Capital Outlays include both capacity expansion and repair projects. Available from: www.fhwa.dot.gov/policyinformation/statistics.cfm.

5 Texas Transportation Institute. (2019). Urban Mobility Report. Available from: https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-report-2019.pdf.

The data also indicate that delay has increased significantly in every single one of the 100 largest urbanized areas. Ninety-two of those regions saw delay increase by more than 100 percent, and nearly half of the regions saw delay increase by more than 200 percent. Even the **Detroit** urbanized area, where population dropped by 5 percent over that time period, has managed a 45 percent increase in delay—the smallest increase among these 100 urban regions.

While it's clear that congestion is an issue in the nation's urbanized areas, the data do not give us a straightforward answer as to why some places have seen steeper increases in delay than others. **There is no clear evidence that widening freeways has helped reduce delay or congestion.** Yet we have doubled down on this incredibly costly "solution" that appears to be completely disconnected from whether or not it can solve the problem.

Adding freeways faster than population has grown has not prevented congestion

Decision-makers like to attribute worsening congestion to population growth. It seems logical, then, that urban regions where the freeway network has expanded relatively rapidly in relation to population growth would see slower congestion growth than their peers—investing to widen roads should at least be stemming the tide. In fact, the data shows no such clear relationship.

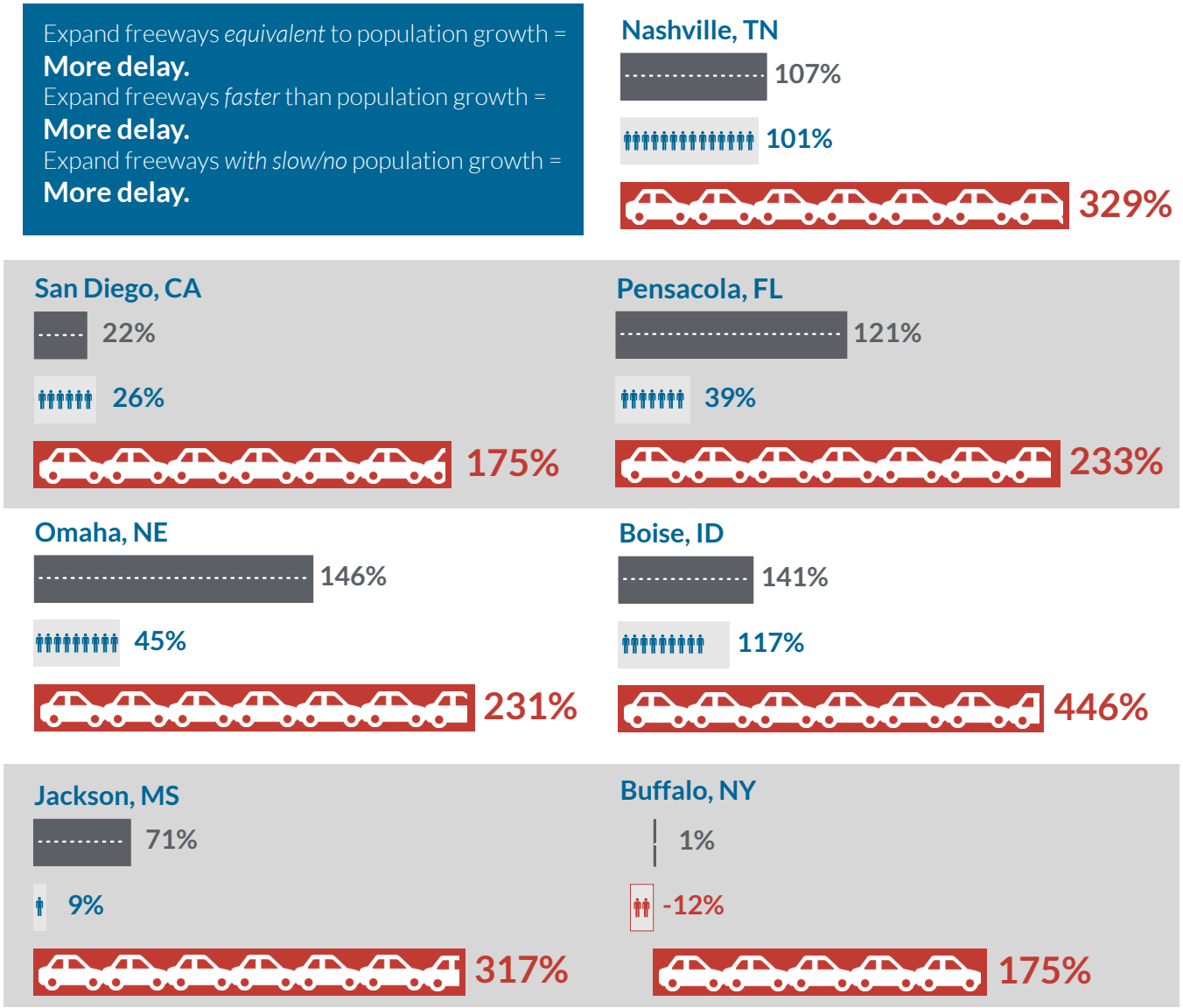
Among urban regions with moderate or high population growth, some cities saw their populations grow at a much faster rate than freeway lane-miles, and also faced significant increases in delay—no big surprise. At the same time, however, freeway lane-miles were expanded at a roughly equivalent pace to population growth in cities like **San Diego, CA** and **Nashville, TN** yet they saw larger increases in delay: 175 percent for San Diego and 329 percent for Nashville. Meanwhile, lane-miles were added at more than three times the population growth rate in places like **Pensacola, FL** and **Omaha, NE** yet delay still increased by 233 percent and 231 percent, respectively. And delay increased by an astonishing 446 percent in **Boise, ID,** where population grew by 117 percent and lane-miles grew by 141 percent.

In other words, places that added new road capacity most aggressively did not consistently see slower growth in delay—and in some cases, saw much higher growth in delay.

A similarly chaotic story emerges for cities with more modest or low population growth compared to their peers. A number of these cities still saw huge jumps in delay, despite expanding their freeway networks. For example, in **Jackson, MS**, population grew by a comparatively low nine percent and the region expanded its freeways at seven times that rate, yet delay increased by 317 percent. **Buffalo, NY**'s population dropped by 12 percent, and the region still faced a 175 percent increase in delay.

Our "solutions" for congestion are completely disconnected from solving the problem

Expand freeways *equivalent* to population growth =
More delay.
Expand freeways *faster* than population growth =
More delay.
Expand freeways *with slow/no* population growth =
More delay.



Change in freeway lane-miles, population growth, and annual hours of delay in the largest 100 urbanized areas from 1993-2017. Delay is defined as extra time spent traveling at congested rather than free-flow speeds.

So what does this tell us? We are spending billions and we are growing our freeway network—often at a faster pace than population growth—but we aren't making a dent in congestion. Even if we could afford to double or triple the nation's investments to widen roads, there is no reason to believe conditions would improve. Bottom line: we have been relying on an expensive solution for congestion that isn't working.

We cannot afford to keep throwing money at the same ineffective approach.

Table I: Change in population, freeway lane-miles, and delay in the top 100 urbanized areas, 1993-2017

Urbanized area	Population growth	Freeway lane-miles growth	Growth in delay
Laredo, TX	104%	1%	1309%
Brownsville, TX	73%	287%	1230%
Bakersfield, CA	67%	39%	699%
McAllen, TX	186%	79%	510%
Austin, TX	125%	98%	461%
Little Rock, AR	48%	85%	454%
Boise, ID	117%	141%	446%
Indio, CA	63%	211%	446%
Winston, NC	68%	123%	393%
Cape Coral, FL	138%	413%	381%
Baton Rouge, LA	62%	75%	337%
Beaumont, TX	40%	266%	332%
Oxnard, CA	45%	-64%	331%
Nashville, TN	101%	107%	329%
Charlotte, NC	116%	226%	326%
Columbia, SC	74%	54%	325%
Jackson, MS	9%	71%	317%
Denver, CO	66%	51%	310%
Madison, WI	39%	95%	293%
Raleigh, NC	82%	195%	286%
Albany, NY	24%	12%	285%
Salt Lake City, UT	38%	16%	279%
Las Vegas, NV	121%	142%	265%
Portland, OR	61%	22%	252%
Provo, UT	59%	103%	252%
Knoxville, TN	89%	65%	251%
Oklahoma City, OK	39%	19%	250%
Boulder, CO	53%	27%	238%
Stockton, CA	32%	43%	234%
Pensacola, FL	39%	121%	233%
Greensboro, NC	40%	169%	232%
Lancaster, CA	46%	12%	232%
Omaha, NE	45%	146%	231%
Richmond, VA	45%	106%	230%
San Antonio, TX	60%	37%	228%
Sacramento, CA	54%	32%	226%
Phoenix, AZ	93%	203%	225%
Houston, TX	77%	28%	221%
Orlando, FL	75%	151%	221%
Poughkeepsie, NY	24%	277%	220%
San Jose, CA	29%	-21%	220%
Birmingham, AL	24%	37%	213%
Riverside, CA	49%	58%	209%
Colorado Springs, CO	73%	96%	200%
Anchorage, AK	38%	-45%	196%
Indianapolis, IN	67%	48%	195%
Bridgeport, CT	33%	106%	186%
Miami, FL	48%	294%	186%
Salem, OR	49%	50%	186%
Corpus Christi, TX	17%	17%	184%
Grand Rapids, MI	37%	55%	181%
Worcester, MA	27%	62%	178%
Buffalo, NY	-12%	1%	175%
San Diego, CA	26%	22%	175%
Tucson, AZ	48%	132%	172%
Charleston, SC	52%	35%	171%
Fresno, CA	40%	90%	171%
Minneapolis, MN	35%	34%	168%
Columbus, OH	52%	34%	167%
Jacksonville, FL	49%	82%	167%
Providence, RI	7%	41%	166%
Honolulu, HI	23%	8%	160%
Cincinnati, OH	34%	41%	158%
Hartford, CT	9%	35%	158%
El Paso, TX	45%	102%	157%
Eugene, OR	33%	32%	157%
Spokane, WA	33%	92%	157%
New York, NY	18%	12%	154%

Urbanized area	Population growth	Freeway lane-miles growth	Growth in delay
Seattle, WA	40%	38%	154%
Memphis, TN	23%	74%	153%
Dallas, TX	67%	42%	152%
Wichita, KS	36%	61%	148%
Rochester, NY	17%	14%	147%
Tampa, FL	51%	108%	147%
Tulsa, OK	18%	66%	147%
Louisville, KY	36%	6%	146%
Baltimore, MD	24%	25%	145%
TOTAL	**32%**	**42%**	**144%**
Atlanta, GA	60%	38%	143%
Sarasota, FL	51%	277%	140%
Albuquerque, NM	31%	82%	139%
Philadelphia, PA	20%	54%	139%
New Haven, CT	19%	36%	133%
Kansas City, MO	23%	36%	132%
Washington, DC	47%	43%	131%
Toledo, OH	5%	36%	130%
Allentown, PA	28%	56%	128%
St. Louis, MO	11%	57%	121%
Virginia Beach, VA	6%	42%	120%
Boston, MA	24%	104%	117%
Springfield, MA	7%	26%	109%
Chicago, IL	15%	17%	108%
Dayton, OH	20%	55%	101%
New Orleans, LA	-9%	5%	100%
Milwaukee, WI	15%	81%	95%
Pittsburgh, PA	-1%	8%	90%
Cleveland, OH	0%	28%	84%
Los Angeles, CA	6%	12%	83%
San Francisco, CA	8%	-14%	72%
Akron, OH	8%	14%	66%
Detroit, MI	-5%	15%	45%

Why aren't we able to succesfully reduce congestion?

The data tell us delay is getting worse much faster than population is growing in the nation's top 100 urbanized areas, and those cities expanding their freeways more quickly aren't seeing better results. So what is happening? Why aren't our investments working?

To examine that question, Transportation for America looked at other changes in those 100 cities to see if any show a clear relationship with increased delay, like change in travel times to work and change in non-car mode share. This analysis did not surface any single factor that is clearly playing a leading role in mitigating delay.

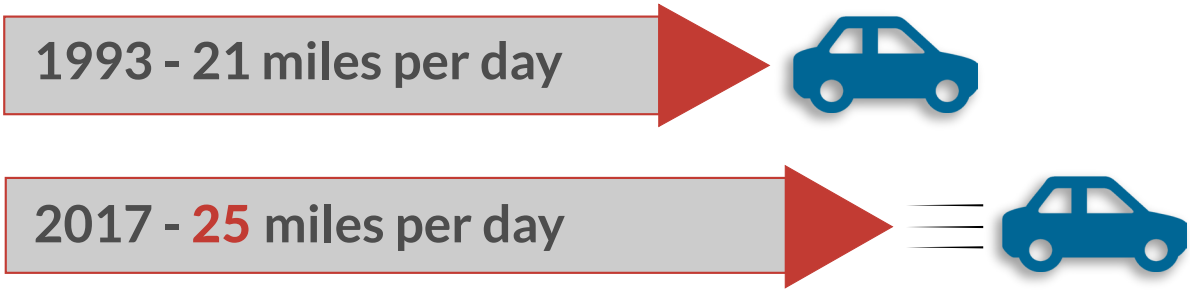
However, we can still point to several reasons why congestion continues to go up—some glaringly straightforward and some more counterintuitive.

Virginia Department of Transportation Photo by D. Allen Covey, via Flickr: https://www.flickr.com/photos/vadot/20129120591/

We are driving more per person

One thing in the data is clear: we are driving more. In absolute terms, vehicle-miles traveled (VMT) increased by 57 percent in the top 100 urbanized areas between 1993-2017, significantly faster than the 32 percent population growth in those areas. We're also driving more per person. In 1993, on average, each person accounted for 21 miles of driving per day in those 100 urbanized areas. By 2017, that number had jumped to 25 miles per day.[6] While this may not be a shocking revelation, it is a key piece of the puzzle in our failure to curb congestion: the more we drive per person, the more congestion we will all face.

Miles driven per person grew by 20 percent in the largest 100 urbanized areas



Even if we could count on our highway expansions reliably mitigating congestion growth—and the data indicates that we can't—we would still have to invest to keep pace with growing driving rates, not just population growth. We will be hard-pressed to put enough money behind road expansions to make a dent in growing congestion while driving per capita is on the rise in these urbanized areas. But why has driving increased so much over the past two decades, and why is it continuing to grow?

The way we build communities is designed to create massive congestion

The sources of the issue—both the growth in congestion and miles traveled—lie partially in how we allow our regions to grow and develop. The simple fact is that what we build and where affects how much we drive. Sprawling development creates greater distances between home, work, and other destinations. We have perfected the design of an ever-expanding roadway system that forces people to drive longer distances to accomplish life's daily needs.

Once we build new roads or freeways to serve development out on the fringes of urban areas, those corridors typically encourage more sprawl by attracting new development along them. If development is clustered closer together, people can take shorter trips between home, groceries, entertainment, and other destinations—sometimes even short enough that they can take those trips by walking or biking. But if that development is dispersed along a corridor instead, it leads to longer trips and more vehicles turning on and off the corridor to reach destinations spread along it, creating more traffic on those local roads as well as freeways that serve the area.

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6 Estimated using population and VMT data reported by FHWA. Federal Highway Administration. (2017, 1993). Highway Statistics. "Urbanized Areas: Selected characteristics." Table HM-72. Available from: www.fhwa.dot.gov/policyinformation/statistics/2017/; www.fhwa.dot.gov/ohim/hs93/hs93page.htm.

Sprawling development produces more car trips, longer car trips, and mounting congestion

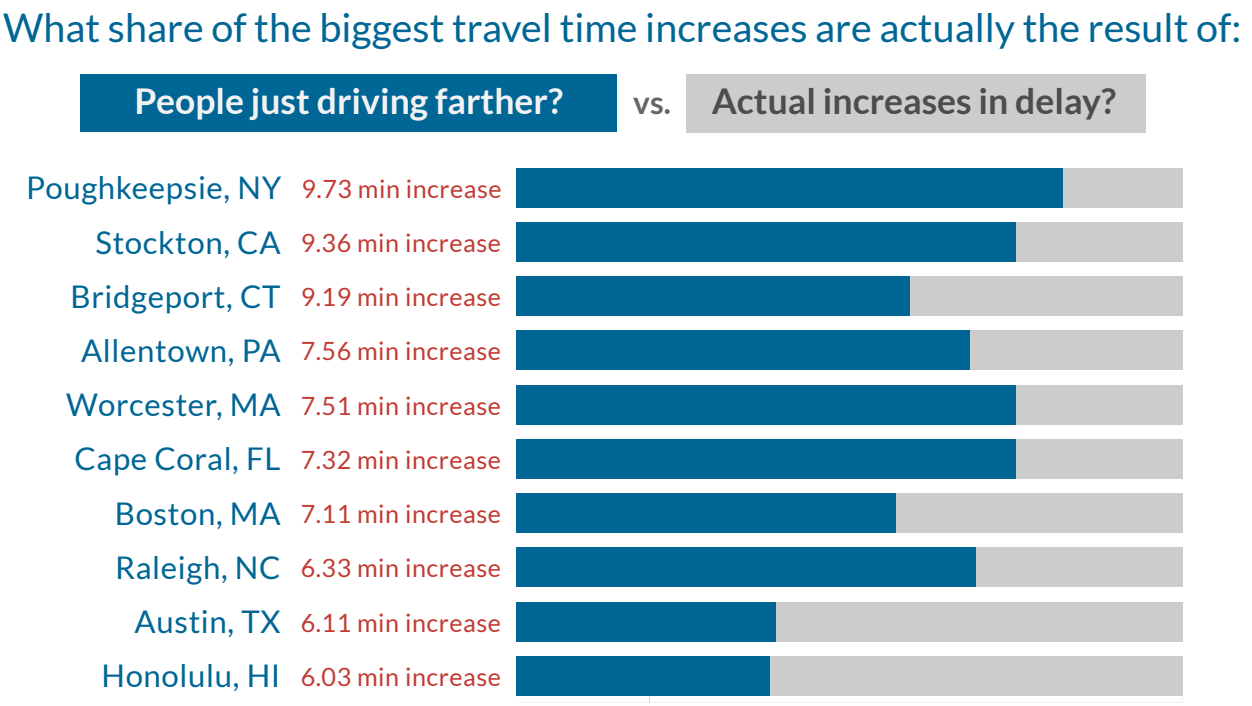
Base aerial map graphics from Google Maps

Sure enough, while commute travel times increased in a number of regions between 1990 and 2017, sprawling travel patterns—not delay—seem to be the main culprit.[7] **Put another way, commuters in these regions might be spending more time behind the wheel, but it's not because traffic is much worse—they are just driving longer distances.**

For example, average commute times increased by around 7.5 minutes in **Worcester, MA** and **Allentown, PA**, but only 1.90 and 2.39 of those minutes were attributable to delay, respectively. **Cape Coral, FL** saw average travel time jump by 7.3 minutes, yet only 1.8 of those additional minutes were spent in congested conditions. On the extreme end, **Poughkeepsie, NY** and **Stockton, CA** saw their average peak travel times go up by 9.7 and 9.4 minutes, respectively. In both cases, only 2.4 of those additional minutes are due to delay—the rest of that increased travel time is coming at free flow speeds—which means that the trips themselves are longer than they used to be.

That's the impact of sprawl in a nutshell. And this kind of "congestion" problem can never be solved with more lanes or new roads, because it's not actually a "congestion" problem.

The country's biggest commute travel time increases aren't because of delay. In eight of the 10 urbanized areas that had the biggest increases in travel time, the majority of that new travel time at peak periods was spent in free-flow, rather than congested, conditions. i.e., longer trips and more driving, but not necessarily much more congestion.



Total increase in peak-period travel times are noted in red, in minutes. Blue bars represent the percentage of additional peak travel time spent in free-flow conditions, and the grey represents additional peak travel time spent in congestion.

7 Average travel times to work were estimated using data derived from the Census. See Appendix A for methodology information. Travel time data is not available for 1993, so Transportation for America used data from 1990, the nearest available year.

But it's not just about the impact of the growing distances between destinations.

When neighborhoods and commercial areas **lack a network of smaller well-connected local streets**, cars pile onto major roads even for very short trips (such as between a grocery store and adjacent pharmacy that do not have connected parking lots). This means drivers have to take more trips, which also means more turns that create conflicts or require more traffic signals. All of this makes walking, biking, and transit less viable options and encourages or forces people to drive who might otherwise walk. It also means those major roads have to carry more local traffic than they would need to if drivers had the option to walk or use smaller side routes between nearby destinations for short trips. Pouring all that traffic onto a few larger roads creates more delay and a less inviting environment for people walking. This accelerates the need to widen the major road in a vicious, expensive, and ultimately unproductive cycle.

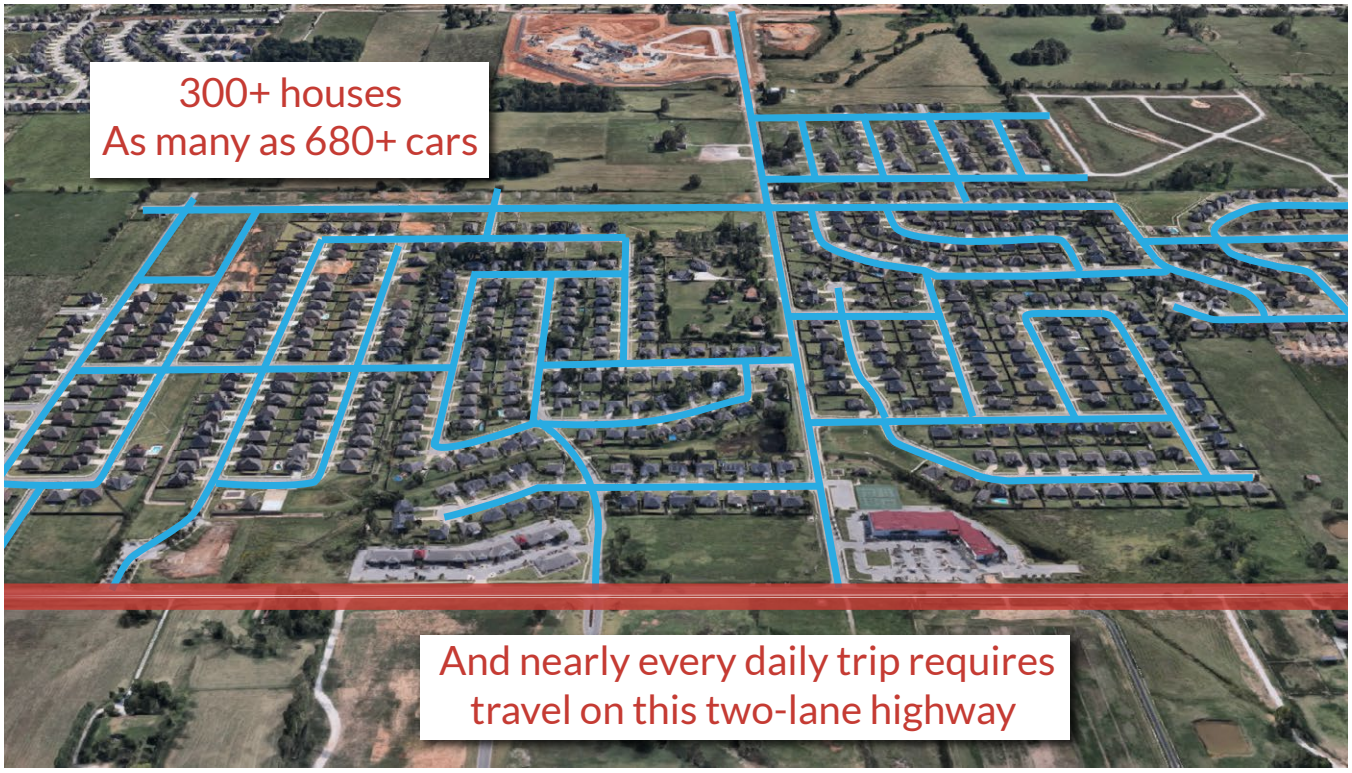
This approach to transportation network design—the fundamental approach in nearly every state—is perfectly designed to create massive congestion. As engineer Charles Marohn wrote for Strong Towns:

> *"If we were going to design a system to generate the maximum amount of congestion each day, this is exactly how it would be done. This is why all American cities — big, small and in between — experience some level of congestion during commutes. We take whatever cars we have and funnel them into the same place at the same time. We manufacture a flood."*[8]

We should instead be looking to develop our urban regions in ways that generate less traffic: with destinations closer together and well-connected local streets. This is a logical concept backed by substantial research. A variety of studies have shown that households in denser areas tend to own fewer cars, walk and take transit more, and generate one-half to one-third of the miles traveled of suburban households.[9]

8 Charles Marohn, P.E. Strong Towns. (2017, Nov. 2). Available from: www.strongtowns.org/journal/2017/11/2/dealing-with-congestion.
9 For examples, see the following literature review and study: Arizona Department of Transportation Research Center. (2012, March). Land Use and Traffic Congestion. Available from: https://azdot.gov/content/land-use-and-traffic-congestion

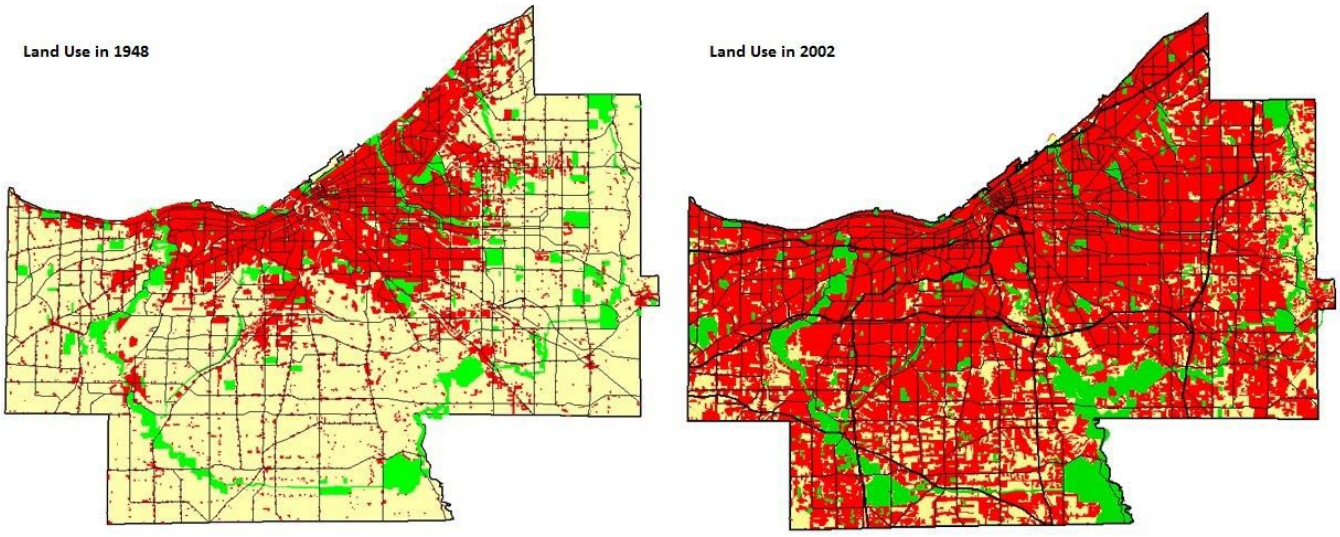
Our current approach to land use and transportation in suburban areas is **perfectly calibrated** to produce ever-increasing congestion



But a mix of destinations throughout a connected street network *manages* congestion by dispersing trips, improving access, and allowing for shorter *and* fewer trips

Base aerial map graphics from Google Maps. Both images are parts of the same city, shown at the same scale.

This Cleveland example below provides an excellent illustration of the effects of sprawl. At the mid-century mark, the region was laid out in a way that efficiently connected people to each other, jobs, and services within a small band of development near Lake Erie. As development spread out across Cuyahoga County over the intervening decades, roughly the same number of people had to support the cost of far more lane-miles while stuck in nearly twice the amount of congestion.



We don't have congestion data from 1948, but several decades into the highway-building spree paid for by the federal government, we can clearly see the impact from 1993 to 2017 in the table below:

Cleveland	1993	2017
Population	1,765,000	1,760,000 (**down**)
Freeway lane-miles	1,204	**1,546 (up)**
Annual hours of delay per capita	17 hours	**32 hours (up)**

What is going on here? During a period of time when the region's population decreased and freeway lane-miles increased 28 percent, **congestion got much worse.** Even with hundreds of miles of new freeway lane-miles added (to say nothing of the thousands of miles of other arterial roads) and fewer people to travel them all, your chances of sitting in congestion in Cleveland were much higher in 2017 than back in 1993. This story has been repeated in metro areas all across the country, at great expense and with similar results.

New roads do not alleviate congestion, they create it.

New roads facilitiate new development, which adds new traffic to roads.

We focus on the symptoms of congestion instead of the causes

When a road becomes congested, we typically accept by default that the only viable solution is to widen it, and begin looking for funds to do so. This process can take years, sometimes even decades. But expanding roads is a reactionary solution: a response to existing traffic or even fears about future traffic. **Reactionary solutions are usually significantly more expensive and less effective than addressing an issue at the source.**

In healthcare, we invest in research on social and environmental determinants of poor health and promote preventative care to help reduce the significantly higher costs of treating health emergencies. In water system management, we put policies in place to preserve wetlands and reduce runoff to prevent catastrophic flooding when it rains. Rather than accepting the negative outcomes as given and resigning ourselves to addressing them the expensive way, we at least try to tackle these issues preemptively by addressing their causes because it is substantially more effective and less costly to do so.

Yet with congestion, many transportation agencies ignore or disavow responsibility for the sources of the issue—the reasons we are driving more per person in the first place, like sprawling development patterns and poorly connected road networks. They accept the negative traffic outcome as a foregone conclusion we must find the funding to accommodate. This is a colossal waste of taxpayer dollars. It is no wonder we are having trouble keeping up.

And while it is true that transportation agencies do not have direct purview over decisions about where to locate new development, new transportation infrastructure has a profound impact in driving regional sprawl—meaning our transportation investments can actually make the problem of congestion much worse.

Our expensive road expansion projects often make congestion worse

It would be bad enough if we were simply spending billions to combat congestion and failing to produce results. However, expanding highways to improve traffic flow can actually increase congestion by encouraging people to drive more than they otherwise would. This is a counterintuitive but well-documented phenomenon known as **induced demand**.[10]

Decision-makers sometimes equate congestion to plumbing—to accommodate heavier water flow you need to widen the pipe. But people aren't like water molecules. They make different choices and change their behavior when new options become available. Economic doctrine holds that in most circumstances, when prices go down, people consume more. In this case, when travel times decrease and driving becomes more convenient, people drive more. We are caught in an extended vicious cycle of widening highways and seeing more traffic follow. Here is how it happens:

10 Handy, Susan. (2015). Increasing Highway Capacity Unlikely to Relieve Traffic Congestion. Available from: https://escholarship.org/uc/item/58x8436d.

Phase 1: Everyone responds to the thrill of the open road.

Right after a highway is widened, traffic speeds up. Drivers take advantage of the new faster travel times, switching from other routes, driving further distances or traveling during the busiest time of the day. People may purchase a house farther away that they might not have considered previously. At the same time, people who had previously avoided congestion—whether by riding transit, carpooling, traveling during less congested times of day, or foregoing the trip altogether—start driving on that route more because it has become more convenient.

Phase 2: Development follows, prompting more (and longer) car trips.

The improved convenience and faster trips make it more feasible or more appealing to live further from the city center in less developed (often cheaper) parts of the metro areas. Over time new development, homes, and businesses move out to those areas. Travel distances to work and other destinations increase. This creates more traffic.

Phase 1 and 2 on Lovell Road and Interstate 75 in Tennessee. Should both major roads be widened yet again as part of phase 3 to "solve" the congestion?

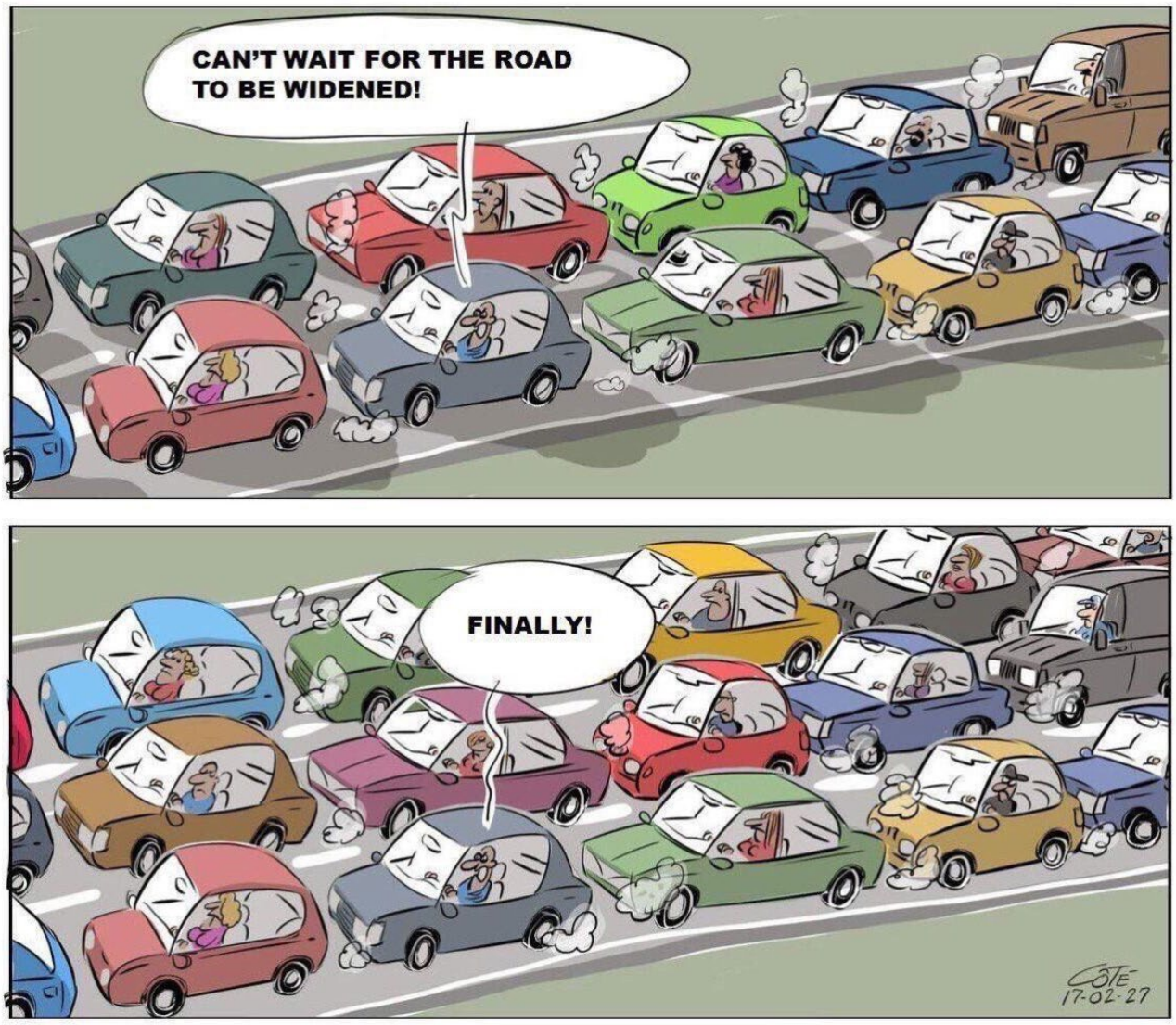
Phase 3: Right back where we started, but millions in the hole.

Just a few short years after investing millions of dollars to expand the highway, traffic has increased enough that the road becomes congested again and travel speeds go back down, leaving people in the same position or worse off than they were before the expansion projects. Residents begin complaining about congestion, and elected leaders start touting a need to widen the road. The cycle starts over.

The concept of induced demand has significant research backing it up. For example, one recent study by Kent Hymel of California State University of Northridge produced results suggesting that highway capacity expansion generates an exactly proportional increase in vehicle travel—**a one percent increase in road capacity can produce a one percent increase in VMT**.[11] Hymel's study also found that induced vehicle travel is expected to revert traffic speeds to levels pre-expansion in just five years.

11 Hymel, Kent. (2019, April). If You Build It, They Will Drive: Measuring induced demand for vehicle travel in urban areas. Transport Policy. (Volume 76, pp. 57-66). www.sciencedirect.com/science/article/abs/pii/S0967070X18301720.

We cannot eliminate congestion solely by increasing supply through highway expansion alone. The more we try, the bigger the problem will get



Cartoon by André-Philippe Côté

Induced demand Exhibit A: the Katy Freeway in Houston, TX

The Katy Freeway, a segment of Interstate 10 running through the western suburbs of Houston, TX, is an iconic example of induced demand at work: a colossal investment to expand capacity that has failed to produce results. Back in the early 2000s, the Katy Freeway was carrying three times the traffic it was designed to carry and seeing congested conditions for up to 11 hours each day, according to FHWA.[1] Traffic was so bad that the American Highway Users Alliance gave it the title of "second worst bottleneck in the nation" in 2004.[2] Never one to do anything halfway, the State of Texas took drastic action: in 2008, Texas DOT completed construction of a massive widening project along a 12-mile stretch, increasing capacity to a whopping 23 lanes. The widening project cost the state and taxpayers a staggering $2.8 billion.

At that scale of investment, you would expect to see improvements in traffic that last for decades, right? Wrong. Congestion on the Katy Freeway has grown worse since its expansion. While travel times at rush hour predictably declined right after the project opened in 2008, travel times began increasing steadily again starting in 2011. According to an analysis by Houston Tomorrow using Transtar data (Houston's official traffic tracking data source), traveling from downtown outbound on the I-10 Katy Freeway to Pin Oak (~35 miles) took 51 percent more time in 2014 than in 2011. In 2011, this trip took about 47 minutes during peak rush hour; whereas by 2014 the same trip took approximately 70 minutes at the same time of day.[3] A similar analysis of different segments of the Katy Freeway by Joe Cortright of City Observatory showed the same results: traffic began worsening again just three short years after the new lanes opened.[4] Another 2014 analysis by a local television station looking at 200 commute combinations across Houston found 85 percent of those commutes are taking longer than they did in 2011.[5]

The Katy Freeway paints a stark picture: there is no amount of new lanes—and no amount of money poured into widening highways—that will solve our traffic problems. We need a different approach.

Future Katy Freeway plans, image from TXDOT

1 Federal Highway Administration. Project Profile: Katy Freeway Reconstruction. Available from: www.fhwa.dot.gov/ipd/project_profiles/tx_katy_freeway.aspx.
2 American Highway Users Alliance. (2004). Unclogging America's Arterials: Effective relief for highway bottlenecks. Available from: www.highways.org/wp-content/uploads/2004/04/bottleneck2004.pdf.
3 Crossley, Jay, Houston Tomorrow. (2015, May 26). It took 51% more time to drive out Katy Freeway in 2014 than in 2011. Available from: www.houstontomorrow.org/livability/story/it-took-51-more-time-to-drive-out-katy-freeway-in-2014-than-2011/
4 Cortright, Joe, City Observatory. (2015, Dec. 16). Reducing congestion: Katy didn't. Available from: http://cityobservatory.org/reducing-congestion-katy-didnt/
5 Reyna, Jennifer, Click2Houston. (2014, Feb. 4). Houston commute times quickly increasing. Available from: https://www.click2houston.com/news/2014/02/04/houston-commute-times-quickly-increasing/.

Eliminating congestion is the wrong goal

There is an even more fundamental problem with how we approach addressing congestion: we spend billions in the name of eliminating congestion, when in fact uncongested urban areas are often the most economically depressed.

Make no mistake: sitting in highway traffic can be miserable, and severe congestion can have real negative impacts. But congestion is also generally a sign of vibrant economic activity, whereas a lack of congestion can signal a stagnant economy. As TTI is quick to point out in the Urban Mobility Report, congestion typically levels off or decreases in a recession and picks back up during economic prosperity.[12] **Congestion is an issue to address, but it is also a symptom of success—a sign of a place people want to be.**

Toledo, OH (left) is one of many struggling cities with little to no congestion. Main Street in Annapolis, MD experiences hefty congestion at numerous times of day, a sign of economic vitality in their downtown. Imagery from Google Maps.

Focusing on congestion mitigation misses the bigger picture. We should focus instead on the goal of providing and improving access. The core purpose of transportation infrastructure is to provide access: to work, education, healthcare, groceries, recreation, and all other daily needs. We should be prioritizing investments based on how well they connect people to jobs and services, not how much more quickly cars will be able to travel on a certain segment of highway.

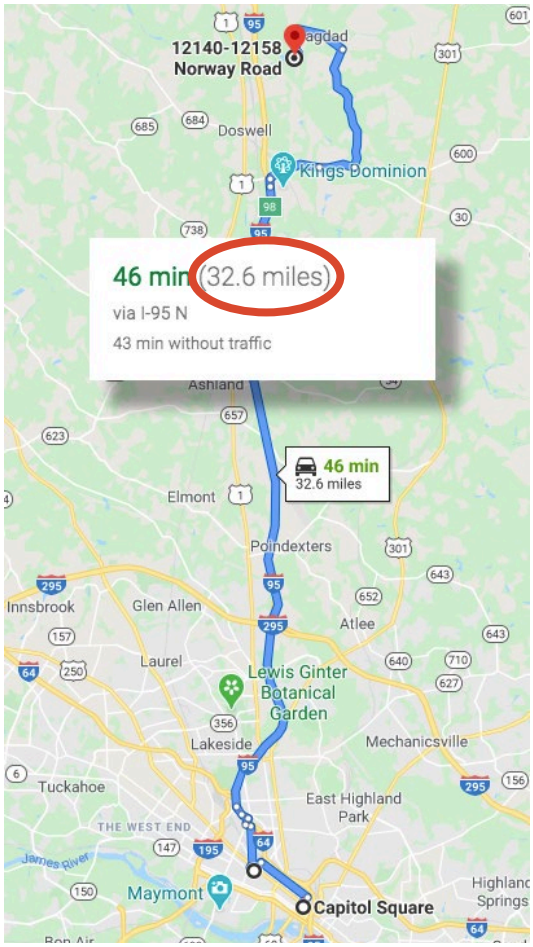
The speed of car travel is a poor proxy for determining whether or not the transportation network is succeeding at connecting as many people as possible to the things they need, as efficiently as possible. Congestion becomes a problem when it seriously obstructs that access, but is not a major problem if it doesn't.

12 Texas Transportation Institute. (2019). Urban Mobility Report. Available from: https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-report-2019.pdf.

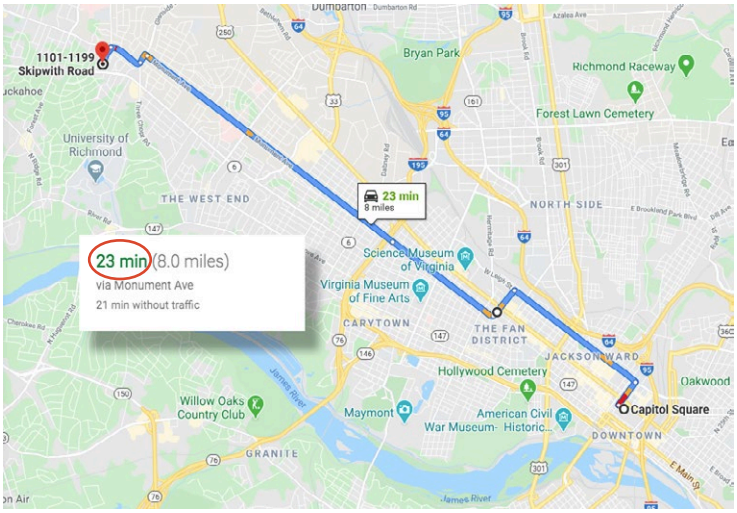
Focusing on speed obscures the actual problems of congestion, and wildly overstates the benefits of addressing it

The transportation field measures congestion in terms of "delay," which is anything less than free-flow speeds. Yet this narrow focus on speeds at specific points on a corridor or intersection at specific times of day misconstrues the experience of drivers and the real challenges people face getting to work.

The "ideal" commute: A 32-mile, high speed commute with little delay



The "problematic" commute: A 8-mile, slow-speed commute with greater delay



These two commutes (at different scales) to the Virginia State Capitol in Richmond, VA illustrate how a focus on speed obscures the real problem. The person on the left has a speedy commute that's incredibly long: 32 miles in just about 45 minutes, and likely can only get there in a car, and has very few nearby jobs they can reach. The person on the right has a short but congested, delay-laden commute—but they can get to work in half the total time. Yet we spend billions to make the commute on the left as fast as possible, and believe the commute on the right to be a "problem." Graphics from Google Maps navigation.

We should be keeping the focus where it belongs: on improving access between destinations. By measuring congestion as delay at specific locations and points in time, we aren't actually capturing how it impacts access to destinations. For an example from the data, take **New York City**. Delay in NYC increased by 155 percent between 1993-2017, which sounds fairly catastrophic. Yet average travel time to work in NYC increased by just 17 percent.[13] In other words, because destinations in NYC are close together and many trips are short, even a fairly large percentage increase in delay has not substantively changed how long it takes people to get from point A to point B.

13 For years 1990-2017. See Appendix A for methodology.

Measuring change in delay is not actually providing an accurate picture of what is going on from the perspectives of people using the transportation system.

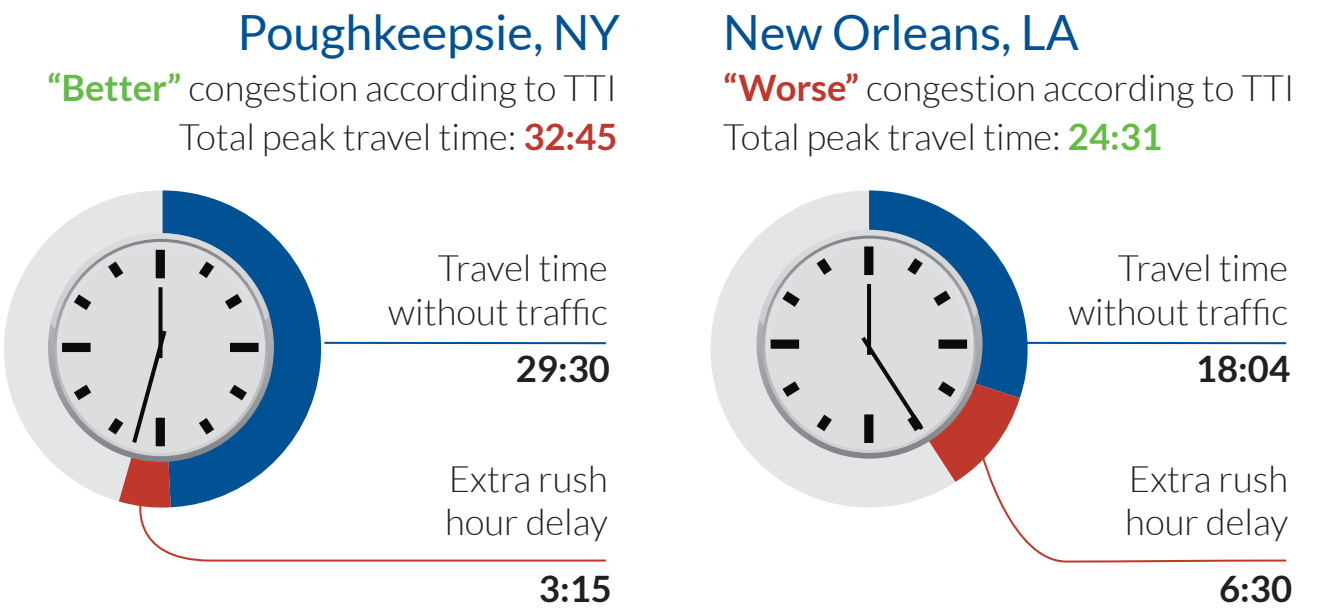
So while the national data show a substantial increase in delay nationwide between 1993-2017, those data aren't necessarily capturing the real problems, and are pointing us to the wrong solutions as a result. **We have come to treat reducing delay as the end itself rather than the means to better access.**

We also overstate the proposed benefits of reducing congestion. Our current approach to delay treats any slowdown as an economic harm, and any increase to speed an economic good because of additional time spent working or experiencing more leisure. But, at best, many or most highway widenings only save the average traveler mere seconds. In practice, each driver would have to experience several minutes of travel time savings to even perceive that their trip was shorter.

Transportation economists call this the problem of "small travel time savings," with many arguing that minuscule time savings do not confer much of a societal benefit at all.[14] Yet decision-makers sometimes tally up these cumulative seconds of savings, multiply by the number of people traveling the corridor, attach a dollar figure to the total, and use that to justify wildly expensive highway expansion projects as though we are literally putting billions of actual, tangible dollars back into the economy when we widen a road. We are not.

While our approach to measuring delay prefers a fifty-minute driving trip in free flow conditions to a heavily congested fifteen-minute trip, few drivers would agree. Drivers inherently understand this.

Do you want to drive faster (Poughkeepsie) or get there sooner (New Orleans)?



14 Mackie, P.J., M. Wardman, A.S. Fowkes, et al. (2003). Values of Travel Time Savings in the UK. Working Paper 567. Institute of Transport Studies, University of Leeds, Leeds, UK. Available from: http://eprints.whiterose.ac.uk/2079/2/Value_of_travel_time_savings_in_the_UK_protected.pdf.

Our decision-making system is undermining our ability to address congestion

Unfortunately, we have stacked the deck against ourselves. The system by which we make transportation decisions perpetuates the issues at the source of congestion by default, undermining our ability to address it. Our narrow emphasis on moving cars quickly underlies all of the regulations, procedures, and cultural norms behind our transportation decisions, from the standards many engineers use to design roads to the criteria many states use to prioritize transportation projects for funding.

For example, our standards for designing roads direct engineers to build wide lanes and wide roads by default. These standards apply to limited access highways but also local streets. We also use a delay-based "A through F" grading system to evaluate all of our roads, called **level of service** (LOS). This grading system, and the goal of moving our roads from lower grades like D and F to higher grades like B or C, is a primary determining factor in which transportation projects we fund and how we design streets, often superseding other considerations, like safety.

This overwhelming emphasis on free-flow travel causes several problems:

1) By basing decisions on delay, we widen roads automatically, perpetuating the issues that produce more traffic.

Focusing on delay and speed rather than access leads us to widen roads as our default "solution" when traffic slows rather than addressing the factors that are producing more traffic. Often, these road expansions ultimately just induce more driving. Designing wide roads where cars can travel at high speeds makes it both less safe and less convenient to travel using other modes of transportation like walking or biking for short local trips, creating more congestion. It also encourages sprawling development, which leads to longer car trips and produces more traffic in an ongoing cycle.

Arterial roads like these with "good" level-of-service that have been repeatedly widened are among the most dangerous for both drivers and people walking. More crosswalks and lights could easily be added to make crossings safer, but it would likely increase "delay." Yet these wide roads with little delay also just encourage longer trips and destinations moving farther apart.

2) Our standards and rules drive us toward the goal of free-flow travel in places where free-flow travel doesn't make sense.

Many of the standards and regulations used to make transportation decisions date back to the bygone era when we were first building out the national interstate system and have not been substantively updated since, despite the fact that our communities and transportation needs look different today. Those standards and regulations developed for limited access highways get applied across the map, including in contexts where an emphasis on free-flow traffic simply doesn't fit: commercial corridors with lots of development on either side of the road, local main streets, and even neighborhood roads.

These are places where many people are taking short, local trips, both in and out of cars. Designing roads in these areas for higher speeds can make those trips less convenient—and less safe. For example, one way to speed up traffic is to limit places where people can cross the street. And while some vehicles might now move faster through the corridor, the people who once had an easy trip on a cross street now have a longer trip. Further, a short walking trip might now be too long or too dangerous as a result of the lack of crosswalks and higher speeds. So while cars are now able to move more quickly through the area, local trips have become less convenient and more dangerous. This then leads to more driving and more congestion.

While we measure the seconds of savings to drivers on that corridor, we rarely account for the increased inconvenience to pedestrians. If loss of time is such an economic problem, why focus on a narrow set of travelers? Why not measure time lost for pedestrians?

3) Emphasizing speed and delay is undermining other goals.

Measuring speed does not provide a good representation of what we actually need from our transportation system—access to destinations. And moving cars quickly often works against other goals, like local economic activity, providing a safe environment for walking and biking, and creating places people want to spend time. Focusing on speed and delay can not only make congestion worse, but can also undermine the very things that drew lots of people to the community in the first place.

These two streets in Seattle have wildly different functions, yet our approach to measuring and "mitigating" congestion treats them the same. One is for moving cars quickly, and the other is intended to create a framework to create and capture economic value, provide safe places to walk and spend time. Should the street on the right be widened to "avoid" delay? Imagery from Google Maps.

We prioritize vehicle speed so highly that we greenlight projects even when the costs exceed the benefits.

Nebraska's Lincoln South Beltway construction project is a classic example of how our current transportation decision-making systems set us up to fail. The Nebraska Department of Transportation has plans to construct an 11-mile east-west freeway south of the City of Lincoln to connect two major arterials in the city, US-77 on the west and SR-2 on the east. It's a project that leaders in the region have been pushing for since the 1960s. The project has a whopping $300 million budget—one of the largest transportation infrastructure undertakings for the state—and the sole bid came in $52 million over that anticipated budget, not accounting for any additional cost overruns.[1] To put that in perspective, the Lincoln Metropolitan Planning Organization expects revenues for its bicycle and pedestrian trails program to be $36 million in total over 23 years.[2]

So what is the region expected to get in return for that $352 million investment? Not much. The state estimates that building the project will reduce daily vehicle hours of travel within the region by just 0.07 percent in 2040. And the state estimates driving will go up—daily VMT region-wide is expected to be 33,900 greater by 2040 if the project is built. It's a stark reminder that major, expensive highway projects are sometimes not even designed or projected to decrease congestion.

A benefit-cost analysis conducted for the project shows clearly that the costs will outweigh the benefits of the investment—potentially by a substantial amount depending on the discount rate used—yet plans for the project continue to move forward.[3]

Further, the state is treating future sprawl in the region as a given that transportation agencies must react to no matter what. NDOT has justified the new beltway partially by noting that "new development has been concentrated on the edges of the city, with strong growth projected to the south and east where road system capacity is limited." In fact the construction of the beltway will likely play a major role in driving additional development to those areas on the fringe, almost certainly bringing longer commutes, more driving, and more traffic. Yet both regional and local long-range plans for Lincoln call for encouraging higher-density, mixed-use infill development to reduce the demand for single-occupant car travel.[4]

1 Johnson, Riley, Lincoln Journal Star. (2019, Dec. 12). Lone bid for South Beltway comes in $52M over budget; state reviewing offer. Available from: https://journalstar.com/news/local/govt-and-politics/lone-bid-for-south-beltway-comes-in-m-over-budget/article_8857ac6f-d605-57fc-83a7-8606ef2a4d7a.html.

2 Lincoln Metropolitan Transportation Organization. (2017, Jan. 13). Lincoln MPO 2040 Long Range Transportation Plan Update. Available from: https://lincoln.ne.gov/city/plan/lrtpupdate/final/ExecutiveSummary.pdf.

3 Nebraska Department of Transportation. (2017, October 16). TIGER Discretionary Grant Application: Lincoln South Beltway. Available from: https://dot.nebraska.gov/media/11303/ndot-lsb-tiger-application.pdf.

4 Thanks to Kevin DeGood with the Center for American Progress for highlighting this project and bringing it to our attention.

What needs to happen: policy recommendations

Expanding roads to reduce congestion isn't working, and in many cases it is creating more traffic. We cannot afford to keep trying the same expensive and ineffective "solution." Unfortunately, we have created a system for making transportation investments that drives us to widen roads by default, the most costly response possible. Until we change how we make transportation decisions, throwing more funding at the same old tactics will simply perpetuate the same issues.

The only viable way to reduce traffic is to tackle the issue at the source: **bring jobs, housing, and other destinations closer together to shorten and reduce the number and length of car trips people need to take**. We need to reorient our national transportation program to help advance that goal instead of undermining it.

We spend over $40 billion in federal tax dollars every year on highways, and the more we spend, the more congestion we see. The current federal transportation law expires in September 2020. Reauthorizing this law—a process that comes only once every five years—is an enormous opportunity to change the status quo. Transportation for America's three simple core principles for the 2020 transportation reauthorization bill inform these five recommendations for a smarter approach to addressing congestion.

1) Reorient our national program around access—connect people to jobs and services

We have relied on measuring delay at specific locations partially because it was so much easier than measuring how well people can access all of the destinations they are trying to reach. However, this myopic approach is a poor approximation for measuring access, and it ultimately just makes congestion worse. It leads to spot improvements rather than system solutions, pushing development to the urban fringe to avoid local bottlenecks. Ultimately, people drive more, overwhelming the time savings of the spot improvement.

Today we have much better technology, including GIS and cloud computing, that can allow us to measure the time, speed, and convenience of travel by all modes of transportation from trip origins like residential areas to destinations like jobs and services. **Measuring accessibility instead of delay would lead us to prioritize investments that make travel more efficient in real terms instead of investments that simply encourage more driving.** Measuring accessibility between destinations also allows us to more accurately evaluate other important information: trip times, trip lengths, overall travel, mode split, emissions, health impacts, and household transportation expenditures.

The next federal transportation reauthorization should prioritize projects that do the most to improve access to jobs and services. T4America recommends that Congress take four steps in the 2020 federal transportation reauthorization to make that happen:

1. Determine national connectivity: USDOT should develop a national assessment of access to jobs and services, and set national goals for improvement.
2. Use 21st century tools: USDOT should provide accessibility data to states, metropolitan planning organizations, and local communities to help them measure access;
3. Measure the right things: apply accessibility to the federal transportation program in performance management and project selection;
4. Update standards: Phase out outdated metrics (like level-of-service) for narrowly evaluating delay.

2) Require that transportation agencies stop favoring new roads over maintenance

Building new roads on the fringes encourages sprawling development and forces people to take more and longer driving trips. We should be focusing instead on maintaining the roads we have and making the existing transportation system work better as a whole. Yet existing federal law gives states substantial flexibility in how they spend their highway dollars and does almost nothing to hold them accountable.

For example, while policymakers consistently decry a need to repair our crumbling roads and bridges, nothing in the current federal program requires or rewards states for directing their funds to maintaining existing infrastructure. As a result, states continue to spend a significant portion of funding to build new roads—between 2009-2014, states spent the same amount of funds on roadway expansion as on repair.[15]

This ultimately induces more traffic, while simultaneously increasing the cumulative annual price tag to keep the nation's network of highways in a state of good repair.

It is hardly surprising that most states continue to devote a significant share of their available funds to expanding highways despite our clear repair needs. Expansion projects are flashier and more politically popular than basic repair projects. Ribbon cuttings for new roads are strategic wins in our relatively short local political cycles, whereas repair projects cause road closures and inconvenience to drivers and businesses without providing anything "new" in the process. Without help from Congress to tip the balance, states will continue to invest in road expansion projects that cause disastrous long-term financial consequences.

Unfortunately, our existing federal transportation program also drives states to prioritize expanding roads in a number of ways. For example, within the formulas used to allocate funds to state departments of transportation, states receive more federal funding as vehicle miles traveled (VMT) increase, effectively rewarding states with a perverse incentive to build more lane-miles.

This needs to change. Congress should put requirements in place to ensure that states stop expanding roads by default and focus available funding on the nation's substantial repair backlog. This means prioritizing maintenance within the National Highway Performance Program (NHPP) and the Surface Transportation Block Grant Program (STBG).

Transportation for America also recommends that Congress create a new competitive program to invest in non-maintenance projects (both projects that expand capacity and major replacement projects) that have regional or national significance. The program should be organized around national goals, including congestion reduction. In the transit program, new capacity projects have to compete for funding, and successful projects must demonstrate that they advance national and local goals, including environmental benefits and economic development. There is no such standard for new highway projects. This competitive program could be structured to prioritize investments which will demonstrably reduce both congestion and vehicle miles traveled per capita, including improved connectivity, safety improvements, biking and walking infrastructure, pricing and other projects that reduce driving demand and make alternatives safe and convenient.

15 Transportation for America. (2019). Repair Priorities. Available from: http://t4america.org/maps-tools/repair-priorities/.

3) Make short trips walkable by making them safe

We will continue to perpetuate congestion if we keep building wide, high-speed roads that force people to get in their cars for even very short local trips. When local streets—not just highways—are designed to move vehicles at the highest speed possible, it denies people the healthy and affordable option to bike or walk and even makes car trips longer than necessary.

The number of people struck and killed while walking each year has reached levels over the last two years not seen since 1990—even as overall traffic fatalities are falling. In much of the United States, traveling outside of a car is incredibly dangerous, unpleasant, and inconvenient. Research shows that speeds over 35 mph dramatically increase the likelihood of fatalities in a crash.[16] Non-limited-access roads in towns and cities have lots of points of conflict or potential conflict (driveways, intersections, crosswalks full of pedestrians). At high speeds, these conflicts create significant risks for all, particularly people traveling outside of a car.

The 2020 transportation reauthorization should include a policy that roads surrounded by development be designed to serve those areas with speeds of 35 mph or under. Creating conditions that are safer for people walking and biking will help address traffic pressures by taking more local car trips off the road.

4) Remove restrictions on pricing to help manage driving demand

Rather than treating congestion as a foregone conclusion and spending billions of dollars trying to mitigate it, we should be putting policies in place to help manage driving demand rather than focusing solely on increasing supply. Pricing roads can reduce congestion by lowering the number of vehicles on the road.

We need to concede that, particularly in places with strong economies, people will continue to drive more as long as roads are "free" to use, especially without convenient, affordable alternatives. Even if we devoted all federal dollars toward repair and maintenance, we would not be able to cover our road maintenance costs.[17] Any solution going forward should include a mechanism to make sure we can pay the long-term costs of what we are building. Pricing should be part of that solution. We need to start asking people to cover more of the cost of using transportation infrastructure, including higher prices in times of high demand, just as the ride hailing businesses do. If we cannot take that step to price demand, then our efforts to solve congestion exclusively by increasing supply are doomed to fail.

16 National Traffic Safety Board. (2017). Reducing Speeding-Related Crashes Involving Passenger Vehicles. Available from: https://www.ntsb.gov/safety/safety-studies/Documents/SS1701.pdf.
17 Ibid.

Congress has an important role to play in making pricing a more viable congestion management strategy during the upcoming federal transportation reauthorization. Federal law does not allow tolling of existing federal highways, and generally restricts revenues to the operations and maintenance of the facility being tolled.[18] Congress should remove restrictions on tolling and give localities the ability to do congestion pricing, including using those revenues on the broader transportation system in ways that will offset the need to drive to destinations: investments in the parallel road network, transit, and walking and biking infrastructure that can take pressure off the tolled corridor and provide people who can't afford the tolls with other cheaper and free options. This will allow communities to better manage their transportation networks and also help provide viable, affordable, transportation options to those who do not or cannot afford to drive.

5) Reward infill development and make it easier for localities

Sprawling development contributes to more driving and longer trips, exacerbating congestion. We need to make development and redevelopment in existing town centers and urban areas easier than building on the outside of communities. While land development decisions are the direct purview of localities, the federal government and state transportation agencies have important roles to play in changing the current dynamic. Sprawl results in a "need" to expand highways to accommodate additional traffic that could have been prevented. Yet we are essentially rewarding that sprawl when we use limited federal and state transportation dollars to foot the bill to "fix" the congestion that results over the longer term. This isn't working, and we need to stop.

We should instead be orienting transportation funding to prioritize and reward localities that seek more efficient ways of moving people—by bringing destinations closer together through land use decisions, managing driving demand, and making it easier to travel by other modes.

Federal policy can also play a role in helping localities update their development codes, many of which are based on an early 20th century model and are long past due for an update. The federal government last provided significant zoning guidance with the Standard Zoning Enabling Act of 1925, which provided model language for zoning ordinances. Unsurprisingly, much has changed in the past century. Federal policy should provide communities with a new template for growth, one that allows for shorter trips and makes it safer and easier to walk, bike, and take transit between destinations.

Learn more about Transportation for America's detailed principles for reauthorization here: http://t4america.org/reauthorization/.

18 For more information on tolling revenue restrictions, see: Center for Innovative Finance Support, Federal Highway Administration. (2018). Tolling and pricing. Available from: fhwa.dot.gov/ipd/pdfs/fact_sheets/techtools_federal_highway_tolling.pdf.

Appendix A: Methodology

The primary data source for this report is the Texas A&M Transportation Institute's Urban Mobility Report, updated in 2019 to include data for 101 urbanized areas from 1982 to 2017. The data include key metrics like total hours of delay, travel time index (TTI) and total population, measured consistently over the time period. These metrics are derived from INRIX data. The total hours of delay reported in the Urban Mobility Report represent the cumulative amount of additional travel time caused by freeways and arterials operating below free flow speed, which is the observed speed between 10:00 pm and 5:00 am, capped at 65 mph on freeways. The TTI describes the amount of additional time needed for a trip during the peak period (6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. on weekdays). A value of 1.2, for instance, indicates a peak hour trip would be 20 percent longer during the peak period than at free-flow speed.

This report also incorporates data from the Federal Highway Administration's Highway Statistics Series (Table HM-72), which describe total vehicle miles traveled (VMT) and total freeway lane-miles for urbanized areas. The use of lane-miles in this report, as opposed to centerline miles, indicates the approximate relative road capacity in each urban area. The exclusive focus on freeways is a limitation of the available data, yet the change in freeway lane-miles is the most reasonable, consistent indicator of the level of investment or the overall growth in road capacity during the time period. These data include the same 100 urban areas from the Urban Mobility Report (excluding Puerto Rico) as early as 1993.

This report also includes estimates of average travel time to work for each urban area, derived from the U.S. Census. Average travel time is calculated as the aggregate travel time to work for all workers 16 years and over divided by the total number of workers who do not work at home. These data are limited to 1990 (the closest available estimate for 1993), 2000, and 2010, plus 2017 from the five-year American Community Survey. The historical Census data used in this report are maintained and provided by the National Historical Geographic Information System.

These data sources were combined for each urban area to produce the information in this report. Before focusing on the changes between 1993 and 2017, as reported here, the trends over the entire study period were assessed for inconsistencies or anomalies that would raise concern. Most notably, the changing definitions of urban area boundaries cause some sudden changes in the number of freeway lane-miles in some urban areas, particularly between 2012 and 2015, but the change between 1993 and 2017 appears representative of the overall trends.

The amount of commute time due to traffic delay was estimated for each urbanized area by combining estimates of average travel time from the Census with TTI values. These estimates assume the average commute time applies to those traveling by car and that most of those commute trips take place during the peak period. For instance, an average commute time of 33 minutes paired with a TTI value of 1.1 indicates that 10 percent of the commute trip (three minutes) is attributable to traffic delay or, in other words, the trip would only take 30 minutes during under free-flow conditions.

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