GEORGIA DOT RESEARCH PROJECT 19-10

FINAL REPORT

FLASH TRACKING IMPLEMENTATION GUIDELINES COMPLEMENTING THE EXISTING DESIGN-BUILD MANUAL

OFFICE OF PERFORMANCE-BASED MANAGEMENT AND RESEARCH

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16. Abstract

The overarching objective of this research is to develop Flash Tracking implementation guidelines that would complement the existing Design-Build Manual. These standardized implementation guidelines are captured in an appendix to the Design-Build Manual.

The research methodology comprised three phases. In the first phase, the research team studied and analyzed the effectiveness of flash track best practices implementation on three GDOT projects—namely, improvements to the I-16/I-95 interchange, the I-85 Widening, and SR 400 EL. In the second phase, the team reviewed and analyzed the GDOT Design-Build Manual to identify its strengths, weaknesses, opportunities, and threats (i.e., a SWOT analysis) in terms of its treatment of flash track best practices. This involved cross-referencing the D-B manual against the 83 flash track best practices, to determine the presence or absence of each flash track best practice in the manual. In the third phase, an appendix to the D-B manual was developed to serve as an official source on implementing flash track best practices on D-B projects. Furthermore, modified RFQ and RFP templates were developed to incorporate flash track practices on projects and specific recommendations were made for the RFQ and RFP for the Houlihan Bridge P.I. No. 0013741/0013742 – SR 25 at Savannah & Middle River Bridges.

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GDOT Research Project No. RP 19-10

Final Report

FLASH TRACKING IMPLEMENTATION GUIDELINES COMPLEMENTING THE EXISTING DESIGN-BUILD MANUAL

By

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Georgia Institute of Technology

Contract with
Georgia Department of Transportation

In cooperation with

U.S. Department of Transportation
Federal Highway Administration

August 2021

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	$candela/m^2$	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
^oC	Celsius	1.8C+32	Fahrenheit	^oF
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	$candela/m^2$	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

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INTRODUCTION

Speed and quality have always been the two biggest drivers of performance improvement in the construction industry. With ever more technically complex projects and increasingly stringent regulatory environments, the challenge of faster project delivery has inspired a number of innovative concepts and delivery methods. In spite of these new approaches, the stubbornly fragmented, short-sighted, highly siloed, adversarial, and litigious nature of the construction industry causes it to resist innovation and continue to suffer from excessive costs and delayed completions.

Owners like the Georgia Department of Transportation (GDOT) are increasingly demanding faster project delivery, from concept to completion. To achieve this higher performance, the agency needs a higher level of fast tracking (a.k.a. flash tracking), one that offers greater predictability and significantly faster project delivery. Compared to fast tracking, the flash track delivery method entails a heightened degree of concurrency between engineering, procurement, and construction (EPC) activities. This compression of project processes significantly shortens the project schedule.

Flash track projects are by nature exposed to higher levels of risk, particularly the risk that comes from volatility. Thus, they rely on strategies for resource management and stakeholder alignment to achieve the faster project development and execution desired. This need for expedited project delivery is generally driven by regulatory pressures, demands for emergency rebuilds, economic needs, and/or windows of opportunity.

When owners couple flash tracking practices with the Design-Build (DB) project delivery method, they significantly increase their ability to reliably deliver time-driven projects. However, executing such a greatly accelerated project requires serious consideration of essential flash track best practices, which are not typically considered on traditional fast-tracked D-B projects. Atlanta's Courtland Bridge Replacement project is a clear example of the D-B delivery method benefitting from thoughtful flash track implementation, beginning in the Request for Proposal (RFP) phase.

The current GDOT Design-Build Manual (modified in October 2016) lacks explicit guidelines for converting a fast track project into a flash track project, in spite of the success of the Courtland bridge project. To replicate this success, the agency should standardize the flash track delivery practices used on the project and set them out as generalized flash track delivery guidelines in an appendix to the manual.

The principal investigators of this study, Dr. Pishdad-Bozorgi and Dr. de la Garza, have completed seven years of research on flash tracking, sponsored by GDOT, the Virginia Department of Transportation (VDOT), and the Construction Industry Institute (CII). This continuous line of inquiry has led to the identification, assessment, and validation of the practices most essential for the successful completion of flash-track transportation projects. From the totality of this research, these researchers vetted and weighted eighty-three best practices for flash tracking by means of the Delphi and the Analytic Hierarchy Process (AHP) methodologies. Subsequently, they created an integrated framework called the Flash Track Readiness

Assessment Toolkit (FTT), by combining their three independently developed frameworks (i.e., the sets of best practices developed for projects sponsored by GDOT, VDOT, and CII) into an integrated structure for all flash tracked transportation projects. Called xDOT, this framework can be used by organizations to determine their readiness to flash track a given project. Moreover, the toolkit was designed to guide a project team through the implementation measures needed to overcome barriers, proactively mitigate potential risks, and successfully execute flash tracking. The overarching objective of this research was to develop flash tracking implementation guidelines that will complement the existing GDOT Design-Build Manual. These standardized implementation guidelines will be captured in an appendix to be added to that manual.

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RESEARCH METHODOLOGY

The research methodology comprised three phases. In the first phase, the research team studied and analyzed the effectiveness of flash track best practices implementation on three GDOT projects—namely, improvements to the I-16/I-95 interchange, the I-85 Widening, and SR 400 EL.

In the second phase, the team reviewed and analyzed the GDOT Design-Build Manual to identify its strengths, weaknesses, opportunities, and threats (i.e., a SWOT analysis) in terms of its treatment of flash track best practices. This involved cross-referencing the D-B manual against the 83 flash track best practices, to determine the presence or absence of each flash track best practice in the manual.

In the third phase, an appendix to the D-B manual was developed to serve as an official source on implementing flash track best practices on D-B projects. Furthermore, modified RFQ and RFP templates were developed specifically to incorporate flash track practices on projects.

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ASSESSING FLASH TRACK READINESS FOR SELECTED GDOT PROJECTS

This section assesses the readiness of the project teams of three GDOT projects (I-85 Widening, SR 400EL, I-16, and I-95) to successfully implement Flash Track Best Practices. These assessments also document the opportunities and challenges faced by each team.

I-85 Widening Project

I-85 is the first project of the Major Mobility Investment (MMI) program started by the Georgia Department of Transportation. The main aim of the MMI program is to make a major investment in the state's transportation network by delivering projects that meet community needs and benefit drivers. The MMI program also wants to provide significant transportation improvements and efficiencies, enhance safety, and decrease travel time. The project particularly aims to provide relief to motorists in a heavily congested area by widening I-85 from two to three lanes in both directions, from I-985 to SR 53 in Gwinnett, Barrow, and Jackson counties. GDOT selected C.W. Matthews as the Design-Build team to deliver the project. The beginning of construction was set to commence in July 2018, and the project is scheduled for completion in mid-2020.

Project Overview

The project team was selected by means of the best value proposal procurement method. C.W. Matthews will use an accelerated process to design and construct the project. GDOT has a provision of incentive for early completion of milestones. The project aims at widening I-85

from two to three lanes in both directions, and involves the reduction of the grass median by means of a paved shoulder and median barrier. The I-85 widening includes replacing three superannuated overpass bridges (Spout Road bridge, Flowery Branch Road bridge, and Jesse Chronic Road bridge). After project completion, all signage, striping, and guardrails will be upgraded. The project will require no right-of-way acquisition. Additionally, no interchange work is proposed as part of the project. The replacement of the bridges will require temporary detours. GDOT has planned to mitigate negative public impacts as much as possible, through actions such as notifying affected community members in advance and using social media to update taxpayers on the project, among others.

Project Team

GDOT selected C.W. Matthews as the Design- Build team for the project.

Project Timeline

Figure 1 presents the projected timeline of the I-85 widening project.

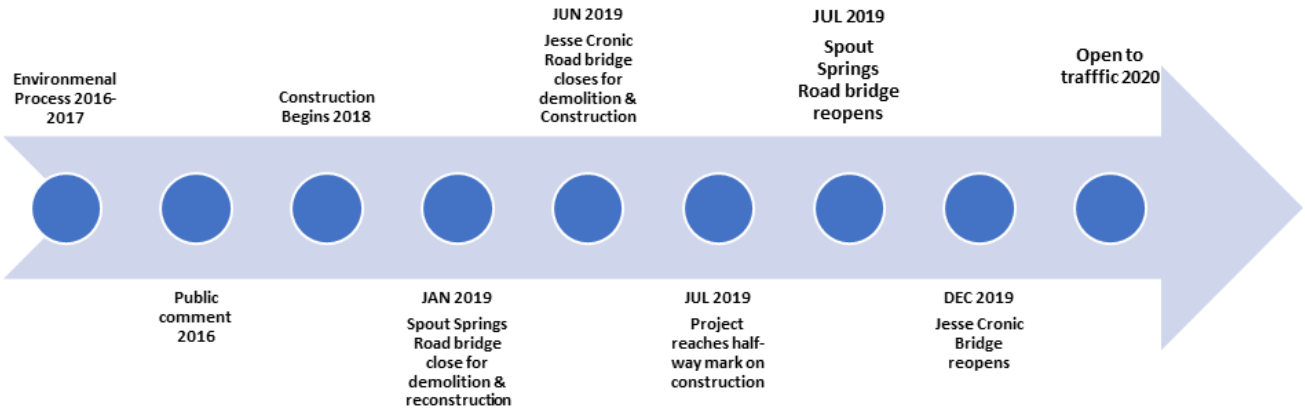

Figure 1: I-85 Widening Project Timeline

Project Map

Figure 2 presents aerial images of the I-85 project area.

Figure 2: I-85 Project Map

Assessment of Readiness for Flash Tracking

A meeting to introduce 83 flash track best practices to the Design-Build team for this project was held on November 8, 2019. The purpose was to assess this stakeholder's readiness to execute the

project on a flash track basis.

Meeting Attendees

The meeting was attended by the principal investigator, the co-principal investigator, a representative from GDOT, consultants, and the Design-Build team members.

Flash Track Readiness Tool Results For I-85 Widening Project

Project team members or their representatives were asked to assess the project using both modules of the Flash Track Readiness Toolkit (Pishdad-Bozorgi and de la Garza 2018) (i.e., one based on the 47 CII-developed practices/categories and the other based on the 36 xDOT-developed practices/categories). Figure 3 presents a screenshot of the results of the readiness assessment with the xDOT module.

The readiness categories in this module are as follows: (1) Right of Way (ROW) & Utilities; (2) Pre-construction; (3) Contractual; (4) Planning; (5) Information Management; (6) Execution; and (7) Traffic Management. As the figure shows, the project's highest score (10) was in the ROW and Utilities Readiness category.

The three lowest scoring practices (each with a score of 5) were as follows:

- Establishing Programmatic Agreements to Streamline the Process for Handling (Pre-Construction Readiness category)
- Developing a Planned Issue Resolution Process (Information Management category)

- Implementing Smarter Work Zones to Dynamically Manage Traffic and Reduce Work Zone Impacts (Traffic Management category).

Figure 3: xDOT Flash Track Readiness Tool Results for the I-85 Widening Project

I-85 Widening Project Positives and Challenges

Presented below are the project team members' answers to the questions asked during the meeting about the positives and challenges they have encountered in the seven xDOT project readiness assessment areas.

ROW and Utilities Readiness

What are some issues the project experienced related to ROW and Utilities considerations?

Table 1: ROW and Utilities Readiness for I-85

ROW and Utilities Positives
• Utility owners were engaged early, and all conflicts were resolved before the bidding was complete. A dedicated utility manager consultant was employed by both GDOT and the Design-Build team. • GDOT conducted some investigation of sub-surface utility engineering early on; the information gathered was later updated and verified by the Design-Build team.

Pre-Construction Readiness

What are some issues the project experienced related to Pre-Construction considerations?

Table 2: Pre-Construction Readiness for I-85

Pre-Construction Positives	**Pre-Construction Challenges**
• Geotechnical data were collected by the Design-Build team before bidding for the job; and GDOT provided the existing report from historical data. • Streamlining of the process for handling routine environmental requirements was done during the pre-let phase.	• The reviews for environmental permitting and scope development suffered from a lack of clarity about who was doing what. • Because of the number of consultants involved, the review process hampered the process of programmatic streamlining.

Contractual Readiness

What are some issues the project experienced related to Contractual considerations?

Table 3: Contractual Readiness for I-85

Contractual Positives	Contractual Challenges
• Best value selection was conducted to get the project, and liquidated damages were added into the contract. • Critical efforts like ROW, utility coordination, and relocation were funded early.	• The contract did not require having a responsible in-charge engineer and/or Design-Build integrator, and no one was responsible for bridging the different project entities. • The Design-Build team did not employ the practice of using open-ended contracts to procure long lead items.

Planning Readiness

What are some issues the project experienced related to Planning considerations?

Table 4: Planning Readiness for I-85

Planning Positives
• The Design-Build team used AGTECH software for 3D Earth modeling and Terra Model for GPS equipment. • The design and construction packages were phased during the project. • The ROW acquisition team was procured early, and high-risk utility owners were engaged early. • A core team of GDOT environmental staff was assigned to perform the expedited review, since the environmental activities were on the critical path of the project.

Information Management Readiness

What are some issues the project experienced related to Information Management

considerations?

Table 5: Information Management Readiness for I-85

Information Management Positives	Information Management Challenges
• Both GDOT and the Design-Build team collect lessons learned from previous projects. • E-Builder was used for tracking Requests for information, quality assurance/quality control, submittals and other time sensitive documents.	• A planned issue resolution process was not contractually required, and an issue resolution process from a previous project was applied.

Traffic Management Readiness

What are some issues the project experienced related to Traffic Management considerations?

Table 6: Traffic Management Readiness for I-85

Traffic Management Positives	Traffic Management Challenges
• Dedicated personnel were available for public outreach and media campaigns. • A project safety plan, job safety plan, and corporate safety plan were developed for ensuring worker/public health and safety.	• GDOT did not adopt/implement the concept of a lane closure time bank. • Implementing smarter work zones to manage traffic was not contractually required and, thus, no smart work zone system was developed.

Execution Readiness

What are some issues the project experienced related to Execution considerations?

Table 7: Execution Readiness for I-85

Execution Positives
• Project elements such as sound barrier panels, posts, and beams were pre-fabricated. • Innovative construction materials were used to accelerate construction (e.g., faster curing concrete on the bridge). • A company vehicle was deployed to transport construction workers from a common parking lot to the job site.

SR 400 EL Project

The SR 400 Express Lanes improvement is one of the major mobility investment program projects started by GDOT, aiming to increase mobility along the state's vital north-south transportation corridor. When completed, SR 400 El will be part of the larger Georgia Express Lanes network, a connected transportation system that will give motorists reliable trip times across the state. According to GDOT,

> the Georgia Express Lanes are optional priced lanes that complement the general-purpose lanes along the interstates in some of the most congested corridors around metro Atlanta. These lanes provide a choice for drivers to bypass congestion when desired, offer a clear path for transit operators, and add an alternative to the general-purpose lanes that exist today. The result will be a network of express lanes that provide more reliable and predictable trip times. All Georgia Express Lanes rely on a dynamically priced toll in order to provide reliable travel times, especially during peak congestion.

As part of the GDOT MMIP project, SR 400 has an estimated budget of 11 billion dollars. GDOT has selected HNTB as its project management consultant. The project is expected to be completed by 2027.

Project Overview

The project is in the early stages of development, with initial concept design underway and access points still being determined. The project focuses on adding two buffer-separated express

lanes in each direction between the North springs MARTA station and McGinnis Ferry Road. An additional buffer-separated express lane will be constructed in each direction from McGinnis Ferry Road to McFarland Parkway. (See Figure 18.) After conducting a constructability study in 2019, GDOT realized that the addition of bus rapid transit (BRT) would extend the project completion date from 2024 to 2027. GDOT organized Public Information Open House (PIOH) events in February and March of 2019, to give the public opportunities to view current plans and provide feedback. The main aim of the project is to provide reliable travel time for drivers and transit users, and to improve regional connectivity through priced express lanes. Funded by the Federal Highway Administration (FHWA), the project received a $184 million grant from the Infrastructure for Rebuilding America (INFRA) program. GDOT is reviewing the possibility of an access point at Roswell, working closely with the City of Roswell staff to develop a feasible and efficient express lane solution. The selected developer and GDOT will share the responsibility for the Right of Way acquisition (50 percent by GDOT and 50 percent by the developer). GDOT has not yet formulated the incentives that will encourage the project's timely delivery.

The project has a maximum of 60 months float for substantial completion from the date of notice to proceed. The selected Design-Build team will have 90-percent control over the design, with GDOT retaining the remaining 10-percent. The project will use e-Builder initially to advertise the RFP, and then to manage information throughout the project lifecycle. The project has mandated the permanent collocation of the team. GDOT has reached out to other state DOTs that have executed similar projects, asking them to identify any potential risks and to share any lessons learned. Moreover, GDOT has developed a risk register for the project. The project team

will develop 3D models using the OpenRoads software platform. The project's DBFM team will be held responsible for any failure of the facility for a 35-year term. GDOT will do 30 percent of the project design.

Project Team

HNTB has been selected as the project management consultant. The Design-Build team has yet to be selected for the project.

Project Timeline

Figure 19 illustrates the projected timeline of the entire project.

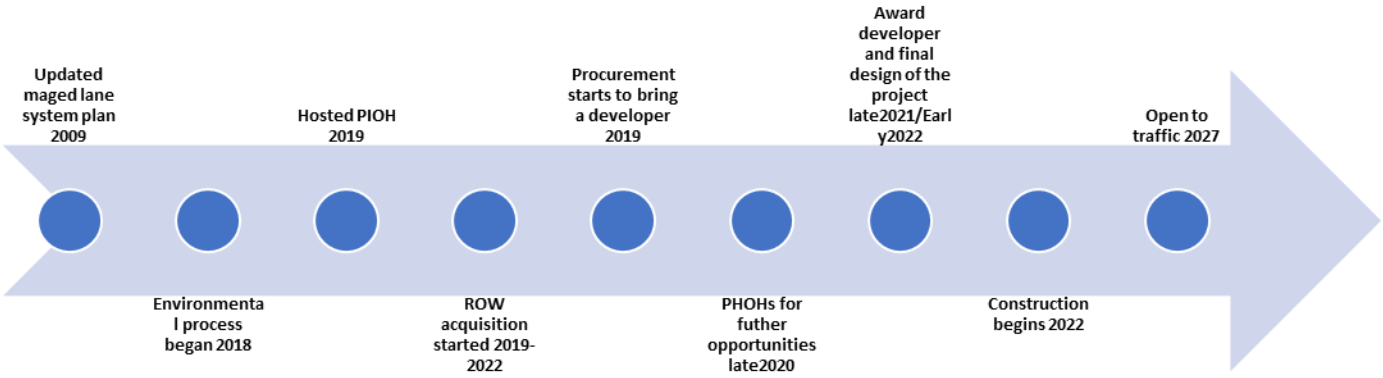

Figure 4: SR 400 Project Timeline

Project Map

Figure 5 presents a conceptual project map for the SR 400 project.

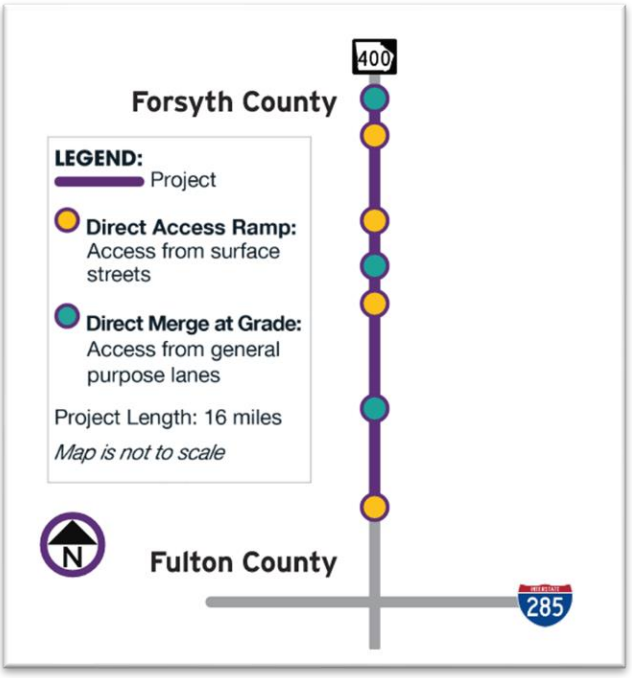

Figure 5: SR 400 Project Map

Assessment of Readiness for Flash Tracking

A meeting was held on November 8, 2019, to introduce the project's Design-Build team to the 83 flash track best practices, and to assess its readiness to execute a flash track project.

Meeting Attendees

The meeting was attended by the principal investigator, the co-principal investigator, a representative from GDOT, consultants, and the Design-Build team members.

Flash Track Readiness Tool Results for Sr 400 Express Lanes Project

Project team members or their representatives were asked to assess the project using both modules of the Flash Track Readiness Toolkit (i.e., one based on the 47 CII-developed practices/categories and the other based on the 36 xDOT-developed practices/categories). Figure 6 presents a screenshot of the results of the readiness assessment with the CII module.

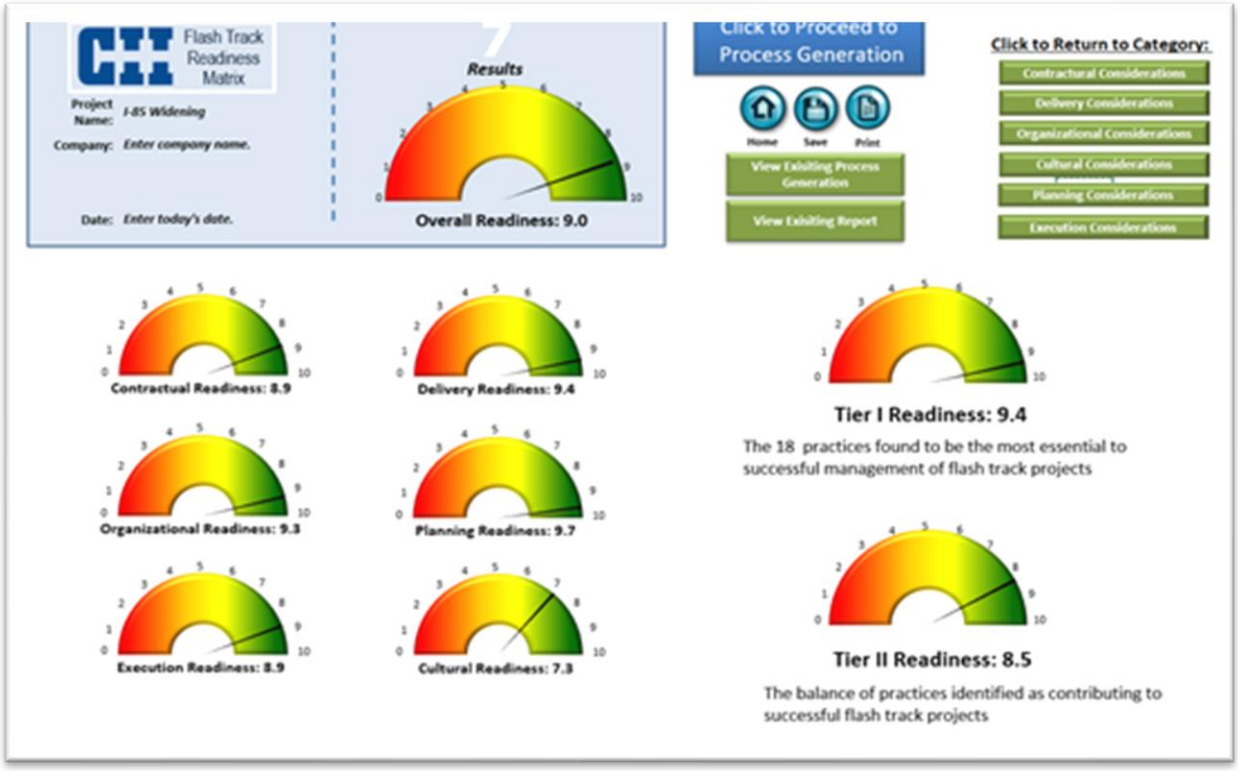

Figure 6: CII Flash Track Readiness Tool Results for the SR 400 Express Lanes Project

As shown, the team scored highest in Planning Readiness (9.7 of 10 possible points). This preparedness led to the project's overall success. Following are the two lowest-scoring practices:

- Using highly integrated 3D modeling with all major users updating a common database (Delivery category)

- Accepting a non-traditional paradigm or mindset (Cultural category).

Figure 7 presents a screenshot of the xDOT Flash Track Readiness assessment results. This module's readiness categories are as follows: (1) Right of Way & Utilities Readiness; (2) Pre-construction; (3) Contractual; (4) Planning; (5) Information Management; (6) Execution; and (7)

Traffic Management. As the figure shows, the project's highest score (10) was in the Information Management Readiness and ROW and Utilities Readiness categories.

Figure 7: xDOT Flash Track Readiness Tool Results for SR 400 Express Lanes Project

The three lowest scoring practices were as follows:

- Employing Allowances for Certain Bid Items as Means of Risk Sharing (Contractual)
- Considering 3D and 4D Modeling of the Execution Sequence during Detailed Design (Planning)
- Considering Innovative Construction Materials that Accelerate Construction (Execution)

SR 400 Express Lanes Project Positives and Challenges

Presented below are the project team members' answers to the questions asked during the meeting about the positives/challenges they have encountered in eight project readiness assessment areas.

Contractual Readiness

What are some issues the project experienced related to Contractual considerations?

Table 8: Contractual Readiness for SR 400

Contractual Positives
• A responsible Engineer or Design-Build Integrator was employed on the developer side. • ROW acquisition, utility relocation, and environmental mitigation were included in the D-B contract. GDOT performs half, and the remaining half is performed by the D-B team. • A risk-sharing contract was used to align project participants' interests.

Execution Readiness

What are some issues the project experienced related to Execution considerations?

Table 9: Execution Readiness for SR 400

Execution Positives
• An Over the Shoulder (OTS) process was adopted for timely decision-making. • The Design-Build team is encouraged to come up with innovative execution methods. • Permanent collocation of the core team was made mandatory. • Once the contract with the construction team is in place, maintenance people will be included in the final design. • Regular review and coordination meetings were held to discuss design, schedule, risks, utilities, and environmental issues.

Planning Readiness

What are some issues the project experienced related to Planning considerations?

Table 10: Planning Readiness for SR 400

Planning Positives
• Inter-phase and intra-phase concurrency for design and construction packages is encouraged. • Phasing of environmental permits is planned to match phased construction. • The contract required 3D rendering to visualize what a camera will pick up. • Changes happening during project development will be tracked through a project controls process set up to determine their schedule and budget impacts on the project. • GIS-based tools were used to identify resources such as utilities, ROW, and environmental, for planning-level decisions across the project. • A risk register was maintained to develop a list of risks, to determine the probability of their occurrence, and their likely costs. These risks were monitored until they were resolved.

Information Management Readiness

What are some issues the project experienced related to Information Management considerations?

Table 11: Information Management Readiness for SR 400

Information Management Positives
• A planned issue resolution process was included in the communication and management plan. • To continuously improve project processes, a lessons learned program was adopted to evaluate similar past projects. • The team used an integrated document management system called e-Builder to track RFIs, QA/QC, and submittals.

Traffic Management Readiness

What are some issues the project experienced related to Traffic Management considerations?

Table 12: Traffic Management Readiness for SR 400

Traffic Management Positives
• Plans were developed for traffic management and traffic maintenance (to include closure, detour, roles and responsibilities for incidents), to ensure efficient coordination between construction and traffic management. • Regular meetings were conducted to maintain continuous public outreach and conduct media campaigns. • The contract required the developer to formulate a safety plan to ensure worker/public safety. • The project is employing a programmatic lane closure strategy.

Delivery Readiness

What are some issues the project experienced related to Delivery considerations?

Table 13: Delivery Readiness for SR 400

Delivery Positives	Delivery Challenges
• The contract administrative staff were involved in development of procurement documents. • GDOT considered using innovative procurement practices, e.g., alliancing, target pricing, and the inclusion of flexibility. • Contractor was hired on the basis of ability to integrate the subcontractors and operators into the design. • The GECs collaborated by bringing the resources needed during pre-let, while the contractors were responsible for the post-let requirements. • The effort to educate subcontractors and suppliers on the volume of work was carried out successfully.	• With seven projects in progress, resources are limited. • GDOT does not use highly integrated 3D modeling to maintain a common database.

Organizational Readiness

What are some issues the project experienced related to Organizational considerations?

Table 14: Organizational Readiness for SR 400

Organizational Positives	Organizational Challenges
• Operations and maintenance personnel were engaged in the development and design process, since it was a Design-Build-Finance-Maintain (DBFM) project. • To guarantee a fully integrated team, the team had to demonstrate that it has worked together before. • Team building and partnering practices were employed, and partnering sessions were held with the developer. • The decision-making authority was delegated at the project level.	• The owner (GDOT) is losing people and has limited resources because of budget cuts. Hence, the owner lacks sufficient depth of resources and organizational strength. • GDOT lacks the resources to assign a dedicated engineer on the project; and much of the engineering function has been delegated to the developer's Engineer of Record, with oversight from the owner's GEC.

Cultural Readiness

What are some issues the project experienced related to Cultural considerations?

Table 15: Cultural Readiness for SR 400

Cultural Challenges
• It was difficult to get people to change their mindsets, especially when it came to adopting the innovative delivery method perspective. People had a hard time shifting to the D-B mindset from the D-B-B point of view. • Establishing flexible project teams was a challenge, since there was a degree of rigidity on the pre-let side.

I-16 & I-95 Project

Another project slated for construction under the GDOT Major Mobility Investment Program (MMIP) was the reconstruction of the interchange at I-16 and I-95 in Chatham County. The project aims at improving the traffic flow and enhancing safety along I-16 and I-95, roadways stretching across one of Georgia's busiest freight corridors and together serving as gateways to Georgia's growing port in Savannah. The reconstruction is intended to increase the operational efficiency and safety of passenger cars and trucks, with the widening of I-16 aimed specifically at relieving traffic congestion and decreasing travel time for drivers.

Project Overview

The project will widen the I-16 mainline corridor along the inside median, increasing the existing general-purpose roadway from two to three lanes in each direction. The entire improvement includes the replacement of four bridges and the construction of three new bridges. Constructing a collector-distributor (CD) lane on I-95 northbound will be added to separate the vehicles exiting and entering from I-16. Additionally, lighting will be installed at the I-16/I-95 interchange. Replacing two existing loop ramps located on the west side of I-95 with an innovative turbine configuration of system-to-system ramps. To add highway capacity for more than 100,000 vehicles and to apprise drivers of real-time driving conditions, the project will install Intelligent Transportation System (ITS) technology, such as cameras and changeable message signs.

Project Team

GDOT selected Savannah Mobility Contractors JV as the Design-Build team for the project.

Project Timeline

Figure 8 illustrates the projected timeline of the project.

Figure 8: I-16 and I-95 Interchange Reconstruction Project Timeline

Project Map

Figure 9 presents aerial image of the project area.

Figure 9: I-16 & I-95 Project Map

Assessment of Readiness for Flash Tracking

A meeting to introduce 83 flash track best practices to the design-build team for this project was held on November 22, 2019. The purpose was to assess this stakeholder's readiness to execute the project on a flash track basis.

Meeting Attendees

The meeting was attended by the principal investigator, the co-principal investigator, a representative from GDOT, consultants, and the Design-Build team members.

Flash Track Readiness Tool Results For I-16 & I-95 Project

Project team members or their representatives were asked to assess the project using both modules of the Flash Track Readiness Toolkit (i.e., one based on the 47 CII-developed practices/categories and the other based on the 36 xDOT-developed practices/categories). Figure 10 presents a screenshot of the assessment results for the CII developed Flash Track categories, and Figure 26 presents a screenshot of the results for the xDOT-developed Flash Track Readiness assessment.

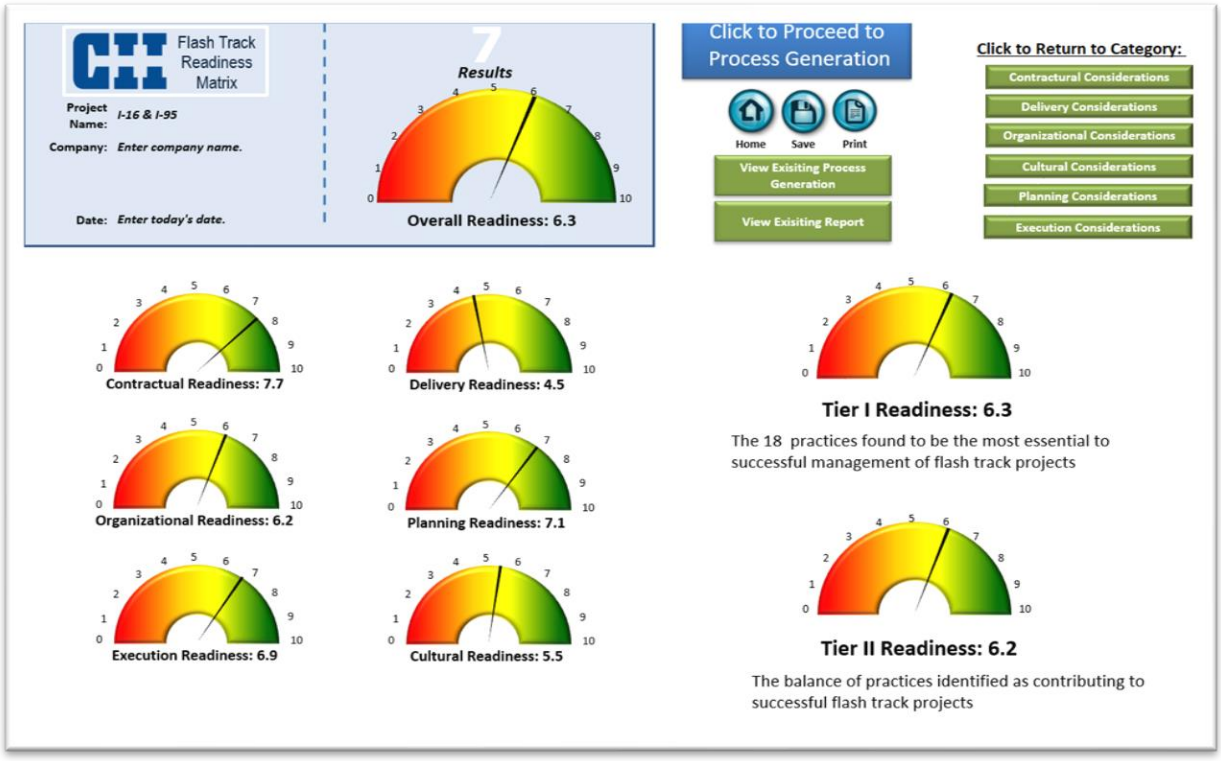

Figure 10: CII Flash Track Readiness Tool Results for I-16 & I-95

As shown in the figure, the project scored highest on contractual readiness (7.7 out of 10 possible points). The preparedness in this area led to the overall success of the project. The following three practices scored the lowest (each with a score of 0):

- Involving contractors, trades, and vendors during the design phase (Delivery category)
- Using highly integrated 3D modeling, with all major users updating a common database (Delivery category)
- Engaging operations and maintenance personnel in the development and design process (Organizational category).

Figure 11 **Error! Reference source not found.**presents a screenshot of the results of the xDOT Flash Track Readiness assessment module. The categories in this module are as follows: (1) Right of Way & Utilities Readiness; (2) Pre-construction Readiness; (3) Contractual Readiness; (4) Planning Readiness; (5) Information Management Readiness; (6) Execution Readiness; and (7) Traffic Management Readiness. As the figure shows, the project's highest score (10) was in the Information Management category.

Figure 11: xDOT Flash Track Readiness Tool Results for I-16 & I-95

The three lowest scoring practices were the following:

- Having a 30-day state-owned float activity as a predecessor to the scheduled completion date, to absorb critical delays occasioned by the state (Planning category)
- Considering 3D and 4D modeling of the execution sequence during detailed design (Planning category)
- Considering innovative construction materials that accelerate construction (Execution category).

I-16 AND I-95 Project Positives and Challenges

Presented below are the project team members' answers to the questions asked during the meeting about the positives and challenges they have encountered in eight project readiness assessment areas.

Contractual Readiness

What are some issues the project experienced related to Contractual considerations?

Table 16: Contractual Readiness for I-65 and I-95

Contractual Positives
• Partner meetings held every quarter to align project participants' interests. • Funding early critical efforts were incorporated, and JV was allowed to schedule however they want as long as they do not exceed predetermined cost caps per year.

Delivery Readiness

What are some issues the project experienced related to Delivery considerations?

Table 17: Delivery Readiness for I-65 and I-95

Delivery Challenges
• The fact that subcontractors were not engaged in the design phase could have an adverse impact on the design.

Execution Readiness

What are some issues the project experienced related to Execution considerations?

Table 18: Execution Readiness for I-65 and I-95

Execution Positives	**Execution Challenges**
• All the leads were collocated. • Traditional beams and piles were prefabricated.	• Production staff members were not collocated, which detracted from their ability to feel the urgency of certain situations. • Innovative construction materials that could have accelerated construction were not considered.

ROW and Utilities Readiness

What are some issues the project experienced related to ROW and Utilities considerations?

Table 19: Execution Readiness for I-65 and I-95

ROW and Utilities Positives	ROW and Utilities Challenges
• Certain utility owners were engaged early, and 25-percent acquisition was accomplished by GDOT. • The department identified 18 ROW parcels that were likely to be affected. • The state acquired three parcels identified before the award of the contract.	• ROW due to utility relocation was not identified. • There was no utility and ROW coordination.

Pre-Construction Readiness

What are some issues the project experienced related to Pre-Construction readiness?

Table 20: Pre-Construction Readiness for I-65 and I-95

Pre-Construction Positives	Pre-Construction Challenges
• GDOT performed sufficient geotechnical boring through pre-let, to apprise the contractor of some challenges.	• The environmental permitting process is not well established for the Design-Build team. • The environmental permitting pathway is similar to that of D-B-B, but should be different for D-B. • Even though GDOT collected sufficient geotechnical data, the Design-Build team had to verify the risk profile. • The Design-Build team is liable for all the sub-surface data collection, not the state. This risk transfer may pose a risk of delay and increased cost.

Planning Readiness

What are some issues the project experienced related to Planning considerations?

Table 21: Planning Readiness for I-65 and I-95

Planning Positives
• The beam and pile suppliers were local. • All bridges except one were precast concrete. • The contract required 3D rendering to visualize what the camera will pick up.

Information Management Readiness

What are some issues the project experienced related to Information Management considerations?

Table 22: Information Management Readiness for I-65 and I-95

Information Management Positives
• An issue resolution process was included in the communication and management plan. • An integrated document management system called e-Builder was used to track RFIs, QA/QC, and submittals.

Traffic Management Readiness

What are some issues the project experienced related to Traffic Management considerations?

Table 23: Information Management Readiness for I-65 and I-95

Traffic Management Positives
• To ensure efficient coordination between construction and traffic management, the formulated a traffic management plan addressing closures, detours, and roles and responsibilities for incidents. • The team deployed media platforms to ensure sufficient public outreach, e.g., TV and newsletters. • A safety plan was developed to ensure the worker/public safety.

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PRESENCE OF FLASH TRACK BEST PRACTICES IN THE GDOT D-B MANUAL

Figure 12 illustrates the degree to which the CII Flash Track Best Practices are present by project category in the GDOT D-B Manual (Georgia Department of Transportation 2018).

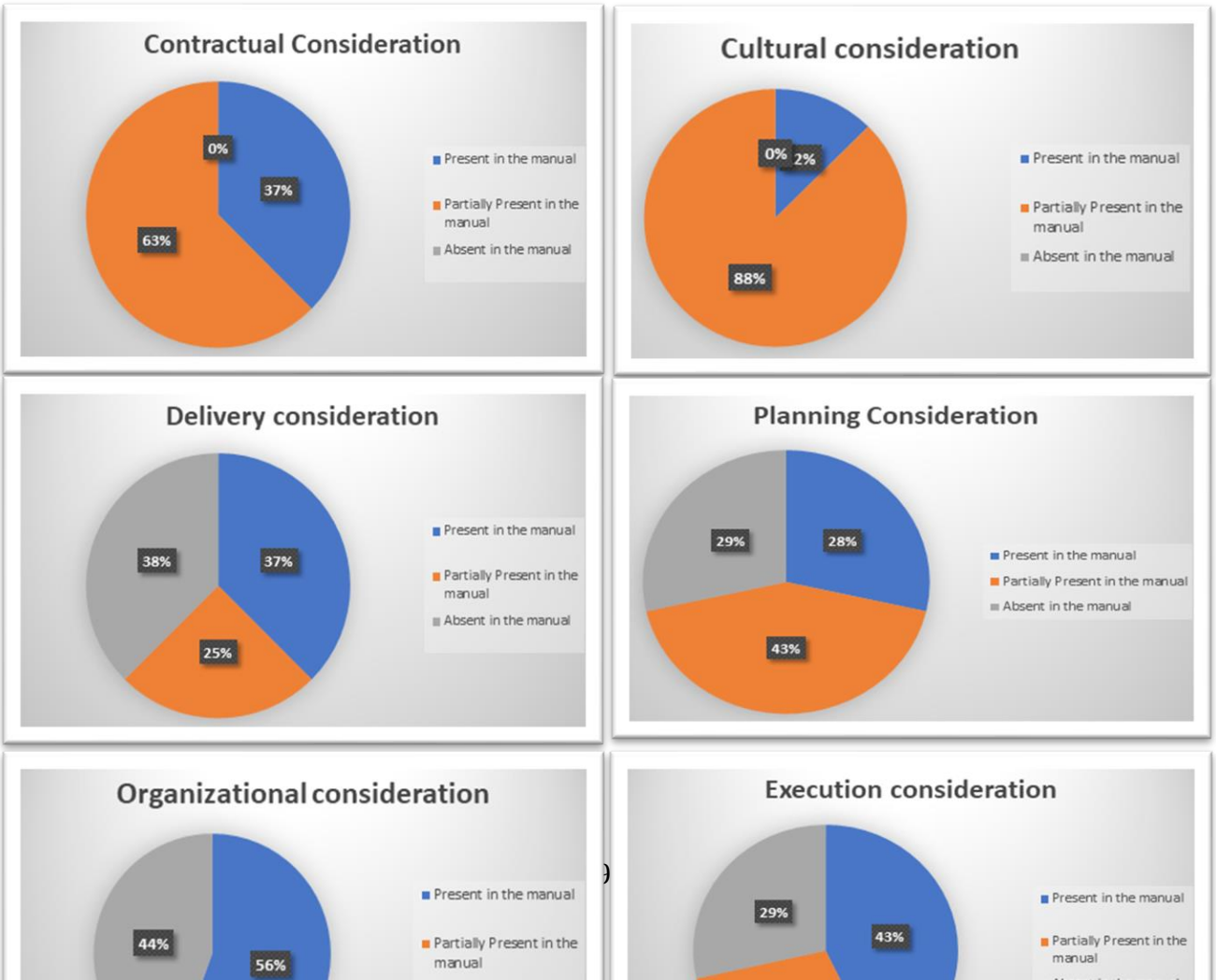

Figure 12: Presence of CII Flash Track Best Practices in GDOT D-B Manual by Category

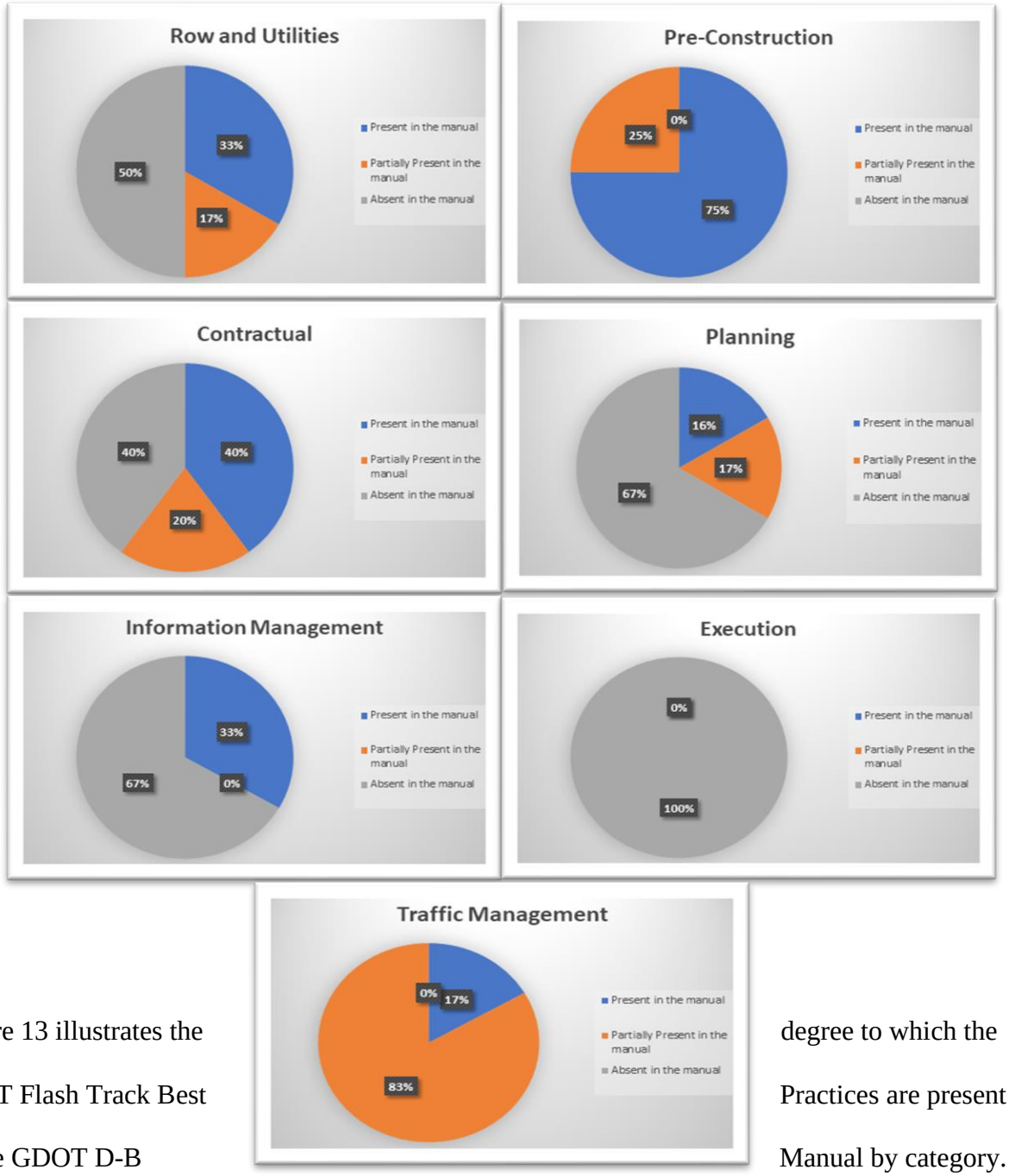

Figure 13 illustrates the degree to which the xDOT Flash Track Best Practices are present in the GDOT D-B Manual by category.

Figure 13: Presence of xDOT Flash Track Best Practices in GDOT D-B Manual by Category

Figure 14 illustrates the degree to which the CII Flash Track Best Practices in the Contractual category are present in the GDOT D-B Manual. Table 24 lists the specific Contractual flash track best practices, categorizing them as present, partially present, or absent in the manual.

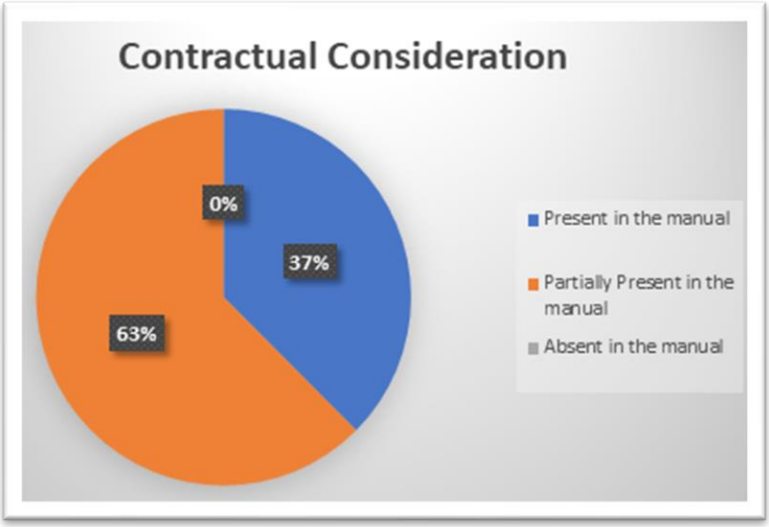

Figure 14: CII Contractual Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 24: CII Contractual Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
1) Setting clear, specific scoping requirements (Tier 1) (pg. 5-13)	2) Establishing performance-based specifications (pg. 3-22)	
7) Funding early critical efforts (Tier 1) (pg. 1-4)	3) Aligning project participants' interests through contract (pg. 1-18)	
8) Reducing risks through collective efforts of all stakeholders (pg. 2-1, 2-5, 2-7)	4) Establishing contracting strategies specifically tailored to project conditions (pg. 1-3)	
	5) Establishing clear change management procedures (Tier 1)	

	6) Establishing an effective claims resolution process (pg. 5-13)	

Figure *15* illustrates the degree to which the CII Flash Track Best Practices in the Delivery category are present in the GDOT D-B Manual. *Table 25* lists the specific Delivery Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

Figure 15: CII Delivery Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 25: CII Delivery Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	**Best Practices Partially Present in the GDOT D-B Manual**	**Best Practices Absent from the GDOT D-B Manual**
9) Selecting team members and staff on the basis of their fast track experience or qualifications (Tier 1) (pg. 3-8).	10) Focusing procurement decisions on construction priorities (Tier 1) (pg. 1-11, 1-13)	11) Selecting and awarding contracts to subcontractors in a timely manner (Tier 1)
12) Staffing with personnel with strong leadership capabilities (Tier 1) (pg. 5-3)	15) Involving contractors, trades, and vendors in the design phase (pg. 1-3, 2-25)	14) Using highly integrated 3D modelling, with all major users updating a common database
13) Employing innovative procurement practices (pg. 1-5, 2-8)		16) Seeking out suppliers and specialty contractors as a source for time- saving innovations

Figure 16 illustrates the degree to which the CII Flash Track Best Practices in the Organizational category are present in the GDOT D-B Manual. *Table 26* lists the specific Organizational Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

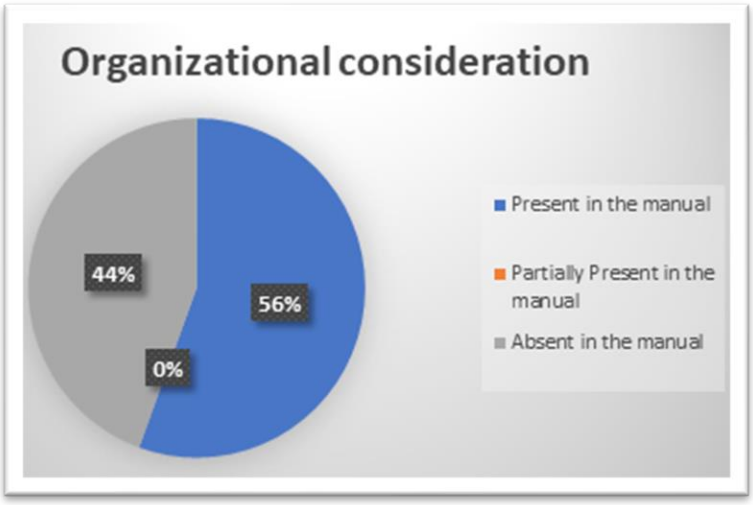

Figure 16: CII Organizational Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 26: CII Organizational Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
20) Delegating authority to the project level (i.e. maximizing decision-making authority at the project level) (Tier 1)		17) Engaging operations and maintenance personnel in the development and design process
21) Empowering the project team (ensuring that each organization is led by an empowered leader) (pg. 2-19)		18) Establishing fully integrated project teams, including design, construction, specialty contractors, commissioning, operations personnel (Tier 1)
22) Having an owner with sufficient depth of resources and organizational strength (pg.-1-4)		19) Using team building and partnering practices
24) Having an engaged/empowered		23) Selecting personnel

owner's engineer (owner's representative) (pg. 1-14)		with a can-do attitude and willingness to tackle challenging tasks
25) Staffing with multi-skilled personnel (pg. 3-8)		

Figure 17 illustrates the degree to which the CII Flash Track Best Practices in the Cultural category are present in the GDOT D-B Manual.

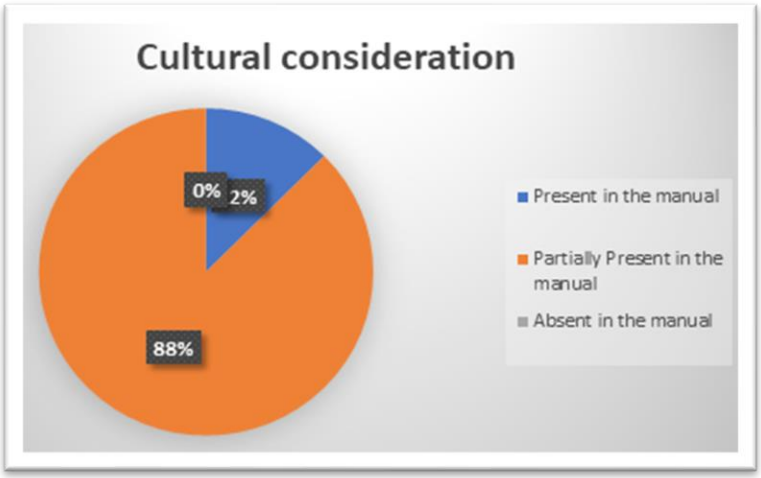

Table 27 lists the specific Cultural Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

Figure 17: CII Cultural Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 27: CII Cultural Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
27) Having an active, involved, and fully committed owner	26) Accepting a non-traditional paradigm or mindset	
	28) Establishing flexible project teams that avoid rigid hierarchy	
	29) Maintaining a no-blame culture and a mutually supportive environment	
	30) Having open communication and transparency (Tier 1)	

	31) Staffing with cooperative and collaborative personnel 32) Having an open-minded team	
	33) Creating executive alignment among the contracted parties	

Figure 18 illustrates the degree to which the CII Flash Track Best Practices in the Planning category are present in the GDOT D-B Manual. *Table 28* lists the specific Planning Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

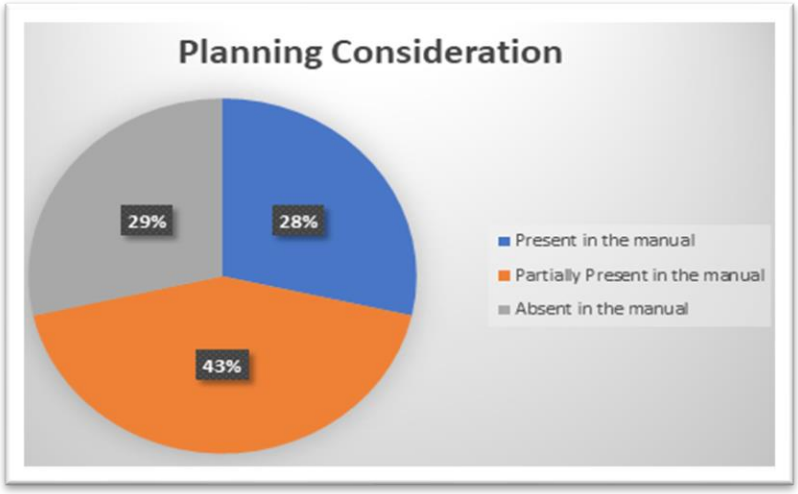

Figure 18: CII Planning Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 28: CII Planning Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
35) Performing exhaustive front-end planning (pg. 1-5, 2-5, 2-11)	34) Emphasizing coordination planning during the design process (Tier 1) (pg. 5-2)	36) Identifying and procuring long lead time items (Tier 1)
38) Providing enough resources to critical path items (Tier 1) (pg. 1-5, 2-5, 2-11)	37) Monitoring and driving corrective actions through the project controls process (pg. 1-14)	39) Considering speed of fabrication and construction during the selection of design alternatives (Tier 1)
	40) Recognizing and	

	managing the additional flash track risks (Tier 1) (pg. 2-2)	

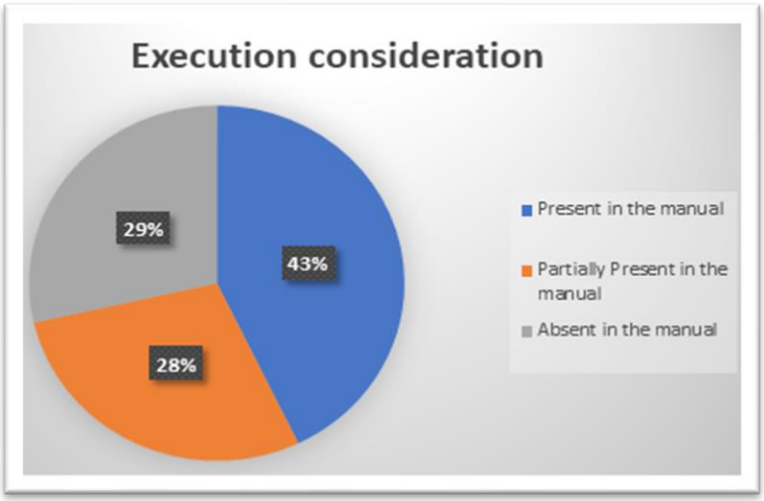

Figure 19 illustrates the degree to which the CII Flash Track Best Practices in the Execution category are present in the GDOT D-B Manual. Table 29 lists the specific Execution Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

Figure 19: CII Execution Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 29: CII Execution Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
41) Collocating the project team (i.e. owner, designer, builder, and/or key vendors) (pg. 2-25)	44) Selecting appropriate construction methods (Tier 1) (pg. 1-4, 5-7)	42) Simplifying approval procedures (Tier 1)
43) Dedicating full-time personnel to the project (Tier 1) (pg. 2-7, 2-14, 2-19)	46) Employing innovative construction methods	45) Minimizing handoffs
47) Conducting frequent and effective project review meetings (pg. 5-11, 2-7)		

Figure 20 illustrates the degree to which the xDOT Flash Track Best Practices in the ROW and Utilities category are present in the GDOT D-B Manual. *Table 30* lists the specific ROW and Utilities Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

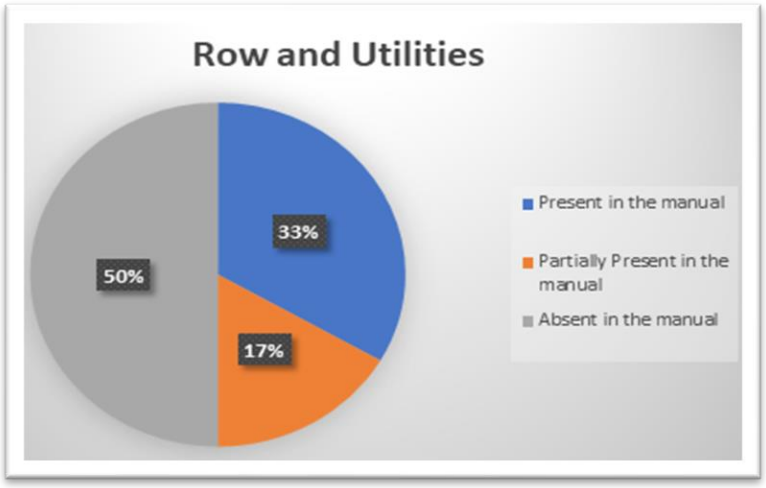

Figure 20: xDOT ROW & Utilities Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 30: xDOT ROW & Utilities Category- Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
49) Having early utility and ROW coordination (pg. 1-15)	48) Having early engagement of utility owners	50) Having dedicated utility manager consultants for xDOT and the Designer-Constructor team
		51) Having sub-surface utility engineering
		52) Overlapping environmental and ROW acquisition
		53) Starting ROW acquisition during conceptual design (20%-50% Design)

Figure 21 illustrates the degree to which the xDOT Flash Track Best Practices in the Pre-Construction category are present in the GDOT D-B Manual. Table 31 lists the specific Pre-Construction Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

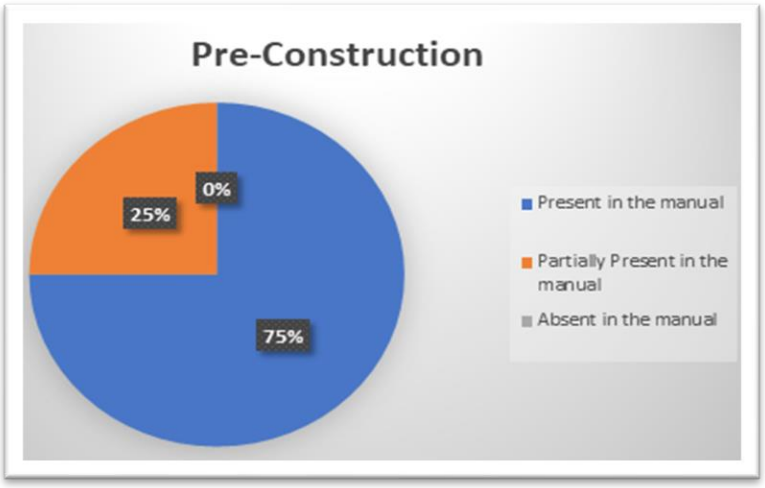

Figure 21: xDOT Pre-Construction Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 31: xDOT Pre-Construction Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
54) Conducting environmental permitting and scope development in parallel (pg. 2-11)	57) Using pre-construction analysis software to evaluate and select alternative project scenarios	
55) Gathering accurate geotechnical(sub-surface) data to reduce risk (pg. 5-7)		
56) Establishing programmatic agreements to streamline the process for handling routine environmental requirements (pg. 3-20)		

Figure 22 illustrates the degree to which the xDOT Flash Track Best Practices in the Contractual category are present in the GDOT D-B Manual. Table 32 lists the specific Contractual Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

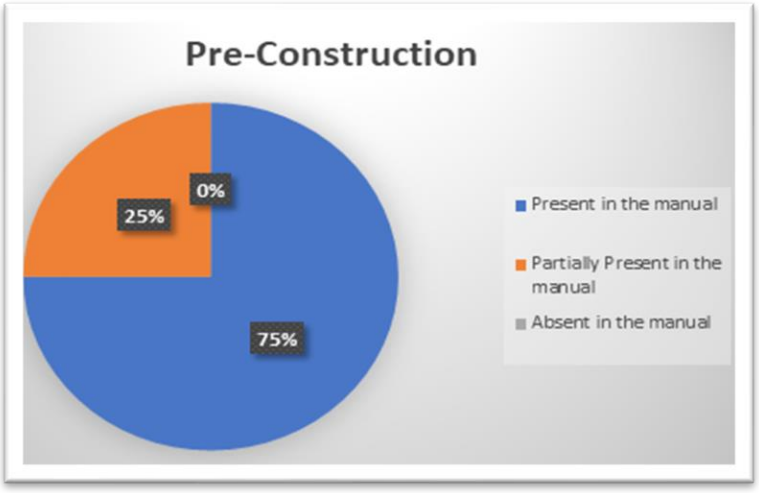

Figure 22: xDOT Contractual Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 32: xDOT Contractual Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
58) Having a responsible in-charge engineer/design-build integrator (pg. 5-2)	59) Including ROW, utility relocation, and environmental mitigation in design-build contract	61) Employing allowances for certain bid items as a means of risk sharing
60) Using incentives to encourage earlier project completion (pg. 3-22)		62) Using existing open-ended contracts to procure time-critical elements

Figure 23 illustrates the degree to which the xDOT Flash Track Best Practices in the Planning category are present in the GDOT D-B Manual. Table 33 lists the specific Planning Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

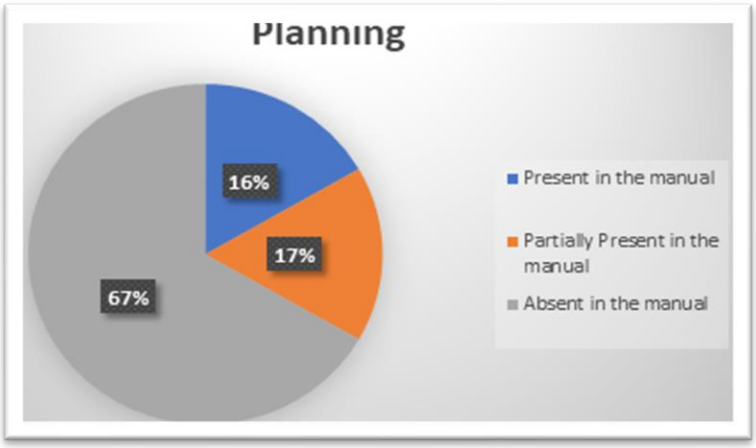

Figure 23: xDOT Planning Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 33: xDOT Planning Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
67) Considering both inter-phase and intra-phase concurrency for design and construction packages	65) Phasing environmental permits to match phased construction (pg. 2-10)	63) Having a 30-day state owned float activity as a predecessor to the scheduled completion date, to absorb critical delays caused by the state
		64) Considering 3D and 4D modeling of the execution sequence during detailed design
		66) Using software to assist with scheduling of Portland Cement Concrete (PCC) pavement, given the design, construction, and

		environmental factors
		68) Establishing the bridge fabrication facility near the project location

Figure 24 illustrates the degree to which the xDOT Flash Track Best Practices in the Information Management category are present in the GDOT D-B Manual.

Table 34 lists the specific Information Management Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

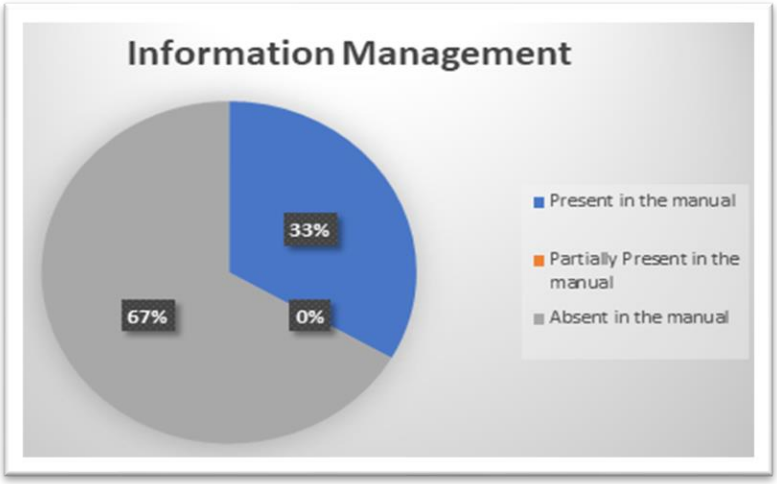

Figure 24: xDOT Information Management Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 34: xDOT Information Management Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
71) Utilizing an integrated document management system for tracking requests for information (RFIs), QA/QC, submittals, and other time-sensitive documents		69) Collecting lessons learned from similar projects
		70) Developing a planned issue resolution process

Figure 25Figure 24 illustrates the degree to which the xDOT Flash Track Best Practices in the Execution category are present in the GDOT D-B Manual. Table 35 lists the specific Execution Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

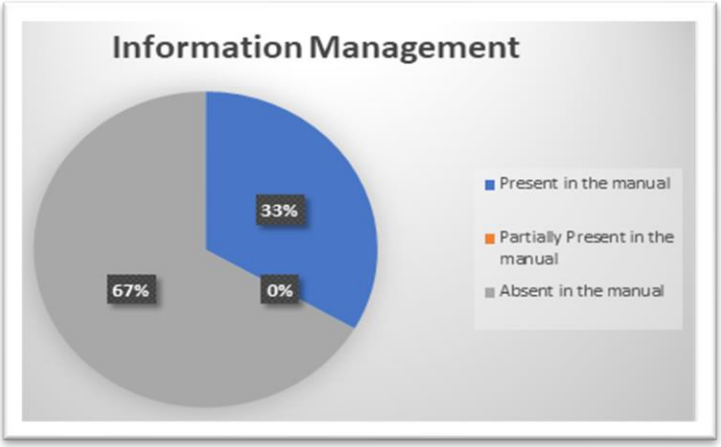

Figure 25: xDOT Execution Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 35: xDOT Execution Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
		72) Pre-fabricating project elements that are on the critical path
		73) Considering innovative construction materials that accelerate construction
		74) Implementing construction-driven design
		75) Making timely decisions through the use of workshops
		76) Establishing a project command center
		77) Establishing a shuttle bus service for construction workers, take them from a common parking lot to the job site

Figure 26Figure 24 illustrates the degree to which the xDOT Flash Track Best Practices in the Traffic Management category are present in the GDOT D-B Manual.

Table 36 lists the specific Traffic Management Flash Track Best Practices, categorizing them as present, partially present, or absent in the manual.

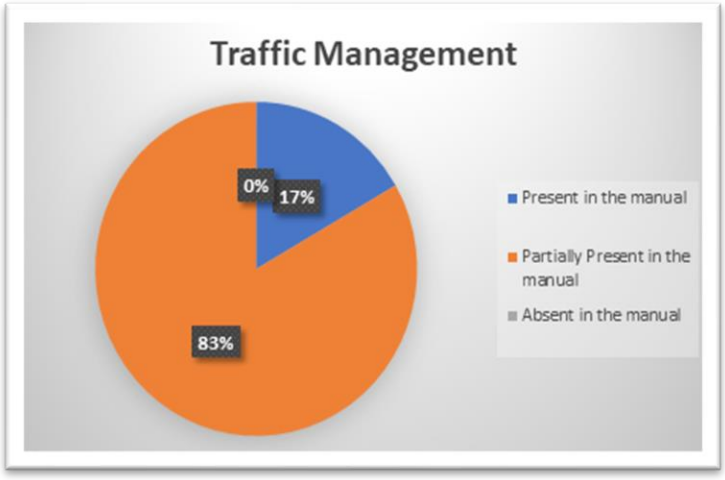

Figure 26: xDOT Traffic Management Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Table 36: xDOT Traffic Management Category—Presence of Flash Track Best Practices in GDOT D-B Manual

Best Practices Present in the GDOT D-B Manual	Best Practices Partially Present in the GDOT D-B Manual	Best Practices Absent from the GDOT D-B Manual
78) Ensuring efficient coordination of contraction with the management of traffic issues (pg. 1-4, 2-17)	79) Utilizing a lane closure time bank (pg. 2-17, 1-4)	
	80) Deploying continual public outreach, media campaigns, and dedicated communications personnel (pg. 2-17, 1-4)	
	81) Ensuring worker/public health and safety (pg. 2-17, 1-4)	
	82) Performing exhaustive lane closure planning (pg. 2-17, 1-4)	
	83) Implementing smarter	

	work zones to dynamically manage traffic and reduce work zone impacts (pg. 2-17, 1-4)	

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SWOT ANALYSIS OF THE GDOT D-B MANUAL FROM THE STANDPOINT OF FLASH TRACKING

Table 37: SWOT Analysis of GDOT D-B Manual for Flash Tracking—Focusing on Strengths

Strength	Corresponding Best Practice Number	Explanation
Stipulated Fee (pg.1-11)	7. Funding early critical efforts 13. Employing innovative procurement practices	To gain ownership of the proposed design ideas, GDOT pays all D-B firms a fee as they enter the bidding process. This ownership enables GDOT to use any of the ideas proposed—even those of the nonwinning firms—to create a final design that best meets project criteria.
Two-phase Best Value Selection method (Financial, Technical) (Pg.1-7)	25. Staffing with multi-skilled personnel	GDOT follows a two-phase review process, first issuing an RFQ and shortlisting five proposers on the basis of their SOQs. Next, these five candidates respond to an RFP for technical and financial proposals. The technical proposals assure the technical experience and knowledge of the project team, while the financial proposals ensure the best price for the project. GDOT selects the proposer with the highest combined score.
ATC (Alternate technical concept) (Pg.3-19)	46. Employing innovative construction methods 44. Selecting appropriate construction methods (Tier 1)	D-B firms can propose changes to the basic configurations, project scope, design criteria, and construction criteria provided by GDOT in the RFP. These proposed changes can provide new ideas and techniques equal

Strength	Corresponding Best Practice Number	Explanation
		to or better than those set in the RFP requirements. ATCs provide flexibility in the design and/or construction of the entire project or a part of the project, in order to enhance innovation and achieve efficiency.
Collocation of team (pg. 2-18)	41. Collocating the project team	Collocation is encouraged by GDOT on multi-year complex projects, which requires a large degree of coordination between the D-B Team and GDOT design oversight staff. On less complex projects, alternative forms of design coordination are encouraged, e.g., regularly scheduled meetings.
OID-PM to co-ordinate with the office of utilities as soon as possible (pg. 2-13)	48. Having early engagement of utility owners (Partially) 27. Having an active, involved, and fully committed owner	The D-B manual cites as one of the core OID-PM responsibilities the timely co-ordination with the office of utilities, to identify any utilities on site and to strategize their early acquisition. This process can save valuable time on flash track projects.
RFP not advertised until all environmental permits are concluded (pg. 2-10)	54. Conducting environmental permitting and scope development in parallel. 56. Establishing programmatic agreements to streamline the process for handling routine environmental requirements	If possible, the RFP should not be advertised until after the environmental permitting process. The OID-PM should base the D-B procurement schedule on this assumption. In some cases, the RFP can be advertised prior to the conclusion of the environmental process; however, the project

Strength	Corresponding Best Practice Number	Explanation
		cannot be awarded until the environmental permits are issued, unless otherwise approved by the chief engineer. If GDOT determines that the D-B project will be procured and awarded prior to issuance of the environmental permits, the requirements set forth in 23 CFR Part 636.109 will apply.
Early environmental permits (Pg. 2-11).	54. Conducting environmental permitting and scope development in parallel.	The D-B manual recommends making early contact with the regulatory agencies responsible for permits, to coordinate submittals and approved schedules, and to investigate the potential for phased permitting, simultaneous reviews, and fast tracking, among other time-saving measures. This contact should begin as soon as possible, to apprise the regulators of the imminent GDOT need for a permit for the project.
Geotechnical Investigation provided by GDOT for information purpose only before RFP (pg. 2-14)	55. Gathering accurate geotechnical (sub-surface) data to reduce risk	The D-B manual says that GDOT should advertise the geotechnical information they have about the project site, adding that the D-B firm can re-perform any additional tests they deem necessary.
5DPM (pg. 2-2)		GDOT employs a technique called Five Dimension Project Management (5DPM) to

Strength	Corresponding Best Practice Number	Explanation
		gauge project complexity. Using 5DPM, the program manager can plan and prepare risk mitigation processes, with the following dimensions in mind: cost, schedule, technical aspects, context (external factor), and financial analysis.
Maintenance of Traffic (2-17)	78. Ensuring efficient coordination of construction with the management of traffic issues	The manual states that the D-B team is responsible for developing staging and traffic control plans. GDOT should conduct sufficient preliminary engineering to define the minimum traffic control requirements and lane closure restrictions. The RFP should identify these traffic control requirements and restrictions as available work hours or as available lane closure parameters. It should also stipulate any liquidated damages associated with violations of these requirements and restrictions.
Incentives/disincentives to encourage contractors (Pg.3-22)	60. Using incentives to encourage earlier project completion	The D-B manual permits D-B contract incentives for almost any performance criterion, including public involvement and public relations, maintenance of traffic volumes, teamwork, design innovations, and environmental performance. For instance, incentive contracts can be crafted to accelerate traffic shift. Contractors can

Strength	Corresponding Best Practice Number	Explanation
		submit a cost reduction incentive proposal (CRIP), the cost savings of which would be shared equally between the contractor and GDOT.
Engaging subject matter experts (SMEs) as early as possible (Pg.5-2)		The OID-PM is responsible for engaging (and re-engaging) GDOT SMEs as early as possible after the notice of award, to discuss the following: • the D-B delivery process • critical GDOT staff roles • the dynamic between the design and construction phases • various risks associated with the project, e.g., geotechnical and environmental aspects.
Phasing of work (pg. 5-9)	67. Considering both inter-phase and intra-phase concurrency for design and construction packages	The D-B manual encourages the D-B team to create work phasing opportunities. To do this, the team must submit a work phasing plan for the areas involved. This plan should include a checklist for each area, demonstrating the necessity of each checklist item (in accordance with the RFP). GDOT requires this justification before it will issue a conditional Notice To Proceed 3 (NTP 3), which releases the D-B

Strength	Corresponding Best Practice Number	Explanation
		team to perform construction-related activities. This planning enables the team to develop milestones, monitor project progress, and identify and prevent potential delays.
Additional Project Management Plan (Pg.5-13)	78. Ensuring efficient coordination of Construction with the management of traffic issues	The D-B manual recommends that complex traffic phasing should be described in the PMP wherever applicable. Protected environmental zones and sensitive areas should be shown and described on mapping contained in the appendices of the manual.
Use of various software (pg. 5-10)	57. Using pre-construction analysis software to evaluate and select alternative project scenarios	Site manager – construction management software for daily reporting and monthly payment estimates E-builder – project management software to correspond with the D-B team for submittals, file management, and document controls. ASTER – software used for materials tracking and testing reporting.

Table 38: SWOT Analysis of GDOT D-B Manual for Flash Tracking—Focusing on Weaknesses

Weakness	Corresponding Best Practice Number	Explanation
No conflict resolution plan requirement	70. Develop a planned issue resolution process	The D-B manual requires the D-B firm to develop a conflict resolution plan as part of the project management plan.
Long Bidding Process		The D-B manual includes one- and two-phase processes. In the two-phase process, bidders undergo two reviews before being selected. In the first phase, bidders submit their SOQs in response to the RFQ and are shortlisted. In the second phase, the shortlisted bidders submit a technical proposal and a price proposal. Because this lengthy process can slow down a flash-track project, shortening the bidding process would be beneficial.
Reference Information Documents (RID) (pg. xiv)		GDOT does not guarantee the accuracy, completeness, or suitability of the RID provided in the RFP. This can create confusion for the proposers. In the case of flash-track projects, the RID can be made more accountable.
Lumpsum Contracts (pg. 1-3)		Research has shown that lumpsum contracts cause cost increases because of the higher contingencies assumed by stakeholders. [1] On flash-track projects, alternative contract types can be considered.
Consultants not allowed to bid on project (pg. 1-19)		Consultants who help prepare documents such as

Weakness	Corresponding Best Practice Number	Explanation
		the RFQ, PNA, and RFP may be the most qualified for the project. However, their exclusion from the bidding process probably cannot be changed because projects are publicly funded and because of Equal Employment Opportunity (EEO) requirements.

Table 39: SWOT Analysis of GDOT D-B Manual for Flash Tracking—Focusing on Opportunities

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
Contractual Considerations			
1. Add Flash Track Implementation in Contract	2. Establishing performance-based specifications 4. Establishing contract strategies specifically tailored to project conditions	The contract is first in order of precedence in D-B project documents. Fast-tracking measures like collocation, adoption of innovative construction techniques, and use of certain technologies and software can be added to the contract. Risk-sharing measures can also be included in the contract, to spread the risks of cost overruns and schedule delays among the major stakeholders. This risk management will ensure greater involvement of all project stakeholders.	3.6 Request for Proposals
2. Include Disincentives for Non-Conformance of Work (NCW) in the Contract	60. Using incentives to encourage earlier project completion	The rework associated with NCW leads to schedule delay. Contractually stipulating stringent penalties or disincentives for NCW will motivate the D-B team to carefully execute the work and prevent potential delays.	3.6 Request for Proposals
3. Change orders	5. Establishing clear change management procedures (Tier	The D-B manual is silent on the number of change orders allowed on a project. Typically,	3.4 Request for Qualifications 3.8.4 Use of Incentives in

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
	1)	in the D-B process, nearly 70 of any 100 drawings must be redone and must be re-verified by GDOT. If possible, GDOT should add incentives or disincentives for the D-B firm to prevent unnecessary changes during construction and, thus, to reduce the number of change orders.	Design-Build Contracts
Selection/Bidding Considerations			
1. Blanket Partnership Agreement (Solution for weakness 2: Long bidding process)		To overcome the shortcomings of the long bidding process, GDOT can enter into a Blanket Partnership Agreement, which essentially entails the pre-selection of a set of D-B firms and sub-contractors who have previously met the selection criteria. To expedite the selection process, these firms can then be invited to bid for flash track projects.	1.4 Design-Build Project Selection
2. Modifying the selection criteria in the bidding process	9. Selecting team members and staff on the basis of their fast track experience or qualifications (Tier 1)	Add weightage to prior flash track project experience during the selection process, in addition to considerations of the financial and technical soundness of the bidding firm.	3.4 Request for Qualifications
3. Creating an online portal for	62. Using existing open-ended	A web portal showing the work to be done on	3.1 Websites and SharePoint

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
subcontractors	contracts to procure time-critical elements	the project will enable multiple subcontractors to accurately assess their qualifications for the job. This can ensure the selection of the most relevant subcontractors. Subcontractors can also showcase their capabilities and show proof of previous work on the portal. This can expedite bidder shortlisting in the two-phase selection process.	Sites
4. Encourage Innovative Ideas for Flash Tracking from Bidding Firms	13. Employing innovative procurement practices 46. Employing innovative construction methods	Allow bidding firms to come up with innovative ways to reduce project duration. This can help GDOT gauge the readiness and capability of a firm to successfully complete a flash track project. If possible, also pay the firms a stipulated fee, to retain the ideas submitted for future use.	3.4 Request for Qualifications
5. Detailed Traffic Management Plan in RFP Phase		The D-B manual addresses the submission of traffic phasing in PMP. But GDOT has scope for expansion here and can ask the D-B team to submit its plans and strategies on the following as early as	3.6 Request for Proposals

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
		the RFP phase: • utilizing a lane closure time bank • ensuring the health/safety of workers and the public • performing exhaustive lane closure planning • traffic management planning • reduction of work zone impacts.	
6. Ask bidders to discuss the risks of flash track implementation, and solicit their recommended risk mitigation measures	40. Recognizing and managing additional flash track risks (Tier 1)	In the RFP, ask bidders to provide their risk analysis for flash track implementation and the risk mitigation measures they would take. This can help GDOT determine the qualification and readiness of the D-B firm to execute a flash track project.	3.6 Request for Proposals
Project Development Considerations			
1. Hierarchy of values	1. Setting clear, specific scoping requirements (Tier 1) 4. Establishing contracting strategies specifically tailored to project conditions	GDOT should identify its priorities for each flash track project, e.g., quality, traffic management, and cost, among others. The D-B firm can then design and execute the project with these priorities in mind. This alignment	2.1 Project Development

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
		of priorities can reduce conflicts, change orders, and unnecessary schedule delays.	
2. Increase the safety factor		On flash track projects, the safety factor can be increased during design. This can reduce the potential for delays due to safety issues.	2.1 Project Development
3. Referencing the schedule of former successful flash track projects	69. Collecting lessons learned from similar projects	D-B teams can deploy scheduling techniques used successfully on similar past projects. These can be used as a reference for faster schedule development.	2.4 Design-Build Schedule
4. Add Conflict Resolution Plan to PMP	70. Developing a planned issue resolution process	Having a process for conflict resolution will ensure that issues are settled quickly and smoothly, should they arise.	5.9 Project Management
5. Add a Flash Track Quality Management Plan (QMP) category		A D-B team submits a QMP consisting of two main categories: 1) Design QMP; and 2) Construction QMP. A third, flash track-specific category can be added, to address the quality control issues associated with flash track implementation.	5.11.1 Quality Management Plan
6. Requirement of a single Project Management Plan (PMP) for flash track projects with multiple projects sponsors (pg. 5-13)		The D-B manual allows projects with multiple project sponsors to have each project sponsor submit a PMP describing its portion of the project to FHWA for approval. This approval of multiple	5.9.1 Project Management Plan

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
		PMPs can take significantly longer than that of a single PMP. In addition, having separate PMPs can hinder any project sponsor collaboration that the development of a single PMP might otherwise facilitate.	
Execution Considerations			
1. Work hours	38. Providing enough resources to critical path items (Tier 1)	The D-B manual could add an appendix on work hours for laborers and could recommend dual shifts, depending on project needs. It can also add rules for smoother work shift transitions, e.g., requiring overlap of superintendents.	2.1 Project Development
2. Schedule Acceleration		Productivity on a project can be calculated by dividing quantity of work done by labor hours expended. Using this crew productivity formula, D-B teams can calculate the time required to complete the work. This projection method can be used to calculate the schedule effects of changes to the number of workers on a project and to the duration of their shifts.	2.1 Project Development
3. Funding Early	10. Focusing	GDOT makes the	2.1 Project

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
Critical Efforts	procurement decisions on construction priorities (Tier 1) 7. Funding early critical efforts (Tier 1) 38. Providing enough resources to critical path items (Tier 1)	payment for mobilization after its issuance of the Notice To Proceed 3 (NTP 3), which releases the D-B team to perform construction-related activities. Instead, earlier payment could help the D-B team begin preliminary work or order materials with long lead times. This could enable construction to start as soon as NTP 3 issuance, or it could reduce the risk of delayed delivery of long lead time materials.	Development 2.3.2 – Identify and Evaluate Flexible
4. Conducting frequent and effective project review meetings	47. Conducting frequent and effective project review meetings	The D-B manual suggests monthly meetings with key stakeholders. On flash track projects, this frequency can be changed to weekly meetings to ensure that critical path activities are progressing smoothly, and to increase readiness to solve any emergencies that might arise.	5.5.2 Regular Meetings
5. Integrate D-B Team Independent Design Reviewer and GDOT Design Reviewer	45. Minimizing handoffs	The D-B manual requires the D-B team to assign an independent design reviewer. By integrating the GDOT design reviewer and the	5.1/5.2 GDOT D-B Team Roles and Responsibilities

Opportunities	Corresponding Best Practice Number	Explanation	DB Manual Section
		D-B design reviewer, the team can ensure a faster and more efficient review process.	

GDOT DESIGN-BUILD MANUAL APPENDIX FOR FLASH TRACK PROJECTS

To help GDOT incorporate Flash Track Best Practices that are currently absent from its DB manual, this section provides recommendations for additional statement inserts. These recommendations are highlighted in red.

1.7 Roles and Responsibilities

Programmatic GEC roles and responsibilities may include the following (Page.1-14):

- Overlapping environmental and ROW acquisition – if a single firm is responsible for both tasks, real or perceived conflicts of interest should be disclosed.

Roles and responsibilities of the GEC assigned to each project may include the following (Page.1-15):

- ROW and Utilities GEC
    - ROW acquisition should be started during conceptual design (20%-50% Design)

2.3 Design-Build Cost Estimate

4. Prior to submitting the RFP review request to the GDOT Office of Engineering Services (refer to Section 2.2 Design-Build RFP Review), the OID-PM will ensure that two cost estimates are developed for the project in the GDOT Cost Estimation System (CES) tool (refer to CES Cost Estimating Documents found on GDOT R.O.A.D.S webpage):

a. A detailed Design-Bid-Build construction cost estimate based on reasonably assumed quantities, using typical GDOT Design-Bid-Build pay items (Page 2-24); for certain bid items with substantial scope uncertainty, GDOT may consider designating specific cost allowances in accordance with the RFP, to spread the risk.

5.1 GDOT Roles and Responsibilities

5.1.1 Office of Innovative Delivery (Page 5-1)

- Retrieval of lessons learned from similar past projects and sharing them with the project team.
- Development of efficient approval procedures, for example, by adopting an over-the-shoulder review process.

5.2 Design-Build Team Roles and Responsibilities

5.2.2 Similarly, GDOT should designate its own counterpart to the utilities coordinator.

The Design-Build Team has the primary responsibility for controlling and managing the work, design, and construction with quality in mind (Page 5-5).

5.2.9 Design-Build Team Operation and Maintenance Manager

- The Design-Build team should follow the GDOT requirements for operation and maintenance, to ensure the maintainability of the proposed design.

5.2.10 Integrated Design-Build Team

- The Design-Build team should establish a fully integrated project team commensurate with the scope of the project.
- The Design-Build team should use team building and partnering practices.

5.2.11 Construction Means and Methods

- The schedule implications should be considered for prefabricated project elements that are on the critical path.
- Innovative construction materials should be considered, to accelerate construction.
- Consideration should be given to implementing a construction-driven design.

5.5.1 Post-Award Kickoff Meeting (Page 5-11)

- Jointly develop an understanding of the issue resolution process to be followed throughout the project.

5.5.2 Regular Meetings (Page 5-11)

- The Design-Build Team should use focused workshops to facilitate timely decision-making.

5.6 Schedule Development and Management

- The Design-Build team should consider 3D and 4D modeling of the execution sequence during detailed design.
- To optimize the paving schedule, the Design-Build team should consider using specialized software that takes design, construction, and environmental constraints into account.
- If the project involves bridge construction, the Design-Build team should consider establishing the bridge fabrication facility near the project location.
- The Design-Build team should identify and procure long lead time items early on.

5.9.1.1 Additional Project Management Plan Considerations

- When applicable, a provision for a shuttle bus service for construction workers to take them from a common parking lot to the job site should be included in the Transportation Management Plan (TMP).

5.11.1.1 Design Quality Management Plan

- Design should be developed on a highly integrated 3D modelling platform, with all major users sharing a common cloud-based database.
- The Design-Builder should aim to minimize handoffs between project participants (e.g., early involvement of key subcontractors, suppliers, and other downstream participants).
- Design Decision Making
    - When selecting design alternatives, the Design-Build team should consider the speed of fabrication and construction.

5.16 Utility Design and Relocations

- Designating a Utilities Coordinator to be the principal contact for all utility-related Project Activities.
- Requesting sub-surface utility engineering from utilities owners. If further verification is needed, the Design-Build team should perform the necessary checks to confirm utility location.

5.18.1 Subcontracts

The Design-Build Team will prepare and submit subcontracts in accordance with the GDOT Construction Manual and the Design-Build Construction SOP.

- The Design-Build Team should select and award contracts to subcontractors in a timely manner.
- In accordance with the contract documents, the Design-Build team should consider using competitive open-ended contracts to procure time-critical elements.
- The Design-Build team should seek out suppliers and specialty contractors as sources of time-saving innovations.

5.22 Post Design-Build Evaluation

- Lessons learned from the project should be gathered and chronicled.

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ADDENDUM TO RFQ FOR SR 25 AT SAVANNAH & MIDDLE RIVER BRIDGES REPLACEMENT PROJECT

P.I. No. 0013741 & 0013742 – SR 25 at Savannah & Middle River Bridges Replacement Project Date Posted:2/26/2021

Georgia Department of Transportation

Request for Qualifications
RFQ 484-02262021DB

To Provide

Design-Build Services for
SR 25 at Savannah & Middle River Bridges Replacement Project

P.I. No. 0013741 & 0013742
Chatham County, GA

Statements of Qualification Due: March 25, 2021

Georgia Department of Transportation
One Georgia Center
600 West Peachtree Street, NW
Atlanta, Georgia 30308

Following are recommendations for inclusion in the RFQ for Design-Build Services for SR 25 at Savannah & Middle River Bridges Replacement Project (Georgia Department of Transportation 2021).

1) Consider adding statements in section VI.B.4 about the Lead Contractor's experience with the following:
    - Working within a fully integrated team
    - Early involvement of key downstream supply chain participants.

3) Consider adding statements in section VI.B.5 about the Lead Design Consultant's experience with the following:
    - Over-the-shoulder reviews
    - Construction-driven designs
    - Fabrication-driven designs
    - Maintenance-driven designs
    - Working within a fully integrated team

4) In section VI.B.7, consider adding the following: The narrative should include a section describing lessons learned from similar past projects.

ADDENDUM TO RFP FOR SR 25 AT SAVANNAH & MIDDLE RIVER BRIDGES REPLACEMENT PROJECT

Georgia Department of Transportation

REQUEST FOR PROPOSALS

TO DESIGN AND CONSTRUCT

THE SR 25 at Savannah & Middle River Bridges Design-Build Project

Chatham County, GA

THROUGH A

DESIGN-BUILD AGREEMENT

PROJECT NUMBER
P.I. Nos. 0013741 & 0013742

INSTRUCTIONS TO PROPOSERS

GEORGIA DEPARTMENT OF TRANSPORTATION

RFP Issued: April 23, 2021

Proposals Due: August 19, 2021 at 11:00 a.m.

Georgia Department of Transportation
One Georgia Center
600 West Peachtree Street, NW
Atlanta, Georgia 30308

Following are recommendations for inclusion in the RFP for Design-Build Services for SR 25 at Savannah & Middle River Bridges Replacement Project (Georgia Department of Transportation 2021).

Exhibit C

We recommend that GDOT considers adding the following section to Exhibit C.

C.1.6 Additional Flash Track Considerations

GDOT values proposers who demonstrate in their technical proposals their approach to:

- Creating a fully integrated team.
- Utilizing 3D/4D modeling technology in design development and construction execution.
- Having an early involvement of key downstream supply chain participants.
- Incorporating a construction-driven design.
- Incorporating a fabrication-driven design.
- Incorporating a maintenance-driven design.
- Incorporating an over-the-shoulder reviews in a collocating environment.

Exhibit E

We recommend that GDOT considers adding the following to Table E-1 in section E.1.2.

Technical Section	Maximum Score
Approach to Flash Tracking	Bonus Points (?)

REVISED TEMPLATE FOR REQUEST FOR QUALIFICATIONS

To incorporate the flash track best practices currently missing from the GODT RFQ, this section provides recommendations for additional statement inserts into a GDOT RFQ Template. The RFQ template for I-285 & SR 400 Reconstruction Project was used as an example (Georgia Department of Transportation 2014). The recommended inserts into Exhibits E and F of the RFQ are highlighted in red.

EXHIBIT E

SOQ FORMAT AND CONTENT

E.2.2.1 Technical Information

(c) Respondent Experience Summary – SOQs shall include a written statement of no more than three pages describing the Respondent's overall technical experience with respect to the Project. Respondents may highlight relevant projects not otherwise included in Forms C-1 and C-2 to the extent they demonstrate depth of experience [with similar project types and with fast track and/or flash track project delivery].

EXHIBIT F

EVALUATION CRITERIA AND WEIGHTING

F.2 Technical Qualifications and Capability (45% Weighting)

(a) The extent and depth of the Respondent's and its individual team members' experience with and degree of success related to designing and constructing comparable projects [, and these parties' experience with fast track and/or flash track project delivery.]

(b) The stability, strength, [can-do attitude], and likelihood of success of the proposed management structure and team; and

1. INTRODUCTION

- The Georgia Department of Transportation ("GDOT"), an agency of the State of Georgia ("State"), hereby requests the sealed submittal of statements of qualifications ("SOQs") from Respondents desiring to develop _____Project (the "Project") [using the Flash Tracking Approach (i.e., faster fast tracking or heightened schedule concurrency)] through a Design-Build-Finance ("DBF") Agreement approved by the State Transportation Board and signed by the Developer and the State Road and Tollway Authority ("SRTA"), an instrumentality of the State. Under such DBF Agreement, the Developer will be required to design, construct, and partially finance the Project through innovative project delivery and financing solutions.

- This Request for Qualifications ("RFQ") is issued in accordance with the provisions of Sections 32-2-78 through 32-2-80 of the Official Code of Georgia Annotated (the "Georgia Code"), Chapter 672-17 of the Rules of the Georgia Department of Transportation (the "Rules") and other applicable laws and guidelines. This RFQ is being issued as the first phase in the request for proposals ("RFP") process pursuant to Section 32-2-80(a)(2) of the Georgia Code. GDOT will conduct a pass/fail and responsiveness review prior to evaluating and scoring the SOQs. Only those SOQs deemed responsive and deemed to pass the pass/fail criteria will be scored and eligible to be shortlisted. Subject to Section 7, Respondents that are considered most qualified pursuant to Rule 672-17-.04(b)(3) in response to this RFQ (also referred to herein as "shortlisted") will be invited to submit proposals ("Proposals") in response to a Request for Proposals ("RFP") for the Project to be issued by GDOT. Initially

capitalized terms not otherwise defined herein shall have the meaning set forth in Exhibit A attached hereto.

- GDOT has assembled a set of documents relating to the Project that will be available to prospective Respondents for review on the Website. A list of the Project Documents is attached hereto as Exhibit B. The Project Documents are included in this RFQ for the purpose of providing information in GDOT's possession to Respondents. GDOT has not determined whether the Project Documents are accurate, complete, or pertinent, or of any value to Respondents. GDOT makes no representation, warranty or guarantee as to, and shall not be responsible for, the accuracy, completeness, or pertinence of the Project Documents, and, in addition, shall not be responsible for any conclusions drawn therefrom.

2. DESCRIPTION OF OPPORTUNITY

2.1 Background

GDOT is authorized to develop, implement and administer its public-private partnership program ("P3 Program") pursuant to Sections 32-2-78 through 32-2-80 of the Georgia Code. The P3 Program is intended to seek innovative project delivery and innovative financing solutions from the private sector to meet the State's transportation infrastructure needs. The objectives of the P3 Program are identified in Section 672-17-.01 of the Rules. The Project is being proposed to"_____". GDOT has concluded that utilizing private-sector technical innovation and financial resources through a DBF Agreement is the best way to ensure cost-

effective and [expedited delivery of the Project] and provide needed improvements to the public. SRTA and GDOT shall enter into various agreements including, but not limited to, an Intergovernmental Agreement, whereby GDOT will be designated and serve as the manager for the Project. Additional details regarding the respective responsibilities of SRTA and GDOT with respect to the Project will be provided during the RFP phase of the procurement.

2.2 Project opportunity

It is anticipated that the Developer will perform all work associated with the design and construction of the Project, as well as certain financing obligations, through a DBF Agreement. GDOT intends to select a single Shortlisted Proposer to enter into the DBF Agreement.

GDOT is seeking innovative approaches to addressing complex technical issues related to maintenance of traffic, staging, and construction, under heavy volumes in a complex urban environment. [GDOT encourages ideas that bring value and efficiency, as well as flexibility in the design, schedule, and construction of the Project.]

2.3 Project name

Describe the type of facility the project aims to construct, for example, “Renovation of bridge XYZ,” and mention its location and the desired improvement.

2.4 Project Environmental Status

Mention the permits that have or are being pursued by GDOT.

2.5 Preliminary Estimates of Construction Costs

The current, preliminary GDOT estimate for the Design-Build (DB) portion of the project is approximately _____ which includes, but not limited to _____.

2.6 Project Funding

GDOT anticipates that approximately _____of funding from public sources will be available for the Project for payment by GDOT to the Developer during the construction period, although such amount is subject to change. The Developer will be responsible for financing the remaining amounts needed to fund the Developer's design and construction costs during the construction period. SRTA will agree to pay the Developer after the construction period in accordance with the terms of the DBF Agreement. GDOT will provide funds to SRTA to pay the Developer under the DBF Agreement. GDOT currently anticipates that the sources of funding to pay the Developer will come from _____.

Respondents are advised that private participation and funding will be essential to complete all Project elements under the DBF Agreement. The Respondent's ability to secure or provide private financing in an amount sufficient to complete the Project required under the DBF Agreement will be a key element in the evaluation of the SOQ and the responses to the RFP.

2.7 Right-Of-Way Acquisition

Respondents should note that the Project will require the acquisition of new right-of-way. GDOT will be responsible for acquiring all right-of-way in connection with Project _____.
The Developer will be responsible for providing right-of-way acquisition services for any remaining parcels for Project_____. However, GDOT will be responsible for the payment for the real property costs for these parcels.

[The Developer will be responsible for starting ROW acquisition during the conceptual design phase. If the Developer is required to acquire Environmental permits, the permitting process must be conducted in parallel with the ROW acquisition.]

If the Developer determines that additional right-of-way is required beyond the limits identified by GDOT as being required for Project P.I. No. 0000784 and Project P.I. No. 721850-, then the Developer shall acquire such additional right-of-way at the Developer's expense.

The RFP will provide further details regarding the right-of-way acquisition scope of services.

2.8 GDOT Technical Requirements

It is anticipated that the DBF Agreement will require the Developer, upon receiving a notice to proceed from GDOT, to perform all Project design and construction obligations [using 3D and 4D models prepared for execution, or as agreed upon by GDOT and set forth in the DBF Agreement,] and to cause the Project to be completed in accordance with certain standards and

specifications. The final RFP will contain programmatic and Project-specific technical specifications and requirements that will apply to all work performed on the Project. Project-specific technical requirements will be developed for the final RFP with input from the Shortlisted Proposers.

The RFP may permit Shortlisted Proposers to propose, for GDOT consideration, [(i) alternative technical concepts, and (ii) exceptions and deviations from certain aspects of the standards and specifications.] The confidential alternative technical concept process, including any constraints or parameters on potential submissions, shall be set forth in the RFP. All requests for deviations shall follow the requirements set forth in the RFP. Respondents should note, however, that, because federal funds will be included in the final plan of finance, there may be restrictions on deviations from federally mandated design and construction standards.

2.8.1 Geotechnical Investigation Program

GDOT is performing certain geotechnical investigation work regarding the Project. The Project Documents available to Respondents for review as provided in Section 1 includes geotechnical information collected by GDOT to date. Additional information obtained, including boring and core samples, will be made available to the Shortlisted Proposers for review. GDOT anticipates a process for allowing the Shortlisted Proposers an opportunity to self-perform certain geotechnical investigative work after the RFP is issued in order to assess the risk allocated to the Developer in the RFP.

2.8.2 Utility Investigation and Relocation

Various overhead and underground utilities along the Project, including those owned by GDOT, will be impacted by the construction improvements. GDOT has initiated coordination with all known utility agencies to determine their involvement, general existing utility locations, degree of impact, and estimated relocation costs. GDOT anticipates that the Developer will be responsible for performing or causing necessary utility relocations/adjustments to be performed in accordance with applicable standards and for the costs associated with utility relocations/adjustments, except to the extent the utilities are legally responsible for such costs. A description of the responsibility for unidentified and misidentified utilities (as between GDOT and the Developer) will be provided in the RFP.

2.8.3 Concept Design

GDOT expects the Developer to use pre-construction analysis software to evaluate and select alternative project scenarios. If specified in section 2.7, when the Developer is required to acquire any ROW, it must be initiated in the concept design phase (on completion of 20-50% Design).

3.2 Payment for Work Product

3.3 Pre-Qualification Requirements

GDOT will require each Lead Contractor and the Lead Engineering Firm for each Shortlisted Proposer to be pre-qualified with GDOT before the Proposal due date, as set forth in the RFP.

Satisfaction of such pre-qualification requirements will be a condition in the RFP for submitting a compliant and responsive Proposal. As applicable, other engineering firms for each Shortlisted Proposer must be pre-qualified prior to and during the term of the Design-Build period per the conditions of the DBF Agreement.

GDOT anticipates the following area classes will be required to be prequalified:

1._____

2._____

3._____

4. Collocation of the project team

5. Availability of software compatible with the scheduling platform of Portland Cement Concrete (PCC) pavement (if applicable)

6. Flash Tracking Experience or as approved by GDOT

REVISED TEMPLATE FOR REQUEST FOR PROPOSALS

This section provides recommendations for incorporating Flash Track Best Practices currently missing in the GODT RFP, and includes suggestions for additional statement inserts into the GDOT RFP Template (Georgia Department of Transportation Retrieved 2019). These recommended edits are highlighted in red.

TO DESIGN AND CONSTRUCT THE PROJECT THROUGH A
DESIGN BUILD AGREEMENT USING THE FLASH TRACKING APPROACH

PROJECT NUMBER
P.I. No.
INSTRUCTIONS TO PROPOSERS
GEORGIA DEPARTMENT OF TRANSPORTATION
RFP Issued:
Georgia Department of Transportation
One Georgia Center
600 West Peachtree Street, NW
Atlanta, Georgia 30308

1. INTRODUCTION AND GENERAL PROVISIONS

1.1 Introduction

The Georgia Department of Transportation ("GDOT"), an agency of the State of Georgia ("State"), issued a Request for Qualifications ("RFQ") for the Project (as described in more detail in Section 1.3, the "Project") on _____. Next GDOT issued a Request for Proposals ("RFP"), dated [and subsequently amended], as the second step in the procurement process for the Project, pursuant to Section 32-2-81 of the Official Code of Georgia Annotated ("Code"), Chapter 672-18 of the Rules of the Georgia Department of Transportation ("Rules"), and other applicable laws and guidelines.

The RFP solicits competitive detailed Proposals (as described in more detail in Section 1.5.1) to develop the Project by means of a Design-Build Agreement using the flash track approach (the "DB Agreement") between the successful Proposer and GDOT. Under such a DB Agreement, the Design-Build Team will be required to design and construct the Project during the contract period.

Following the release of the initial RFP, GDOT may opt to engage in a series of proprietary meetings and discussions with the Proposers, all in accordance with the procedures set forth in the RFP. In response to feedback and input received from the Proposers and other stakeholders, GDOT may opt to issue Addendums to the RFP. In the event that GDOT issues any Addendums to the RFP, the Addendums may supplement or replace the RFP in part or in whole.

Proposals will only be considered from those entities that are selected as the most qualified Proposers based on their Statements of Qualifications ("SOQs") submitted in response to the RFQ. This set of Instructions to Proposers ("ITP") provides instructions to be followed by Proposers in their responses to the RFP. Proposals must comply with the ITP requirements.

Refer to Exhibit 1 of the Design-Build Agreement hereto for the meaning of various capitalized terms and acronyms used but not defined herein. Unless otherwise specified, references to Sections, Exhibits and Forms shall mean Sections of the ITP and Exhibits and Forms attached to the ITP. All times in this ITP are EST or EDT, as applicable.

1.2 RFP Documents

The RFP consists of the items listed below, and any other documents that may be issued by Addendum, as such documents may be amended and supplemented:

- Instructions to Proposers (ITP) (including the attached Exhibits and Forms)
- DB Documents (including the DB Agreement)
- Reference Information Documents (RID).

Refer to Article 1.2 of the DB Agreement for a list of the DB Documents and their order of precedence. The RIDs are listed on Exhibit H hereto. The ITP and the RIDs are not contract documents and will not form a part of the DB Documents. GDOT does not make any representation or guarantee as to the accuracy, completeness, or fitness of the RIDs. GDOT does

not take any responsibility for the RIDs, and Proposers are responsible for any conclusions they may draw from the RIDs. GDOT is making the RIDs available to Proposers for the sole purpose of providing information in the possession of GDOT, regardless of whether such information is accurate, complete, pertinent, or of any value.

1.3 General Project Description

The Project is being [ADD PROJECT GOALS]. (If the Project will be constructed using the flash track approach, that fact should be mentioned in the description of the project goals.)

Add Project Description.

The Design-Build Team will be responsible for the design and construction of the Project during the contract period. As part of such construction work, Design-Build Team will be responsible for undertaking and completing certain utility adjustments pursuant to Article 7.5 of the DB Agreement and the Section 6 of the Technical Provisions.

EXHIBIT E

EVALUATION CRITERIA AND WEIGHTING

The maximum score for a Proposal will be 1,000 points. This will be split as % Price Proposal and % Technical Proposal. Breakdowns and calculations for the Price and Technical Proposal scoring are described below.

E.1 Technical Proposal Evaluation Criteria (Maximum Points):

E.1.1. Technical Proposal Scoring Formula

GDOT will score the technical proposals using the following formula

Technical Proposal Score= Σ Individual Section Technical Proposal Scores

Where:

Maximum Technical Proposal Score = 1000 (maximum total Proposal score) x %

E.1.2. Technical Proposal Evaluation Sections:

The following are the areas and maximums available points for each area that will be evaluated as part of the Technical Proposal Scoring.

Section	**Maximum Score**
Ability to use of Software compatible with the scheduling platform of PCC pavement, given the design, construction, and environmental factors.	

Capacity to have a bridge fabrication facility near the project location.	
Consideration of innovative construction materials that accelerate construction.	
Ability to utilize integrated document management for tracking time-sensitive documents.	
Ability to consider 3D and 4D modeling of the execution sequence during detailed design.	

Total Score

E.1.2.1 Schedule Evaluation Criteria (Maximum 40 Points)

(a) Opening the weigh-in-motion system in an expedited manner is a GDOT goal for this project.

(b) The likelihood that the Proposer will meet or complete within all milestone deadlines in Exhibit 9 of the DB Agreement. The DB Team allocates resources needed to meet or exceed the Project requirements and sets forth an aggressive but realistic time frame for the required completion of all design and construction work. The schedule shall include all GDOT submittal review periods as required in the Technical Provisions.

1.10 Status of environmental Documents

1.10.1 Project

The Environmental Documents, which include NEPA/GEPA and all required environmental area classes, are being pursued for the Project by GDOT in coordination with the concept design efforts. [PROVIDE STATUS OF THE ENVIRONMENTAL DOCUMENTS AND ANY OTHER FEDERAL APPROVALS SUCH AS IMR, IJR.]

Further information regarding this process is available at the following website: [Provide url.]

If the Developer is required to acquire Environmental permits for the Project, the permitting process must be performed concomitantly with scope development.

1.11 Qualification of construction and Design Firms

Proposers shall ensure that the entities identified in Sections 1.11.1 and 1.11.2 have satisfied the pre-qualification requirements set forth in this Section 1.11. Additionally, before commencing performance of any Work, all firms must register to do business in the State. This can be accomplished by contacting the Georgia Secretary of State Corporations Division Office at (404) 656-2817 or by visiting their website: [Provide url.]

1.11.1 Required Pre-Qualification for Contractors.

The Lead Contractor shall be pre-qualified with GDOT prior to the Proposal Due Date. If the roadway work is not performed by the pre-qualified Lead Contractor, the entity performing the roadway work shall also be pre-qualified prior to initiating any Work. The pre-qualification process involves but is not limited to submitting (a) a completed contractor qualification form, (b) financial statements, and (c) a plan to collocate the team and dedicate a project command center. Further information regarding the pre-qualification process is available at the following website: http://www.dot.ga.gov/PS/Business/Prequalification

CONCLUSION

This research created an appendix to the existing Design-Build Manual for reinforcing the implementation of Flash Track Best Practices in time-driven projects. It also proposed recommendations to further customize the RFQ and RFP templates for projects where time is of the essence. Additionally, the Flash Track Readiness Assessment Tool was deployed to measure the teams' readiness in successfully implementing Flash Track Best Practices in three GDOT projects, namely: I-85 Widening Project, SR 400EL Project, and I-16 & I-95 Project. The results of the assessment scores and reports highlighted the teams' strengths and weaknesses with respect to 83 Flash Track Best Practices, and provided them with recommendations for enhancing the readiness. Furthermore, this research provided input into the RFQ and RFP for the Houlihan Bridge to incorporate requirements for Flash Tracking.

This research recommends that GDOT would deploy the following documentations for future time-driven Design-Build projects: 1) Design-Build Manual Appendix for Flash Tracking (Chapter 6), 2) Revised Template for RFQ (Chapters 7 & 9), and 3) Revised Template for RFP (Chapters 8 & 10), and 4) Flash Track Readiness Assessment Toolkit, which was developed by the authors during the phase I of this research (Report# FHWA-GA-19-162).

REFERENCES

Georgia Department of Transportation. 2014. I-285 & SR 400 Reconstruction Project- Request for Qualifications P3-484-110314DBF.

Georgia Department of Transportation. 2018. Design-Build Manual.

Georgia Department of Transportation. 2021. Request for Qualifciation to Provide Design-Build Services for SR 25 at Savannah & Middle River Bridges Replacement Project- RFQ 48402262021DB.

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Georgia Department of Transportation. Retrieved 2019. Request for Proposals to Design and Construct the Project through a Design-Build Agreement.

Pishdad-Bozorgi, Pardis, and Jesus de la Garza. 2018. Flash Tracking for Accelerated Project Delivery. Georgia Department of Transportation.