This report documents a case study of mid-size urban/rural toll road options under consideration in the Tyler, Texas, area. The case study focuses on a proposed outer loop, Loop 49, which is a new regional highway that will eventually connect Lindale and US 69 with I-20 northwest of the city and then loop to the south and east, terminating at I-20 on the east side of Tyler. The objectives of the tolling implementation project are to (1) pilot test tolling applications in a mid-size urban/rural area, specifically on the south segment of Loop 49 that is under construction as a non-tolled road, and (2) to develop a toll history for Loop 49.

This report provides documentation of the planning and design considerations and the associated decision processes for toll implementation on Loop 49 from project inception through preliminary engineering. The case study examines several toll technologies and service approaches for Loop 49. The conceptual tolling implementation plan identifies potential tolling locations and configurations. Artist’s renderings of toll collections sites were also developed and used in assessing public perception through stakeholder interviews and focus groups. The second task in the evaluation was to assess public perception of tolling, including the chosen toll technology. The research team gathered baseline public perception data through interviews with community stakeholders, interviews with truckers in the area, focus groups, and a public opinion survey. The public perception data collection identified gaps in the public’s understanding of the project, and a marketing strategy was formulated to address the knowledge gaps. Lastly, the case study addressed financial considerations and partnering opportunities that may be used to enhance the financial viability of Loop 49 as a toll project. As the project moves toward opening in January 2006, various elements such as marketing, environmental reevaluation, and development of partnerships will be pursued, and an evaluation of public perception and toll operations will be performed.
Case Study Analysis of Mid-Size Urban/Rural Area Toll Road Options - Year 1 Report

Implementation of Tolling on Loop 49
Tyler District
Texas Department of Transportation

Research Implementation Project 5-4055-01
Case Study Analysis of Urban/Rural Area Toll Road Options

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October 2004
Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the Texas Department of Transportation (TxDOT) or the Federal Highway Administration (FHWA). This report does not constitute a standard, specification, or regulation, and it is not intended for construction, bidding, or permit purposes. The engineer in charge of the overall research project was Ginger Daniels Goodin, Texas P.E. #64560.
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Background

Tyler Loop 49

Loop 49 is a new regional highway that will eventually connect Lindale and US 69 with I-20 northwest of the City of Tyler, then loop around the city to the west and south, terminating at I-20 east of Tyler. The construction of Loop 49 has been divided into three major projects — south, west, and east — for planning, funding, and construction purposes. Figure 1 is a map of the region showing Loop 49 and its various stages of implementation.

Construction began on the first phase of Loop 49 from US 69 to SH 155 south of Tyler in August 2003. This 5-mile section, hereafter referred to as the “south segment,” is scheduled to be open for traffic in early 2006. The tolling pilot project will be implemented on this initial segment of Loop 49. There is another portion of the southern part of the loop, a 2-mile section from US 69 East to FM 756 including an overpass at US 69, which is scheduled to begin construction in Spring 2005.

It is important to note that the sections of Loop 49 from SH 110 to US 69 North will initially be constructed as a two-lane highway with a “Super 2” design and grade separations at most cross streets. Construction of large drainage structures (non-bridge class) and primary dirt work is included in these initial sections of two-lane construction. Eventually, as funds are available, these two lanes will become the eastbound roadway of a four-lane divided highway similar to I-20. An initial cross section of two lanes, with one lane in each direction separated by painted stripe, poses unique challenges associated with

Figure 1. Tyler Loop 49 Map.
tolling implementation and public education. The initial and ultimate cross sections are shown in Figures 2 and 3.

Figure 2. Initial Loop 49 Cross Section.

Figure 3. Ultimate Loop 49 Cross Section.

The construction cost for the south segment is $22.3 million. Funding for the construction of Loop 49 is being provided by the Texas Department of Transportation (TxDOT). However, the Tyler District has obtained interest from the City of Tyler, the City of Longview, and Gregg and Smith Counties toward the organization of a Regional Mobility Authority to support continued development of Loop 49. To date, TxDOT has received monies from private foundations, the City of Tyler, City of Whitehouse, and Smith County to fund 10 percent of the project cost from FM 756 to SH 155. A toll road on this 5-mile segment is projected to pay for the operational costs. Further, the Texas Turnpike Authority Division projects that as Loop 49 is expanded to its final configuration, the toll revenues are estimated to pay for 30 percent of the construction, operations, and maintenance costs.
Purpose of Research Implementation Project

TxDOT Research Project 0-4055, *Guidelines for TxDOT — Regional Tollway Authority Cooperation*, produced a set of guidelines that provides TxDOT, Regional Tollway Authorities (RTAs), and Regional Mobility Authorities (RMAs) with techniques to enhance planning, financing, designing, constructing, and operating toll facilities in Texas. This implementation effort builds upon the findings of that research project.

The implementation project will focus on identifying toll road technologies applicable to operating a toll road in a mid-sized metropolitan or rural area. Further, the implementation will consist of using public information and outreach strategies addressed in the Project 0-4055 guidelines and specific to the Loop 49 project to develop a marketing plan for the tolling concept. Financing and partnering mechanisms for funding the toll road infrastructure and operational/collection requirements will be identified. Once the initial toll road segment is operational, it will then be monitored for an extended period to see how the market reacts to the toll road in order to gauge its effectiveness. Finally, the implementation will include a consolidation and synthesis of lessons learned on the Loop 49 project and detailed recommendations for improvements in the areas of planning, financing, designing, constructing, and operating toll facilities in a mid-sized urban/rural environment.

This report documents the first year of the implementation project and addresses (1) toll road operations, (2) public education and marketing, and (3) funding issues specific to the south segment of Loop 49, which at the time of this report is under construction. Because the south segment cannot necessarily be viewed as a stand-alone project in the context of the regional nature of the full Loop 49 project, the research team considered the other segments in all three aspects of the implementation approach.

Loop 49 Project Objectives: South Segment

Over the course of this effort, a multi-faceted group of individuals from the Tyler District, the Turnpike Authority Division and their consultants, and the Texas Transportation Institute (TTI)/Texas Southern University (TSU) team worked together to develop the implementation plan. This group of individuals will be referred to in this report as the “project team.” One of the tasks of the team was to identify objectives for the south segment of Loop 49 that would guide the implementation and serve as a basis for evaluating the project.

Throughout the development of the tolling plan and collection of baseline public perception data, these two primary objectives have remained relevant
and applicable. The ultimate implementation of the project will be evaluated according to these objectives and measures of effectiveness (MOEs). Public acceptance data collected at this stage of implementation are presented in the Public Perception and Marketing section of this report.

Objective 1. Pilot test tolling applications in Tyler

This objective involves assessments in potentially two areas: testing new technology applications and evaluation of tolling in a mid-sized urban/rural setting from the standpoint of user acceptance. The research implementation effort will serve as a model to implement further tolling in Tyler and elsewhere.

Potential Measures of Effectiveness
Potential measures of effectiveness for testing tolling applications are:

- technology applications;
  - number of unique tolling features tested and evaluated;
  - effectiveness of cash option — revenue/operating costs;
  - public acceptance of electronic tolling — percent favorable;
- public acceptance of tolling concept;
  - baseline acceptance — percent favorable;
  - public acceptance prior to opening — percent favorable;
  - public acceptance after opening — percent favorable;
  - compliance rate (percent of vehicles paying toll);
  - actual revenue/estimated revenue and/or growth rate on Loop 49 versus growth rate on other roadways; and
- number of districts adopting Tyler model for tolling implementation.

Objective 2. Develop a toll history for Loop 49 in order to facilitate development of the full facility, particularly the western section

The premise behind this objective is to evaluate the development of the south-segment project as a way to enhance the feasibility of tolling the other portions of Loop 49.

Potential Measures of Effectiveness
Potential measures of effectiveness for testing user acceptance of tolling applications are public acceptance and usage (same as above).
Conceptual Tolling Plan

The first task under this research implementation project was to identify the most appropriate toll technology and service approach for Loop 49 based on expected demand, construction and operational costs, highway design, and interoperability with other toll agencies. The research team was charged with addressing the initial south segment of Loop 49. Some of the unique features of this project as compared to other traditional toll facilities are the low forecasted traffic volumes (Average Daily Traffic [ADT] estimated at approximately 4000 in 2007) and a highway cross section of two lanes initially with ultimate expansion to four lanes. Additional considerations include the rural nature of the facility and the fact that the south segment of Loop 49 will serve local trips rather than external trips until remaining portions of the loop are constructed.

Process for Technology Selection
The approach for technology selection involved the following process:

1. Define criteria or considerations for comparing technologies.
2. Develop a technology matrix that describes attributes of each technology for each of the considerations.
3. Identify preferred technology implementation option.
4. Identify preliminary costs of preferred option.

Define Technology Considerations
The project team identified 18 different considerations in selecting the appropriate toll technology:

- technology implementation costs — the cost of launching the technology, specifically the electronics and communications;
- annual operating cost — staffing, maintenance, utilities, contingency, law enforcement patrols, and replacement costs;
- civil/structural costs — costs for toll plazas, gantries, buildings, islands, conduit, and additional pavement;
- total pavement width — lane widths plus shoulder requirements;
  - lane widths — lane width requirement to construct and operate a given technology;
  - shoulder widths — shoulder width requirements for approach and departure;
- approach and departure tapers — requirements for taper lengths;
- grade requirements — requirements to construct and operate a given technology;
• scheduling — impact on construction and implementation schedules;
• environmental impacts — low/moderate/high, reflecting relative level of potential environmental impact;
• transaction time — payment processing speed, slow or fast;
• throughput — vehicle capacity per hour per lane at tolling zone;
• write-off rate — rate of toll evasion and/or processing errors;
• potential diversion rate — percentage of traffic that will not use facility because of toll collection technology;
• compatibility — compatibility between more than one technology that may be used along different segments of the facility;
• interoperability — potential to be interoperable with other toll facilities;
• marketability — user perception of technology, especially casual versus regular users; and
• receipt options — type of receipt, such as immediate receipt or monthly statement.

In terms of specific toll collection technology, the following alternatives were considered:

• manual collection,
• automated coin machine (ACM),
• electronic toll collection (ETC) or automatic vehicle identification (AVI), and
• video.

Technology Matrix

A technology matrix was developed that is specific to the Loop 49 south-segment project. The full matrix is provided in Appendix A of this report. Rather than develop all possible hybrid options between the various technologies, the project team decided to identify the considerations for each type of technology individually. Eventually, a hybrid solution was developed using the information in the matrix.

Before identifying the specific entries in the matrix, some general assumptions were made regarding the tolling locations. Figure 4 shows a diagram of the south segment of Loop 49 and the proposed tolling locations. The proposed configuration consists of one mainline ramp plaza and two ramp plazas for the five-mile project. The costs and geometric considerations reflect this configuration.
In general, the matrix provides an overview of all considerations to be made in selecting tolling features for Loop 49. The entries in the matrix reflect available literature, TxDOT design guidance for toll plazas (1), and the tolling experience of personnel at the Turnpike Division of TxDOT.

Preferred Technology Option

The technology matrix was used as a tool by the project team for discussion of the various considerations in selecting the preferred technology. While there was no quantitative weighting and/or ranking of the criteria, the primary considerations used for selection of the final option by the project team were the following:

- annual operating cost,
- technology implementation cost, and
- design and scheduling considerations (since the project is under construction).

The preferred option developed by the project team consists of a combination of AVI and ACM technologies, with motorists provided an option for cash payment for infrequent trips. Each toll plaza will consist of two directional lanes, one lane as an AVI/Express lane and one lane as a cash lane. Figures 5 and 6 illustrate the conceptual mainline and ramp plaza designs.
Figure 5. Tyler Loop 49 Conceptual Mainline Plaza Design.

Figure 6. Tyler Loop 49 Conceptual Exit Ramp Design (with Exact Change Lane).
Toll Transaction Options
The project team explored the idea of providing credit or debit card options in the cash machine lanes. Initially, the project staff contacted the Dallas/Ft. Worth airport and determined they do accept credit cards when paying for parking, and no signature is required; therefore, the traffic in the lanes moves fairly quickly. The transactions are processed in bulk once a month by a third-party vendor. They are exploring an automated option using either credit or debit cards but do not have this option as of yet. There is a transaction fee associated with each time a credit card is processed unless batch processing is done. This fee can be significant depending on the rate structure that is negotiated with the credit card firm. Batch processing allows several credit card transactions to be processed at the same time. Batch processing has some disadvantages over real-time single transactions.

A toll agency runs a greater risk in recovering revenue with expired or “bad” credit cards when batch processing. Real-time processing provides for immediate accounting of the transaction revenue and limits exposure to bad debt. However, for a low-volume roadway such as Loop 49, costs for credit card processing relative to revenue generated could be high.

The project team also explored the idea of Loop 49 serving as a test site to evaluate a “proof of concept” for privatized transaction processing. Because there was expressed interest in the Tyler financial community for involvement in transaction processing opportunities, the project team examined possibilities associated with local banks, credit card associations, and debit networks issuing or assigning accounts to tags. The objectives of the test would be to evaluate a privatized transaction approach in terms of reducing transaction costs, expanding access to tagged users, identifying commercial opportunities for tag use beyond toll collection (such as purchase of fast food at a drive-through window), and facilitating national interoperability.

While the privatized transaction approach represents an interesting concept and a step toward a logical business-oriented framework for future toll transaction processing, researchers and the project sponsor determined that the Tyler case study represented too small a test case, given the financial investment required to set up the business and technology infrastructure.

Preliminary Costs of Preferred Option
The costs for the preferred option are shown in Table 1. The factors that were considered in the development of the estimates are provided in Appendix B.
Table 1. Estimates for Loop 49 (South Segment) Toll Implementation.

<table>
<thead>
<tr>
<th>Tolling Element</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology implementation</td>
<td>$2,400,000</td>
</tr>
<tr>
<td>Civil/structures</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>Annual operating costs</td>
<td>$500,000 - $600,000 per year</td>
</tr>
</tbody>
</table>

Refined estimates can be determined upon completion of the specific deployment plan for Loop 49.

Alternative Service Approaches
Two approaches for operating the toll facility were considered. Each of the approaches is described below.

Operate by Established Regional Toll Authority
The North Texas Tollway Authority (NTTA) has been operating toll facilities in the Dallas region for more than three decades and was the first toll authority in the U.S. to employ electronic toll collection. Tyler is located approximately 90 miles southeast of Dallas. Early in the implementation project, NTTA expressed interest in discussing the prospect of operating Loop 49 for TxDOT. The advantages of an established toll authority operating Tyler’s project are obvious: it has proven toll technologies and customer service operations, and experienced staff. Because of economies of scale and established procurement procedures, technology implementation can be handled cost-effectively and in a timely manner. The drawbacks could potentially be transaction costs paid to the toll authority and the limitations placed on TxDOT to conform to NTTA technologies and procedures. This approach was considered as a possible operating strategy.

Operate by TxDOT
Concurrently with the development of the Loop 49 implementation project, the Turnpike Authority Division of TxDOT devised a statewide toll operating strategy. With the rapid changes in TxDOT policy with respect to tolling new capacity in the state, the Turnpike Authority Division has been developing a statewide model for all aspects of toll operations: lane systems and operations, as well as back office operations. Regional Customer Support Centers (CSCs) are being devised to provide operations services for all TxDOT...
toll projects. In addition, contracts are being created that provide a consistent approach for toll lane systems and all associated hardware, software, and communications infrastructure.

The impetus for this effort is twofold: (1) TxDOT’s new policy for tolling all new capacity, and (2) the completion of TxDOT’s first toll facilities in the state, the Central Texas Turnpike Project (CTTP) in 2007. As the completion of 94 miles of toll roads in the Austin region nears, the Turnpike Division has identified a potential operating strategy that will use inexpensive “sticker tags” that can easily be distributed by mail and sold directly at toll booths and stand-alone kiosks that accept cash, credit, or debit cards. This approach takes advantage of the benefits of ETC in terms of minimizing operating costs through low-cost sticker tags ($7 per tag as opposed to $25 for traditional transponder) and opportunities for widespread distribution. Motorists using cash tollbooths will be encouraged to purchase sticker tags as opposed to paying a per-trip toll. The disadvantage of this approach is that customers would have to purchase a minimum dollar amount for the tag, probably $10, which is a drawback to those using the facility once or very infrequently. In the case of Loop 49 where manned tollbooths will not be provided, infrequent users will have no option other than a $10 purchase of a sticker tag.

Initially, TxDOT had determined that the timing of the Loop 49 project would provide a valuable opportunity to use Loop 49 as a pilot project to test the proposed operating strategy for the CTTP. With funding provided from the CTTP and with standard contracts for technology and service operations soon to be in place, TxDOT determined that the Loop 49 south segment will be utilized as a test bed for the CTTP and will be used to evaluate the model operating approach. Since the initial discussions, the CTTP project has accelerated, and both projects are planned to come on-line simultaneously; therefore, Loop 49 cannot be use as a CTTP test bed. It will, however, serve as an important pilot project to test TxDOT’s toll operating strategy in a mid-sized urban/rural environment.

**User Profile: Loop 49 South Segment**

In assessing the feasibility of the TxDOT operating strategy, which calls for a fully automated toll collection process, the question arose as to the composition of the users for the south segment. Specifically, since the operating strategy will be disadvantageous to very infrequent users, will most of the toll road users originate from within or outside of the region?

With this in mind, researchers determined that an appropriate and cost-effective technical approach would involve a market analysis of the proposed toll road users in year 2007 using the regional planning model. This was accomplished by performing a select link analysis using the recently developed
Tyler 2007 travel demand model. The following summarizes the results of the proposed Loop 49 select link analysis.

Tyler 2007 Roadway System
The Tyler 2007 travel demand model roadway system was used as a starting point for the select link analysis. In 2007, the travel demand model indicates that Loop 49 will exist as a two-lane facility between SH 155 and US 69 (Figure 7). An extension to Loop 49 is proposed from SH 69 to FM 756 (Figure 8). The Tyler 2007 travel demand model forecasts 2400 to 4000 daily vehicle trips on Loop 49 between SH 155 and US 69 (Table 2). By incorporating the proposed extension of Loop 49 from SH 69 to FM 756, the projected 2007 traffic volume range increases from 2900 to 4500 daily vehicle trips, with the segment between SH 69 to FM 756 carrying 3200 daily vehicle trips (Table 3).

Select Link Analysis Traffic Assignments
Two separate traffic assignments were run incorporating a select link analysis of one link representative of the proposed Loop 49 segment. The first assignment was for the analysis of Loop 49 between SH 155 and US 69. The assignment was run using the existing TxDOT Transportation Planning and Policy Division supplied 2007 network and 2007 24-hour total trip matrix. The 2007 network only included Loop 49 between SH 155 and US 69 as shown in Figure 7. The link chosen for the select link analysis was the link between Jonestown Road and FM 2493 with a daily traffic volume of 4000 as noted in Table 2.

Figure 7. Loop 49.
The second traffic assignment required revising the 2007 network to include the extension of Loop 49 to FM 756 (Figure 8). To ensure that traffic assignment results were representative of the additional roadway system, the 2007 trip distribution model was re-run to account for the extension of Loop 49. This resulted in a new 2007 24-hour total trip matrix that was then assigned to the revised 2007 network. The link chosen for the select link analysis was the actual link representing the extension of Loop 49 to FM 756; this link (shown in Table 3) is projected to carry 3200 daily vehicles in 2007.

![Figure 8. Loop 49 with Extension to FM 756.](image)

Table 2. Loop 49 Year 2007 Daily Traffic Volumes.

<table>
<thead>
<tr>
<th>Loop 49 Segment</th>
<th>2007 Daily Traffic Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH 155 to Jonestown Road</td>
<td>2600</td>
</tr>
<tr>
<td>Jonestown Road to FM 2493</td>
<td>4000</td>
</tr>
<tr>
<td>FM 2493 to SH 69</td>
<td>2400</td>
</tr>
</tbody>
</table>
Table 3. Loop 49 with Extension Year 2007 Daily Traffic Volumes.

<table>
<thead>
<tr>
<th>Loop 49 Segment</th>
<th>2007 Daily Traffic Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH 155 to Jonestown Road</td>
<td>2900</td>
</tr>
<tr>
<td>Jonestown Road to FM 2493</td>
<td>4500</td>
</tr>
<tr>
<td>FM 2493 to SH 69</td>
<td>3100</td>
</tr>
<tr>
<td>SH 69 to FM 756</td>
<td>3200</td>
</tr>
</tbody>
</table>

Select Link Analysis Results

As noted previously, a market analysis of the proposed toll road users in year 2007 was considered worthwhile to determine whether the majority of proposed toll road users originated from within or outside of the region. Table 4 summarizes the results of both select link analysis assignments. The first select link analysis performed using the Loop 49 link between Jonestown Road and FM 2493 indicates that all 4000 daily vehicle trips traversing that portion of Loop 49 travel to and from points within the Tyler region. The second select link analysis assignment results reveal that in extending Loop 49, market composition changes slightly. With the Loop 49 extension in place, a few trips traveling through the Tyler region appear to use the loop based on the revised 2007 assignment results. Nevertheless, more than 99 percent of the projected 3200 daily vehicle trips are expected to originate and be destined entirely within the Tyler region.

Table 4. Percent Summary of Internal and External Traffic Volumes.

<table>
<thead>
<tr>
<th>Loop 49 Link</th>
<th>Internal Traffic</th>
<th>External Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonestown Road to FM 2493</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>SH 69 to FM 756</td>
<td>99.7%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
Public Perception and Marketing

Public Perception Data Collection

Stakeholder Interviews
Stakeholder interviews are an integral part of project development. The involvement of various stakeholders and stakeholder groups are imperative for a successful project. The information gleaned from these groups provides the project development team with information that can be used to address important issues and concerns. The meetings also provide insight into the public acceptance of the concept.

The TTI/TSU research team met with stakeholders in the Tyler community during the week of February 16, 2004. A total of 23 stakeholders in the Tyler area were interviewed. Table 5 is a list of the people interviewed.

Table 5. Stakeholders Interviewed.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role in Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Drain</td>
<td>Plant Manager, Kelly Springfield Tire Manufacturers</td>
</tr>
<tr>
<td>Kim Juilerat</td>
<td>Financial Officer, Kelly Springfield Tire Manufacturers</td>
</tr>
<tr>
<td>Gary Halbrooks</td>
<td>Commercial Real Estate Broker, Pillsbury-GMAC Real Estate</td>
</tr>
<tr>
<td>Bill Morales</td>
<td>Director of Planning, City of Tyler, Exec. Director, Tyler MPO</td>
</tr>
<tr>
<td>Tom Mullins</td>
<td>CEO, Tyler Chamber of Commerce and Economic Development Director</td>
</tr>
<tr>
<td>Fred Carl</td>
<td>Center Point Energy</td>
</tr>
<tr>
<td>Bill Ward</td>
<td>Capital Projects Director, City of Tyler</td>
</tr>
<tr>
<td>Doug Hensley</td>
<td>Trane Company, Industry Rep on Economic Development Council</td>
</tr>
<tr>
<td>Henry Bell</td>
<td>Executive Vice-President, Tyler Chamber of Commerce</td>
</tr>
<tr>
<td>Tom Flowers</td>
<td>Smith County Engineer</td>
</tr>
<tr>
<td>Bill Hartley</td>
<td>Chairman of the Board, Southside Bank</td>
</tr>
<tr>
<td>Robert Owens</td>
<td>Manager and Owner, Traditions Restaurant</td>
</tr>
<tr>
<td>Mike Gray</td>
<td>Mayor of Whitehouse</td>
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<tr>
<td>Felicity Reedy</td>
<td>Tyler City Council</td>
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<tr>
<td>Mike Thomas</td>
<td>Bailes Company, Chairman of the Chamber of Commerce</td>
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<tr>
<td>Chuck Spicer</td>
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<tr>
<td>David Powell</td>
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<tr>
<td>Preston Lindsey</td>
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<tr>
<td>Barham Fulmer</td>
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The stakeholders were each asked a series of questions pertaining to the Tyler area, their role in the community, their perceptions of Tyler’s assets as well as its deficiencies, and their impressions of the future for Tyler. More specifically, interviewees were asked for their opinions on traffic congestion in Tyler, where congestion was worse and how these problems might be addressed. The stakeholders were then asked their opinions on toll roads in general and their feelings of tolling Loop 49. Particular aspects of various toll operation scenarios such as electronic toll collection were also discussed. Appendix C shows a complete list of questions.

**General Impressions of the Tyler Community**

By and large, this group feels that Tyler is a great place to live and to raise a family. The city serves as a regional hub for education, health services, and retail. It is described as progressive but with conservative values. They feel that the Tyler economy has remained steady through the statewide economic downturn and will continue to grow steadily in the coming years. Tyler is a small town that is transitioning to an urban area. Most leaders agree that growth is occurring in the southern part of town. The Smith County area is also a desirable location for a segment of population that is retired. It has a natural beauty with abundant recreational activities. It is also serves the region as a major medical center.

**Traffic Congestion**

The state of traffic congestion in the Tyler area is relative to one’s reference point. The majority of the people indicated that traffic congestion is terrible and then qualified that by saying it’s terrible for Tyler. Most of the people interviewed are familiar with or have lived in large urban areas, so they see traffic congestion increasing in Tyler but not to the extent of their previous experiences in large cities. Many people indicated that traffic congestion is especially bad in the area of Loop 323 and US 69. Many feel that this is a result of poor or inadequate planning. Several indicated that traffic signal synchronization and more access control would go a long way to improving the current situation.

Interestingly, most interviewees did not see traffic congestion impacting the economy immediately, but they believe that it has the potential to if not adequately addressed. Some respondents believe that planning for Loop 49 is proactively planning for the future, while others lamented that Loop 49 was already 20 years overdue. A major concern of many of the stakeholders is the commercial traffic on Loop 323, especially hazardous cargo. Commercial truck traffic laden with hazardous cargo passes by three schools on Loop 323. Many believe this is unsafe and these trucks should be restricted to Loop 49 when it is built. Additionally, truck traffic impacts the throughput and flow on Loop 323 because of the number of signalized intersections. These stakeholders would also prefer to restrict commercial traffic to Loop 49. They also believe
that if Loop 49 is constructed as a toll road, the tolls should be set to encourage truck traffic to use the road.

**Loop 49 General Impressions**

All of the stakeholders interviewed, with the exception of two, had heard of the possibility of Loop 49 being developed as a toll road. However, most were unaware that the western segment was not funded and there were no immediate plans to begin construction. All feel that it is imperative that Loop 49 connect to I-20, at the very least on the western side but ideally on the east as well to form a true loop. Many people indicated that local traffic will use the road to get out of town when it connects to I-20, but they do not believe that many locals will use just the southern segment. Several respondents indicated that are a number of alternate routes.

**Thoughts on Tolling**

Many of the stakeholders interviewed had a somewhat indifferent attitude toward tolling. Many expressed that tolls make sense in large urban areas, but they felt unsure of tolling in a city such as Tyler. On the other hand, most recognize the funding dilemma and are supportive of Loop 49 as a toll road if all other options have been exhausted. Other options that should be explored included more and expanded federal dollars, a greater return of federal gas tax money paid by the state of Texas, more streamlining of TxDOT at the administrative level, or a local option sales tax. Several respondents were unsure that the public would view a toll as a user fee. A number also felt that the older, more rural population would see a toll as double taxation. The notion of building Loop 49 as a toll road in order to expedite the project was seen as a positive move. However, most did not think tolling the southern segment would generate enough revenue to finance the western segment.

**Loop 49 Design**

When interviewees were shown depictions of the road as initially designed, there was very strong concern that the road will only be two lanes. Many indicated that there are several free alternate routes that are two lanes and some that are four lanes, so why would they pay to take the chance of getting stuck behind a truck. Most, if not all, of the interviewees were under the impression that the road will be built as a four-lane divided highway. They also indicated that this is what has been communicated to the public. The amount of clearing and earth work being done on the segment under construction has given them this impression. Many expressed amazement, using words such as "unbelievable" that TxDOT would consider such a "foolish" action.

**Toll Collection**

The stakeholders were also queried for their opinions on the method of toll collection. Most of the respondents were at least vaguely familiar with electronic toll collection from their experiences in other cities. They all felt that this was a good method of collecting tolls, and some thought it would
reduce the cost of operations. Some indicated it could be an added benefit if the technology were interoperable with other toll facilities. No one saw any problem with video enforcement of electronic toll collection. In fact, most indicate that if a person is caught cheating, that person should be punished to the fullest extent of the law. Most interviewees said that it would take time to learn how a new system, such as electronic toll collection, would work and that it would be important to educate the public on how it would operate.

On the other hand, there was moderate concern about not having an attended tollbooth. Quite a few respondents suggested that it would be necessary to have an attendant at least initially. During the stakeholder interviews, the only other option presented to the interviewees was an automatic coin machine. Most felt this was adequate if the automatic coin machine had a dollar bill changer and could give receipts. Some interviewees thought that the older population of Tyler would insist on having a manned tollbooth.

**Toll Rates**
The answers to the question of toll rate and willingness to pay ranged from nothing to $2.25. However, most indicated this amount is what they would be willing to pay to drive on a completed loop from SH 110 to I-20. A few people did mention that it would be important to have “Tyler rates.” These rates are lower than what the public experiences when they drive to Dallas and use the toll roads there. One person said that, “convenience in Tyler is probably not worth the same amount of money in Dallas.”

**Generating Support**
Nearly all of the respondents said it would be very important to educate the public on the toll road, especially how it operates. They believe that people can support tolling if TxDOT can clearly demonstrate that all other funding mechanisms have been investigated and tolling is the only alternative to get the road built. Suggestions to gain public support included the following:

- Focus on the transportation funding crisis and that there is no other way to get the road built.
- Demonstrate the time savings that may be achieved on Loop 49 by using other roads as examples.
- Define very clearly how the road would operate.

**Conclusion**
Overall, these stakeholders are supportive of tolling and are willing to toll Loop 49 in order to get the road built. Interviewees said many times that a toll road is better than no road. Technology is not a major issue for these people. They believe that most can be accepting of electronic toll collection if they are properly educated. The two serious concerns are the facts that there are no definitive plans and timeline for completing the western segment and that the road is being constructed as two lanes rather than four.
Trucker Interviews

Interview Procedures
Interviews were conducted with 10 commercial truck drivers who had recently driven in the Tyler area. The interviews were intercept interviews at a truck stop in Tucker, approximately 30 miles south of Tyler. The location was selected for its proximity to Tyler and to a major distribution warehouse, and because of the opportunity to interview truck drivers during a break the truck stop afforded.

One interviewer conducted each of the 10 interviews. The method of recruitment was to approach individuals as they entered the truck stop and ask if they were a truck driver, and if so, did they drive in or through the Tyler area. Once these criteria were met, the interviewer explained the purpose of the 10-minute interview and asked for permission to audiotape their responses.

Findings
There was a general consensus among the truck drivers that Tyler needs a new loop. The most often cited reason was the number of traffic signals on the current loop. Some comments exemplifying this issue were:

- “The traffic lights are sure an inconvenience and aggravating, and the fuel is wasted.”
- “There were six million stop lights more than they needed. One of them never changed.”
- “It’s a nightmare, because of all the stop lights. They invariably put a stop light at the bottom of a hill.”

The truck drivers interviewed were either independent owners/contractors or were company drivers. Their opinions on tolling Loop 49 tended to be associated with which type of driver they were. Independent contractors were opposed to tolling, while company drivers were more amenable to the idea of tolling, particularly when their company covered toll costs.

The owner operators typically held the view that roads should be financed with fuel or other taxes, and that toll costs are unfair, out-of-pocket expenses for them. Several mentioned that they go out of their way to avoid toll roads and would do the same regarding Loop 49. Example comments are:

- “Every time I give a dime to someone else that’s less money in my pocket. I won’t take it. I will go through town. It’s just the principle of it. I stay off the toll roads.”
- “Toll roads are a bad idea. ...money should come from the government with taxes. I pay taxes to fund roads and everything. Paying money for tolls is giving them extra money out of my pocket.”
• “I don’t like toll roads. Truck drivers spend too much money already as it is. I am not for toll roads. ...I would definitely stay on the Loop [323]. We don’t need a toll road. I’m out here to support my family, not everyone else.”

On the other hand, the company drivers tended to be either in favor of a toll, or were agreeable to tolling under certain conditions. Their comments were:

• “I don’t mind Tyler having a toll road. [It would make] Tyler safer and faster, and I like to have a bypass around small towns. I’m not against anything about it. The best thing to do is bypass [Tyler].”
• “They sure save a lot of time when you can afford it. I love it when I can afford them. The company pays me back.”
• “As long as the company pays the freight, yes I would use it. If it’s full speed, sure.”

Several of the independent owner/operators were also more similar to the company drivers in their viewpoints toward use of the toll road even though they might have expressed a negative view toward tolling in principle, as noted in the following comments:

• “I would imagine that if I had to go somewhere and I was in a hurry and in that area, I would bite the bullet and pay it.”
• “If it were a dollar or two, something like that, it wouldn’t bother me. You take all your local drivers—they wouldn’t go across it. They would go around it.”
• “Some I have been on are a little outrageous. For the convenience of getting through or around a town, I don’t think a dollar is that bad, or even two dollars.”

Truck drivers were also asked to share their views on toll collections, and specifically about transponders. One particularly strong opponent of transponders shared his opinion this way:

• “No, I won’t use them, because I refuse to be pin-pointed. They cross-reference you, due to court cases and liability. The deck is stacked against us so high already that I’m not giving anybody anything.”

Another driver said his company did not allow their drivers to get a toll tag. He claimed he would be able to use a cash lane only. Another cash-only advocate put it this way:

• “This stinks [referring to the electronic toll plaza]. ...I do 48 states plus Canada, and I don’t have a toll tag for each state. Give me a
live person I can throw my money at. ...most trucks do not have a transponder. I have a New York State EZ pass because it works in New York, Pennsylvania, Ohio, West Virginia and all along the Eastern side. I can’t have 48 stickers on my windshield. I couldn’t see out of my windshield. You need a live person to throw money at.”

A second driver also responded to a rendering of the toll plaza with an exact change requirement, claiming that a receipt is necessary for reimbursement. Another driver spoke in favor of the transponder, saying, “Yes, I have one of those, and it works real good. It saves you a lot of fuel in a day’s time.”

Summary of Truck Driver Interviews

The truck driver interviews offer some insight into the range of reaction to Loop 49, to its being a toll road, to the idea of tolling, and to some of the logistics of toll collection. The small number of interviews and the qualitative nature of the data limit the analysis to providing general descriptive information. In future research efforts, useful information could be gathered not only from a larger sample of drivers, but also specifically from regional truck drivers, in addition to these long-haulers and cross-country drivers.

The interviews indicated that truck drivers, in general, found driving through Tyler, or on the current Loop 323 inconvenient due to their perception of an excessive number of traffic signals. They favored a bypass-type loop. Some did not object to a tolled loop. In most cases, drivers with the least objections were those whose companies would provide transponders or reimburse them for toll costs. Independent owner/operators were most vocal in their opposition to the principle of tolling. It is important for truck drivers to be able to receive a receipt, and several mentioned the necessity for a “person at the plaza.”

Focus Groups

Three focus groups were held to obtain opinions about traffic issues in Tyler, Loop 49, tolling, and tolling Loop 49. The focus group discussion outline was very similar to the stakeholder questions. The focus group participants represented a cross section of the Tyler population. Each participant was paid $20 at the conclusion of the discussion. The following sections present the particulars and results of each group.

Focus Group #1

The first focus group was held on Monday, March 22, 2004, at the Walter Fair United Methodist Church. The focus group was held in the evening at 5:30 p.m. to allow people who are at work during the day the opportunity to participate. The participants were recruited by the child care center director at the church. The church is located on the east side of Tyler, and all of the participants were from a neighborhood adjacent to the church.
Four men and two women participated in the discussion, and the group discussion was audio taped. Each person in the group had been in the Tyler area for at least seven years. The group was first asked to talk about traffic in general in the Tyler area. Most people in this group felt that people drive too fast, and it is very difficult for pedestrians to get around town. They felt that Loop 323 is too congested because there are too many traffic signals, and signals are not synchronized. They see Loop 49 as good for emergency vehicles and taking some traffic off existing roads.

When queried about Loop 49, most of the group felt that Loop 49 is very necessary and that it will help with truck traffic. Although they were not very familiar with where the loop will be located, they did think it would serve as a bypass for Tyler. They knew that Loop 49 is supposed to connect to I-20. Interestingly, they didn’t feel that the loop would help local or internal traffic; although when the discussion began with general issues, they indicated that Loop 49 would take traffic off existing roads.

The group felt that toll roads are convenient in some situations, primarily in big cities. They felt Tyler was not big enough for a toll road, and if one were built, they would not use it. One person thought that a toll road cheapens a town. They indicated that stopping at a tollbooth wastes time. They also indicated that this was the first time they had heard of potential tolling in Tyler. When the subject of tolling Loop 49 was broached, one person indicated that he was “very informed” on the Loop 49 project and that this was the first time that he had heard about tolling Loop 49. He reported that wealthy people who live close by were already opposed to the road and would be even more so if it were built as a toll road. The group felt that local traffic would use the back roads because there are plenty of alternatives to avoid Loop 49. One person in the group thought that using lottery money or municipal bonds would be a better way to pay for the road. However, the group was unanimous in feeling that tolling Loop 49 would indeed happen if that is what TxDOT and the city wants to do. There was an overwhelming sense of powerlessness.

When asked what price people would be willing to pay to travel on the road, the general consensus was that anything was too much. Equity was an issue with respect to elderly drivers being able to afford a toll as well as people who live in the small towns closer to the road. If Loop 49 connects to I-20, some might be willing to pay $.50. In any event, the group felt local residents should receive a tremendous discount. There was concern that if Loop 49 is a toll road, it will have a negative impact and not take traffic off local streets as it is intended to do.

The group had very few issues with regard to the technology that may used on a toll road. They thought electronic toll collection was a good idea and that it would benefit the truckers as would having a toll tag that is interoperable with other toll roads. One person was curious as to which agency would receive a
picture of the license plate if video enforcement was used. The group felt that the rechargeable card idea was a good idea and that there was not a great need for a manned toll booth once people learned how the road operates. They felt that the kiosk idea would keep the costs down and, therefore, the toll would be less.

Overall, this group was not necessarily opposed to a toll road because they did not feel they would use the toll road. Most said that they do not normally travel to that part of town anyway. They brought up issues of equity for older people and people from small cities outside of Tyler. They do not feel a toll road in Tyler is needed.

Focus Group #2

The second focus group was held on Wednesday, March 25, 2004, at a law office in downtown Tyler at 5:30 p.m. The wife of a principal at the law firm recruited participants for the group. The participants live in various parts of the city. There were five men and four women in the group. Everyone in this group had heard of Loop 49, and seven out of nine knew construction has started.

There was general consensus among the group that traffic is becoming a problem in Tyler, especially on Loop 323. They thought there is a problem with the traffic signals on Loop 323.

Some people felt that Loop 49 would be good for truckers, particularly when it connects to I-20. This prompted a response that the loop would not connect to I-20 for 20 years. The discussion then focused on the purpose and need for Loop 49. Some thought it was good planning for the future, but others said it was in the middle of nowhere and did not go anywhere. Most felt that the loop will only work when it connects to I-20 and that local traffic will use the other small roads that are near Loop 49. After seeing the map of Loop 49, some were unsure that truckers would use it. There was general agreement that Loop 49 does not help Tyler citizens at all.

Most everyone in the group was familiar with toll roads. Tolling is not a bad idea, but it does not make sense in Tyler. It may make sense for a toll road in Tyler in the future. The group was very surprised to hear that tolling was being considered in Tyler.

Some people in the group cautioned that tolling Loop 49 may backfire, and people will not use the road because it is a toll road. Additionally, everyone agreed that tolling the south section makes no sense at all because there is already a small two-lane road just south of the south section. The group said that people pay for convenience, and this road is not convenient. They said there is nothing worth going out there for. The group thought people might use the road if it connected to I-20. There was a concern that if tolls are
implemented on the road that any other funding opportunities may disappear. Additionally, the group did not think that tolls on the south section would generate enough revenue to finance the west section.

There was considerable shock and amazement when the group learned that the road is being constructed as a two-lane road initially. The entire group felt this was unbelievable. Most of the group has seen the land clearing and indicated that gives the impression of a much larger road. They felt even more strongly that no one would use the road after learning of this.

There was not much discussion of the price people would be willing to pay because nearly everyone felt they would not use the road. The group was familiar with electronic toll collection and was supportive of the sticker tags being available at a kiosk. They did not think the kiosk should be located in the travel lane because this would slow down traffic. One person thought the sticker tags could be a “revenue enhancer,” like a gym membership, where people would pay up front for a service and then not use it. Additionally, no one in the group felt there would be a privacy issue associated with video enforcement.

The general consensus of this focus group was that they would not use Loop 49. They were shocked and disappointed upon learning of the cross section. They did not have a clear understanding of the purpose or need for Loop 49.

**Focus Group #3**

The third focus group was held on Tuesday, April 27, 2004, at 5:30 p.m. The meeting took place at the First Baptist Church in Gresham. The pastor of the church, Reverend Roy Thoene, recruited participants from his church congregation. Originally, 10 participants signed up to take part in the focus group. However, one participant declined to participate after he was informed that the session would be audio taped. The final group consisted of six men and three women. All have lived in Tyler for a considerable amount of time, primarily in the Gresham/Flint area. All are aware of the Loop 49 project and that construction has started. No one was familiar with the project design or cost.

Initially, everyone considered Loop 49 a needed project. They felt traffic congestion is getting worse. Even though the southern segment is an east-west route, the group felt that it would help congestion on the north-south routes. They were glad that Loop 49 will be a controlled-access facility with no traffic signals. They were surprised at the project limits. They expressed a strong need for connection to I-20. This connection will also enhance the economics of the area. They are also aware of plans to expand FM 2493 to a four-lane road, and they felt this will also help traffic. They felt Loop 49 will relieve congestion on FM 2493 and US 69 because it will relieve people from jogging all around to go east and west in an effort to get to the interstate.
One person then mentioned a “rumor” that Loop 49 might be a toll road. He indicated that if that were the case, locals will not use it unless they can write it off on their taxes. All agreed.

Overall, the group was opposed to toll roads in general unless there is absolutely no other way to get a project implemented. This group will not pay to drive on the southern segment. They might be willing to pay if Loop 49 connects to I-20 and it is a time saver. They would not do it every day or every time, only if they were in a hurry.

The group believed the southern segment is pointless because it goes nowhere. They indicated that the Whitehouse people may pay if the road were completed between FM 756 and Texas 110. People in Gresham have lots of options so they would not pay a toll. Truckers may pay to travel just the southern segment, but it is doubtful. If Loop 49 went to I-20, everyone would use it, but it might become overcrowded.

One participant used a hamburger analogy. “This is a hamburger with no meat. The southern segment is only the bun.”

When asked if they would pay a toll on the southern segment to fund the western segment, the group did not feel they could trust TxDOT to build the western segment in a timely manner.

The group was very vocal in saying that they would not even pay $.25 to drive on the southern segment. In fact, one person indicated that he would provide maps showing shortcuts around the toll road for $.25. The group felt there are too many alternate routes. They might use the toll road if there was an emergency (although) the road doesn’t go anywhere near a hospital.

When the group became aware of the cross section of the roadway, they became very angry. One woman indicated that for years TxDOT has told the public this will be a six-lane divided facility with a parkway in between.

Other comments included:

- “A two-lane road provides no advantage. I wouldn’t use it even if it were free.”
- “I can’t believe how stupid this is to build a two-lane road. What a waste of money.”
- “[News] Paper has always been shown a four-lane road. If TxDOT is not going to build that, we might as well quit now.”

The group is accepting of the electronic toll collection concept. They did not indicate a preference to the sticker tag versus a transponder. There were no
privacy issues associated with video enforcement. However, the group felt strongly that there is a need for an attended tollbooth. They felt it is very important to provide this as a service to the travelers. There is a concern that people who are unfamiliar with the system, especially the elderly, would get a ticket and then have to pay an enormous fine when there really was no malicious intent. They believe this is ‘just another grab for more money.’

Overall, the group was more upset to learn of the two-lane cross section than the possibility of tolling the road. They felt very strongly that this was a waste of taxpayer dollars and that not building four lanes from the beginning would just increase the expense over time and that travelers would then be inconvenienced by driving through construction zones. They felt they had been misled by TxDOT. A few people indicated they could be more accepting of a toll road if it were four lanes.

Focus Group Findings
The participants in each of the focus groups voiced many of the same concerns and thoughts. Initially, each group was supportive of Loop 49 as a project, although group #2 was more skeptical of the need and/or location. Each of the groups felt that it was imperative that Loop 49 connect to I-20 as soon as possible. They felt that local traffic has plenty of alternatives to avoid the toll road and that local traffic would only use the road if it connected to I-20 as a route to quickly get to I-20 and out of town.

The biggest concern of each of the groups was the cross section of the road, even above tolling. The first group to a lesser extent than the others because the first group did not think they would use the road at all, regardless of toll or cross section. The other two groups expressed shock and disappointment at the prospect of a two-lane road.

The willingness of each group participant to pay depended upon various circumstances. The first group was not willing to pay because the road was not convenient to them. The second group was willing to pay if the road connects to I-20 but would not pay anything for the southern segment alone. The third group was more angered by the cross section and was not willing to pay anything to drive on the southern segment and would most likely not be willing to pay much even get to I-20 if the road was a two-lane road.

All the groups were accepting of electronic toll collection or the sticker and the kiosk concept. Many expressed the need for a manned tollbooth initially, but most indicated that an unmanned booth would be a money saver. No one indicated a serious concern with video enforcement.
Public Opinion Survey

Survey Procedures
The survey was conducted at the Broadway Square Mall in Tyler. This mall is the retail hub of the region with the nearest regional shopping center 45 miles away. The mall survey was opportunity-based, and the decision to use this venue was based on the high volume of foot traffic combined with the attraction of shoppers representing all demographic sectors of the region.

Surveyors were stationed at two locations in separate areas of the mall’s high-volume traffic. At each location, two tables provided space for respondents to sit and complete questionnaires and were used to display incentive items. Incentive items included brochures, key chains, writing tablets, pens, pins, and litter bags, most of which were provided by TxDOT. At each survey location, a sign saying Public Opinion Survey — Loop 49 was displayed on an easel. Respondents were walk-ups and recruited passers-by. Most of the respondents had to be invited to take the survey, and there were relatively few walk-ups.

Survey Sample Characteristics
Table 6 shows the characteristics of the mall sample. The target sample size was 200. The third column in the table indicates the proportions of each demographic characteristic for Smith County, of which Tyler is the county seat. The survey sample was highly similar to the population of the county with regard to gender and age. Minorities, particularly African Americans, were somewhat underrepresented in the sample. In general, the members of the sample group were less well educated but had higher incomes than the overall population of the county.
Table 6. Mall Survey Respondent Characteristics.

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<td>3</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>26</td>
<td>13.0</td>
<td>64</td>
<td>32.0</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>69</td>
<td>34.5</td>
<td>64</td>
<td>32.0</td>
</tr>
<tr>
<td>$50,001-$100,000</td>
<td>79</td>
<td>39.5</td>
<td>54</td>
<td>27.0</td>
</tr>
<tr>
<td>&gt;$100,000</td>
<td>16</td>
<td>8.0</td>
<td>18</td>
<td>9.0</td>
</tr>
<tr>
<td>No response</td>
<td>10</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Residence of Respondents**
A screening question was designed to recruit respondents from Smith County and adjacent counties. The map in Figure 9 shows the location of residence for the survey respondents.

**Knowledge of Loop 49**
Respondents were first asked how much they knew about Loop 49. Fifty-three percent of the respondents said they had heard a little about Loop 49. About 35 percent said they had either heard quite a bit about the loop or considered themselves very familiar with the plans for the loop, compared to about 9 percent who said they had not heard anything about Loop 49.
When asked to describe the section of Loop 49 that is under construction, the most common response was “a four-lane, undivided roadway,” given by 41 percent of the respondents. An additional 38.5 percent said they were not sure of the design of the first section of the loop. Only 5.5 percent of the survey respondents knew that the current construction is a two-lane, undivided roadway.

Opinions Regarding Loop 49
To measure opinions related to Loop 49, five statements were made with which the respondent could agree or disagree. Table 7 provides the results of these opinion statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Strongly Agree</th>
<th>% Agree</th>
<th>% Neutral</th>
<th>% Disagree</th>
<th>% Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyler needs Loop 49. (N=199)</td>
<td>53.3</td>
<td>30.6</td>
<td>11.6</td>
<td>1.0</td>
<td>3.5</td>
</tr>
<tr>
<td>A new loop will mean fewer commercial trucks on Loop 323. (N=198)</td>
<td>35.9</td>
<td>41.9</td>
<td>12.6</td>
<td>8.1</td>
<td>1.5</td>
</tr>
<tr>
<td>A new loop will help the economy of the area. (N=198)</td>
<td>37.9</td>
<td>34.3</td>
<td>19.2</td>
<td>5.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Loop 49 will relieve congestion on Loop 323. (N=199)</td>
<td>40.2</td>
<td>41.2</td>
<td>11.6</td>
<td>5.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Loop 49 will help improve safety on other roads in Tyler. (N=199)</td>
<td>34.7</td>
<td>36.7</td>
<td>16.1</td>
<td>9.0</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Eighty-four percent of the Tyler and surrounding area residents surveyed agreed that Loop 49 is needed. Additionally, 81.3 percent believed that Loop 49 will relieve congestion on Loop 323. Although fewer residents saw the loop as having the potential to help the economy of the area, to improve safety on other roads, and to decrease the number of commercial trucks on Loop 323, the majority agreed with these statements on the benefits of the new loop. The least-recognized benefit was improved safety on other Tyler roads; 12.5 percent of the respondents disagreed with this statement.
The questionnaire also included five opinion statements regarding various aspects of tolling on Loop 49. The results of this series of questions are provided in Table 8. As indicated in the table, approximately half of the respondents thought of tolling as a good financing mechanism, and approximately one-third had a negative view of tolling. However, the majority of the people surveyed thought tolling the loop would discourage motorists from using it, with almost a third of the respondents strongly agreeing that tolling would be a deterrent to use.
Table 8. Loop 49 Opinion Statements Regarding Tolling.

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Strongly Agree</th>
<th>% Agree</th>
<th>% Neutral</th>
<th>% Disagree</th>
<th>% Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolling Loop 49 is a good way to pay for the road. (N=194)</td>
<td>15.5</td>
<td>34.0</td>
<td>18.6</td>
<td>19.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Tolling Loop 49 will keep some people from using it. (N=197)</td>
<td>32.5</td>
<td>45.7</td>
<td>13.2</td>
<td>6.1</td>
<td>2.5</td>
</tr>
<tr>
<td>The use of cameras to photograph plates is a reasonable way to enforce toll collections. (N=197)</td>
<td>24.9</td>
<td>41.1</td>
<td>13.7</td>
<td>8.6</td>
<td>11.7</td>
</tr>
<tr>
<td>Tolling Loop 49 will allow more of our tax dollars to be spent on other projects. (N=196)</td>
<td>11.2</td>
<td>34.2</td>
<td>29.1</td>
<td>14.8</td>
<td>10.7</td>
</tr>
<tr>
<td>Using gasoline tax is a better way than charging a toll to pay for new construction. (N=193)</td>
<td>15.0</td>
<td>19.7</td>
<td>28.5</td>
<td>20.7</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Equally strong opinions were evidenced on both sides regarding the ability of tolling to provide leverage for other construction projects and the alternative of using gasoline tax for construction. Although 45 percent of those surveyed agreed that tolling would allow tax dollars to be spent on other projects, a high percentage (29.1 percent) were neutral, and 25.5 percent disagreed. In the focus group sessions, the suggestion was made by participants that the gasoline tax should be allocated to road construction as an alternative to tolling. The survey results did not support a mandate for this idea, as approximately equal numbers of respondents favored and opposed using the gasoline tax in lieu of tolling with a very high neutral response.

Respondents were asked to agree or disagree with the statement, “the use of cameras to photograph plates is a reasonable way to enforce toll collections.” While 20.3 percent disagreed, two-thirds of the respondents agreed, and approximately 25 percent strongly agreed. These results are consistent with the general acceptance of camera enforcement revealed in the focus groups.

Projected Use of Loop 49
One objective of the public opinion survey was to acquire some self-reported data on projected use. With the aid of a plan map, survey respondents were asked to estimate their future use of Section 1 of Loop 49. Because focus
groups had previously revealed that area residents assumed Loop 49 would be four lanes, the question was presented with both a two-lane and a four-lane option. Figures 10 and 11 provide the frequency that respondents estimate their future travel on Section 1 under both scenarios. Note that relatively similar numbers of people said they would travel on Section 1 daily, monthly, or weekly regardless of the type of road. This represented about 59 percent of those responding to the two-lane option and about 68 percent of those responding to the four-lane option.

How often do you estimate you will travel on Section 1 when it is open?

<table>
<thead>
<tr>
<th></th>
<th>Assuming the Road is Two-Lane Undivided</th>
<th>Assuming The Road Is Four-Lane Divided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a year</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>A few times/year</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>Monthly</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Weekly</td>
<td>47</td>
<td>49</td>
</tr>
<tr>
<td>Daily</td>
<td>21</td>
<td>24</td>
</tr>
</tbody>
</table>

Figure 10. Comparison of Respondent Estimates for Two-Lane versus Four-Lane Option.

This question was followed by a similar question, but with the stipulation that Loop 49 would be a toll road. In this case, substantially fewer respondents estimated frequent travel on Loop 49. Sixty-five percent said they would travel on Loop 49 a few times per year or less. When asked what alternative road they would take instead of Loop 49, the road most often cited was Loop 323, given by 58 of the 134 responses.

Knowing a toll will be charged, how often do you estimate you will travel on Section 1 when it is open?

<table>
<thead>
<tr>
<th></th>
<th>Less than once a year or not at all</th>
<th>A few times/year</th>
<th>Monthly</th>
<th>Weekly</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a year</td>
<td>73</td>
<td>55</td>
<td>27</td>
<td>29</td>
<td>13</td>
</tr>
</tbody>
</table>

Figure 11. Respondent Estimates for Toll Road Usage.
Toll Pricing and Payment Preferences

Respondents were asked what they would be willing to pay as a toll for Section 1 and for the completed section from SH 110 to I-20. As seen in Table 9 below, no toll price for Section 1 was acceptable for 49 percent of the respondents, and no price for the south and west sections was acceptable for 43.6 percent of the respondents. In general, respondents were more willing to pay a higher toll for the south and west sections, and a few were willing to pay more than a dollar.

Table 9. Acceptable Toll Prices.

<table>
<thead>
<tr>
<th>Amount Willing to Pay</th>
<th>Section 1 (N=196)</th>
<th>SH110 to I-20 (N=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>49.0%</td>
<td>43.6%</td>
</tr>
<tr>
<td>25 cents</td>
<td>24.5%</td>
<td>18.8%</td>
</tr>
<tr>
<td>50 cents</td>
<td>18.9%</td>
<td>23.9%</td>
</tr>
<tr>
<td>75 cents</td>
<td>3.1%</td>
<td>6.6%</td>
</tr>
<tr>
<td>$1.00</td>
<td>3.6%</td>
<td>5.1%</td>
</tr>
<tr>
<td>More than $1.00</td>
<td>1.0%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

Three toll collection options were presented to the respondents: cash, an electronic toll tag using an account system, or an electronic toll tag using a prepaid system similar to a phone card. For the 170 respondents who indicated a preference, the most highly preferred option was cash. Cash was checked by 59 percent of the respondents, followed by the toll tag account system by 23 percent, and followed by the toll card system by 17 percent.

Comments Section

At the conclusion of the survey, respondents were given an opportunity to provide their own comments in writing. Eighty-six of the survey respondents provided comments. Forty-six percent of these comments could be considered positive statements about the construction of the Loop. Twenty-nine percent were negative comments. Seven percent of the comments were specifically positive about the loop but negative about tolling it. The remaining comments were informational in nature.

Summary of Survey Results

A public opinion survey was taken at the regional mall in Tyler. Questionnaires were completed by 200 respondents from Smith and surrounding counties. The sample was a reasonable approximation of the area demographics with fewer minorities, lower than average education levels, and higher than average incomes. Analysis of the survey data supports the following conclusions:
• People in the region are not highly familiar with plans for Loop 49.
• The majority of people see a need for and the benefits of Loop 49.
• People are not as favorable toward tolling and believe a tolled Loop 49 will not be used. Their own projected use was substantially lower for a tolled facility.
• The majority of people are not opposed to video enforcement.
• Almost half of the respondents said they would not pay a toll. About one-fourth would pay a $.25 toll for Section 1, and about one-fourth would pay a $.50 toll for the combined south and west sections.
• Cash is the preferred method of payment.
• Open-ended comments indicated a commonly held sentiment that Loop 49 is long overdue but should not be a toll road.
Financial and Partnering Considerations

Loop 49 is a project that has been in the planning stages since the 1980s. Lack of funding has, thus far, prevented the implementation of the road. The 78th Texas Legislature has provided TxDOT with new tools that have increased the options available for project implementation. This project has explored tolling as a means to get a section of Loop 49 built and to expedite construction of the ultimate facility.

The Turnpike Authority Division, in conjunction with their consultant PBS&J, has determined that various segments of the ultimate Loop 49 facility can be financed through toll revenue bonds. The initial purpose of this task was to assess financing options and develop costs for the tolling infrastructure for segment one of the facility and to provide recommendations on the most viable options. This work was completed in conjunction with task one. Therefore, the purpose of this task was to explore other opportunities for funding.

The Loop 49 project has been supported by key stakeholders in the community. These groups are receptive to tolling as a means of project acceleration. Local governments, including the City of Tyler, the City of Whitehouse, Smith County, and the Metropolitan Planning Organization (MPO) are all committed to the Loop 49 project, and each has provided financial contributions. Additionally, the district and the MPO are anticipating advancing funds through the Texas Mobility Fund.

New Ideas

The 78th Texas Legislature provided the department of transportation and others with many new tools to stimulate investment in transportation infrastructure. For the first time ever, TxDOT may issue bonds based on revenues deposited into the State Highway Fund. The principal may not exceed $1 billion per year, and at least $600 million of the proceeds must be used for highway safety improvements. Additionally, the legislature devised a method of capitalizing the Texas Mobility Fund. The fund will be capitalized with revenues from the vehicle inspection fees, driver’s license fees, and driver’s license information fees.

Comprehensive Development Agreements (CDA)

Another tool available to the department is the use of comprehensive development agreements. These agreements form the basis of public-private partnerships. Very simply, a CDA allows TxDOT to share some of the project risks with a private sector participant. The agreement is structured in a
manner that is agreeable to both parties. It may include provisions for right-of-way acquisition, environmental mitigation, construction inspection, and quality control along with designing and constructing the facility. The advantage to TxDOT for such an agreement is that the department receives a fixed-cost, fixed-time product. This contracting method may also minimize credit risks if bonds are sold to finance the project. The use of a CDA adds value to a project because capital markets regard protections such as guaranteed price, guaranteed start and finish dates, insurance, surety bonds, and other contractual requirements as minimizing risks to the investment.

A truer form of a public-private partnership would allow a private company to build, operate, and even maintain the road. This has been the predominate method of road infrastructure construction in many countries other than the United States. The U.S. and Texas are beginning to explore the ways in which these partnerships can be mutually beneficial. One of the biggest hurdles to overcome is the public perception associated with roadway transportation networks. For many, roads are a public good as necessary and ubiquitous as a water or sewer line. As such, it is a given service that the government must provide. Slowly, drivers are becoming more accepting of tolls as they realize the funding shortfalls. However, there is an inherent trust that state departments of transportation are not motivated by profit. Introducing a private company may change that perception. Many states are cautiously entering into partnerships with private companies. Assuring the public that these relationships can accomplish the goals of both parties requires a strict operating agreement that includes level of profit, toll rate policies, and dispensation of any profits received over the initial level, just to name a few.

Development Impact Fees and Special Assessment Districts

Because Loop 49 is a greenfield project, there are opportunities for other types of private investment participation. One method is development impact fees. As indicated in other tasks assigned on this project, much of the business community sees Loop 49 as an opportunity to stimulate economic development by providing access to acres of undeveloped land. This type of arrangement requires land developers to pay fees or provide other equity, such as right-of-way, to the project. This infusion of cash and/or equity can greatly enhance the financial viability of a project, and may be especially needed on Loop 49. The amount of the development impact fees that will be collected over a period of time can be projected, and the proceeds can be used to supplement toll revenues that are used to pay off bond debt.

Likewise, because the land around the roadway is primarily undeveloped, a special assessment district can be created that utilizes tax increment financing. The premise behind this financing mechanism is to have the beneficiaries of an improvement pay for the improvement. The road will most likely stimulate economic development in the corridor by opening land for such development. The owners of these properties directly benefit from the road.

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In this scenario, the property value in the special district is appraised and taxed at its lowest point. After the infrastructure is in place and development occurs, the assessed value of the property increases. The difference between the original tax on the property and the tax on the assessed value after the improvements (the increment) is deposited into a special account that is used to pay off the bonds that were sold to finance the construction.

Shadow or Pass-Through Tolls

Shadow tolling or pass-through tolls is another tool available through new legislation. A shadow or pass-through toll is merely a per-vehicle payment. This payment is usually paid by the department to a private developer of a roadway. In this manner, the private developer finances and builds the road much faster than is traditionally done. The developer then is reimbursed by the department through the per vehicle payments. The payments may be based on vehicle type, traffic volume and service, or distance traveled. This arrangement shifts some of the risk associated with revenue from traffic volume to the developer and encourages expeditious project implementation. The faster a roadway is open, the sooner the developer can start collecting payments.

The payments may come from many different sources. It may be a supplemental tax levied by the county or city or the general revenue fund from either of these entities, or the department may agree to fund any shortfalls in revenue from an actual toll. The local government, as well as the business community, has expressed a desire to see Loop 49 completed and may be willing to use a pass-through toll to supplement the funding gap.

Branding and Corporate Sponsorships

There are other innovative mechanisms that may provide financial support for the project. These might include branding, utility franchise agreements, corporate sponsorships, or rest area privatization. These mechanisms may provide a non-toll revenue stream that may subsidize operations or maintenance of the facility.

Recently, the National Baseball League was interested in selling spots on first base bags to promote the new Spider-man® movie. A town in New Jersey is changing its name for two weeks because it is being paid to do so by Bacardi® Rum. More and more non-typical advertising is being created in a marketing effort to reach a public overwhelmed by media. The transportation industry may not be at the point of advertising, “this road brought to you by Wal-Mart®,” but many see roadways as blank canvases seen by captive audiences. This idea differs from billboard advertising because it is predicated on the notion that the roadway is offering a convenience and a superior level of service to a customer who may then feel a certain loyalty to the company.
A different approach to branding is that of “corridor branding.” Loop 49 offers a unique opportunity to the community because it is a new roadway on a new alignment. As noted earlier, many stakeholders in the Tyler community see Loop 49 as a catalyst for economic development. Loop 49 is an opportunity for the city and the county to promote Tyler. This may encourage further investment by the city and/or the county. Roadways such as Michigan Avenue or Rodeo Drive conjure up readily identifiable images, but these were not consciously planned. Loop 49 can become such a corridor if it is marketed that way. Principles of corridor branding include:

- the ability to establish a strong and continuous design theme, usually through landscape and streetscape elements;
- having clearly identifiable components such as set boundaries; and
- a sufficient traffic volume that can maximize public exposure (2).

This approach might work well when combined with development impact fees. Other revenue enhancements that might accompany this type of project could include access fees where a special fee is paid for access to a controlled access facility.

Non-Toll Revenue Generation

Other toll authorities have programs of non-toll revenue. These range from right-of-way lease agreements in Florida to bank ads on tollbooths on the Massachusetts Turnpike. Each of these efforts helps to financially support the facility. The key is to be open to business opportunities. This requires a new way of thinking but can also foster new relationships between unlikely partners. A May 2003 report from the Office of the Auditor General for the State of Illinois provides results of a survey of toll agencies in various states (3). The report indicates, according to survey results received, 10 of the 20 respondents receive concession revenue. Theses concessions may include:

- food,
- fuel,
- vending,
- leases,
- retail,
- ATM,
- games,
- telephones,
- sundries, and
- amusement tickets.

Other types of revenue may include transponder sales, parking, ads or billboards, fiber optics, or cell towers.
Table 10 identifies some non-toll revenue generators on toll roads across the country.

Table 10. Current Non-Toll Revenue Generators.

<table>
<thead>
<tr>
<th>Toll Agency</th>
<th>Revenue Generator</th>
<th>Amount Collected Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio Turnpike</td>
<td>$20 or $30 on-line OfficeMax® coupons</td>
<td>n/a</td>
</tr>
<tr>
<td>Massachusetts Turnpike</td>
<td>Fiber optic leases&lt;br&gt;Sign advertising&lt;br&gt;3 year BankBoston advertising contract</td>
<td>$4.6 million to $105,000&lt;br&gt;$1.5 million</td>
</tr>
<tr>
<td>West Virginia Turnpike</td>
<td>Restaurants&lt;br&gt;Service stations&lt;br&gt;Right-Of-Way (ROW) leases</td>
<td>$1.4 million&lt;br&gt;$800,000&lt;br&gt;$25,000/year</td>
</tr>
<tr>
<td>Pennsylvania Turnpike</td>
<td>Coupons for Staples® Office Supply&lt;br&gt;Land leases of reserved property</td>
<td>$250,000</td>
</tr>
<tr>
<td>Maine Turnpike Authority</td>
<td>Concession rentals&lt;br&gt;Miscellaneous revenue</td>
<td>$2.3 million&lt;br&gt;$407,900</td>
</tr>
<tr>
<td>Illinois Turnpike Authority</td>
<td>Concessions and fiber leases</td>
<td>$10.7 million</td>
</tr>
<tr>
<td>Kansas Turnpike</td>
<td>Lease agreements (includes restaurants, service stations, and communications)</td>
<td>$2.8 million</td>
</tr>
<tr>
<td>New Jersey Turnpike</td>
<td>Concessions&lt;br&gt;Miscellaneous (telephone, towing, easements, billboard site rentals, etc.)&lt;br&gt;ETC project revenue (fiber leases, transponder sales, EZ Pass monthly fees, etc.)</td>
<td>$18.4 million&lt;br&gt;$2.1 million&lt;br&gt;$9.9 million</td>
</tr>
<tr>
<td>Garden State Parkway</td>
<td>Concessions&lt;br&gt;Miscellaneous (see above)&lt;br&gt;ETC project revenue (see above)&lt;br&gt;Arts center</td>
<td>$7.9 million&lt;br&gt;$4.6 million&lt;br&gt;$4.4 million&lt;br&gt;$2.0 million</td>
</tr>
<tr>
<td>San Joaquin Hills Toll Road</td>
<td>Development impact fees&lt;br&gt;Other revenue</td>
<td>$9.7 million&lt;br&gt;$306,000</td>
</tr>
<tr>
<td>Miami-Dade Expressway</td>
<td>Lease land under bridge structures for parking for the University of Miami</td>
<td>$50,000</td>
</tr>
<tr>
<td>Foothills/Eastern Toll Road</td>
<td>Development impact fees&lt;br&gt;Other revenue</td>
<td>$21.6 million&lt;br&gt;$618,000</td>
</tr>
</tbody>
</table>

Each of the funding methods described above can be used in tandem with one another to complete a financing package that may make the Loop 49 project more viable. Each of these methods is innovative and has been used successfully for project financing. The methods are not mainstream transportation funding at this point, but the trend is moving toward combining financing strategies and taking advantage of every available resource.
Conclusions: Implementation Considerations

Tolling Implementation

The conceptual tolling implementation plan for Loop 49 consists of two tolling locations — one mainline plaza between SH 155 and CR 178 and two ramp plazas at SH 2493. At each of the tolling plazas, two lanes will be provided. The inside lane is proposed as an ETC-only express lane, and the other lane will be equipped with a kiosk where motorists can purchase tags or replenish their existing tags using cash, credit, or debit forms of payment. Kiosks and other forms of tag distribution may be located off-site. Tolling locations and method of payment may be modified according to the outcome of the pre-investment grade traffic and revenue study.

The technology application and operating strategy for Loop 49 will be a pilot project for TxDOT to test and evaluate their proposed statewide model to utilize “sticker tags” and a variety of distribution methods for these tags, including in-lane and off-site kiosks as well as direct mail.

The estimated implementation costs are $6.9 million for technology and civil costs, with annual operating costs expected in the $500,000 to $600,000 range.

The action items that should be pursued for implementation of tolling on Loop 49 are as follows:

- develop deployment plan for the south segment of Loop 49;
  - lane systems and operations;
    - hardware and communications infrastructure deployment;
    - software development/integration;
  - back office operations/Customer Support Center;
    - toll tag distribution plan;
    - account management;
- design modifications to construction project for toll implementation; and
- driver information and communication that conveys messages in ways that are consistent with marketing and public information approaches.
Financial Considerations

The funding crisis today forces TxDOT to explore as many options as are available. Tolling is one of those options. The Tyler District, working with the turnpike division and their consultants, have identified bond financing as one mechanism of project financing. Bond financing dependent on a toll revenue stream for debt service should be approached with caution. Many factors other than traffic and revenue will influence the acceptability of this financing option. The traffic volume projected on Loop 49 is very low compared to projects that are typically financed through toll revenue bonds. The capital markets have several criteria that will be reviewed in assessing financial viability. Some of these issues, such as land use patterns, demographics, and alternate routes, will be examined in an investment grade traffic and revenue study. TxDOT must have answers for the other questions that may arise. Possible issues include:

- Loop 49 is a start-up toll road for the region — Typically the capital markets see start-up toll roads as a greater risk; most roads that receive non-investment grade ratings are start-ups.
- Loop 49 is a stand-alone project — A stand-alone project is more vulnerable in the event of a revenue shortfall than a project that is part of a system that can distribute the loss over the entire system.
- Minimal congestion — Toll roads depend on free facilities being congested to entice traffic onto the road.
- Extended ramp-up period — The ramp-up period may be longer than anticipated.
- Opportunities for expansion — The capital market will look at the opportunities to expand the facility or to a multi-asset system in an effort to grow the revenue base.

The risks associated with the issues mentioned above should be mitigated to the greatest extent possible. Several options related to toll projects statewide are currently under consideration by the Texas Transportation Commission. The policy direction will have bearing on the Loop 49 project as well as other small toll road projects around the state.

An important step to mitigate the market’s aversion to stand-alone projects like Loop 49 would be for TxDOT to “bundle” several small projects before taking them to the capital market. This would result in spreading the risk over several toll roads rather than a single project. Multiple assets will most likely increase a bond rating.

Alternatively, TxDOT may choose to fund the Loop 49 project without taking it to the bond market. After the road is built and operating, TxDOT may choose to issue bonds to reimburse itself for the cost of the project. The capital markets may look favorably on this strategy since many of the risks will have
been eliminated. The project will have an historical traffic and revenue stream from which the market can make an educated investment decision.

The Loop 49 project does have several advantages that should be viewed favorably by the markets. The political climate in the Tyler area is supportive of tolling and committed to the project. This is a great advantage. The use of an electronic toll collection system is proposed. Public input received through this research implementation study indicates the public supports prepaid account methods along with video enforcement. This will lower operating costs and perhaps make future toll adjustments more palatable. Currently, funded initial segments of Loop 49 under construction still have the chance to incorporate or form partnerships mentioned above. Since non-toll revenue generation is more difficult to forecast and budget, these business propositions can be tested on segments of the roadway that are already funded.

Project procurement processes on the remaining segments will also mitigate some risks associated with start-up toll roads. Use of a comprehensive development agreement certainly shifts some risks to the project developer. Additional risk is mitigated because necessary environmental clearance has already been obtained, although it is likely that a reevaluation will need to be conducted to ascertain the effects of a toll project.

The bottom line is that the capital markets will look to the traffic and revenue studies and make an investment decision based on the information contained in the reports. Partnerships and non-toll revenues can enhance the credit of the investment, but it cannot change the nature of the investment. In an era of more conservative investment, wariness of toll revenue forecasts, and recent bond rating downgrades of toll roads, it is likely that the capital market will be very leery of a project such as Loop 49. TxDOT should carefully consider a financial plan that minimizes, to the greatest extent possible, the reliance on a toll revenue stream to support Loop 49 construction.

The leadership of Tyler and Smith County as well as surrounding cities and counties have expressed a desire to form a Regional Mobility Authority. This commitment demonstrates the willingness of the region to solve local transportation issues. This most likely will have a positive impact at the bond market. However, the RMA itself cannot finance an initial project because it has no revenue stream. The first project will require a significant equity contribution.

**Partnering Opportunities**

Many entities within the Tyler community have expressed interest in facilitating the effort to see Loop 49 through to implementation. As such, the department should take advantage of this opportunity.
As one approach, the research team is exploring the efforts of other toll entities in contracting with local vendors for the sale of transponders. For instance, the Florida Department of Transportation contracts with Eckerd® Stores for the sales of SunPass® transponders. Department officials indicated that this move increased transponder sales by more than 50 percent in August and September 2003. Similar increases are expected now that transponders are also available at Publix® Supermarkets (4).

Additional opportunities, such as local development agreements or special assessment districts, may allow the department to partner with local developers to implement remaining segments of Loop 49. As indicated in other tasks assigned on this project, much of the business community sees Loop 49 as an opportunity to stimulate economic development by providing access to acres of undeveloped land.

There are also opportunities to generate non-toll revenue on Loop 49. These range from right-of-way lease agreements and concession agreements to bank ads on tollbooths. Each of these efforts helps to financially support the facility. The key is to be open to business opportunities. This requires a new way of thinking but can also foster new relationships between unlikely partners.

Environmental Review

The Tyler District has received approval to build the southern segment of Loop 49 from SH 155 to County Road 756. The Federal Highway Administration (FHWA) has also granted a Record of Decision (ROD) for the western segment of Loop 49 from SH 155 to I-20.

The southern segment is currently under construction, and the district has not yet received funding for the western segment. The Texas Transportation Commission has issued Minute Order 109519 that directs TxDOT to evaluate all controlled-access mobility projects in any phase of development or construction for tolling. The Tyler District is currently evaluating the feasibility of tolling Loop 49. This section outlines the steps and provides guidance on initiating an environmental review.

The project team has conferred with personnel from TxDOT’s Environmental Affairs division and with FHWA. After a review of TxDOT’s Guidance on the Environmental Process for Toll Roads and the Policy Memorandum, Policy for Planning, Environment and Project Development for Toll Roads, issued by FHWA, the following actions are suggested:

1. Memorandum of Understanding (MOU) between TxDOT and FHWA — FHWA policy indicates that a toll agreement with FHWA must be executed to construct or improve a toll facility or convert an existing federally-funded
free facility to a toll facility. The MOU should include five components as outlined in the Policy Memorandum.

2. Conduct an Environmental Reevaluation — An environmental reevaluation is an appropriate document to assess what about the project has changed since the Record of Decision was issued and to assess whether or not the changes would have led to a different decision in the alternatives analysis. The reevaluation document should address the purpose and need for the project and be consistent with the previous document. The funding situation may be addressed in the goals and objectives section. Other changes that should be assessed include:
   - design changes,
   - additional ROW requirements,
   - access,
   - environmental justice and traffic diversion, and
   - socioeconomic impacts.

The project that is built must be the project that is described in the environmental documents. Since these changes are being considered after the project has received an environmental decision and undergone the public involvement process, the changes must be evaluated to see if they are substantial enough to warrant additional environmental review.

3. Identify steps
   - document changes.
   - conduct public meetings/public involvement.
   - modify long-range transportation plan (LRT), transportation improvement plan (TIP), and statewide transportation plan (STIP).

4. Obtain document approval — Each of the steps noted above can be underway and completed during construction of the facility provided construction has already begun on the facility. However, if segments of the project have not been let, TxDOT may wish to postpone the letting until more public involvement can take place.

The implementation plan outlined will provide a starting point for the environmental review. Coordination with FHWA will be important to gain buy-in on the appropriate steps.

Public Education and Outreach
The marketing strategy outlined in this report is based on the findings from the public perception data collection. The results of those efforts identified gaps in the public’s understanding of the project, gaps that can be addressed by the various outreach mechanisms and key messages conveyed by TxDOT during the public outreach and education phase of the toll implementation project. This implementation plan outlines a number of key messages and techniques that will enhance the public’s understanding and acceptance of the project.
The goal of the marketing strategy is to educate the public on the plans, progress, and benefits of the Loop 49 toll road while enhancing TxDOT’s image as a progressive state agency dedicated to enhancing the mobility, safety, and prosperity of Tyler and Smith County.

The focus group and stakeholder interview findings that are important to address in the outreach plan are identified as follows:

- Many people are aware of the Loop 49 project and think Loop 49 is a needed roadway.
- The public is unaware of, or very few have heard about, the possibility of Loop 49 being a toll road.
- The public is unfamiliar with the plans for Loop 49 or is under the assumption that it is a four- or six-lane divided highway.
- People are surprised and upset when they find out that Loop 49 is currently being built as a two-lane highway.
- Focus group participants from three studies said they probably will not use the first phase of the south section.
- Most focus group participants indicated that they are not willing to pay a toll to use this section of the project and feel they will use other nearby roads to avoid the loop.
- Area residents see the value of the Loop once it connects to I-20.

The marketing strategy is proposed to occur in two phases. Phase 1 is the “Awareness Stage” and should begin as soon as a decision is made to proceed with the tolling implementation pilot project. The purpose of the first phase is to inform the public about the plans and progress of the project with accurate information. Phase 2 is the “Operational Stage” to begin at the opening of the south segment and will serve to announce and celebrate the opening of the first part of the south segment.

**Phase 1: Awareness Stage (To Start Year 1)**

Inform the public about the plans and progress of the project with accurate information (Rumor control).

- **Theme and graphic identity** – Develop a theme and graphic identity for an educational campaign designed to effectively communicate key project information to residents/motorists while positively positioning TxDOT as a progressive state agency.
- **Project Champion** – Identify and utilize a community champion to assist in delivering messages about the project to demonstrate city and county support. Candidates include Mr. Sjerven, a prominent leader in the community and seen as the father of Loop 49, the mayor, city council members, county officials, etc.
• **Community Outreach/ Public Meetings** — TxDOT should host two to three public meetings to explain the project to the public. These meetings will help communicate important facts about the plans, progress, and benefits of Loop 49 and offer TxDOT the opportunity to enhance its public image. It will also help minimize false rumors about the project. Project pamphlets are recommended for distribution at these events.

• **PR/Media Blitz** — TxDOT representatives and the Tyler mayor (or project champion) can do guest appearances on local radio and TV stations to inform the public about the project. Additionally, information, photos, and maps should be sent to the local newspapers (daily, weeklies, and shoppers) on an on-going basis to update the public on the project as well as prepare them for the new toll collection machines and toll tags. Weekly and shopper newspapers are a great source to publish regular information on the project. A listing of the Tyler area media outlets is provided in Appendix E of this report.

• **Website** — Develop and launch a Loop 49 website to provide current and constant information on the project. Include photos, timeline, maps, project history, news releases, a question-and-answer session, an email newsletter, and an area where the public can email questions. Thorough, constant, and consistent communications along with the visible support of the city and county, as well as a means for the public to ask questions are the keys to public acceptance.

• **Civic Meeting Appearances** — TxDOT should make a PowerPoint® presentation to local civic groups, such as Rotary clubs, Lion’s clubs, Chamber Small Breakfast, Leadership Tyler, etc., on the project.

**Tools to be Developed**

• PowerPoint® presentation,
• Website,
• Maps — completed,
• Project timeline,
• Pamphlets,
• Updated talking points/fact sheet, and
• News releases — a series to cover project plan, project updates, website launch, etc.

**Key Messages**

• Loop 49 is a necessary project that will benefit our community.
• Loop 49 is important for the future of Tyler and Smith County.
• Making Loop 49 a toll road is the best option for the community because it will allow for speedier project completions and generate income that will go back into projects that the community needs.
• Tyler is on the “cutting edge” — the first toll road in a small, urban/rural market and will be testing the latest in toll tag technology.
• The south section of Loop 49 is a "first step" of an improved transportation plan for the future of the community. It signifies TxDOT's commitment to the area.
• Loop 49, even as a two-lane toll road, will offer motorists a faster and more reliable travel option as there will be wide shoulders and passing lanes with no driveways, stop signs, or other traffic obstacles common along county roads to impede traffic flow.

Phase 2: Operational Stage (To Start at Opening of First Phase)

Announce and celebrate the opening of the first part of the south segment with:

• ribbon cutting event and news conference;
• event to bring people out to see roadway — NASCAR, project champion, and/or local celebrity to be first to drive on roadway, radio remotes, family activities, sell toll tags, etc.;
• free use of roadway for a short period of time to introduce and gain "buy-in" from the public;
• Second Public Relations/Media Blitz to include local, statewide, and national media; promote Tyler being the first toll road in small urban/rural market and the first to test the new toll tags;
• update talking points, website, and PowerPoint presentation; and
• promote the state-of-the-art toll tags, where to buy (partnerships with local businesses), how to use tags, benefits, etc.

Key Messages
• Tyler is on the road to better mobility and future growth with the opening of Loop 49.
• The community is on the cutting edge with the latest in toll tag technology.
• State, county, and local government worked together on this project to help make the community a better place.
• Local businesses have also partnered with the project to help in its success.
• Community support and cooperation make Tyler a special place and is a key to the further success of the project.

Measures of Effectiveness
As the project moves forward, researchers recommend that the MOEs identified in the chapter on conceptual tolling plans will be measured and tracked. The baseline measures are listed below, along with the current values for those public acceptance benchmarks that were measured through the baseline public opinion survey. Continued evaluation of the project will provide valuable information to TxDOT as future projects are implemented.
The measures of effectiveness that should be evaluated are:

- technology applications;
  - number of unique tolling features tested and evaluated;
  - effectiveness of cash option — revenue/operating costs;
  - public acceptance of electronic tolling — percent favorable;
    - baseline: 40 percent;
- public acceptance of tolling concept;
  - baseline acceptance — percent favorable;
    - baseline: 49 percent ("Tolling Loop 49 is a good way to pay for the road.");
  - public acceptance prior to opening — percent favorable;
  - public acceptance after opening — percent favorable;
  - compliance rate (percent of vehicles paying toll);
  - actual revenue/estimated revenue and/or growth rate on Loop 49 versus growth rate on other roadways; and
- number of districts adopting Tyler model for tolling implementation.
Applicability of Loop 49 Toll Implementation Process

As this research implementation project progresses and the decision processes are documented, the results can have significant value for other mid-size communities in Texas. It is the intent of TxDOT to use the Tyler experience on Loop 49 as a pilot project for tolling in a non-traditional tolling environment. As the project moves into operation, the research project will conclude with an evaluation of the project performance, synthesis of lessons learned, and detailed recommendations for improvements in the areas of planning, financing, designing, constructing, and operating toll facilities in smaller communities in Texas.

At the close of the first year of this implementation project, there are several observations that can be useful to planning efforts in other TxDOT districts. In many ways, the initial planning for the Loop 49 tolling project has represented a systematic approach that has integrated several elements critical to successful implementation:

- early efforts to develop support for the tolling project among politicians, policy-makers, and key community stakeholders, with clear justification for the need for tolling, and early positive media coverage;
- technology selection and a decision on toll operating strategy in the initial stages of the development, guided by TTA and consistent with TxDOT’s statewide toll operating philosophy; and
- development of a marketing strategy based on public perception data, which identified the gaps in the public’s understanding of the project.

The second year of the implementation project will involve documentation of a number of steps necessary to move the project toward operation and the decisions related to those steps:

- environmental review, including additional public meetings;
- implementation of the marketing strategy;
- development of final technology deployment plans and changes to the construction project;
- development of back-office operation and customer service approach; and
- identification and pursuit of private and public partnering opportunities.
References

Appendix A: Technology Matrix
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Cost of Launching Technology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staffing, maintenance, utilities, contingency, DPS patrol costs, replacement costs</td>
<td>$600,000 - $1.05 million</td>
<td>$683,000 - $910,000</td>
<td>$825,000 - $1.1 million</td>
<td>$604,000 - $850,000</td>
<td>$1.1 - 1.3 million (equals 6 lanes)</td>
</tr>
<tr>
<td><strong>Civil/Structures Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Costs for toll plazas, islands, conduit, etc.</td>
<td>$735,000</td>
<td>$320,000</td>
<td>$425,000</td>
<td>$431,000</td>
<td>$500,000 - $600,000</td>
</tr>
<tr>
<td><strong>Lane Width</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Lane width requirements for construct and operate given technology</td>
<td>10' lane/14' outside lane for oversize vehicle</td>
<td>12' lane</td>
<td>10' lane/14' outside lane for oversize vehicle</td>
<td>12' lane</td>
<td>12' lane</td>
</tr>
<tr>
<td><strong>Shoulder Width</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoulder width requirements for approach and departure</td>
<td>2 inside shoulder/10' outside shoulder for approach and departure only</td>
<td>4 inside shoulder/8' outside shoulder for approach and departure only</td>
<td>4 inside shoulder/8' outside shoulder for approach and departure only</td>
<td>10' shoulder on both sides thru approach, collection, and departure</td>
<td>4 inside shoulder/6' outside shoulder for approach and departure only</td>
</tr>
<tr>
<td><strong>Total Pavement Width</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane width plus shoulder width requirements</td>
<td>28' (including islands)</td>
<td>28' (including islands)</td>
<td>28' (including islands)</td>
<td>44'</td>
<td>22'</td>
</tr>
<tr>
<td><strong>Approach and Departure</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach and departure taper length</td>
<td>Approach: 885' Departure: 1475</td>
<td>300' each</td>
<td>Approach: 885' Departure: 1475</td>
<td>300' each</td>
<td>None</td>
</tr>
<tr>
<td><strong>Grade Requirements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade requirements to construct and operate given technology</td>
<td>0.5%</td>
<td>1%</td>
<td>0.5%</td>
<td>1%</td>
<td>Meet design criteria</td>
</tr>
<tr>
<td><strong>Scheduling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduling dependent on construction and implementation schedules</td>
<td>Could be significant if project has been let or received ROD</td>
<td>Could be significant if project has been let or received ROD</td>
<td>Minimal</td>
<td>Minimal</td>
<td>Could be significant if project has been let or received ROD</td>
</tr>
<tr>
<td><strong>Environmental Impacts (3)</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Responses indicate the level of potential environmental impact</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Moderate/Low</td>
</tr>
<tr>
<td><strong>Transaction Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>transactions processing speed</td>
<td>Slow (6 secs)</td>
<td>Slow</td>
<td>Fast</td>
<td>Fast</td>
<td>AVI Fast ACM Slow</td>
</tr>
<tr>
<td><strong>Throughput</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Vehicle Capacity per hour per lane</td>
<td>350 vph/1</td>
<td>400-600 vph/l</td>
<td>2000 vph/l</td>
<td>2000 vph/l</td>
<td>AVI: 3500 vph ACM: 400-600 vph</td>
</tr>
<tr>
<td><strong>Write-Off Rate</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Rate of toll evasion and/or processing errors</td>
<td>±1% during manned periods; up to 100% during unmanned periods</td>
<td>20%</td>
<td>20%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Potential Diversion Rate</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rate of toll evasion and/or processing errors</td>
<td>15-20%</td>
<td>15-20%</td>
<td>15-20%</td>
<td>15-20%</td>
<td></td>
</tr>
<tr>
<td><strong>Compatibility</strong></td>
<td></td>
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<tr>
<td>Compatibility with other systems than one technology that may be used along different segments of the facility</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td><strong>Interoperability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interoperability with other features</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td><strong>Marketability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketability for other users that benefit from technology</td>
<td>Attractive to casual users. No privacy concerns. No hardware purchase necessary</td>
<td>Attractive to casual users. No privacy concerns. No hardware purchase necessary</td>
<td>Compatible with other systems in the state. Tyler subscribers could use other systems, and vice versa.</td>
<td>Casual users who do not have privacy concerns. No hardware purchase necessary</td>
<td>Appeals to both casual and regular users</td>
</tr>
<tr>
<td><strong>Receipt Options</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receipt requests, change requests, credit card payments (on site). monthly statements</td>
<td>Immediate receipt</td>
<td>Immediate receipt option possible</td>
<td>Monthly statement</td>
<td>Monthly statement</td>
<td>AVI: Monthly Statement ACM: Immediate receipt option possible</td>
</tr>
</tbody>
</table>

Notes:
(1) Costs do not include civil or structures, only electronics and communications; costs for Loop 49, one mainlane in each direction with additional lanes at Manual and ACM plazas; 1 main lane and 2 ramp plazas assumed.
(2) See supplemental breakdown sheet.
(3) Environmental - all scenarios will require additional environmental assessment.
(4) Not an issue when traveling to Tyler; however, Tyler users will not be able to access AVI facilities in other areas.
*** The preferred option assumes one lane each for ACM and AVI at the mainlane plaza and one combination lane at the ramp plazas.
Plan for 5 year life expectancy for systems.

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Appendix B: Cost Estimate Factors for Technology Implementation

Manual
Installation Management
Manual — Administration
Manual — Audit Users
Manual — Maintenance
Procurement Services
Proximity Cards
Toll Audit Workstation
Toll Server Hardware
Traffic Server Hardware
Training — Information Technology (IT) Department
Training — Maintenance Technician
Training — Toll Audit Manager
Video Clip Review Data Store
Design — Communications
Host to Plaza Virtual Private Network
PBX and Phones
Maintenance Online Management Systems (MOMS) Workstation
Lane Uninterruptable Power Supply (UPS)
Manual — Toll Collector
Training — Toll Collectors
Badge Reader — Booth
Carbon Monoxide (CO) Detectors
Intercom — Booth
Island Traffic Signal
Lane Controller Hardware
Mag Stripe Reader — Booth
Patron Fare Indicator — Booth
Receipt Printer — Booth
Surveillance Camera — Booth
Toll Terminal
Vehicle Classification Subsystem
Badge Reader — Plaza Doors
Manual — Toll Supervisor
Plaza Server Hardware
Plaza Supervisor Workstation
Training — Plaza Supervisors

Automatic Coin Machine
Installation Management
Manual — Administration
Manual — Audit Users
Manual — Maintenance
Procurement Services
Toll Audit Workstation
Toll Server Hardware
Traffic Server Hardware
Training — IT Department
Training — Maintenance Technician
Training — Toll Audit Manager
Video Clip Review Data Store
Design — Communications
Host to Plaza VPN
MOMS Workstation
Automatic Coin Machine
Badge Reader — ACM
Change Dispensing Machine
Coin Vaults
Gate
Intercom — ACM
Island Traffic Signal
Lane Controller Hardware
Mag Stripe Reader — ACM
Patron Fare Indicator — ACM
Receipt Printer — ACM
Surveillance Camera + Wide Area Network (WAN) Connect ACM
Vehicle Classification Subsystem
Lane UPS
Manual — Toll Collector
Intercom Base
Plaza Server Hardware
Automated Vehicle Identification

Installation Management
Manual — Administration
Manual — Audit Users
Manual — Maintenance
Portable Electronic Toll Collection Reader
Procurement Services
Toll Audit Workstation
Toll Server Hardware
Training — IT Department
Training — Maintenance Technician
Training — Toll Audit Manager
Video Clip Review Data Store
Design — Communications
Fiber (36 strands/m) (miles)
Host to Plaza VPN
Host/Video Enforcement System/Customer Service Local Area Network
PBX and Phones
Plaza to Lane LAN
Plaza to Remote Lane WAN
Customer Service Server Hardware
Customer Service Workstation
Manual — Customer Service
Training — Customer Service Manager
Training — Customer Service Rep
Transponders
MOMS Workstation
Lane UPS
AVI Payment Signal
AVI Subsystem
Image Capture System — AVI
Lane Controller Hardware
Vehicle Classification Subsystem
Automatic Coin Machine
AVI Subsystem
Badge Reader — ACM
Intercom — ACM
Island Traffic Signal
Lane Controller Hardware
Mag Stripe Reader — ACM
Video
Installation Management
Manual — Administration
Manual — Audit Users
Manual — Maintenance
Procurement Services
Toll Audit Workstation
Toll Server Hardware
Traffic Server Hardware
Training — IT Department
Training — Maintenance Technician
Training — Toll Audit Manager
Video Clip Review Data Store
Design — Communications
Fiber (36 strand s/m) (miles)
Fiber Installation
Host to Plaza VPN
Host/VES/CS LAN
Plaza to Lane LAN
Plaza to Remote Lane WAN
Customer Service Server Hardware
Customer Service Workstation
Manual — Customer Service
Training — Customer Service Manager
Training — Customer Service Rep
MOMS Workstation

Surveillance Camera + WAN Connect
   ACM
Lane UPS
AVI Payment Signal
Image Capture System — AVI
Lane Controller Hardware
Vehicle Classification Subsystem
Automatic Coin Machine
Badge Reader — ACM
Change Dispensing Machine
Intercom — ACM
Lane Controller Hardware
Mag Stripe Reader — ACM
Patron Fare Indicator — ACM
Receipt Printer — ACM
AVI Payment Signal (RmpAVI)
Image Capture System — AVI (RmpAVI)
Lane Controller Hardware (RmpAVI)
Vehicle Classification System (RmpAVI)
Intercom Base
Plaza Server Hardware
Plaza Supervisor Workstation
Training — VES Operator
VES Server Hardware
VES Workstation
Appendix C: Stakeholder Interview Guide

Tier 2 Stakeholder Interview Guide

- 30-minute discussion-type interview with open-ended questions
- 8 ½ x 11 renderings of tolling features and maps will be used to describe conceptual tolling plan for Loop 49 beginning with question #11.

1. What is your role in the community? (e.g., elected official, city staff, businessperson, educator, etc.)

2. What kind of city is Tyler?

3. What are Tyler’s assets? What are Tyler’s drawbacks?

4. What do you envision for the future for Tyler?

5. How do you view traffic congestion in the Tyler area?

6. Are certain areas of the city worse than others?

7. Is commercial truck traffic a problem? If so, why?

8. How does traffic congestion impact the economic viability of the city?

9. What is needed to solve traffic congestion problems?

10. How can potential solutions be funded?

11. How do you feel about toll roads? How do you feel about Loop 49 as a toll road?

12. Do you think toll roads are a fair way to pay for improvements?

13. If Loop 49 was a toll road, would you use it? Why or why not?

14. What do you know about electronic toll collection? Do you think there is a need for an attended toll booth on Loop 49?

15. How could support for toll roads in general, and Loop 49 specifically, be generated in the Tyler area?
Appendix D: Public Opinion Survey

THANK YOU for taking time to complete this survey. The Texas Transportation Institute is asking on behalf of the Texas Department of Transportation for your opinion of the plans and construction of Loop 49. The survey should take less than 10 minutes of your time. All who are being surveyed will remain anonymous.

1. What is the zip code of your home address? _______________

2. Before you started this survey, how familiar were you with the plans for Loop 49?
   - 19 I have not heard anything about Loop 49.
   - 106 I have heard a little about Loop 49.
   - 57 I have heard quite a bit about Loop 49.
   - 17 I consider myself to be very familiar with the plan for Loop 49.

3. Please circle the letter(s) for each statement that tells whether you agree or disagree with the statement.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Tyler needs Loop 49.</td>
<td>106</td>
<td>61</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>b. A new loop will mean fewer commercial trucks on Loop 323.</td>
<td>71</td>
<td>83</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>c. A new loop will help the economy of the area.</td>
<td>75</td>
<td>68</td>
<td>38</td>
<td>11</td>
</tr>
<tr>
<td>d. Loop 49 will relieve congestion on Loop 323.</td>
<td>80</td>
<td>82</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>e. Loop 49 will help improve safety on other roads in Tyler.</td>
<td>69</td>
<td>73</td>
<td>32</td>
<td>18</td>
</tr>
</tbody>
</table>

Please refer to the Loop 49 map to answer the following questions. The map shows current construction (red section) as well as the future route for the project.

4. Construction on Section 1 of Loop 49 has begun. To your knowledge, which description best describes the part that is under construction?
   - 82 A four-lane divided highway
   - 13 A four-lane undivided highway
   - 77 Not Sure
   - 11 A two-lane undivided highway
   - 10 A six-lane divided highway
5. How often do you estimate you will travel on Section 1 when it is open?  
**Assuming the Road is Two-Lane Undivided**  
(N=165)  
__27__ Less than once a year or not at all  
__40__ A few times/year  
__30__ Monthly  
__47__ Weekly  
__21__ Daily  

**Assuming The Road Is Four-Lane Divided**  
(N=149)  
__16__ Less than once a year or not at all  
__32__ A few times/year  
__28__ Monthly  
__49__ Weekly  
__24__ Daily  

6. TxDOT is planning to make Loop 49 a toll road. Knowing a toll will be charged, how often do you estimate you will travel on Section 1 when it is open?  
(N=197)  
__73__ Less than once a year or not at all  
__55__ A few times/year  
__27__ Monthly  
__29__ Weekly  
__13__ Daily  

7. If you do not plan to use Section 1 of Loop 49, which road would you typically use instead?  
_____________

8. What toll price would you be willing to pay to drive on Section 1 of Loop 49?  
(N=196)  
__96__ None  
__48__ 25 cents  
__37__ 50 cents  
__6__ 75 cents  

9. What toll price would you be willing to pay to drive on Loop 49 between SH 110 (near Whitehouse) and I-20?  
(N=197)  
__86__ None  
__37__ 25 cents  
__47__ 50 cents  
__13__ 75 cents  

10. Please circle the letter(s) for each statement that tells whether you agree or disagree with the statement.  

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>
| a. Tolling Loop 49 is a good way to help pay for the road.  
(N=149) | 30 | 67 | 36 | 37 | 25 |
| b. Tolling Loop 49 will keep some people from using it.  
(N=197) | 64 | 90 | 26 | 12 | 5 |
| c. The use of cameras to photograph license plates is a reasonable way to enforce toll collections.  
(N=197) | 49 | 81 | 27 | 17 | 23 |
| d. Tolling Loop 49 will allow more of our tax dollars to be spent on other projects.  
(N=196) | 22 | 67 | 57 | 29 | 21 |
| e. Using gasoline tax is a good way to pay for new construction instead of charging a toll.  
(N=193) | 29 | 38 | 55 | 40 | 31 |
11. Please check the form of toll collection you would most prefer.

_101_ Cash (paying with cash/coins at a machine at the toll plaza)
_40__ Toll tag account (setting up an account and receiving a monthly bill for your tolls)
_29__ Prepaid toll tag account (purchasing a toll tag with a set number of trips on it from a kiosk at the toll plaza or at a retail store)

12. What is your age group?

_____ 18-25    _____ 26-40    _____ 41-60    _____ over 60

13. What is the highest grade in school you completed?

_____ Less than high school    _____ College degree
_____ High school            _____ Advanced degree(s)
_____ Some college or technical training

14. What is your household income level per year?

_____ Less than $25,000    _____ $50,001 - $100,000
_____ $25,000 - $50,000    _____ More than $100,000

15. Do you have any comments about Loop 49?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

THANK YOU!
Appendix E: Tyler Area Media

Tyler
Tyler Morning Telegraph
Circ: 43,668
P.O. Box 2030
Tyler, TX 75702
903-579-8111
Fax 903-595-0335
news@tylerpaper.com
www.tylerpaper.com
City Editor: Richard Loomis

Lindale
Lindale News & Times
Circ: 2500
Distributed on Thursdays
104 S. Main Street
Lindale, TX 75771
903-882-8880
Fax 903-882-8234
lindalene.ws@aol.com
www.lindalene.ws-times.com
Editor: Jay Graham
News Staff Writer: Marie Petrick

Longview
Longview News Journal
Circ: 29,748
P.O. Box 1792
Longview, TX 75606
903-757-3311
Fax 903-757-3742
plitterski@coxnews.com
www.news-journal.com
Editor: Pete Litterski

Bullard
The Bullard Weekly News
Circ: 1000
Distributed on Wednesdays
120 N. Houston Street
Bullard, TX 75757-5112
903-894-9306
Fax 903-894-9308
editor@bullardnews.com
www.bullardnews.com
Publisher: Cyndi Adams
Editor: Joan Pace

Whitehouse
Tri County Leader
Circ: 3100
Distributed on Thursdays
P.O. Box 1067
Whitehouse, TX 75791-1067
903-839-6279
Fax 903-839-8519
tcleader@tyler.net
Editor & Publisher: W.H. Ellman

Diboll
Free Press
Circ: 4500
Distributed on Thursdays
201 N. Temple
Diboll, TX 75941-1701
936-829-1801
Fax 936-829-1811
Editor: Gary Willmon
gwillmon@freepressnews.com
Associate Editor: Erin Bryan
ebryan@freepressnews.com
Garrison
*Garrison In The News*
Circ: 1500
125 Hwy 59 North
Garrison, TX 75946
936-374-2575
Fax 936-374-3203
giten@excite.com
Publisher & Editor: Jo Ann Barton

Overton
*Overton Press*
Circ: 1500
P.O. Box 99
Overton, TX 75684
903-834-6178
Fax 903-834-6179
overtonpress@aol.com
Editor: Charlotte Heldenbrand

Gilmer
*Gilmer Mirror*
Circ: 5000
P.O. Box 250
Gilmer, TX 75644-0250
903-843-2503
Fax 903-843-5123
Gilmermirror@aol.com
www.gilmermirror.com
Editor: Mac Overton
Mail news releases to P.O. Box.

Gladewater
*Gladewater Mirror*
Circ: 2000
201 S. Dean Street
Gladewater, TX 75647-2736
903-845-2235
Fax 903-845-2237
gladewatermirror@aol.com
Editor: Bob Runyon

Tyler
*KLTV-TV — ABC affiliate*
105 W. Ferguson
Tyler, TX 75702
903-533-9191
Fax 903-592-7497
www.tylertoday.com
Editor: Janet Fair

Grapeland
*Grapeland Messenger*
Circ: 2215
P.O. Box 99
Grapeland, TX 75844
936-687-2424
936-687-2424
Publisher & Editor: Weldon Kerby

KETK-TV — NBC affiliate
4300 Richmond Road
Tyler, TX 75703
903-581-5656
Fax 903-561-1648
News Assignments Manager: Mitze Avera
mavera@nbc56.com

Tyler
*KAZE-FM 106.9 Radio*
212 Grande Blvd Ste. C 120
Tyler, TX 75703-4203
903-759-5189
Fax 903-759-5189
News Director: Don Jones
bulletin@theblull993.com
<table>
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<tr>
<th>Tyler</th>
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<tr>
<td></td>
<td>903-581-5259</td>
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<tr>
<td></td>
<td>903-939-3473</td>
</tr>
<tr>
<td></td>
<td>General Manager: Rick Reynolds</td>
</tr>
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<td></td>
<td><a href="mailto:rick@theblaze.cc">rick@theblaze.cc</a></td>
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<td></td>
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<tr>
<td></td>
<td>903-593-2519</td>
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<td></td>
<td>Fax: 903-593-4141</td>
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<tr>
<td></td>
<td>News Director: Roger Gray</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:Rogergray@ktbb.com">Rogergray@ktbb.com</a></td>
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<td></td>
<td>1001 E. Southeast Loop 323 Ste. 455</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>903-295-8182</td>
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<tr>
<td></td>
<td>Fax 903-597-8378</td>
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<tr>
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<td>News Director: Roger Gray</td>
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<td><a href="mailto:rogergray@ktbb.com">rogergray@ktbb.com</a></td>
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<td><a href="mailto:rogergray@ktbb.com">rogergray@ktbb.com</a></td>
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<td></td>
<td>903-581-0606</td>
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<tr>
<td></td>
<td>Fax 903-581-2011</td>
</tr>
<tr>
<td></td>
<td>903-510-7777</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:dgoldman@kltv.com">dgoldman@kltv.com</a></td>
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<tr>
<td></td>
<td>903-593-5863</td>
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<tr>
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<td>Fax 903-593-2663</td>
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<td>News Director: Tricia Anderson</td>
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<tr>
<th>Tyler</th>
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<tr>
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<td><a href="mailto:dgoldman@kltv.com">dgoldman@kltv.com</a></td>
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<td>P.O. Box 4248</td>
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<td></td>
<td>Tyler, TX 75712-4248</td>
</tr>
<tr>
<td></td>
<td>903-593-1744</td>
</tr>
<tr>
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<td>621 Chase Dr</td>
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<td></td>
<td>Tyler, TX 75701-9431</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>Fax 903-534-5300</td>
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<tr>
<td></td>
<td>News Director: Rick Watson</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:rickw@wallerbroadcasting.com">rickw@wallerbroadcasting.com</a></td>
</tr>
</tbody>
</table>
Tyler
KTBB-AM Radio 600
P.O. Box 6
Tyler, TX 75710-0006
903-595-5254

Tyler
KTYL-FM Radio 93.1
3810 Brookshire
Tyler, TX 75710-9420
903-581-0606
Fax 903-581-2011
News Director: Dave Goldman
903-510-7777
dgoldman@kltv.com

Tyler
KVNE-FM Radio 89.5
P.O. Box 8525
Tyler, TX 75711-8525
903-593-5863
Fax 903-593-2663
News Director: Tricia Anderson
trish4kvne@aol.com

Tyler
KYZS-AM Radio 1490
P.O. Box 6
Tyler, TX 75710-0006
903-595-5254
Fax 903-593-4918
News Director: Roger Gray
rogergray@ktbb.com

Tyler
KZED-AM Radio 690
P.O. Box 4248
Tyler, TX 75712-4248
903-593-1744
Fax 903-535-8203
News Director: Henry Dunn

Grapeland
KBHT-FM Radio 93.5
P.O. Box 130
Grapeland, TX 75844-0130
936-544-9350
Fax 936-544-9695
News Director: Ansel Bradshaw
nicolag@txucom.net

Mineola
KMOO-FM Radio 99.9
P.O. Box 628
Mineola, TX 75773-0628
903-569-3823
Fax 903-569-6641
News Director: Tracy Morrow
tracy@kmoo.com