A. Executive Summary

Our Commitment

LBJ Mobility Group – The Right Team at the Right Time

LBJ Mobility Group is proud to submit this proposal demonstrating our commitment to meeting the challenges of improving the Dallas area mobility needs. This project has unique characteristics that enhance the value of our team. LBJ Mobility Group is steadfast in our commitment to deliver this project and confident that it will be a complete success. Our team structure includes the best industrial developer, joined by a construction team unmatched in capability and quality. We have a clear knowledge of the expectations of the project stakeholders, and realize that this project has been a long effort for all involved. We realize the importance of this project and how it will help to reduce congestion and increase the value of the Dallas area for commercial, residential, and commuter traffic. We are here to make this vision a reality by offering our extensive abilities in development and public involvement. Our team has incorporated the highest levels of value engineering, innovative design, constructability, durability and maintainability, as well as conceptual planning and quality into this proposal. It is with this knowledge that LBJ Mobility Group can be confident of the most successful outcome to this project.

The Team

LBJ Mobility Group – Leaders in project development, design, construction, O&M

LBJ Mobility Group is comprised of leaders in project development, design, construction, operation and maintenance and is led by ACS Infrastructure Development Inc. (ACS). ACS is a world class developer, with a proven track record in pioneering the development of projects demonstrated in the sheer volume of our projects being successfully operated around the world. They have been the world leader in the promotion, financing, construction, management and start-up of new transportation infrastructure since 1994, according to the prestigious industry magazine *Public Works Financing*. ACS will also act as a self operator for this project. They have operated and maintained projects around the world, including tunnels. This experience and knowledge will ensure the life span of the highway and the quality of the road at hand back.

Our construction team, including Dragados USA, Kiewit, Granite, and Zachry Construction, consists of the top international transportation development organizations. **Dragados** since its establishment in 1941, has gained vast experience in the construction, rehabilitation and maintenance of roads, bridges, tunnels and highways around the world, having built more than 750 miles of tunnels in all types of underground conditions, 5,200 miles of highways, 1,500 miles of bridges, 37 million square feet of runways and 10 million square feet of airport terminals and utilities. **Kiewit**, one of North America's largest and most respected construction and mining organizations, since 1884, has delivered world-class solutions for projects of every size and in every market. As the lead design-builder for LBJ Mobility Group, the Dragados/Kiewit Joint Venture will produce the highest quality designs that insure durability, constructability, quality, and, most importantly, public safety.

The designer **AECOM** is regarded around the world for its vision and ability to design exceptional systems and, for TxDOT on this project, a one-of-a-kind transportation solution. AECOM will be supported by the expertise of **Dr. Sauer**, an expert in tunnel design.

With this combined experience, resources, technical capability and financial strength at its disposal, LBJ Mobility Group has the ability to meet all project challenges.

Our Strengths

LBJ Mobility Group – Offering innovative solutions to project challenges

LBJ Mobility Group has developed a world class design minimizing construction impacts on the surrounding communities, and maximizing the use of the current roadways. Our goal is to minimize motorist impacts while maximizing travel safety through the corridor during and after construction. The efficient management of traffic is a key objective that LBJ Mobility

Group commits to achieving; it reduces delays in construction and increases the safety of both our employees and the general public.

LBJ Mobility Group developed ATC 1 as a technical solution that dramatically decreases the impact to the surrounding area, local stakeholders and the environment. This major technical improvement on the Indicative Design will bring added value to all aspects of this project. Our goal in reducing the footprint of design and the impacts during construction on the local stakeholders and surrounding environment is a guiding principle in the development of comprehensive ATC's that decrease the project footprint, enhance productivity, and increase public safety. These overall goals lead to a reduction in the subsurface works by 50% as compared to the RID.

Tunnel boring and excavation during construction in this urban environment is an immense task for the design-build team. Given the strength and capabilities of our design-build teams, LBJ Mobility Group promotes quality driven results and expediting construction. Dragados has constructed over 750 miles of tunnels in all types of underground conditions; this experience along with the abilities of our partners, will ensure the success of this complicated process. Kiewit, Granite, and Zachry Construction will also support this effort by providing local knowledge and resources.

Along with the importance of design and construction of the tunnel and the general system is its use and safety. As self operators, LBJ Mobility Group has developed numerous Emergency Response plans for tunnel emergency situations. Our experience and knowledge will ensure the safe operation of the tunnels and the highest confidence of its users. Both the design and the selection of construction methods for the project have been developed with the goal of maximizing safety, durability and maintainability while optimizing life-cycle costs. We are committed to provide a world-class Maintenance Management System that will maximize roadway availability for the users.

LBJ Mobility Group is well prepared to work with the NTTA. We have experience around the world working with government and departmental entities in properly handling toll transactions. ACS has been a pioneer in Open Road Tolling and the development of Managed Lanes. This experience has assisted in creating a robust and highly efficient tolling system, and will aid in relationship building with the NTTA, which is critical to the success of this project.

Financing Abilities

LBJ Mobility Group – Offering a realistic and attractive financing structure mnimizing risk

In the development of the Financing Plan, LBJ Mobility Group provided a detailed technical advisors' report for the Project to, and received feedback from, numerous financial institutions, including rating agencies, municipal market makers, major global infrastructure and project finance banks, the USDOT and their advisors, law firms and various consultants specializing in transportation and infrastructure planning, forecasting and financing. Our Financing Plan is well developed and presents a realistic and attractive financing structure, which minimizes the risk of execution of the Financing Plan and provides certainty in achieving financial close in a timely manner.

The Financing Plan features a robust risk mitigation matrix. The lenders performing due diligence and committing to the transaction found sufficient comfort in the mitigation strategies proposed by LBJ Mobility Group for: the traffic and revenue risk, operating risk, and in particular, the construction risk. The Project is a complex urban construction endeavour requiring mitigation of construction impacts through the construction of below-grade lanes in a highly congested urban corridor. This is a complex and challenging project that only the most experienced design-build teams in the industry can successfully implement. Our design-build team—consisting of Kiewit, Dragados, Zachry and Granite—is such a team, and the lenders found comfort and have high confidence in our capability to deliver the Project on schedule and within budget.

Finally, our Financing Plan is built on a solid foundation of financial commitments. The entire debt financing is extended by the financing industry leaders in infrastructure and project finance, whose overall financial performance remains strong despite the global financial markets turmoil, and is due to the relationship and trust these banks have with ACS. But more importantly, the financing structure approved by the senior lenders and TIFIA provides for significant flexibility, allowing

LBJ Mobility Group to choose between a traditional project bank financing structure and tax-exempt financing options; using either variable or fixed rate interest, without the need to enter into major negotiations with the lenders, if the market conditions would support such a switch.

Commitment to Texas

LBJ Mobility Group – Helping to bring growth and prosperity to North Central Texas

LBJ Mobility Group is committed to the local economy, to minimizing community construction impacts using local partners, creating jobs, and to having an overall positive effect of the project to the surrounding communities. The IH 635 Managed Lanes Project will bring strong economic value and create jobs for North Central Texas. LBJ Mobility Group have used local support and will continue in the development of this project to integrate with the community, and foster local relationships in all aspects of project development and operation. It is our goal to help develop Texas, and bring growth to North Central Texas. With this project we envision an area strengthened by infrastructure, only possible with knowledge, experience, and skill of LBJ. Mobility Group.

Organization and Contents of the Proposal

Our proposal is indexed as prescribed in the Instructions to Proposers, Exhibit E – Summary and Order of Proposal Contents.

Technical Proposal

A. Executive Summary

B. Proposer Information, Certifications and Documents

C. Project Development Plan

D. Appendices

E. Proposal Security (Letter of Credit)

F. Escrow Agreement

G. Proposer Election and Provision of CDA Terms

Financial Proposal

A. Updated Financial Information

B. Financing Plan

C. Feasibility of Financial Plan

D. Initial Financial Model and NTP3 Financial Model (Directly to Escrow)

E. Financial Request/Offer-Form (Directly to Escrow)

F. Revenue Payment Table (Directly to Escrow)

The LBJ Mobility Group's proposal is fully compliant with TxDOT's ITP requirements for the IH 635 Managed Lanes project.

Changes to QS

Advancement of Programs and Solutions

LBJ Mobility Group has expended significant effort in advancing the Conceptual Project Development Plan originally submitted with its QS.

This proposal contains a number of innovative solutions and approaches for project management, technical requirements, schematic development, scheduling, and pricing. Specific advances to our technical solutions include:

- Developed a detailed, efficient traffic phasing and sequencing plan
- Developed Alternative Technical Concepts (ATCs) to address minimizing construction impacts and reducing the project footprint while meeting all capacity improvements
- Compressed the project construction schedule duration
- Developed a construction plan to minimize impacts while maintaining mobility

Major Participants and Changes in Organization

We have received TxDOT approval to make the following changes in our organization:

Role	2005 Company	2008 Company	Nature of the Change
Consortium Name	Dragados Zachry Partnership (until 2007) ACS Zachry Partnership	LBJ Mobility Group	New Equity structure
Concession Team	Dragados Concesiones de Infraestructuras S.A.	ACS Infrastructure Development, Inc. (ACSID)	Substitution of the original entity by its US subsidiary and 100% share on the deal. O&M responsibility.
	Zachry American Infrastructure	-	No longer an Equity member
Lead Design-Build Contractor	Dragados S.A.	Dragados USA, Inc.	Substitution of the original entity by its US subsidiary
	Zachry Construction Corporation	Kiewit Texas Construction L.P.	Replacement of a Major Non-Equity Member
Design-Build Subcontractors	n/a	Zachry Construction Corporation	New role as a Major Non-Equity Member
	n/a	Granite Construction Corporation	New Major Non-Equity Member
Design and Installation of Tolling System and ITS	n/a	SICE	New Major Non-Equity Member
Lead Engineering Firm	DMJM+Harris	AECOM USA group Inc.	Shift in organizational design

Project Development Plan

1. Management and Decision Making Day-to-Day Operation Structure

During the first phase of the contract, our organizational structure will support financial close, a crucial stage before the start of construction, and, upon selection, it will be molded to suit the needs of the project as we move from the design phase to the concession period.

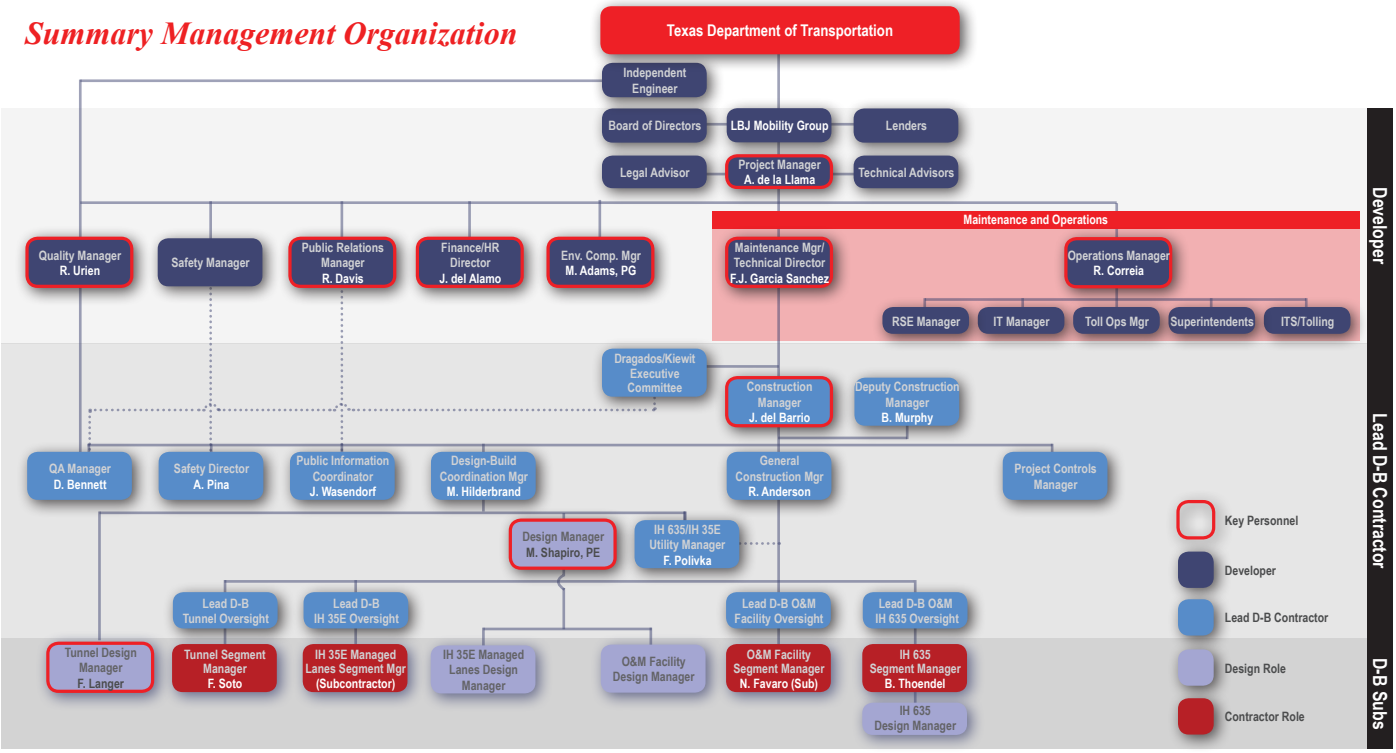
Major decisions concerning LBJ Mobility Group will be made by the board of directors, which will provide guidelines to the project manager. Members of the board will be experienced and professional officers of the shareholding companies.

During the design/construction phase, we will oversee the quality assurance of design and construction activities, prepare all documentation, means, methods, and resources necessary to achieve substantial completion on each tolling segment as early as possible, and we will operate and maintain each section from its operating commencement date.

At the start of Service Commencement, the organizational structure will be modified to cover tolling responsibilities and increased operations and maintenance activities, including routine and long-term maintenance activities on the new and existing infrastructure, and hand-back activities at the end of the term.

Dragados/Kiewit will be the lead design-build contractor, reporting to the developer's maintenance manager/technical director. Dragados/Kiewit's management philosophy of delegating decision making to the level most knowledgeable streamlines response, maximizes quality, and minimizes construction schedule duration. The Summary Management Organization chart illustrates the management structure and lines of reporting of the five-segment management approach.

Summary Management Organization



The construction organization will provide an integrated management team, representing the strengths of each of its member companies. Our design-build coordination approach integrates the design process, relying on input from construction and O&M personnel to ensure the lowest possible life-cycle costs for each project element. Right of way, survey, environmental permitting, utilities and community relations will be coordinated with technical development of design and construction during task force meetings.

The LBJ Mobility Group's design and construction organizations will be co-located in the immediate project area to facilitate integration among member companies, to allow any party to "walk across the hall" to resolve issues, to improve efficiency, and to enhance internal communications.

The design managers—charged with ensuring that all design is performed on time and in compliance with project specifications—will interface directly with the design-build coordination manager and the general construction manager. Our approach to successful project design delivery is based on a well-planned and executed design start-up, which includes closely monitoring and measuring performance of the key design management elements of the project.

The design-build work will proceed under the direction of the construction manager and appropriate support staff. The general construction manager will be responsible for all construction operations, and will have reporting to him the construction segment managers who are responsible for executing work for the mined tunnel, IH 635 and cut-and-cover tunnel, IH 635/IH 35E interchange, IH 35E, ITS/tolling, and the O&M buildings.

The construction segment managers will be supported by superintendents, engineers, foremen, and field personnel on the construction side, and by the engineering manager and staff as well as specialized inspectors, geotechnical staff, environmental personnel, and others as needed.

The Dragados/Kiewit design-build coordination manager and segment design-build coordinators will work with the design team. As the construction work progresses, and as additional integration items arise, each of the items will be evaluated throughout the management team, and will be addressed to optimize the interface throughout construction.

Our quality assurance personnel are integrated at every level of the organization with direct reporting responsibility to corresponding managers at the appropriate level. In addition to these direct and indirect reporting relationships, our quality management and staff have access to review and comment, suggest and recommend action, as well as the authority to stop work, and to direct implementation of all quality improvements required at any level or activity to comply with the requirements of the TxDOT-approved quality management plan.

The Project Management Plan will address internal coordination and integration systems, project-specific quality assurance/quality control, safety, communications, consultant, subcontractor and subconsultant management, document and record control, cost and scheduling, and coordination with TxDOT and all other third parties associated with the project.

LBJ Mobility Group believes in the benefits of partnering—its respective project team companies have collectively won the nationally-recognized Associated General Contractors of America (AGC) Marvin M. Black "Excellence in Partnering Award" on more than 10 projects.

Our dispute avoidance and issue resolution program is based on open, early and effective communication, which allows issues to be resolved in a timely manner without negative impacts. From notice of award to completion of the final punch list, we will foster open communication among all project stakeholders, identifying decision-makers, establishing a hierarchy for the escalation of issues, and resolving issues at the lowest level possible.

Our successful, global history of developing PPP projects highlights the importance of fairness in dealing with all team members, and gives us an understanding of how to best allocate project risks. The design-build contract between ACS and Dragados/Kiewit will be a back-to-back contract configured as an extension of the CDA. Our design-build contractor similarly relies on fairness in contracting with the designers and all other subcontractors, including DBEs, which results in mutually-agreeable, well researched and documented contracts that avoid internal disputes.

Because a staged construction approach is necessary, construction and operation activities may be performed by design-build contractors and the developer at the same time, under traffic conditions. Our lead design-build subcontractor is well aware of these constraints, which have been included in the construction schedule. As further indication of our emphasis on the safety of the traveling public, the community, and our workers, we have executed an interface agreement with Dragados/Kiewit, which identifies times and responsibilities and the work to be done by each party whenever LBJ Mobility Group and the design-builder need to work concurrently on the site. Essentially, the design-builder will be in charge of maintenance within the segments under construction, coordinating with the developer through the construction manager.

2. Approach to Quality Management of the Project throughout the Duration of the CDA

LBJ Mobility Group's management structure includes a quality assurance (QA) program headed by the quality manager and independent of all operations. The QA management and staff have the authority to review and recommend actions, stop work, and implement all quality improvements necessary for compliance with the TxDOT-approved quality management plan. This role is especially important during the design and construction phase, when we establish the basic tenets of our work, prepare for an efficient operations and maintenance period, and optimize life-cycle costs.

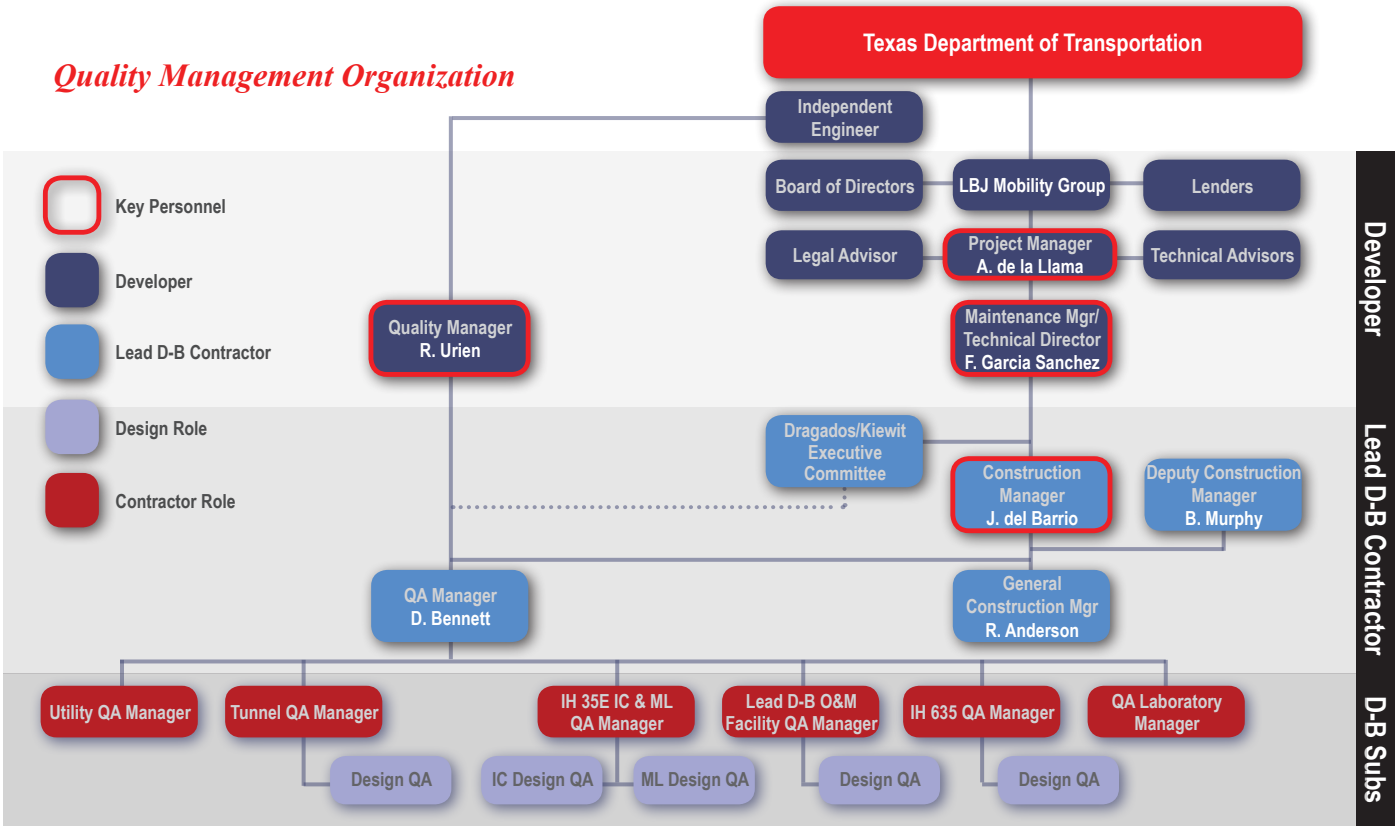
The project manager will be the main point of contact with TxDOT, and will be in charge of developing and implementing procedures to satisfy TxDOT's oversight rights.

Our approach to reporting relationships and responsibilities for the design-build team members listed below is also represented in the Quality Management Organization chart that follows:

LBJ Mobility Group's quality program emphasizes doing work "right the first time," and promotes continuous improvement.

- **ACS** – proposing developer
- **Dragados/Kiewit** – lead design-build contractor
- **Zachry/Kiewit JV** – IH 35E interchange design-build subcontractor
- **Kiewit/Zachry/Granite JV** – IH 635 design-build subcontractor
- **Dragados** – mined tunnel and ventilation design-build subcontractor

Quality Management Organization



Our integrated project quality assurance management team includes: the design-build QA manager (Dragados/Kiewit), with direct authority over each of the project segment's design-build subcontractors; and QA managers including the design QA managers, the O&M QA manager (ACS), and the ITS and tolling QA manager (Sice).

The chart above illustrates our integrated structure, which maximizes design and construction efficiency while maintaining high standards through implementation of the quality management plans.

Dragados/Kiewit's commitment to meeting TxDOT's goal of "high-quality design and construction" begins with the policies and commitment of our executive committee. The Dragados/Kiewit design-build QA manager will report to the executive committee, and will call upon its authority when necessary to assure conformity to quality standards and procedures. The QA manager will submit all Dragados/Kiewit quality records and audits to the LBJ Mobility Group quality manager, TxDOT, the IE and the Dragados/Kiewit executive committee.

Construction Quality Assurance Management

The Dragados/Kiewit design-build QA manager is responsible for implementation of the design-build QA program under the QMP for Dragados/Kiewit, and for oversight of the design QA manager and the design-build subcontractor QA managers for each of the project's segments, plus the O&M facility and the materials testing laboratory.

Construction Quality Control Management

Responsibilities of the quality control managers include quality control procedure implementation, training, auditing, sub-consultant quality program oversight, oversight of the corrective action program, and reporting to each segment manager and coordination with the Dragados/Kiewit QA manager.

Each design-build subcontractor's construction quality control manager will be responsible for providing process controls for product installation.

3. Working with TxDOT and Third Parties, including the Approach to Resolving Conflicts

We will interface with the major stakeholders. Our team's collective experience with complex design-build delivery will provide a distinct advantage. Our project manager will be the single point of contact for TxDOT, our consultants, applicable third parties, and relevant federal, state, and local agencies. As the project moves through the design and construction phases, it will be beneficial to delegate this role to the construction manager, with support from its design subcontractor, to expedite the resolution of specific issues.

The co-location of the design-build team close to the project site will result in easier access to TxDOT, IE personnel, and stakeholders, and will provide for more direct discussion, better resolution of issues, and improved response times. We will welcome TxDOT's participation and involvement in the project, and its support in achieving design compliance with project requirements. We will endeavor to clearly define project criteria, ensure that TxDOT's intentions are being met, and address project-wide constructability issues early in the process.

LBJ Mobility Group's project manager will work with TxDOT to define and maintain an interface approach that best responds to the needs of the project, maximizes benefits, and reduces disruptions to the community

The procedures for interfacing with TxDOT, its consultants, applicable third parties, and relevant federal, state, and local agencies during operations will be detailed in our communications plan. The plan will contain specific procedures for addressing each situation in which the developer may need to communicate with TxDOT and other relevant parties.

Also, the project management plan (PMP) will provide the coordination, interaction, and integration mechanisms necessary to support the project manager's work, as well as the tools for coordinating with TxDOT and all other third parties associated with the project.

4. Approach for Public Information and Public Communications

LBJ Mobility Group will compile a Public Information and Communications Plan (PICP) that will serve to generate positive awareness and garner public support by sharing timely, accurate, and relevant information with stakeholders. Our team will keep interested customer groups informed through print, electronic and person-to-person channels and will incorporate standard media relations practices.

The PICP will provide opportunities for public input and feedback through not only the establishment of a Public Information Office, but also through a variety of additional formats such as public meetings, online interactions, opinion polls, etc. The PICP will address the key customer groups and will monitor the success of the project through a database of all public contacts by which future action may be planned.

5. Commitment to Safety, Environmental and DBE Requirements

Safety

Over the course of many years of involvement in constructing, operating, and maintaining highways around the world, we have developed a variety of safety programs. And based on our belief that safety is always the first priority, we have developed an effective approach to safety for this project that incorporates all contract requirements.LBJ Mobility Group

will provide a safe and healthy work environment for our employees, be responsible for the safety and security of our workers, and provide safe and secure project facilities for the general public.

Upon contract award, we will develop a safety program that expands on the preliminary safety plan and includes our policies, procedures, training programs, work-site controls, and incident response plans. The designers will developed their own safety plan, and, during the construction phase, Dragados/Kiewit will implement the construction safety plan, and participate in safety training, meetings, and on fire, security and life safety committees. We will coordinate with, and seek input from, participating agencies, and initiate and sustain coordination on issues relating to fire, security, and life safety, seeking assistance from TxDOT, as needed.

We will provide a full-time safety manager who will meet the qualifications outlined in Section 24.2.3(a) of the TxDOT Technical Provisions; IH 635 Managed Lanes Project, Book 2A. In addition, each work shift will have an onsite safety representative with at least three years of experience and general competency in construction safety, who has completed the OSHA 10-hour safety and health course, and is certified in First Aid and CPR. Our project goal is zero recordable injuries.

Environmental

Based on significant due-diligence and the ensuing knowledge of the project, and with the support of our project team, we will develop and implement the Comprehensive Environmental Protection Program (CEPP), to fulfill all commitments, permits, and potential mitigations listed in the TxDOT-provided environmental approvals. Our environmental team will proactively evaluate and mitigate risks, in close coordination with TxDOT, and will use the information in the CEPP and EMS to identify and prioritize known and potential environmental risks through the various phases of the project.

Since our ATC #1 may require re-evaluation of the current FONSI for IH 635, we will expedite the submittal and approval of the re-evaluation documents by providing TxDOT all required documents for review and transmittal to TxDOT's environmental support engineers, and for finalization and submittal to FHWA for final approval.

Disadvantaged Business Enterprises (DBEs)

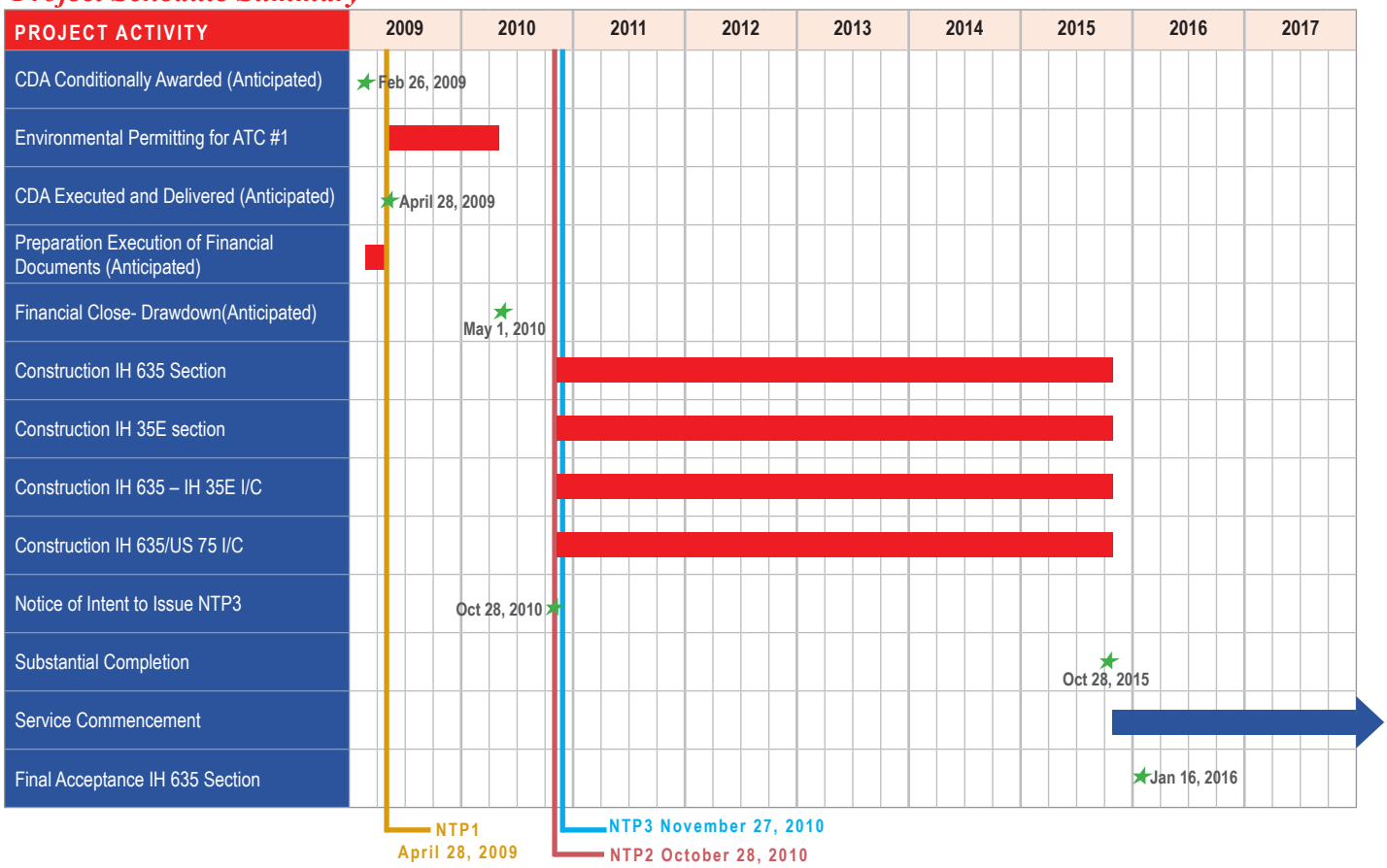
The IH 635 Managed Lanes Project provides significant participation opportunities for local DBEs and firms listed in the Texas Unified Certification Program. In addition to our commitment to workforce diversity and our active apprenticeship program, LBJ Mobility Group will implement an aggressive Mentoring and Job Training Plan to maximize DBE involvement and meet the DBE goal.

To monitor compliance, we will submit weekly progress reports for each trainee to OCR and/or to any other agency, as required by TxDOT. During periods of inactivity, we will submit weekly reports to document no training during the period.

6. Project Schedule Summary

In project administration we will use Primavera management software to track requests for information, minutes of meetings, contract modifications, open issues, user comments, and approvals from outside agencies. The CPM logic-based Primavera project schedule will be prepared to maintain and update the project development, design and construction activities through a total integration-based format. A summary project schedule is shown on the following page.

Project Schedule Summary



7. Approach for Delivery of Design and Construction

Our design-build team is comprised of highly experienced tunnel and complex urban transportation design-build contractors with a consistent history of successful project completion on or ahead of schedule. These accomplishments are achieved through execution of sound fundamental design-build practices.

Dragados/Kiewit is the lead design-build contractor for LBJ Mobility Group and has structured the project into six distinct contracts that interrelate the project's elements. Dragados/Kiewit will oversee the integration of all project elements during the design and construction period through Substantial Completion of the work based on the following structure:

Our design-build team has based its delivery approach on:

- ✔ **Proven methods**
  – over 65 successful PPP projects worldwide
- ✔ **Dedicated team**
  – core team that worked on proposal; no learning curve

Project Element	Subcontractor	Agreement Type
IH 635 Surface and Subsurface-box (Sections A and D)	Kiewit Texas/Zachry Construction/Granite JV	Design-Build
IH 635/IH 35E Interchange (Section B)	Zachry Construction/Kiewit Texas JV	Design-Build
IH 635 Mined Tunnel	Dragados	Design-Build
IH 35E Managed Lanes (Sections C and E)	TBD (through competitive bid or negotiated bid process)	Design-Bid-Build
O&M Buildings and Facilities	TBD (through competitive bid or negotiated bid process)	Design-Bid-Build
Tolling and ITS	Sice (direct to LBJ Mobility Group)	Design-Build

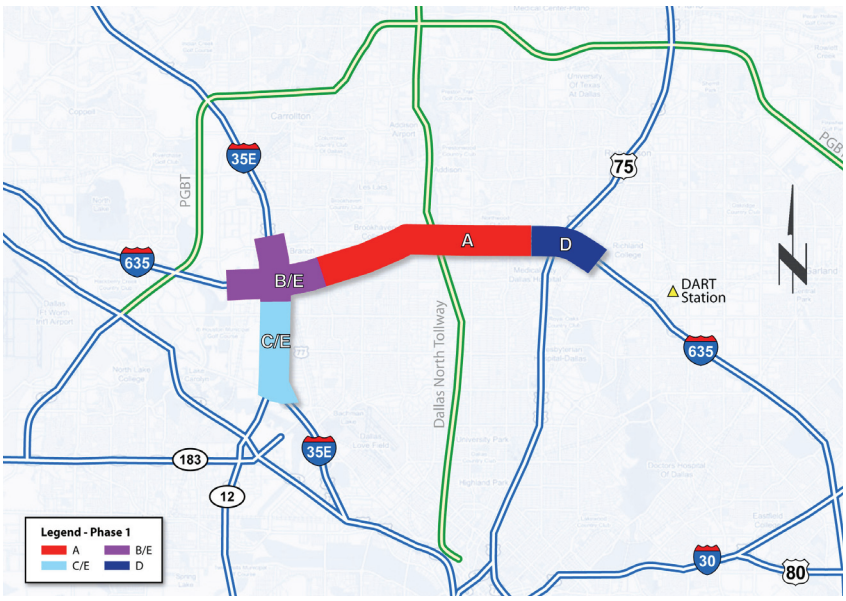
Our design-build coordination approach integrates the design process, relying on input from construction and O&M personnel to ensure the lowest possible life-cycle costs for each project element. Right-of-way, survey, environmental permitting, utilities and community relations will be coordinated with technical development of design and construction during task force meetings.Task forces are small groups led by the design-build coordination manager or discipline coordination manager focusing on certain engineering, construction disciplines or individual technical requirements.

Development, design and construction management co-location enhances task force efficiency and communication through discipline and cross-discipline task force meetings. Close coordination and a structured approach to regular management meetings maximizes team collaboration in meeting the projects goals.

Task forces formed during the proposal process will continue through design development and well into construction operations.

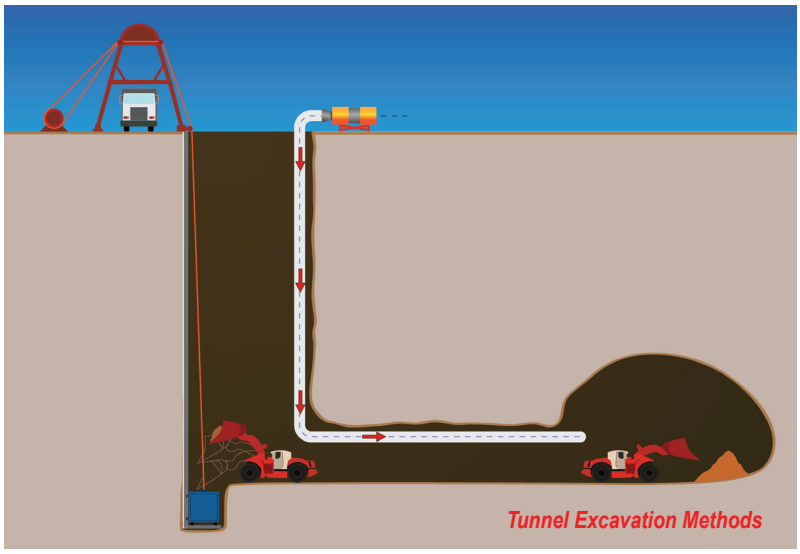
8. Technical Solution and Alternative Technical Concepts

IH 635 Section A extends from the IH 635/ IH 35E Interchange to the IH 635/US 75 Interchange consisting of eight General Purpose lanes, six tolled Managed Lanes and four continuous frontage road lanes. Due to project right-of-way constraints, the Managed Lanes are split between three at-grade westbound Managed Lanes and three tunnel eastbound Managed Lanes. A portion of the section's geological conditions offer favorable mined tunnel conditions; thus, the tunnel section includes approximately two miles cut-and-cover tunnel and three miles mined tunnel as illustrated in the ATC #1 typical section within the ATC section.



Mined Tunnel Construction Methods

Construction of the mined cavern will be conducted from a central shaft within the DNT's SE loop ramp. The mining will advance along two headings—one easterly and one westerly from the shaft. The portals for the mined cavern are located at Station 188+00 and Station 333+00. The tunnel will be excavated using roadheaders, materials will be transported via trucks and loaded into buckets by backhoes. At the surface, trucks will load the excavation materials and remove from the project site. This system allows for continuous mined tunnel construction with minimal surface disruption. The central shaft's location within the DNT loop ramp is away from residential areas; thus, we have the flexibility to utilize off-peak hours to transport the excavation material.



The **IH 635 Interchange Section B** includes 4 direct connectors providing tolled IH 635 managed lanes access east of the interchange. The IH 635 Westbound-IH 35E Northbound and IH 35E Southbound-IH 635 Eastbound are 2-lane direct

connectors that will be tolled through December 2029. The IH 35E Northbound-IH 635 Eastbound and IH 635 Westbound-IH 35E Southbound will be constructed as 2-lane direct connectors, with a design to accommodate an optional future 3rd lane.

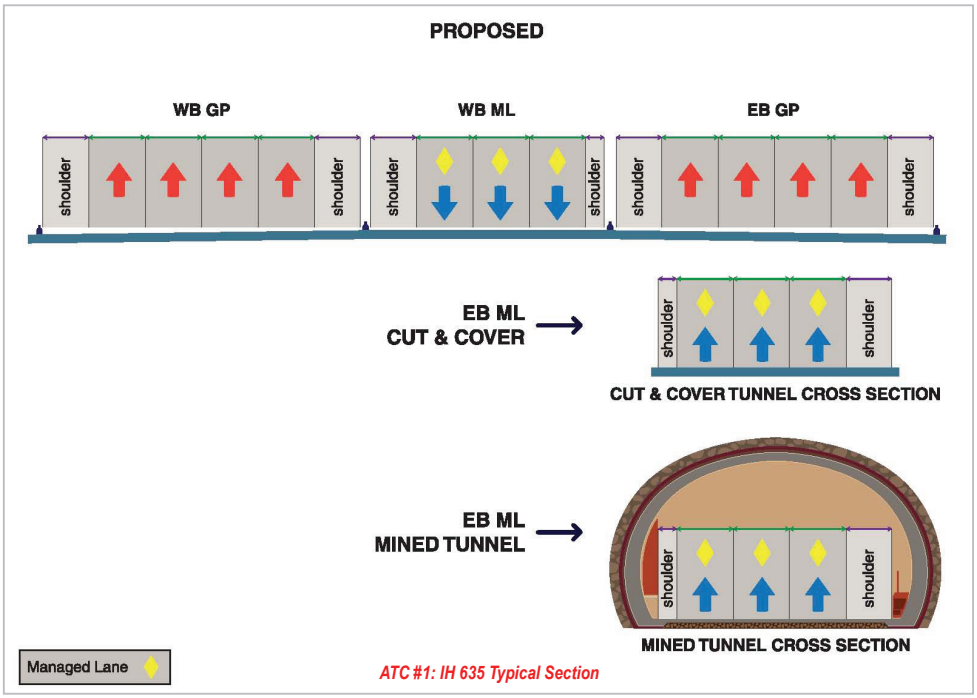
The **IH 35E Section C** extends from Loop 12 to IH 635 and includes 2-lane elevated northbound and southbound tolled direct connectors, with a design to accommodate an optional future 3rd lane.

The **IH 635/US 75 Interchange Section D** reconfigures the existing IH 635 HOV travel lanes, maintains the existing reversible IH 635 – US 75 direct connectors and establishes IH 635 tolled managed lanes through the interchange.

The **IH 35E Capacity Improvements Section E** limits extend from Loop 12 through the IH 35E/IH 635 Interchange. This section accommodates one additional Northbound-IH 635 Eastbound and IH 635 Westbound-IH 35E Southbound connector lane and one additional northbound and southbound elevated Managed Lanes. The Section E capacity improvements implement the optional Section B and Section C 3rd lane design.

ATC #1: IH 635 Stacked Managed Lanes

The basis of our IH 635 technical solution is ATC #1 (typical section below). Our design, as compared to the RID, replaces the depressed managed lanes with at-grade westbound managed lanes and tunnel eastbound managed lanes. As compared to the RID depressed managed lanes concept, the ATC #1 configuration allows re-use of the existing pavement. The proposed pavement section is an overlay and widening, which significantly reduces the traffic disruption during construction and minimizes lane rental charges. Based upon geotechnical conditions, the eastbound managed lanes tunnel design is divided into cut and cover tunnel and mined tunnel sections. The cut and cover tunnel extends from west of Webb Chappel to east of Midway, approximately two miles; the mined tunnel extends from east of Midway to east of Preston, approximately three miles.



ATC #1: IH 635 Typical Section

ATC #1 Benefits ***Re-use of existing pavement, reduced design and construction period and reduced construction complexity; thus minimized overall impacts to road users.***

ATC #10: IH 635 Bridge Widening

This ATC allows us to maintain and widen the existing structures at Valley View Lane and Park Central Drive.

ATC #11: HOV Declaration at entrance from US 75

This ATC authorizes us to determine HOV status upon managed lanes entrance from the reversible US 75 HOV connection.

ATC #10 Benefits ***Project cost reduction, reduced impact on traffic and reduced bridge construction timeframe.***

ATC #11 Benefits ***Automatic HOV detection for vehicles entering from the US 75 HOV lanes***

ATC #12: IH 635 Managed Lanes Tunnel Ventilation System
This ATC reduces project's carbon monoxide emission requirement to the FHWA requirements.

ATC #13: IH 635 Location of Alternative Operations Control Center (AOCC) and Operations Control Center (OCC)
This ATC permits us to locate the AOCC and OCC closer than 1 mile, which allows us to use co-locate the AOCC with the ventilation building at the Dallas North Tollway.

ATC #14: IH 635 Tunnel Temperature Control
This ATC eliminates the "apparent temperature requirements" and allows us flexibility to monitor the tunnel temperature in a responsible manner.

ATC #12 Benefits ***Project cost reduction and tunnel operation efficiency.***

ATC #13 Benefits ***Project cost reduction and reduced construction period***

ATC #14 Benefits ***Project cost reduction and tunnel operation efficiency***

Additional Approved ATC's, In addition to listed ATCs below, TxDOT approved ATCs 4, 5, 6, 7, and 8; however, these five ATCs were not incorporated into the proposal.

9. Construction Sequencing and Traffic Management for Maximum Mobility

IH 635: Our concept to minimize impacts to the traveling public during construction resulted in ATC #1. It significantly reduces the construction complexity by decreasing the overall construction duration, reducing the number of lane shifts (thereby increasing driver expectation and awareness), and provides an increase in construction zone safety as compared to the RID schematic's depressed managed lanes concept. ATC #1's cut-and-cover tunnel beneath the eastbound General Purpose Lanes extends from west of Webb Chapel Road to west of Midway Road. Shifting the IH 635 traffic north provides a surface work zone space that maintains the required travel lanes. The construction of the mined tunnel extending from west of Midway Road to east of Preston Road does not impact the IH 635 surface lanes, which significantly reduces traffic impacts and eliminates DNT traffic disruption, as compared to the RID.

IH 635/35E Interchange: The proposed IH 635 section east of the interchange includes general purpose lanes, managed lanes, direct connectors and frontage roads at three different elevation levels. Given the 26 lane configuration, this area requires the most complex construction sequencing. In order to maintain the existing traffic, this section will be constructed in several phases and extend throughout the 5 year construction period.

IH 35E: The proposed IH 35E elevated direct connectors are outside the current general purpose lanes and will have minimal impact on the existing IH 35E travel lanes.

10. Tolling Operations, Enforcement and Interoperability

The IH635 Managed Lanes Project represents one of the most technically complex Tolling and ITS scenarios in the Electronic Road Industry worldwide. This complexity is derived from the combination of various technical and operational requirements, including but not limited to:

- Dynamic Tolling in a HOV environment which includes HOV status Self-Declaration and enforcement
- Underground road sections (Tunnel) in the above Tolling and HOV mentioned environment
- Unusually high level of contractual complexity due to the requirement to split the processing of the Tolling transactions and therefore operations with Public Agency (NTTA).

The complexity of the technical, operational and contractual requirements led our team to engage in a high-level system analysis and design in order to minimize the risk to ourselves and TxDOT. This analysis led to the development of a detailed requirement matrix (in excess of 1000 requirements) and the mapping of such requirements to LBJ Mobility Group's standard solutions and the development of additional solutions using business best practices criteria. This type of analysis and design is typically reserved for the post-award stages.

For example, the requirement to use NTTA for part of the toll transaction processing necessitated the use of a highly specialized Audit and Reconciliation system (A&R) for all transactional processes between the project's stakeholders (TXDOT, the concessionaire and NTTA), in order to properly and efficiently account for all transactional interactivity between the parties.

In addition, the length and magnitude of the underground section of the project demanded the integration of complex tunnel related technology into the Tolling, HOV Self-Declaration and HOV Enforcement environment. These issues ranged from space constraints at ramps, to tunnel vehicle sensing and HOV Enforcement methodology, and location of enforcement zones.

LBJ Mobility Group used business best practices criteria to develop solutions that minimize risk to our team and to TxDOT.

As result of the proposal stage design effort, the ITS and Tolling System:

- Far exceeds the stated TXDOT requirements and objectives set forth in the CDA,
- Minimizes the risk to the Concessionaire and TXDOT,
- Provides enhanced and seamless integration with TXDOT, DALTRAN and NTTA, and,
- Enhances the ability to monitor the accuracy and efficiency of the ITS and Tolling Systems.

Finally, LBJ Mobility Group has included an optimal combination of experienced system integrators, proven equipment manufactures and software suppliers for the Tolling ITS solution, including, but not limited to:

- **SICE** – International Open Road Tolling (ORT) integrator. SICE is one of the world's most experienced ORT system integrator, with vast Tolling Back Office expertise, including trip reconstruction, interoperability and broad international ITS experience in road networks and tunnels.
- **Raytheon** – Road Side Equipment (RSE) provider. Raytheon is a world leader ORT RSE with successful ORT deployments in Texas,
- **SAP Enterprise Resource Planning (ERP) Business Software** – SAP provides proven business best practice software.
- **MICA** – Texas based ITS provider and premier ITS integrator.

11. Efficient O&M, Renewal Work to Meet Handback Requirements

In our experience as self operators, we have successfully operated and maintained projects around the world, including major tunnels and structures.

LBJ Mobility Group has brought its experience, knowledge and know-how in its development of a solid O&M plan for the IH-635 Managed Lanes project.

Our team will provide comprehensive maintenance programs that will insure longevity of the tunnels, roadway, depressed lanes, and support structure, and operations that will maintain the highest level of customer service and safety possible. LBJ Mobility Group plans for the future by developing improvement programs based on studied useful life assumptions, and by providing thorough and routine maintenance to the project according the most stringent standards.

The primary O&M goal is to provide for a high level of service to the traveling public by developing and implementing a cost-effective program that is in compliance with TxDOT regulations, topics, specifications, and other terms of the ITP. LBJ Mobility Group has satisfied this goal during the design stage by incorporating infrastructure asset designs that are durable and maintainable; and during the construction stage by incorporating quality construction methods.

Moreover, we will work from the beginning to create a robust operation and maintenance plan, which will allow for a smooth transition from current maintenance within the system to our maintenance operations. This will assure the continued maintenance of the roadway and maintain the current quality of the assets. The team will then implement an O&M program that preserves and protects the corridor assets while ensuring the traveling public has a safe, smooth and aesthetically pleasing roadway.

With tunnels being one of the most vulnerable assets along the project corridor, LBJ Mobility Group has developed 39 different activities for work required to ensure the condition of elements in the tunnels in order to meet or exceed the requirements of the Performance and Measurement Table. This approach will ensure that tunnels and depressed Managed Lanes are kept at their maximum condition, and that the safety of the public using them will never be an issue. We have operated similar highways and highly congested urban conditions, including managed lanes, and we are familiar with the specific characteristics of traffic management in these conditions. We bring this knowledge to the project; with a goal of maximizing safety and reliability.

LBJ Mobility Group realizes the importance of emergency response in tunnel emergencies. We have experience in these types of situations and are prepared to work with the Fire and Life Safety Committee to provide the best plans for any action.

Finally, the handback requirements have been taken into account in the life-cycle cost analysis we carried out in the bid phase, and specific measures have been included in the design and our maintenance programs.

Final Remarks

LBJ Mobility Group – Committed to achieving TxDOT's vision

The LBJ Mobility Group, its partners, and all that have supported this process have worked tirelessly to deliver this proposal. It is our belief that we have produced a proposal meeting the goals of TxDOT, which exemplifies the strengths of our partners and the unparalleled knowledge of our team. High value technical solutions, innovative design, researched financing, constructability, and conceptual planning are the cornerstone of our process since the onset of the project's procurement process. LBJ Mobility Group is committed to the continuation of these values and has confidence in its presentation of this proposal. It is with such values, goals and commitments to quality that LBJ Mobility Group will achieve TxDOT's vision.