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Before the
House Transportation Subcommittee on Transportation Funding And
House Appropriations Subcommittee on Article VI, VII and VIII
July 9, 2012

Establishing Mobility Investment Priorities Under TxDOT Rider 42

BACKGROUND
The most congested metropolitan highways in Texas are becoming even more crowded, resulting in lost time and wasted fuel topping $10 billion per year—more than $800 for the average Texas household. Two-thirds of Texas residents live in urban areas that are ranked in the 40 most congested U.S. metropolitan areas, and three areas (Houston, Dallas-Fort Worth and Austin) are in the top 15. Perhaps more disturbing, however, is the fact that not only is congestion high, but Texas traffic problems are also increasing faster than in similar U.S. areas. The four largest areas (including San Antonio) rank in the 15 fastest growing congested urban areas in the U.S. over the last 15 years. These congested corridors also cause problems for the movement of goods and services through the large metropolitan areas to the rest of Texas.

Funding for many of the traditional solutions in Texas’ large metropolitan regions, however, is not scheduled to increase and congestion will continue to worsen. There is, however, a generally accepted path toward improvement involving:

- First and foremost, state and local transportation agencies must be perceived as doing a good job with the funding and priorities they have. They must be effective and efficient.
- The agencies must have a coherent 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 Texas Legislature set aside $300 million to get the state’s highest-priority roadway projects moving. As a part of the General Appropriations Act, the 82nd Texas Legislature directed the Texas 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 is serving as facilitator and coordinator of studies to provide assurance that:

1. Projects will have the greatest impact considering factors including congestion, economic benefits, user costs, safety and pavement quality
2. The best traffic and demand management principles are being applied to the projects
3. Public participation in the concept development ensures the most inclusive planning process possible
4. The funding scenarios take advantage of all feasible options so that public funds provide the greatest “bang for the buck”

5. Recommendations are made to the Department of Transportation at each major decision point for the projects

**PROJECT STATUS**

In the first ten months, TTI delivered the following major products:

- **Early Recommendations Report** identifying and recommending funding for $248 million of projects that will improve the most congested roadway sections. These include 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. There is more information for the recommendations in each area in following pages.

- **Public Engagement Report** detailing the state of the practice in developing public involvement in each of the four metropolitan areas and providing a set of best practices for public engagement. The specific practices will improve the chances of having a richer discussion about the congestion reduction strategies and projects the public desires, and the funding mechanisms they will approve.

- **Strategy descriptions** to illustrate how, when, where, why and for what purpose a range of congestion reduction, public engagement and funding strategies should be deployed. These include 50 traffic management and travel option strategies, 10 public engagement practices and 15 funding options. Products include information for a range of audiences and potential users from technical implementation agencies to policy and leadership groups.

All of these products are available on TTI’s Mobility Investment Priorities website: mobility.tamu.edu/mip.

TTI will deliver other recommendations, reports and analyses to the Legislature and the Texas Transportation Commission over the next 14 months and a final report in August 2013. Throughout the study period, commuters in each region can be actively involved in deciding just how much congestion relief and what kind of solutions they want, and how they think those solutions should be paid for. TTI’s purpose is to support local transportation agencies, and in the end, the priorities identified will reflect locally expressed needs. The Institute’s work is a complement to existing planning and development efforts already underway in the regions, and will not replace any such local efforts.

The next six months of activity in the Mobility Improvement Priorities project will involve follow-up activities related to the Early Recommendations Report as well as working with local and state agencies to reduce congestion using a variety of practices and engages the public in a discussion about the benefits and possible funding mechanisms. Specific work tasks and products include:

- Help draft and monitor the studies in the Early Recommendation Report
- Develop recommendations for remainder of the $300 million in project development funding
- Improve public engagement practices in all four areas
- Examine some of the other corridors in the top 50
- Estimate the effectiveness, the benefits and costs of congestion-reducing projects and programs
- Identify funding mechanisms that are tailored to fit the large congestion-reducing projects
- Develop a computer simulation model of IH 35 in Austin and test congestion reduction strategies
- Respond to Legislative requests
ABOUT THE EARLY RECOMMENDATIONS REPORT

The Early Recommendations Report (found at mobility.tamu.edu/mip) describes interim conclusions from the first few months of the two-year project. Other reports, additional recommendations, and other project ideas will be produced during the project timeframe. These initial findings may be modified upon more investigation, but these early recommendations identify projects that meet the standards identified in Rider 42 to “significantly reduce congestion in a cost-effective manner with a project that makes maximum usage of the possible management and financial options and allow agencies to continue with project development activities.”

Summary

The report includes a set of recommendations that will move major projects toward completion and improve mobility in the four metropolitan areas studied. More information is included about the actions and plans by all agencies for each of the most congested corridors. In 2007, Texas voters approved Proposition 12, allocating $3 billion for highway improvements. Most of these studies or right-of-way purchases can be funded by Proposition 12 bond funds. All of the studies will improve the knowledge of the costs and benefits of major transportation improvements.

CONGESTION REDUCTION STRATEGIES

Rider 42 recognized the role that traffic operations and travel option strategies will play in Texas’ future. Many of these strategies are relatively low-cost projects and programs. They have broad public support and can be rapidly implemented. These ideas require innovation, constant attention and adjustment, but they pay dividends in faster, safer and more reliable travel. Rapidly removing vehicle crashes, timing traffic signals so more drivers experience green lights, improving road and intersection designs, and/or adding a short section of roadway are relatively simple actions with big payoffs. These strategies are more fully described on the Mobility Investment Priorities Project website (mobility.tamu.edu/mip).
**Additional Capacity** – Constructing new roadways reduces congestion; however, limited right-of-way in congested urban corridors makes this a costly approach. Exclusive or managed lanes can mitigate congestion by designating lanes for trucks or buses, or through the use of High Occupancy Vehicle (HOV)/High Occupancy Toll (HOT) lanes.

**Traffic Management** – Traffic management is an essential component of congestion mitigation and primarily an agency responsibility. It can help improve the efficiency of the system by rapidly clearing collisions and stalled vehicles or improving signal coordination so drivers experience green lights as they move in the peak travel direction, among many strategies.

**Travel Options** – Reducing single occupant vehicle trips by encouraging practices such as ridesharing or vanpooling can reduce roadway congestion. Private companies play the key role in offering employee options, such as flexible work hours, compressed work weeks and telecommuting. Shipping companies may also participate by, for example, choosing to transport goods overnight in an effort to meet deadlines, while also reducing roadway congestion during peak travel periods.

**Funding** – Funding is a critical aspect of transportation improvements. Projects and roadway improvements will not become reality without a funding mechanism in place. Traditional funding mechanisms, such as the motor fuel tax, general revenue funds and bonds still fund many transportation improvement projects; however, other funding opportunities should be identified in an effort to maximize flexibility in financing improvements.

**Public Engagement** – Public engagement is a crucial aspect of transportation planning, particularly when voter-approved funding mechanisms are considered to finance project costs. Public opinion of a proposed project can determine the success or failure of the project. Furthermore, public outreach is a necessary component of successful project planning and can ultimately benefit the decision-making process. Public engagement strategies are implemented by the public agency or a private consulting firm hired to conduct project meetings. There are a range of strategy costs and implementation mechanisms that vary according to the budget and project type.
EARLY METROPOLITAN AREA RECOMMENDATIONS

The report identifies the initial results of activities by TTI to coordinate studies in the four most congested areas of the state. Most of the funding in the recommendations is allocated to purchase right-of-way in a few corridors. These recommendations are appropriate for the current development stage in several of the corridors. Additional recommendations will be made for each area over the remaining period of the study.

The affected corridor/project with its top 100 congestion rank, the recommended early action and the funding request for each action are listed in the tables; a corresponding map illustrating the congested corridors and the recommended actions can be found in the Early Recommendations Report (mobility.tamu.edu/mip). The specific parcels will be identified in subsequent requests by TxDOT. The studies and design efforts will likewise be specified and consultants hired (or in-house work initiated) as appropriate for each item.

Austin

The City of Austin has nearly doubled in size every 20 years since World War II. The rapid growth of the city has exacerbated traffic congestion in the area. IH 35, North Lamar, and MoPac—the three most congested sections in the metro area—are parallel north-south routes and are, essentially, the same problem. Improvements made to IH 35, for example, will likely reduce congestion on North Lamar and MoPac.

The Austin area has $31,280,000 in Rider 42 funds available to support engineering, feasibility studies, and right-of-way acquisition on the congested corridors in Austin ranking in the top 50 in the state. Exhibit 1 identifies the $18.5 million requested for priority studies and design efforts that are recommended as the first funding request; other studies, design efforts, or right-of-way purchases will be recommended in future reports. The affected corridor, the recommended action, and the funding requested for each action are listed in Exhibit 1.

Exhibit 1. Austin Early Recommendations

<table>
<thead>
<tr>
<th>Rank</th>
<th>Corridor/Project</th>
<th>Recommended Early Action</th>
<th>Funding Request</th>
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<tbody>
<tr>
<td>39</td>
<td>Loop 1 South Managed Lanes</td>
<td>Tolled express lanes engineering (environmental clearance, final design &amp; preparation for construction)</td>
<td>$16.5 million</td>
</tr>
<tr>
<td>4</td>
<td>IH 35 Study Extension</td>
<td>Expand study limits &amp; scope: express lanes, operations, and travel options</td>
<td>$1.2 million</td>
</tr>
</tbody>
</table>

All Congested Corridors

| Integrated Traffic Management | Comprehensive system operation engineering study including aggressive incident clearance | $0.8 million |

Total Request, February 2012 $18.5 million

*Remaining Austin area Rider 42 allocation: $12.78 million
Dallas/Fort Worth

The 11 most congested Dallas/Fort Worth Metroplex corridors were intensively examined in the first few months of the Mobility Investment Priorities project. The Metroplex has aggressively pursued large congestion reduction projects using a combination of traditional funding and innovative financing including comprehensive development agreements (CDA). The beneficial effect of these projects is illustrated by the recommendations offered in the Early Recommendations Report; there are no recommendations about the CDA corridors because major roadway improvements are under construction by the private developers. Other corridors such as Woodall Rodgers, North Central Expressway, and SH 360 either have relatively few large scale improvement options available due to physical, community, or financial constraints or may have their congestion levels reduced by construction projects that have already begun; these corridors will largely rely on operational improvements and travel options to provide additional congestion relief.

Two large projects are recommended for Proposition 12 funding. The two projects listed in Exhibit 2 combine to use the full Dallas/Fort Worth Proposition 12 project development allocation of $118,750,000. Other studies are suggested in the Early Recommendations Report (mobility.tamu.edu/mip) and additional recommendations will be made over the remaining period of the Mobility Investment Priorities Project.

Exhibit 2. Dallas/Fort Worth Early Recommendations

<table>
<thead>
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<th>Rank</th>
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<th>Funding Request</th>
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<tbody>
<tr>
<td>12, 17, 29</td>
<td>IH 30 &amp; IH 35E Horseshoe</td>
<td>Engineering, purchase right-of-way (ROW) &amp; adjust utilities</td>
<td>$100.75 million</td>
</tr>
<tr>
<td>12, 16, 17, 29</td>
<td>Trinity Parkway Phase 1</td>
<td>Engineering, purchase ROW &amp; adjust utilities</td>
<td>$18.0 million</td>
</tr>
<tr>
<td><strong>Total Request, February 2012</strong></td>
<td></td>
<td></td>
<td><strong>$118.75 million</strong></td>
</tr>
</tbody>
</table>

*Remaining Dallas-Fort Worth area Rider 42 allocation: $0.00

The 11 most congested Metroplex corridors are where congestion problems and solutions are most difficult. Capacity has been added in several corridors; those congested sections will rely on improvements in other corridors, traffic management and travel option strategies to help reduce congestion. Resource constraints dictate that many of the less congested corridors will not be comprehensively examined over the course of the Mobility Investment Priorities project. Many of the solutions to the most congested corridors, however, will apply to those corridors lower on the list of the 50 most congested sections.
Houston

Most of Houston’s most congested sections are located between downtown and the IH 610 Loop. The Houston metro area has been allocated $116,224,000 in Rider 42 funds to support engineering, feasibility studies, and right-of-way acquisition on the congested corridors in Houston ranking in the top 50 in the state. Exhibit 3 summarizes the recommended right-of-way needs, priority studies, and design efforts for funding. Many of the recommendations focus on studies and planning efforts that will assist the agencies in reducing congestion by getting more productivity out of the existing system and by offering travel options for peak period commuters. In some cases, these will improve conditions until larger projects can be implemented and, in other corridors with fewer construction options, the strategies may be the best method to reduce congestion in the next several years. The studies can allow Houston to take advantage of the characteristics of the denser activity centers in downtown, the Texas Medical Center, Greenway Plaza, and Uptown where many jobs can be at least partially accomplished using electronic means. In addition, other studies will identify methods to expand the use of proven operational treatments.

The most congested corridors were examined in the first few months of the Mobility Investment Priorities project, but many of the lower-ranking corridors were not studied. Due to resource constraints and the extent of congestion in Houston, it is likely that many of the less congested corridors will not be comprehensively examined over the course of the Mobility Investment Priorities project. Many of the solutions to the most congested corridors, however, will apply to those corridors lower on the list of the 50 most congested sections.

The two congestion reduction projects that are closest to being implemented are the extension of the Hardy Toll Road from the IH 610 Loop to downtown and the expansion of the US 290 Northwest Freeway. These projects have environmental clearance and a clear indication of significant benefits from the projects. The Hardy project is in the design phase and the estimated $400 million project is being considered by the Harris County Toll Road Authority. The US 290 expansion has begun with improvements to the US 290/IH 610 interchange, but funding for other improvements has not been identified.

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<tbody>
<tr>
<td>11, 25</td>
<td>US 290</td>
<td>Purchase ROW and adjust utilities to reconstruct the main lanes &amp; Beltway 8 interchange</td>
<td>$78.0 million</td>
</tr>
<tr>
<td>2, 6, 7, 10, 27, 31, 35</td>
<td>IH 45, US 59, IH 10 &amp; SH 288 – Downtown Redesign Study</td>
<td>Feasibility study for long-term solutions to the downtown area and connecting freeways based on origin-destination travel patterns</td>
<td>$5.0 million</td>
</tr>
<tr>
<td>1, 7</td>
<td>IH 45</td>
<td>Feasibility study and design of mobility improvements along major streets parallel to IH 45 North</td>
<td>$2.0 million</td>
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**Exhibit 3. Houston Early Recommendations**

| All Congested Corridors | Operational Improvements | Engineering study to identify locations & funding for operation treatments, including aggressive incident clearance | $0.85 million |
| All Congested Corridors | Travel Options | Engineering study for implementing travel option strategies | $0.5 million |

Total Request, February 2012  
$86.35 million

*Remaining Houston area Rider 42 allocation:  
$29.874 million
San Antonio

Initial investigation of the five San Antonio corridors in the 50 most congested corridors resulted in the identification of several on-going efforts that should be monitored, some modifications to those studies that would position them to address the Rider 42 issues more comprehensively and a few new study ideas that may accelerate the development of corridor solutions. There are also several actions that have been taken in the past two years that can provide examples of successful approaches to congestion reduction. Exhibit 4 describes the use of the initial set of funding from the $33,740,000 allocated to the San Antonio area.

Exhibit 4. San Antonio Early Recommendations

<table>
<thead>
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<th>Rank</th>
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<th>Recommended Early Action</th>
<th>Funding Request</th>
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</thead>
<tbody>
<tr>
<td>49</td>
<td>IH 35 Northeast</td>
<td>Conduct environmental study as recommended by planning and environmental linkages (PEL) study</td>
<td>$13.0 million</td>
</tr>
<tr>
<td>38</td>
<td>US 281/Loop 1604 Interchange</td>
<td>Design four northern direct connector ramps</td>
<td>$6.0 million</td>
</tr>
<tr>
<td>48</td>
<td>IH 35 Central</td>
<td>PEL study to define the needs &amp; alternative improvements</td>
<td>$1.0 million</td>
</tr>
<tr>
<td>48, 49</td>
<td>South Alternative Routes to IH 35</td>
<td>PEL study to define the needs &amp; alternative improvements</td>
<td>$2.5 million</td>
</tr>
<tr>
<td>48, 49</td>
<td>IH 410 Southwest</td>
<td>PEL study to define the needs and evaluate alternatives to IH 35</td>
<td>$0.5 million</td>
</tr>
</tbody>
</table>

All Congested Corridors

| ITS/Transportation Management | Project planning & feasibility study to facilitate traffic & incident clearance (infrastructure, policies & practices) | $1.0 million |
| Parking Strategies             | Parking management project planning & feasibility study                                                   | $0.3 million |
| Travel Option Strategies       | Project planning & feasibility study to identify possible travel option strategies and champions         | $0.3 million |

Total Request, February 2012 $24.6 million

*Remaining San Antonio area Rider 42 allocation: $9.14 million
PUBLIC ENGAGEMENT RECOMMENDATIONS

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.

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. That understanding is difficult to achieve without a significant investment in communications. 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 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 early and significant effort is at the heart of achieving the open and transparent public participation called for in Rider 42.

An agency’s ability to achieve its goals depends heavily on the relationships it has with its many publics, and these relationships are built upon public engagement. Effective engagement not only helps an agency build public support for individual programs and projects, but it helps establish and reinforce a foundation of trust and credibility for future interaction.

The Public Engagement Report examines the importance of effective public engagement and its place in transportation planning and development. The report underscores why transportation decision making must reflect the needs and opinions of the citizens that it will affect. The report reviews current regional engagement efforts, presents best practices and case examples, and offers recommendations to help agencies ensure that their public engagement activities are meaningful, credible, productive and successful. The recommendations outlined in this report provide 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.
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 that 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 funded at a level sufficient to ensure that communication efforts with all audiences are thorough, and that feedback from those audiences is accurate and meaningful.
8. Expand the use of technology in public engagement.