

**An Overview of TTI's Findings, TxDOT Rider 42
Addressing the State's Most Congested Roadways**

Testimony of

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BACKGROUND

The most congested metropolitan highways in Texas are becoming even more crowded, resulting in lost time and wasted fuel topping \$9 billion per year — approximately \$1,150 for the average commuter in large- and medium-sized Texas metropolitan areas (<http://mobility.tamu.edu/ums/>). Two-thirds of Texas residents live in urban areas that are ranked in the 30 most congested U.S. metropolitan areas: Dallas-Fort Worth, Houston, San Antonio and Austin. Perhaps more concerning, however, is the fact that not only is congestion high, but Texas traffic problems are also increasing faster than in similar U.S. areas. Six of the 25 fastest congestion growth metropolitan regions with more than 500,000 population are in Texas — the four above plus El Paso and McAllen. These congested regions and corridors also cause problems in the movement of goods and services through the metro areas to the rest of Texas and to markets outside of the state.

With the expected growth in Texas' population and funding challenges for many of the traditional solutions in Texas' large metropolitan regions, congestion will worsen. There is a generally accepted path toward improvement:

- First and foremost, state and local transportation agencies must be perceived as doing a good job with the funding, policies and priorities they have. They must be effective and efficient.
- The agencies must have a coherent and comprehensive plan with sufficient information to convince the public that any additional funding will generate significant benefits and be spent on the most important problems. They must be accountable and transparent.
- The financing plan must take maximum advantage of all the options that the public will support.
- The public must understand and support any set of projects, programs and plans that are developed from the process.

Recognizing the growing urgency of the traffic congestion problem, the 82nd Texas Legislature set aside \$300 million in Proposition 12 funds to get the state's highest-priority roadway projects moving, beginning with those segments identified as the 50 most congested Texas roads in 2010. In order to accomplish this task, as a part of the General Appropriations Act (H.B. 1, TxDOT Rider 42), the Legislature directed the Texas A&M Transportation Institute (TTI) to provide assistance to the metropolitan planning organizations, the TxDOT District offices and other project partners in their development of projects and programs to address mobility concerns and to report to the Texas Legislature and the Transportation Commission.

Specifically, TTI served as facilitator and coordinator of studies to provide assurance that:

1. Projects had the greatest impact considering factors including congestion, economic benefits, user costs, safety and pavement quality.
2. The best traffic and demand management principles were applied to the projects.
3. Public participation in the concept development represented the most inclusive planning process possible.
4. The funding scenarios used all feasible options so that public funds provide the greatest "bang for the buck."
5. Recommendations were made to the Department of Transportation at each major decision point for the projects.

SIGNIFICANT ACCOMPLISHMENTS

Over the two years of the project, TTI delivered several major products and developed important analytical and communication techniques:

- Summarized the congestion problems and the status of traffic management, travel option and capacity increase projects to improve the most congested corridors in each region, including intensive examination of **the 25 most congested corridors**. Each summary includes text descriptions and a checklist to evaluate how much “bang for the buck” is being achieved. Also included is a set of **immediately implementable, low cost congestion mitigation strategies** that can be deployed rapidly for relatively low cost; these will improve response to crashes, stalled vehicles and other congestion causing events (<http://mobility.tamu.edu/mip/congestion.php>).
- Facilitated and coordinated regional transportation meetings, workshops and analyses with TxDOT, Metropolitan Planning Organizations, Regional Mobility Authorities, major city and county governments, transit agencies and others. In the first five months of the Mobility Investment Priorities project, these groups considered, analyzed and approved \$248 million worth of right-of-way purchases, design contracts, planning studies and project feasibility analyses and studies to redesign roads and improve the operation of some of the most congested roadways in the state. An additional \$54 million was allocated over the remaining months of the project.
- Estimated economic and congestion benefits of five large transportation improvements identified by the local working groups in Austin, Houston and San Antonio. The projects are estimated to provide a return on investment of between three and seven times the construction, maintenance and operation costs. This process can be used to describe the **broader economic effects** of any large transportation investment.
- Developed a potential **funding plan** that blends state and local funding drawn from traditional transportation fees as well as express lane tolls and tax revenue from new development. The ideas presented are not a complete solution, but they should be a part of the conversation about new sources of revenue to improve corridors.
- **Improved public engagement** through summaries of state-of-the-art practices in public involvement, workshops, and assistance with applying innovative techniques such as virtual open houses and chat rooms. The specific practices will improve the discussion about possible congestion reduction projects and potential funding mechanisms. (http://mobility.tamu.edu/mip/pdfs/MIP_PE-Report-5_15-FINAL.pdf).
- Developed an information resource of more than **80 congestion reduction, public engagement and funding strategies** written in easily understood terms to illustrate how, when, where, why and for what purpose the strategies should be deployed. (<http://mobility.tamu.edu/mip/strategies.php>).

- Developed a **computer simulation model of the IH 35 corridor in Austin** that has been used by local and state agencies to clearly describe the need to pursue more travel capacity in the most congested corridor in the state *as well as* implement a combination of traffic management strategies, travel options, flexible work hours, and new patterns of homes and jobs if the expected economic growth is to be supported (<http://mobility.tamu.edu/mip/pdfs/MIP-Longterm-Improvement-Central-TX-ES.pdf>).
- Developed a public education plan and materials to provide a starting point for a broad, statewide discussion to raise awareness of the state’s mobility crisis and build consensus toward solutions. The education effort — **Rethinking our Path to Mobility (RPM)** — is based on the premise that the public is unlikely to support transportation improvements for which they see no urgent need or personal benefit. RPM follows a consistent narrative:
 1. The state depends on the transportation system to ensure a strong economy and high quality of life, but population growth and limited funding are straining the system to its limits.
 2. Growing congestion places a significant burden on the state and on individuals.
 3. Numerous solutions are available, and most of those solutions cost money.
 4. Investment in transportation infrastructure will pay off in significant benefits to the state and its citizens.
 5. Everyone should become engaged in the discussion on how best to move forward.

All of the project products are available on the Texas A&M Transportation Institute’s Mobility Investment Priorities website: mobility.tamu.edu/mip.

THE TAKE-AWAYS

A few of the key outcomes of the Mobility Investment Priorities project are listed below. Prominent among these are topics where innovation, technology and analysis were combined to approach solutions in different ways.

- **All the solutions are needed** – There is no single project or program or policy or technology that can ‘solve’ the congestion problem. As has been demonstrated in computer models and in all Texas cities, the problem is too large and complex to rely on a single solution type. The mix of projects, programs and policies will be different in each city, and indeed will be different in downtowns and suburbs.
- **Agencies must involve their stakeholders** – In order for projects to be approved, the public must generally understand transportation funding, and specifically find value in the proposals. The public must play an active, and early, role in designing the projects as well as the methods to pay for them; there must be a match between enthusiasm for the project and enthusiasm for paying for the project.
- **Go meet them where they are** – Successful public engagement activities provide information to stakeholders in times and places that are convenient to the viewer. Public meetings in large rooms are not as effective as small meetings, online chat sessions, web-based techniques and other interactive methods that engage the public. TTI assisted agencies in all four metropolitan areas in expanding their public engagement activities. The June 2013 Austin IH 35 open houses were attended *by dozens* of people; the online virtual open house was visited by more than **3,200** different people.
- **Innovative designs and operating ideas** – Non-traditional concepts will need to play a more significant role because there are fewer traditional options. Ideas such as converting the Houston downtown freeway loop to a one-way roadway; encouraging transit ridership through the use of a narrow bus lane on the IH 610 West Loop to connect two high-occupancy vehicle lanes with a major activity center; using an improved computer model to forecast future Austin IH 35 congestion levels and other techniques are part of addressing the “best bang for the buck” requirement of Rider 42.
- **Multiple funding sources and new project designs will be necessary to move large projects** – A combination of Rider 42, Proposition 12 and traditional funds allowed improvements to a revised design on the US 290 Northwest Freeway in Houston, allowing it to be completed 20 years ahead of schedule. Funding for the IH 30/IH 35E Horseshoe Project in Dallas came from nine different sources of funding. This type of approach is the new normal in tackling large transportation construction projects.
- **Technology can play a role** – Information to travelers while they plan their trip and en-route to their destination can provide commuters with travel choices and alternate routes. Rapid responses to inoperative traffic signals, potholes, crashes and stalled vehicles can be provided with a combination of agency cooperation and technology. Many of these technologies have been deployed in Texas or other states.

- **New partnerships mean new procedures** – The public-private partnerships expanding two congested corridors in the Dallas-Fort Worth region were studied to learn how the relatively mundane, but important and complicated tasks of coordinating traffic control, enforcement, debris removal, road closure and traffic information were being handled. The findings will inform the next generation of public-private partnership arrangements. Many of the techniques can be applied to regular state projects, too. The innovative public information strategies, as well as the coordination and staging of the various contractors and innovative traffic control plans, can reduce congestion in many corridors.
- **Incentivize the market** – Encouraging a variety of travel options, work arrangements, employer incentives and other travel demand management practices should be explored. For example, a successful approach that has been used in Washington State pays individuals and private companies to remove vehicle trips from congested corridors prioritizing spending on the ideas that offer the most trips removed for the lowest cost.
- **Continue the aggressive and innovative planning and project development begun in Rider 42** – The funds allocated to moving larger projects closer to implementation were useful. Regions should continue to pursue planning efforts that result in public engagement and support for transportation improvements.
- **Incorporate innovative data sources and analyses** – The list of 100 most congested sections of Texas roads has provided TxDOT and local agencies with a consistent dataset and framework for discussing one aspect of transportation challenges. This approach can be devolved to the regional level. TTI has developed expanded datasets with concurrence and support from TxDOT and the state’s metropolitan planning organizations. These will be provided to each Texas region to continue the improvement in annual planning processes.

STATUS OF REGIONAL CONGESTION REDUCTION PROJECTS

The Early Recommendations Report and the First Year Report (see mobility.tamu.edu/mip) identified TTI activities to coordinate studies for project identification and prioritization in the four most congested areas of the state. By legislative direction, funding was allocated by the Texas Transportation Commission to the four metropolitan areas using the formula for Category 2, Metropolitan and Urban Area Corridor Projects. The Rider 42 funds were used to support engineering, feasibility studies, right-of-way acquisition, and utility relocation in the state’s 50 most congested corridors as of the end of 2010. The recommendations moved several large congestion reducing projects closer to implementation and, in a few significant cases, provided the last key element of funding necessary to build an important project. All of the recommendations were approved by local working groups drawn from the transportation agencies and other organizations.

Thirty-eight of the 50 most congested corridors in 2010 continue to be in the top 50 in 2013 and 47 of them are in the 2013 top 100, suggesting an enduring quality among the worst of the worst. Several of the 2010 corridors both *had more congestion* and *improved in the ranking*; these corridors, in essence, “got worse slower” than other corridors. Exhibit 1 summarizes the funding allocated by the local Rider 42 working groups. The largest category of funding was allocated to projects that involved right-of-way purchases and utility relocations, along with engineering work for very large construction projects in Dallas-Fort Worth and Houston. Almost \$75 million in funding was provided to a variety of other design and environmental studies. The total exceeds \$300 million due to agreements in the TxDOT Districts in Houston and San Antonio to use local planning funds to complete the originally intended studies.

Exhibit 1. Rider 42 Project Development Funding (in millions of dollars)

Metro Area	Preliminary Engineering, Right-of-Way, Utility Relocation	Design & Feasibility Studies	Environmental & Other Studies	Total
Austin	-0-	\$30.48	\$0.80	\$31.28
Dallas-Ft Worth	\$118.75	-0-	-0-	\$118.75
Houston	\$109.22	\$7.00	\$1.35	\$117.57
San Antonio	-0-	\$15.74	\$18.60	\$34.34
Total	\$227.97	\$53.22	\$20.75	\$301.94

The final report includes an update of the status of each of the Rider 42 studies and several large mobility projects in each region (see mobility.tamu.edu/mip).

IMPLEMENTING THE BEST TRAFFIC AND DEMAND MANAGEMENT PRINCIPLES

Among the goals of Rider 42 was to ensure that the best congestion reduction practices are incorporated by Texas’ large metropolitan regions to effectively and efficiently utilize the state’s roadways. Congestion mitigation strategy deployment was evaluated during the Rider 42 study; the summary in Exhibit 2 outlines where the best practice standard is being met and where additional investment and attention is needed. Most of the “needs study” or “efforts not sufficient” notes in Exhibit 2 have been incorporated in the six studies that are being conducted as a result of each local working group’s Rider 42 process.

Additional information on congestion relief strategies are presented on the Mobility Improvement Priorities website: <http://mobility.tamu.edu/mip/strategies.php>.

Exhibit 2. Congestion Reduction Strategy Checklist – Metropolitan Area Summary

Congestion Reduction Strategy	Metropolitan Area Summary			
	Austin	Dallas/ Ft Worth	Houston	San Antonio
Date: August 2013				
System Efficiency				
Aggressive Incident Clearance	E	G	E	G
Electronic Toll Collection Systems	E	BP	BP	SP
Reversible Traffic Lanes/Changeable Lane Assignments	S	S	N/A	S
Signal Operations & Management	E	G	N/A	SP
Special Event Management	G	G	SP	G
Traffic Management Centers	S	G	BP	G
Traveler Information Systems	G	G	BP	S
Truck Incentives & Use Restrictions	S	S	S	S
Truck Lane Restrictions	S	SP	S	S
Travel Options				
Flexible Work Hours	E	G	SP	S
Compressed Work Weeks	E	G	SP	S
Telecommuting	E	G	SP	S
Carpooling	E	G	SP	S
Real-Time Ridesharing	E	SP	BP	S
Vanpool	G	G	G	S
Transportation Management Associations	G	G	E	S
Trip Reduction Ordinances	S	N/I	S	S
Parking Management	S	SP	S	S
Pay-As-You-Drive Auto Insurance	S	G	N/I	S
Variable Pricing	S	G	SP	S
BP: Best National Practice is being used E: Current efforts are not sufficient N/A: Not applicable or needed SP: Best State Practice is being used S: Should be studied N/I: Not enough information available G: Current efforts are good				

Exhibit 2. Congestion Reduction Strategy Checklist – Metropolitan Area Summary (cont.)

Congestion Reduction Strategy	Metropolitan Area Summary			
	Austin	Dallas/ Ft Worth	Houston	San Antonio
Date: August 2013				
Active Traffic Management				
Dynamic Merge Control	E	S	S	S
Dynamic Rerouting	E	S	S	S
Dynamic Truck Restrictions	E	S	S	S
Queue Warning	E	S	S	S
Ramp Flow Control (Flow Signals/Ramp Metering)	S	S	SP	S
Temporary Shoulder Use (Bus on Shoulder)	S	SP*	N/A	S
Variable Speed Limits	S	S	S	S
System Modification				
Access Management	S	S	S	SP
Bottleneck Removal	E	S	G	G
Freight Rail Improvements	N/A	N/I	N/I	N/A
Multimodal Transportation Centers	E	G	S	G
Ramp Configuration to Increase Queuing Capacity	S	G	G	G
Acceleration/Deceleration Lanes	S	G	G	S
Commercial Vehicle Accommodations	S	SP	N/A	S
Diverging Diamonds	S	SP	N/A	S
Intersection Improvements & Innovative Intersections				
Roundabouts	S	G	N/I	N/A
Intersection Turn Lanes	S	G	S	SP
Loop Ramps Eliminating Left Turns	S	N/A	N/A	N/A
One-Way Streets	S	N/A	S	N/A
Superstreets	S	N/A	S	SP
Express & Park-and-Ride Bus Service	G	S	BP	E
Park-and-Ride Lots	G	E	E	S
Additional Capacity				
Adding Lanes or Roads	E	E	E	E
Adding New Toll Lanes or Toll Roads	E	G	G	G
Exclusive (Managed) Lanes	S	G	SP	S
Grade Separation	S	BP	S	G
Construction Improvements				
Construction Contracting Options	S	NP	SP	SP
Reducing Construction/Maintenance Interference	S	S	SP	G
Pavement Recycling	S	N/I	N/A	N/I
Shoulder Pavement Upgrade	E	N/I	S	N/I
Sustainable Pavements	S	N/I	N/A	N/I
BP: Best National Practice is being used E: Current efforts are not sufficient N/A: Not applicable or needed SP: Best State Practice is being used S: Should be studied N/I: Not enough information available G: Current efforts are good				

* Temporary use of shoulder by general purpose vehicles.

What Would a Comprehensive “Bang For The Buck” Transportation Program Look Like?

Texas’ transportation problems are large and growing. Our vibrant economy and desirable quality of life presents great opportunity as well as significant challenges. Capitalizing on the opportunities over the next few years will require a discussion with an informed public, but it will also require that transportation agencies approach their operations in a different way.

There are public-private partnership project opportunities, but that model cannot be deployed across the entire network. Texas might borrow more funding for new projects. There may be support for a value-for-the-money proposition that involves higher taxes or fees for transportation. The chances for public support have been much greater in other states where the new investments are targeted to projects and programs that are well-defined, service-oriented and use objective performance measures to ensure the best “bang for the buck.”

Improved performance and accountability are the twin precursors to increased support for transportation. Current systems must be optimized using innovative tactics, policies and procedures. The public must be engaged in a discussion about the existing service quality and funding, and the possible investment opportunities. In a growing state with so many rapidly developing metropolitan areas, increased capacity to handle more person movement must be a part of the solution. Based on research conducted during the Mobility Investment Priorities project, the following set of actions appear to be a good start toward getting the most out of the transportation system Texas has now.

Incentivize Operations

Provide agency operators and private sector companies with incentives to reduce congestion.

- Private sector towing programs – Houston’s SAFEClear program reduced crashes by 10 to 12 percent (with an additional congestion benefit) by paying tow trucks to remove crashed and stalled vehicles from the freeway mainlanes. (<http://www.houstontx.gov/council/1/bfacommittee/12.13.10/safeclear2008.pdf>) The \$5 million annual budget paid for the tows and police supervision of the operation. The cost was offset by a societal benefit of at least \$30 million in crash reduction costs. At least 60 tow trucks patrolled the 250 miles of freeway. They responded within 6 minutes to 90 percent of the incidents and cleared vehicles within 20 minutes in 90 percent of the cases, dramatically better than similar services that rely on only a few government-run vehicles.
- Connected signal timing – Central control of signal timing (especially for the frontage road/major street intersections) can be used to dramatically improve the reaction to major crashes. Traffic can be routed to exit ramps before a crash site, along the frontage road through an intersection and then back onto the freeway mainlanes. The signal controller computers at the frontage road intersections can be adjusted by operators in the regional traffic management center to provide more green time to frontage road traffic and less time to the cross streets. Cross street traffic can be handled at intersections before and after the crash scene, with dynamic message signs, radio, websites, and smartphone applications used to broadcast the changes.

Improve Safety

Identify and address safety problems with projects, programs, policies and interagency coordination.

- Lists of safety problems – A list of the worst safety problems, when connected to the 100 most congested sections list, can provide planners and designers with more information to target improvements. Safety and congestion solutions will consist of design, operations, enforcement, and education elements. Understanding the linkage between the two concerns provides more focus on the benefits of the solution strategies.

Expand Travel Options

Increase the percentage of trips that are made in some way other than rush hour, single person auto travel.

- Traveler information – Getting commuters and other travelers to look for information such as congestion, weather, road work and special events, and then connecting them to travel choices, are excellent ways to expand the use of travel options. Some of this will require technology expansions, but there is a need for more and better public education.
- Work with employers to expand work options – Telework, flexible work hours, parking cash-out programs (for example, allow employers to reward employees who do not use free parking) or transit allowances (for example, allow employers to support employee transit use) can reduce rush hour work trips.
- Service standards – Managed lanes (also called express lanes or high-occupancy/toll lanes) provide an excellent opportunity to set a service goal. For example, the LBJ Freeway Express lanes (in Dallas) has a goal of ensuring a 50 mph travel speed; if speeds fall below that level, adjustments are made to price or other operational characteristics so that travelers have a safe, fast and reliable trip. It is much easier to convince travelers to pay a premium for a trip if premium service is reliably delivered.
- Invest in creative entrepreneurs – The Washington State Legislature has a program that asks for proposals to remove peak-hour trips from congested areas. **Any** group is invited to make a proposal for payment in return for removing single-person vehicle trips (e.g., in return for the state paying me x dollars I will ensure that y trips are removed from this very congested corridor). The program ranks the proposals by the cost per trip removed and uses the annual budget for the program to identify the number of proposals that can be funded. Evaluations of the program effect show that more trips are removed than were in the proposals. Providing the private sector and individuals with an incentive to think creatively about transportation challenges not only solves problems, it also involves and educates the public.

PUBLIC ENGAGEMENT STRATEGIES

The Mobility Investment Priorities project is designed to identify which roadway projects and programs promise the biggest “bang for the buck” in the state’s most congested regions and to lay the groundwork to help make those projects and programs happen. But for them to happen, it is essential that the public support them and support the manner in which they will be paid for.

The Public Engagement Reports and the supporting activities in each metropolitan area emphasize the importance of effective public engagement and its place in transportation planning and development. The reports review current metropolitan area engagement efforts, present best practices and case examples, and offer recommendations to help agencies ensure that their public engagement activities are meaningful, credible, productive and successful. The Public Engagement Report and subsequent updates are on the MIP website (http://mobility.tamu.edu/mip/pdfs/MIP_PE-Report-5_15-FINAL.pdf).

Voters and the public in general are more likely to support increased investment in the transportation system if they clearly recognize and understand the need for and benefits of that investment (<http://mobility.tamu.edu/mip/pdfs/State-Funding-Initiatives-Summary-5-Pg.pdf>). That understanding is difficult to achieve without a significant investment in communications that achieves the educational component of identifying the need **and** allows the public to make informed choices about their transportation systems. Consequently, when transportation agencies are working to address needs in Texas’ most congested corridors, **each effort should include a robust public engagement element**. This element should be funded at a level sufficient to ensure that the public has ample opportunity to participate early and meaningfully, to understand the state’s transportation problems and the effect of the solutions, and to contribute to the discussion of which strategies to implement and how to pay for them. This effort should begin when the engineers and planners begin thinking about the project. By contacting the public early, public engagement specialists can find the thought leaders and potential project champions that will be beneficial throughout the project development process. They can also identify challenges and opportunities that planners and engineers can use in developing the best project.

The recommendations outlined in the report provided a list of steps designed to achieve the goals of Rider 42. Those steps include:

1. Initiate a broad public discussion to raise awareness of the state’s mobility crisis and to begin building public consensus toward solutions. See the Rethinking our Path to Mobility (RPM) presentation developed for each of the four metropolitan areas in the Mobility Investment Priorities (<http://mobility.tamu.edu/mip/rpm.php>).
2. Sustain the discussion through means of an assertive public education campaign to help citizens and voters understand the magnitude of the state’s mobility crisis and the consequences of inaction.
3. Communicate with all stakeholder groups; content is based upon polling results and project information produced through the Mobility Investment Priorities project.
4. Continue polling to ensure that changes in public opinion are understood and reflected in ongoing public engagement efforts.

5. Enlist and continually expand community-based networks of movers and doers (both elected and non-elected) to assist in educating various community segments.
6. Ensure that leader/educator networks have ongoing, meaningful interaction with citizens in a manner that accurately reflects the input and opinions of those whose lives are affected daily by worsening traffic congestion.
7. Ensure that public engagement efforts at all levels are sufficiently funded to ensure that communication efforts with all audiences are thorough and that feedback from those audiences is accurate, meaningful and reflected in the project development process.
8. Expand the use of technology in public engagement.

Recommendations

The public engagement guidance provides many national best practice approaches that are being used across Texas, solid state-of-the-practice implementation is in place in a wide variety of agencies, and there are improvement opportunities. The attention focused upon the most congested corridors offers a prime opportunity to demonstrate best practice strategies for public engagement. Yet, in many cases, these corridors also demonstrate similar challenges to minor transportation improvement efforts: maintaining websites, coordinating messaging across multiple agencies, and managing the past studies to maximize their value.

The Mobility Investment Priorities project yielded the following recommendations:

- Continue to advance the statewide public engagement efforts on the importance and relevance of transportation for the state's continued economic development and prosperity, goods and services delivery, and jobs, including aspects of how transportation affects individuals' everyday lives.
- For each region, one of the key agencies should coordinate a single web page location referencing the most congested corridors list (with its location), as well as other references to advance public information and regional coordination, for example:
 - Develop consistent, corridor-level summaries such as those developed for the Mobility Investment Priorities project and described earlier in this report.
 - Document current improvement efforts and the agencies involved.
 - Provide links to project-specific web pages.
 - Link to previous studies (to the extent they are relevant and available for public consumption), starting with efforts already available online.
 - Acknowledge region-wide efforts that may play a role in improving the corridor.

Individual project teams come and go, but it is the key agencies in each region that play the most critical role in advancing these recommendations. As this document demonstrates, much progress has been made to date. There are additional opportunities for engaging the public, communities and stakeholders.

STATUS OF TEXAS CONGESTION IN 2013

The next list of the 100 most congested Texas road sections will be published in August 2014. Exhibit 3 identifies the status of the 2010 most congested sections list in each of the four metropolitan areas as of the most recent list. Almost all of the 50 most congested sections in 2010 remain in the top 100 list; three sections are outside of the top 100, and only nine are between 51 and 100. Ranking changes in many other sections belie the estimated congestion levels; as noted in the delay per mile values, many sections are ranked better, but have worse delay values.

The effect of construction is particularly evident in two ways. As construction begins, there is more congestion in and around the work zone. For example, see the IH 35W and IH 820 projects in Fort Worth. And when the project is over, congestion drops. For example, the section of IH 10 West in Houston from IH 610 to IH 45 that was ranked #35 in 2010 would have been #1 for most of the preceding decade; as development and job growth in west Houston has occurred, congestion is increasing again.

Exhibit 3. 2013 Status of the 50 Most Congested Road Segments in 2010

County	Roadway	From	To	2010 Rank	2013 Rank	Change	2010 Annual Hours of Delay per Mile	2013 Annual Hours of Delay per Mile
Travis	IH 35	SH 71	US 183	4	1	➡ -3	421,778	788,649
Travis	No. Lamar	W 45th Street	W 6th Street*	24	71	⬇ 47	195,573	136,751
Travis	SL 1	US 183	US 290 West	39	27	⬆ -12	146,130	282,066
Travis	SL 360	SL 1*	US 290	42	64	⬇ 22	137,546	141,154
Travis	US 290 West	SL 1	RM 1826	43	102	⬇ 59	136,493	113,038
Travis	So. Lamar/ 1st Street	West of US 290	IH 35	44	42	➡ -2	135,550	192,680
Dallas	IH 635	IH 35E	US 75	3	5	➡ 2	432,244	674,537
Dallas	SS 366 Woodall Rodgers Freeway	IH 35E	US 75	5	8	➡ 3	397,861	479,864
Dallas	US 75	IH 635	Rodgers Freeway	9	7	➡ -2	337,201	590,059
Dallas	IH 35E	IH 30	SH 183	12	9	➡ -3	313,318	476,605
Dallas	US 75	PGBT	IH 635	15	15	➡ 0	257,055	397,767
Dallas	IH 30	IH 35E	SH 12 East	16	13	➡ -3	254,440	414,513
Dallas	IH 35E	US 67	IH 30	17	23	⬇ 6	251,532	312,734
Dallas	IH 35E	SL 12 West	IH 635	19	25	⬇ 6	242,208	305,743
Dallas	IH 30	Hampton Road* SS 366 Woodall	IH 35E	29	77	⬇ 48	167,825	130,731
Dallas	IH 345	Rodgers Freeway	IH 30	30	16	⬆ -14	162,567	375,863
Dallas	IH 635	SH 78	IH 30*	32	97	⬇ 65	159,692	117,699
Dallas	SL 12 West	SH 356	IH 35E	36	58	⬇ 22	154,540	152,955
Dallas	IH 635	US 75	SH 78	40	45	➡ 5	145,212	179,516
Dallas	IH 35E	IH 635	BS 121	41	33	⬆ -8	142,654	235,473
Dallas	SL 12 West	SH 356	IH 30	47	58	⬇ 11	117,636	152,955
Tarrant	IH 35W	IH 30	SH 183	8	4	➡ -4	339,507	685,043
Tarrant	IH 820	IH 35W*	SH 183	14	11	➡ -3	288,238	434,470
Tarrant	IH 35W	SH 183	US 81	21	14	⬆ -7	234,810	402,680
Tarrant	SH 360	SH 183	IH 20	37	40	➡ 3	150,086	200,306

⬆ Congestion worsened. ⬇ Congestion improved. ➡ Congestion remained about the same relative to other segments.

Exhibit 3. 2013 Status of the 50 Most Congested Road Segments in 2010 (cont.)

County	Roadway	From	To	2010	2013	Change	2010 Annual Hours	2013 Annual Hours	
				Rank	Rank		of Delay per Mile	of Delay per Mile	
Harris	IH 45	SL 8 North	IH 610 North	1	10	↓	9	484,630	455,615
Harris	US 59	IH 610 West	SH 288	2	3	→	1	440,416	730,665
Harris	IH 45	IH 10	IH 610 South	6	12	↓	6	366,486	416,393
Harris	IH 45	IH 610 North	IH 10	7	43	↓	36	342,303	186,405
Harris	US 59	IH 10	SH 288	10	2	↑	-8	314,106	743,006
Harris	US 290	FM 529	IH 610 West	11	18	↓	7	313,584	368,680
Harris	IH 610 North	IH 10	IH 45 North	13	20	↓	7	303,228	335,973
Harris	IH 610 West	South Main	IH 10 West	18	6	↑	-12	245,117	613,897
Harris	US 59	SL 8 South	IH 610 West	20	24	→	4	235,349	309,710
Harris	IH 10	SL 8 West	IH 610 West	22	21	→	-1	205,249	329,107
Harris	US 290	FM 1960	FM 529	25	32	↓	7	187,048	239,080
Harris	IH 45	SL 8 South	IH 610 South	26	76	↓	50	174,824	132,335
Harris	SH 288	IH 45*	IH 610 South	27	22	↑	-5	172,958	324,466
Harris	FM 1093	SH 6	Post Oak Boulevard	28	35	↓	7	168,249	220,249
Harris	IH 10	IH 45	US 59	31	30	→	-1	161,898	242,185
Harris	IH 45	FM 528/NASA 1	SL 8 South	33	26	↑	-7	157,824	299,531
Harris	FM 1960	US 290*	IH 45	34	36	→	2	157,776	211,695
Harris	IH 10	IH 610 West	IH 45	35	17	↑	-18	157,762	370,436
Harris	Bellaire Boulevard	Eldridge Road	US 59	45	84	↓	39	133,919	126,781
Harris	Bissonnet Street	US 59	Dairy Ashford Road	46	69	↓	23	128,943	139,951
Bexar	SL 1604	SH 16	FM 471	23	231	↓	208	197,021	63,583
Bexar	US 281	SH 1604	Comal County Line*	38	28	↑	-10	149,368	252,330
Bexar	IH 35	Loop 353/ Nogalitos Street	US 281	48	39	↑	-9	116,342	204,931
Bexar	IH 35	FM 1518*	SL 1604	49	37	↑	-12	116,202	211,593
Bexar	FM 3487	SH 471	IH 410	50	281	↓	231	115,093	51,748

*Segment endpoints have changed and may be reflected in delay per mile.

↑ Congestion worsened. ↓ Congestion improved. → Congestion remained about the same relative to other segments.

Source: <http://www.txdot.gov/inside-txdot/projects/100-congested-roadways.html>

One other aspect of the 100 most congested sections list that has become obvious over the years is that congestion is concentrated in relatively few road sections. Of the approximately \$10 billion in statewide congestion cost, \$3.3 billion was in the 100 most congested sections. And within the 100 worst list (as shown in Exhibit 4) almost half of the congestion occurs in the 25 most congested sections.

The same data is allowing smaller regions to examine congestion problems in their area. The 2014 list will include much more information on roads in less congested regions so that they can identify problems and possible solutions. Exhibit 5 shows two examples of the expanded coverage offered by the dataset that TxDOT has purchased for the 2014 analysis. The dataset includes speed data on 62,000 miles of state and local Texas roads.

Exhibit 4. Annual Delay Per Mile for 2013 List of 100 Most Congested Sections

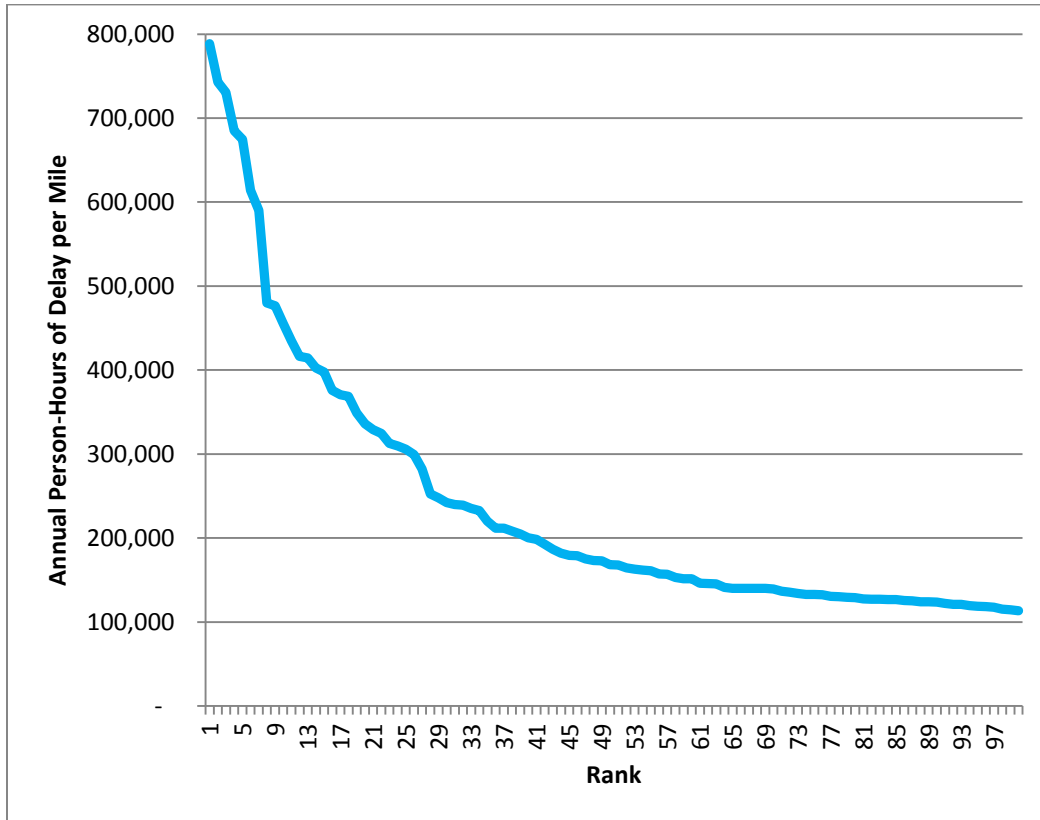
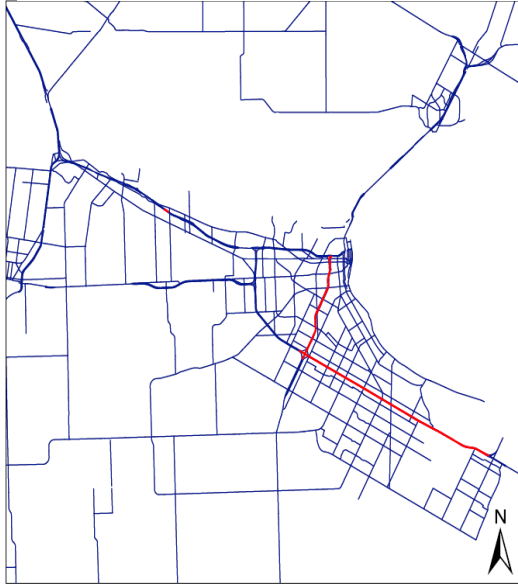


Exhibit 5. Comparison of Roads Included in 2013 and 2014 Congestion Analysis

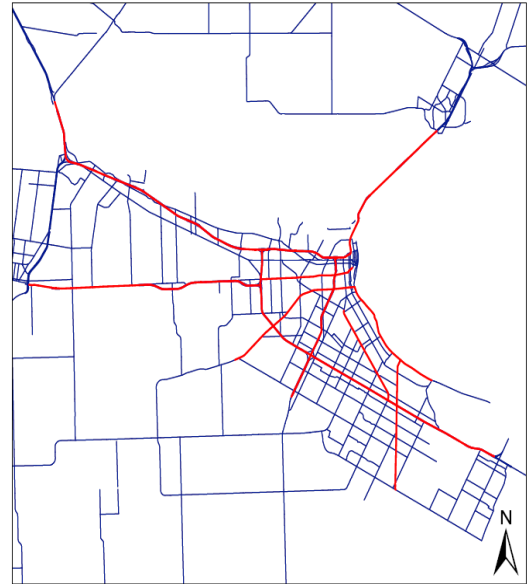
Corpus Christi

2013



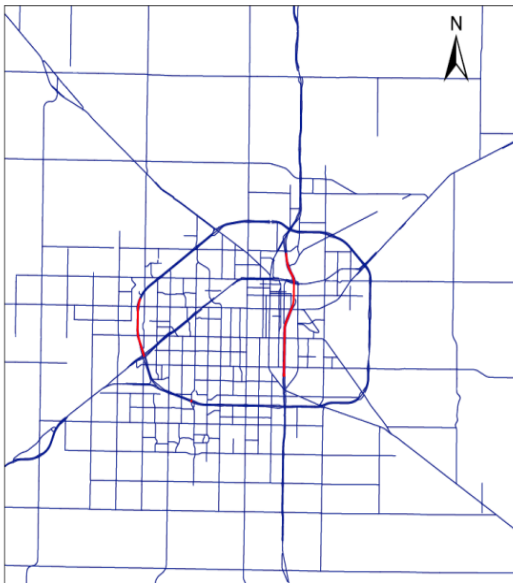
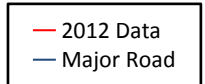
Corpus Christi

2014



Lubbock

2013



Lubbock

2014

