SH 99 GRAND PARKWAY PROJECT

ZACHRY | ODEBRECHT PARKWAY BUILDERS

A. EXECUTIVE SUMMARY

INTRODUCTION

Zachry-Odebrecht Parkway Builders (Zachry-Odebrecht) is a fully integrated joint venture strategically aligned to bring TxDOT a team of design-builders with local and international resources. We have focused our efforts to develop a design and Project approach that makes TxDOT's goals and objectives for the SH 99 Grand Parkway Project (the Project) a reality. Our technical solutions:

- Reduce the overall Project duration by 247 days
- Reduce Project costs by $45.6 million through ATCs
- Optimize the use of planned right-of-way (ROW) to achieve approximately $6 million in TxDOT-defined complexity points
- Eliminate the need to acquire approximately 10 parcels
- Avoid the need to relocate 217 existing utilities
- Maximize the use of material within the ROW and minimize haul distances by recovering 5.5 million cubic yards on-site

A. PROPOSAL CONTENTS

The Proposal has been organized according to the Instruction to Proposers, Exhibit E. Zachry-Odebrecht included a reference copy of Exhibit E as requested.

A. Executive Summary

B. Proposer Information, Certifications & Documents

- *Form A-1*
- *Authorization Documents*
- *Form B-1*
- *Form B-2*
- *Form B-3*
- *Form C*
- *Form D*
- *Form E*
- *Key Personnel Statement of Availability*
- *Letter(s) Approving Key Personnel*
- *Letter(s) Approving Changes in Proposer's Organization*
- *Form G*
- *Form H*
- *Form I*
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- *Form P*
- *Surety Information*
- *Form S*
- *Form Q*
- *Form O*
- *Exhibit H*

C. Project Development Plan

- *Technical Solutions*
- *Project Management Plan*
- *Quality Management Plan*

D. Appendices

- *Key Personnel Resumes and References*
- *Technical Drawings, Graphs, and Data*
- *Preliminary Project Baseline Schedule*

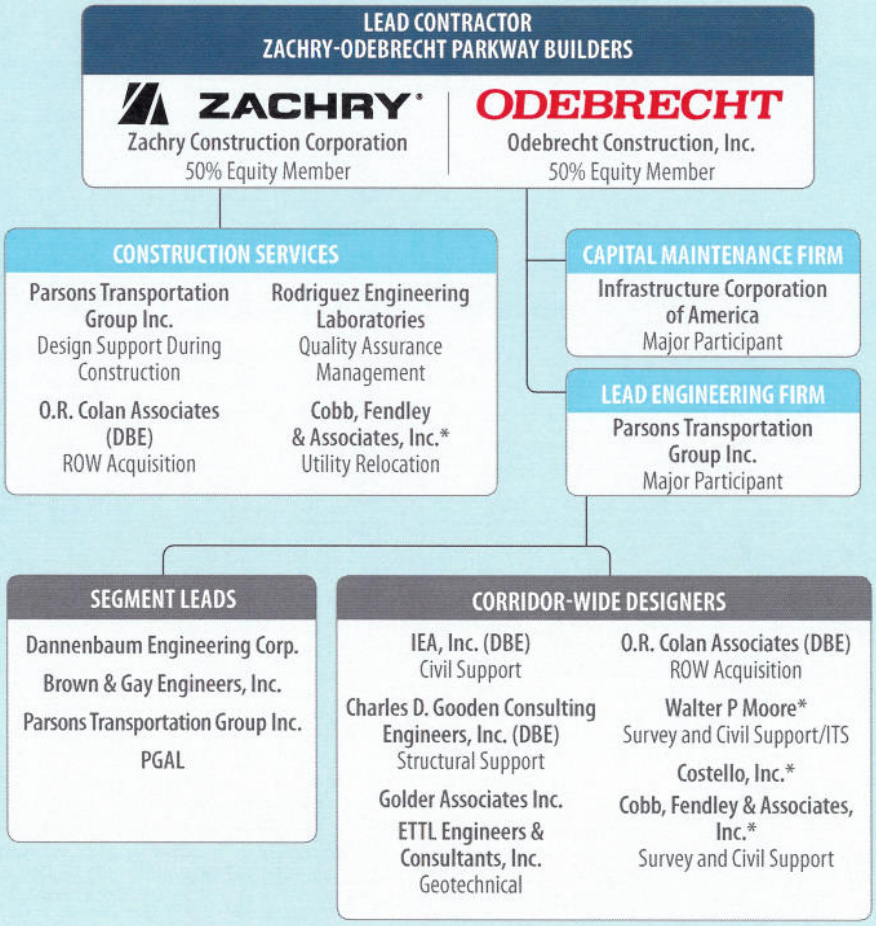
B. CHANGES TO PROPOSER'S QS

Aside from the organizational revisions described below in *Changes in Zachry-Odebrecht Team*, there are no other modifications to the QS submitted on February 1, 2012 and the subsequent Response to Request for Clarifications on February 8, 2012.

C. CHANGES IN ZACHRY-ODEBRECHT TEAM

Zachry-Odebrecht's team members are shown in the chart below; our Equity Members and Major Participants remain intact and engaged from those shown in the QS. All changes in organization and Key Personnel were submitted to TxDOT on July 2, 2012. TxDOT approval letters are provided on pages B-295 and B-297 of the Technical Proposal. These changes are summarized in the sidebar.

Teaming Arrangements



**As a member of Infrastructure Group, Texas, LLC*

Organizational Changes

- ETTL Engineers & Consultants Inc. will provide Geotechnical services
- Rodriguez Engineering Laboratories is the team's Construction Quality Acceptance Firm
- Terracon Consultants, Inc. is no longer part of the Team due to a conflict of interest

Key Personnel Changes

- Mark Poropat is the Construction Manager, change from Pedro Paulo Tosca
- Maria Rios is the alternate Environmental Manager for Tom Couling
- Carl Cushnie is the Lead Roadway Design Engineer, change from Paul Dickman

Key Personnel Additions

- Deputy Project Director – Design: Mark Jurica
- Deputy Project Director – Construction: Abel Ortiz
- Maintenance QC Manager: Chuck Royko
- Construction Quality Acceptance Manager: Oscar Rodriguez
- Public Information Coordinator: Victoria Miller
- ROW Manager/ROW Acquisition Manager: Steve Evans
- Utility Manager: Deb Wiedenhoeft
- Construction Quality Control Manager: Humberto Zambrano

D. MANAGEMENT AND OPERATIONS

Zachry-Odebrecht will operate as a fully integrated joint venture (JV) with the full backing and resources of the Equity Members and Major Participant firms. With a partnering approach and commitment to team building, we will work closely with TxDOT to achieve the goals and objectives outlined in the RFP.

Our Key Personnel shown on the organization chart in Section 2.1.D of the Technical Proposal were carefully chosen, based on their experience and unique qualifications for this particular Project. ***Zachry-Odebrecht commits each of these individuals to the success of the Project***. Commitment letters for the Key Personnel are found on pages B-276 through B-293 of the Technical Proposal.

ORGANIZATIONAL APPROACH

Zachry-Odebrecht's JV Executive Committee is a four-member committee with equal representation among Equity Members. Its members have been delegated full authority for the affairs of the Project by their respective firms. The JV Executive Committee will support and commit the necessary resources to ensure the success of the Project team.

Our Project Manager, **Scott Cromack**, is the administrator of the JV and has been delegated full authority to carry-out the plans and decisions regarding the Project. He will supervise and manage the day-to-day, on-site operations of the Project. In this capacity, Scott will maintain an open-door policy with direct Project staff and have the final say over any internal disputes that may arise, with exception of those involving quality issues. The Deputy Project Directors will assist Scott in the resolution of these issues. Scott will oversee all administrative functions and task leaders for utilities, ROW acquisition, environmental compliance, and public information.

Deputy Project Director – Design, **Mark Jurica, PE**, is responsible for design-build coordination, project engineering, task force leads, constructability, and design schedule. He will work closely with the Design Manager, **Steve Arent, PE** to ensure the design meets all technical requirements. Deputy Project Director – Construction, **Abel Ortiz**, is responsible for safety, quality, labor, equipment, materials, cost, and schedule. The Construction Manager, **Mark Poropat** and the Segment Managers will report to Abel. Our management team will work together to coordinate Project resources.

The Maintenance Manager, **Zane Webb, PE**, will lead the capital maintenance activities. He will be involved in both the design and construction phases ensuring a smooth transition to the capital maintenance period.

The Lead Quality Manager, **Mark Brown, PE,** reports directly to the JV Executive Committee. The quality control team under Mark will be independent from the production team. The Construction Quality Acceptance Manager, **Oscar Rodriguez, PE,** reports directly to TxDOT as well as the JV Executive Committee providing TxDOT with an independent evaluation of Zachry-Odebrecht's work.

Project Manager **Scott Cromack**

With 19 years of experience, Scott has worked on three of the largest design-build projects in the western United States valued at $3.5 billion. He is currently managing the SH 130, Segments 5 and 6 construction team which will transition smoothly to the Grand Parkway. Scott successfully delivered the I-25 T-REX in Denver and I-15 in Salt Lake City with many of the same Parsons Grand Parkway design team members.

Deputy Project Director – Design

Mark Jurica, PE

As a former TxDOT engineer with 25 years of experience, Mark will oversee and coordinate the design teams. His design-build experience includes SH 130, Segments 5 and 6 and SH 45 SE Turnpike.

Deputy Project Director – Construction

Abel Ortiz

Abel has 18 years of heavy civil construction experience, including TxDOT design-build projects such as the DFW Connector. He has a proven track record of developing innovative solutions for project challenges.

Lead Quality Manager

Mark Brown, PE

Mark brings 40 years of construction expertise to the Grand Parkway. He served as the quality manager on three Texas design-build projects, including the Americas Interchange, the DFW Connector, and the SH 45 SE Turnpike.

E. PROJECT DEVELOPMENT PLAN

TECHNICAL SOLUTIONS

DESIGN AND CONSTRUCTION PLAN

Zachry-Odebrecht challenged our design and construction team members to develop a design and Project approach that is innovative and tailored to the Project's key challenges. Through our in-depth Alternative Technical Concept (ATC) efforts and the one-on-one process, we vetted our ideas with TxDOT directly. After evaluating 65 potential ATCs, we submitted 46 and included 10 in our proposal, totaling more than $45.6 million in savings and schedule and quality improvements. Our innovations are summarized on *page A-5*. Following award, our design-build management team will continue developing solutions with innovation in mind to exceed TxDOT and Stakeholder expectations and Project goals.

Zachry-Odebrecht developed an initial phasing of the work with consideration for TxDOT's Early Completion Work schedule requirements. Based on the complexity and duration of the work, jobsite access, ROW acquisition, and utility conflicts, we prioritized our work sequencing as follows:

1 **Priority Area No. 1** includes work at the US 290, IH 45 to Hardy Toll Road, and US 59 interchanges. The majority of this work is within TxDOT's existing ROW, enabling us to begin construction shortly after the issuance of NTP2.

2 **Priority Area No. 2** includes work at the SH 249 interchange and the bridges crossing over the UPRR and the San Jacinto River. These crossing will allow unrestricted movement between the segments for construction crews and materials, thus reducing impacts to local communities.

3 **Priority Area No. 3** includes the remaining work starting at each interchange and flowing east of US 290, east and west of SH 249, west of IH 45, east of Hardy Toll Road, and west of US 59.

Project Sequencing

TXDOT GOALS DEFINED

We developed an innovative and compliant design that addresses the Project goals.

- Efficient use of funding
- Expedited and high-quality Project
- Improve mobility and accessibility
- Increase level of service to motorists
- Increase safety to traveling public
- Expand and sustain economic opportunities
- Maintain a safe work environment
- Minimize inconvenience to surrounding communities
- Contribute to air quality goals

GOALS FULFILLED

The project team redesigned the schematic plans for the Project to enhance safety, provide higher quality, minimize impacts to the public, and most importantly, to accelerate Project delivery for TxDOT and key Stakeholders along the corridor.

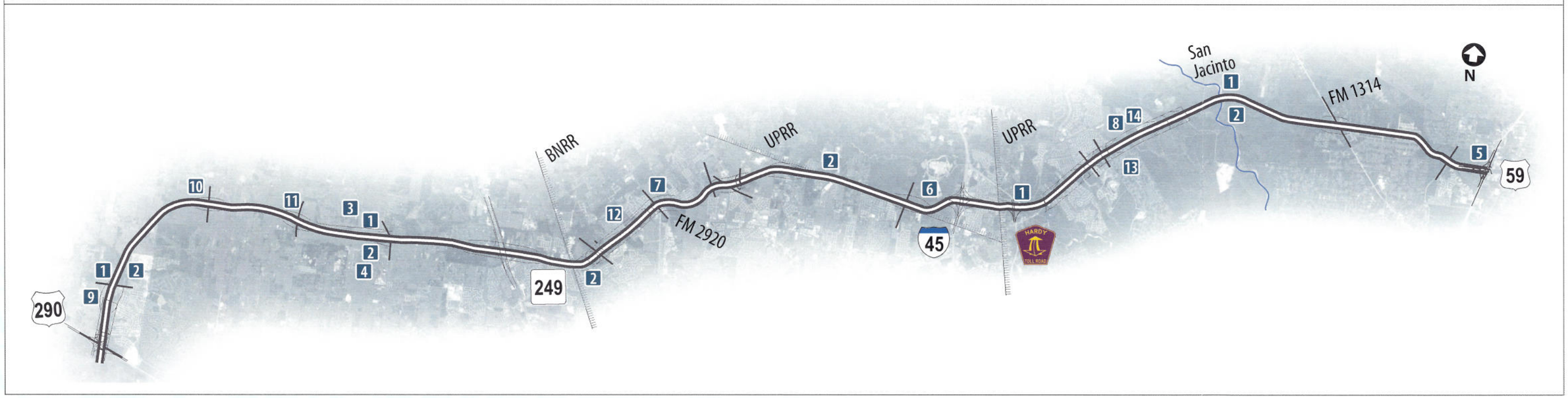
TECHNICAL SOLUTIONS

Innovation or Change from Schematics	Benefit to TxDOT and the Public	Map Location
ATC ZOPB06 (Structures) Longitudinal Slope	▪ Increase ride comfort ▪ Reduce the roller coaster effect	1
ATC ZOPB07 (Structures) Single Long Structures	▪ Decrease future expansion cost ▪ Reduce life-cycle cost ▪ Expedite Project delivery	2
ATC ZOPB10 (Structures) Drilled Shaft Dynamic Testing	▪ More accurate substructure designs ▪ Fully utilizes substructure stratum strength	TEXAS 99
ATC ZOPB18 (Drainage) Future Drainage Crossings	▪ Recognize use of more efficient cross drainage options ▪ Reduce cost ▪ Reduce bridge maintenance	TEXAS 99
ATC ZOPB19 (Roadway) Lindsey Lane Tie-in	▪ Eliminate the need for overpass structure ▪ Reduce substructure heights and clearance required ▪ Maintain connectivity and improve mobility	3
ATC ZOPB25 (Drainage) Willow Creek	▪ Reduce structure length by 1 mile ▪ Expedite Project delivery ▪ Reduce life-cycle cost	4
ATC ZOPB27 (Roadway) US 59 Frontage 45 mph with ROW	▪ Reduce bridge structure ▪ Improve the visibility of adjacent properties ▪ Provide at-grade access to commercial properties	5

Innovation or Change from Schematics	Benefit to TxDOT and the Public	Map Location
ATC ZOPB30 (Roadway) Pavement Alternative at Intersections	▪ Reduce construction impacts ▪ Reduce life-cycle costs ▪ Expedite Project delivery	TEXAS 99
ATC ZOPB42 (Roadway) IH 45 Frontage Road	▪ Eliminate 2,260 feet of frontage road reconstruction ▪ Expedite Project delivery ▪ Reduce construction impacts	6
ATC ZOPB45 (Roadway) 4-to-1 Side Slope	▪ Reduce earthwork haul requirements ▪ Minimize retaining walls ▪ Reduce long-term maintenance	TEXAS 99
Daily and weekly field reviews by the traffic management team	▪ Improve functionality of in-place traffic control ▪ Respond to concerns of traveling public quicker ▪ Improve Project safety and mobility	TEXAS 99
Maximize use of vertical versus sloped bridge abutments	▪ Optimize design ▪ Reduce long-term maintenance	TEXAS 99
Relocated pump station at FM 2920 inside Project ROW	▪ Avoid ROW acquisition costs ▪ Avoid conflict with adjacent gas line	7
Re-aligned frontage roads at Woodson Gully	▪ Reduce overall structure amounts required ▪ Reduce long-term maintenance	8

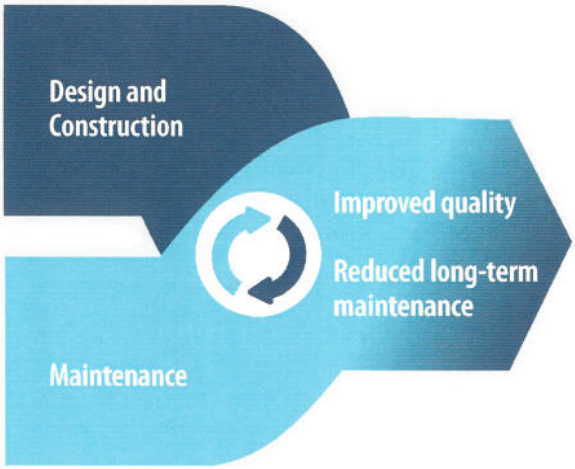
Innovation or Change from Schematics	Benefit to TxDOT and the Public	Map Location
Shortened Cumberland Ridge Drive westbound on-ramp	▪ Expedite Project delivery ▪ Reduce long-term maintenance	9
Shifted Mueschke Road ramps away from main lanes	▪ Reduce construction impacts	10
Shifted Cypress Rosehill Road ramps away from main lanes	▪ Reduce construction impacts	11
Shifted ramp and frontage roads from west of Boudreaux to east of Hildebrandt	▪ Reduce construction impacts	12
Shifted eastbound frontage road east of Birnham away from main lanes	▪ Reduce construction impacts	13
Shifted Townsen Boulevard ramps away from main lanes	▪ Reduce construction impacts	14

LEGEND: TEXAS 99 *Corridorwide*



MAINTENANCE PLAN

Our approach to a successful transition to the maintenance phase is to engage and integrate key maintenance personnel in the design and construction phases. We will incorporate our team's experience, lessons learned, and best management practices, including innovative techniques that improve maintenance efficiency and effectiveness. This approach will serve as the foundation for the Project's Maintenance Management Plan.



The Zachry-Odebrecht team includes **Infrastructure Corporation of America** (ICA) which will perform the capital maintenance services. ICA is a pioneer in transportation maintenance services in the United States. Our capital maintenance team will be led by our Maintenance Manager, **Zane Webb, PE.**

Features of the Maintenance Management Plan include:

- A transition plan that engages maintenance team members during the Project development phase to ensure a smooth transition to maintenance services.
- Complete protocols and processes for carrying out inspections, audits, repairs, and reporting.
- Management tools that will be utilized to direct and control maintenance activities.
- A traffic management and safety plan that ensures maintenance activities progress safely and with minimal hindrance to the traveling public.
- A communication plan that facilitates partnering with TxDOT and local agencies and keeps appropriate stakeholders informed.
- Procedures that ensure a responsible turnover of maintenance activities to TxDOT.

MAINTENANCE EXPERTISE

ICA currently manages and maintains 3,700 lane miles, 3,187 structures, and 164 facilities for various public agencies, including the Harris County Toll Road Authority and TxDOT.

The Maintenance QC Manager, **Chuck Royko**, will oversee the development, implementation, and overall effectiveness of the Maintenance Services QC Plan during the capital maintenance period. The Maintenance Services QC Plan will describe the system, policies, and procedures that assess and document compliance with the contract documents.

Our team is committed to providing capital maintenance services that ensure Project safety, maximize mobility, preserve transportation assets, and provide value to TxDOT, system users, and the community.

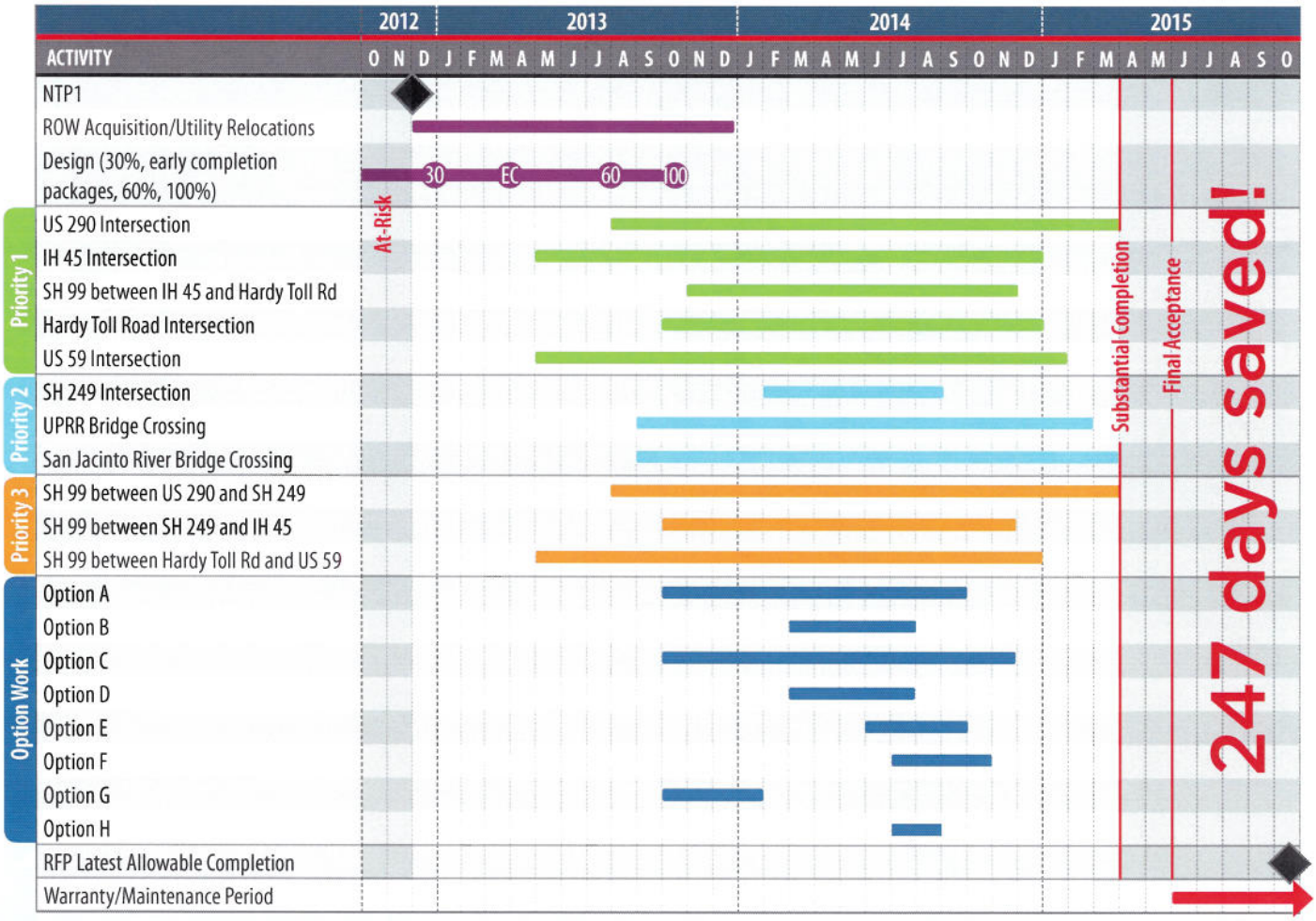
PRELIMINARY PROJECT BASELINE SCHEDULE

The Zachry-Odebrecht team has developed a plan for the execution of the work which results in achieving Substantial Completion 845 days after NTP1. Our plan for delivering the Project addresses the Grand Parkway's most significant schedule challenges by:

- Starting design at-risk prior to NTP1
- Utilizing early design packages to expedite the start of construction
- Sequencing each parcel acquisition and utility relocation based on planned work flow
- Prioritizing work within current TxDOT ROW at major interchanges
- Maximizing on-site borrow for roadway embankment
- Utilizing multiple material sources to support demand
- Establishing a Zachry-Odebrecht prefabrication facility for bridge girders and deck panels
- Providing experienced in-house resources and dedicated, active resources to manage subcontractors

Our plan for the execution of the work is detailed in the Preliminary Project Baseline Schedule included in Appendix D.3 and summarized below.

Zachry-Odebrecht's Expedited Project Schedule



PROJECT MANAGEMENT PLAN

General Project Management – Zachry-Odebrecht takes a partnering approach to project management and holds communication as key to the overall success on the Project. Zachry-Odebrecht team members, TxDOT, and Stakeholders will be kept current on design and construction progress through methods such as co-location, constructability reviews, task force meetings, schedule reviews, and document management.

Availability of Resources – The commencement of the Project coincides with the conclusion of several large projects for both Zachry and Odebrecht, making available the resources to support the aggressive Project schedule. Furthermore, to support the schedule demands, our design team is able to quickly mobilize engineering resources to the Project. Our design team is led by a nationally recognized pioneer in design-build delivery, Parsons and Segment leads Dannenbaum, Brown & Gay, and PGAL. For the critical task of providing ROW acquisition our team counts on the extensive experience and support of O.R. Colan and CobbFendley.

Risk Management – Our team has thoroughly analyzed the Project risks and developed a detailed mitigation strategy. The application of the mitigation strategies identified, together with our extensive experience in dealing with these types of risks enables our team to maintain them to a manageable level.

Construction and Traffic Management during Construction Period – Pre-planning construction sequencing is the basis for our Traffic Management Plan. Our approach is to use as much of the ROW for the construction haul route as possible to minimize impacts to the surrounding communities.

Schedule and Cost Control Management – Our Project Controls Team will monitor the status and performance of all Project activities. The Project Controls Manager and Scheduling Engineer will lead the team and will closely monitor and update the schedule and cost across the Project's three Segments. Additionally, each construction Segment will have dedicated staff for cost and schedule. We used a cross functional team approach, with emphasis on ROW acquisitions, utility relocations, and long-lead items to prepare the Project schedule. Subcontractor activities will be fully integrated and progressed with each schedule update.

Public Information – Our public information team, led by Public Information Coordinator, **Victoria Miller** is committed to keeping the public informed. We will engage the government agencies, the public, special-interest groups, and Stakeholders throughout design and construction. Our communication strategies will include a 24-hour telephone hotline, a Project website, news releases, phone and written correspondences, brochures, advertisements, email inquiries and responses, roadside dynamic message board notifications, and special public information events, as needed.

Environmental Management – The environmental team, led by Environmental Compliance Manager, **Tom Couling, AICP**, will be proactive in preventing noncompliance with environmental approvals to achieve our goal of zero environmental violations. We have a comprehensive approach to environmental compliance that addresses awareness training and compliance with regulatory approvals. Our environmental compliance program will be staffed with full-time environmental professionals working under the Project's Comprehensive Environmental Management Program (CEPP). The CEPP has been developed and improved over our history of design-build projects and it is a proven compliance program.

Design Management – Our Design Manager, **Steve Arent, PE** and Deputy Project Director – Design, **Mark Jurica, PE**, will work together on a daily basis to organize design activities and design priorities. Their joint collaboration will ensure that constructability issues and construction priorities are incorporated into the design schedule. Zachry-Odebrecht will continue using the proven approach of task forces to integrate both design, construction, and appropriate TxDOT staff.

QUALITY MANAGEMENT PLAN

Our team is committed to managing the quality program in a professional, collaborative, and responsible manner that ensures the Project is successfully built in accordance with the contract. The objectives of our quality program include:

- Establishing controls and protocols to ensure contract requirements are met
- Establishing a process that encourages continual improvements
- Developing, training, and focusing personnel to achieve a culture of quality
- Creating an environment that encourages and recognizes teamwork, leadership, problem solving, and a commitment to a high standard of quality

Our team has structured its quality organization to manage the process in an efficient and effective manner. ***The quality staff will maintain autonomy from the production team*** to enforce compliance with the contract obligations, including stop work authority regarding matters of quality.

Design – The Design Quality Management Plan defines the design review, submittal, and revision processes and technical requirements. We will engage in a series of informal and formal design reviews to ensure compliance with the contract and review constructability, usability, reliability, maintainability, operability, and safety of the design. Formal design reviews will take place at 30%, 60%, and 100% design. Information reviews will include kickoff meetings, task-force meetings, TxDOT over-the-shoulder reviews, and constructability reviews. We will control and track design changes through a systematic approach which ensures the Project is built using the most current design plans.

QUALITY POLICY

We will achieve an outstanding level of quality by engaging in a proactive and collaborative quality management effort based on the principles of ISO 9001.

Our Quality Management Plan will institute the controls necessary to obtain the highest quality of work in compliance with the obligations of the contract and enabling TxDOT to monitor, audit, and measure our performance throughout design, construction, and capital maintenance.

Construction – Our team's goal, with respect to quality, is to prevent deficiencies and noncompliance work. Our Quality Management Plan (QMP) includes detailed preventative processes based on planning and communication to promote immediate action so that deficiencies are avoided. In the event they occur, our QMP contains processes for immediate corrective action, issue tracking and reporting, and process changes to prevent repeat noncompliance or defective work. Our quality staff will provide TxDOT with adequate notice and access to the site to facilitate TxDOT's oversight responsibilities.

Maintenance – Our Maintenance Services Quality Management Plan is based on the same principles as the design and construction quality plans, and implements the same processes for preventing and correcting deficiencies and noncompliance work. As with construction, quality and audit standards will be consistent with ISO 9001, and will include measures for control of quality records, management reviews, internal audit protocols, and means of continual improvement.

F. APPROACH TO SATISFYING THE DBE REQUIREMENTS

Zachry and Odebrecht have consistently demonstrated an unyielding commitment to the growth and development of disadvantaged business enterprises (DBEs). To that end, our team will be proactive in exceeding the level of participation identified by TxDOT. We have an in-depth understanding of the local DBE subcontractor and vendor markets. We commit to providing maximum opportunity for these businesses to participate in the execution of the work.

We will demonstrate our commitment to promoting DBEs in a series of programs, initiatives, and mentor-protégé alliances. Zachry-Odebrecht will implement mentor-protégé relationships and on-the-job training programs to facilitate the development of the DBEs in their field of expertise. As part of the mentor program, we will host educational workshops, provide assistance and support, and maintain an open door policy with DBEs to ensure their success on the Project.

It is our firm commitment to exceed the Project's goals of six percent DBE participation.

DBE POLICY STATEMENT

The promotion of community and disadvantaged businesses in all our projects is part of our corporate culture. This corporate culture promotes the practice of social responsibility through job creation. Local business growth and development is promoted and fostered through a mentorship approach and the creation of strategic partnerships.

Jean Abiassi, PE	*Gilberto Neves*
President and COO	*President and CEO*
Zachry	*Odebrecht*