



**THE FATE AND IMPACT OF CHALLENGED PUBLIC-PRIVATE PARTNERSHIP PROJECTS:
AN ASSESSMENT OF U.S. EXPERIENCE**

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Sponsor

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PURPOSE & SCOPE

Examine the fate and impacts of challenged U.S. public-private partnership (P3) transportation projects after cancellation, deferral, or termination?

- **Where the projects re-procured?**
- **What type of procurement was used – P3 or something else?**
- **Is it possible to learn how the re-procurement performed in terms of on-time and on-budget completion and asset performance?**

What is Public-Private Partnerships?

Congressional Research Service - A contractual relationship between a state/local government (owns the asset) and a private entity – there are various forms – focus on Design-Build-Finance-Operate-Maintain & long-term agreements.

Versus

Traditional Contracting – Design-Build-Build - A private entity does not provide financing and risks sharing is minimal

PURPOSE & SCOPE

Examine the fate and impacts of challenged U.S. public-private partnership (P3) transportation projects after cancellation, deferral, or termination?

Advantages

- Innovation
- Public partner off-balance sheet funding
- Project acceleration
- Improved cost
- Schedule certainty
- Long-term maintenance



Challenges – four primary

- Economic challenges
- Political challenges
- Environmental challenges
- Bureaucratic capacity

Examined the four primary challenges on 36 P3 projects in the U.S.

RESEARCH METHODS

Literature review on previous challenged projects

- Academic literature, Industry databases, Government agency publications
- Previous literature on challenged U.S. P3 projects

Database Development of Challenged Projects – 36 Projects Cancelled, Deferred, or Terminated

- 3 Sources: list of project cancellations from prior work (McCarthy et al., 2020),
Public Works Financing, University of Maryland project database developed for the U.S. Federal Highway Administration

Three Case Studies

- Texas State Highway 121 (Sam Rayburn Tollway) – Texas
- Interstate 10 Mobile River Bridge and Bayway Project - Alabama
- The Denver Airport Great Hall Project – Colorado

Extended Research

- 12 Operating Projects – Investigate on-time and on-budget performance
- Expand case study review of the three case studies
- Investigate the interaction effects of the four challenges that led to cancellation, deferment, termination

DATABASE DEVELOPMENT & ANALYSIS

36 challenged U.S. P3 projects were identified from literature review and categorized

Challenged projects were identified as active or inactive

Active projects where re-procured or stayed as a P3

Categorized into four phases:

- In procurement
- In design
- Under construction
- In operation

Inactive projects had no update in more than two years – through 2022 of the research project

Challenged projects were assessed for the presence of four categories of the 36 projects:

- Economic challenges
- Political challenges
- Environmental challenges
- Bureaucratic capacity

LITERATURE REVIEW

P3 projects face many institutional challenges and remain politically and socially contentious

Numerous studies document various critical success factors for P3s (see, e.g., Chan et al., 2010; Osei-Kyei and Chan, 2015), what often gets overlooked in such analyses are the contracting hazards P3s face in public procurement (O’Nolan and Reeves, 2019; Casady et al., 2019), namely those leading to procurement cancellations

Political Risks

- Political and local opposition
- Poorly defined public sector policies
- Weak legal regulatory frameworks
- Lack of clear government objectives and commitment

Economic Risks

- Inadequate demand projections
- Inadequate competition
- External shocks
 - September 11
 - Global Financial Crisis
 - COVID-19

Environmental Risk

- Environmental opposition
- Impact assessment and mitigation
- Climate change resilience
- Biodiversity conservation

Bureaucratic complexity

- Complex regulations
- Interagency conflicts
- Administrative capacity
- Inadequate contractual terms and scope of work

CHALLENGE P3 PROJECT RESULTS

All 36 projects faced challenges after reaching procurement stage

Status		Count
Active	Operating	12
	In construction	3
	In design	2
	In procurement	1
Inactive		18
Total		36

Database extract

State	Project Name	Initial Contract Type	Infrastructure Type	Status 2022	Current Delivery Method	Challenges/Risks
ACTIVE PROJECTS						
Alabama	I-10 Mobile Bridge	DBFOM	Bridge and Motorway	Active / Procurement	Conventional	Political
California	SR 91 Express Lanes - Orange County	DBFOM	Motorway	Active / Operating	O&M (Revenue Risk?)	Political (Noncompete Clause)
Texas	TTC-69 (IH-69)	DBFOM	Motorway	Active / Construction	Conventional	Economic
INACTIVE PROJECTS						
Alaska	Knik Arm Bridge	DBFOM	Bridge	Inactive	N/A	Economic
Florida	State-Road-54/56, FL54 Xpress	DBFOM	Motorway	Inactive	N/A	Environmental

18 projects remained active

- 2 projects remained with the P3 model
 - Purple Line in Maryland - Political
 - Dulles Greenway in Virginia - Economic
- 16 projects reprocured as
 - Mostly design-builds
 - Some CMAR and DBB

18 projects remained inactive

- Have initial project objectives been met?

CHALLENGED P3 PROJECT OUTCOME

A simple survival rate for each challenge was calculated

$$\text{Survival Rate} = \frac{\text{Number of surviving projects}}{\text{Count of projects facing a particular challenge}}$$

- Economic challenge was the most frequently experienced, and it had the second-highest survival rate after Bureaucratic Capacity
- Environmental challenges were the most fatal with no survivors

Note

- Some projects had more than one challenge
- The simplest survival rate does not reflect interactions among challenges

Challenge Type	Count	Project Outcome	Survival Rate
Economic Challenges	24	13 Active	54 %
Political Challenges	18	8 Active	44 %
Environmental Challenges	7	0 Active	0 %
Bureaucratic Complexity	3	2 Active	67 %
All Projects*	36	18 Active	50 %

*Note: Some projects had multiple challenges

CASE STUDY ANALYSIS

Selection criteria for case studies

1

The project had not received extensive coverage in the literature

2

Information about the project was sufficiently available

3

The case covered a range of project types; expressway, major bridge, airport

1

CASE STUDY

Texas State Highway 121 (Sam Rayburn Tollway) - Texas

Challenge - Political

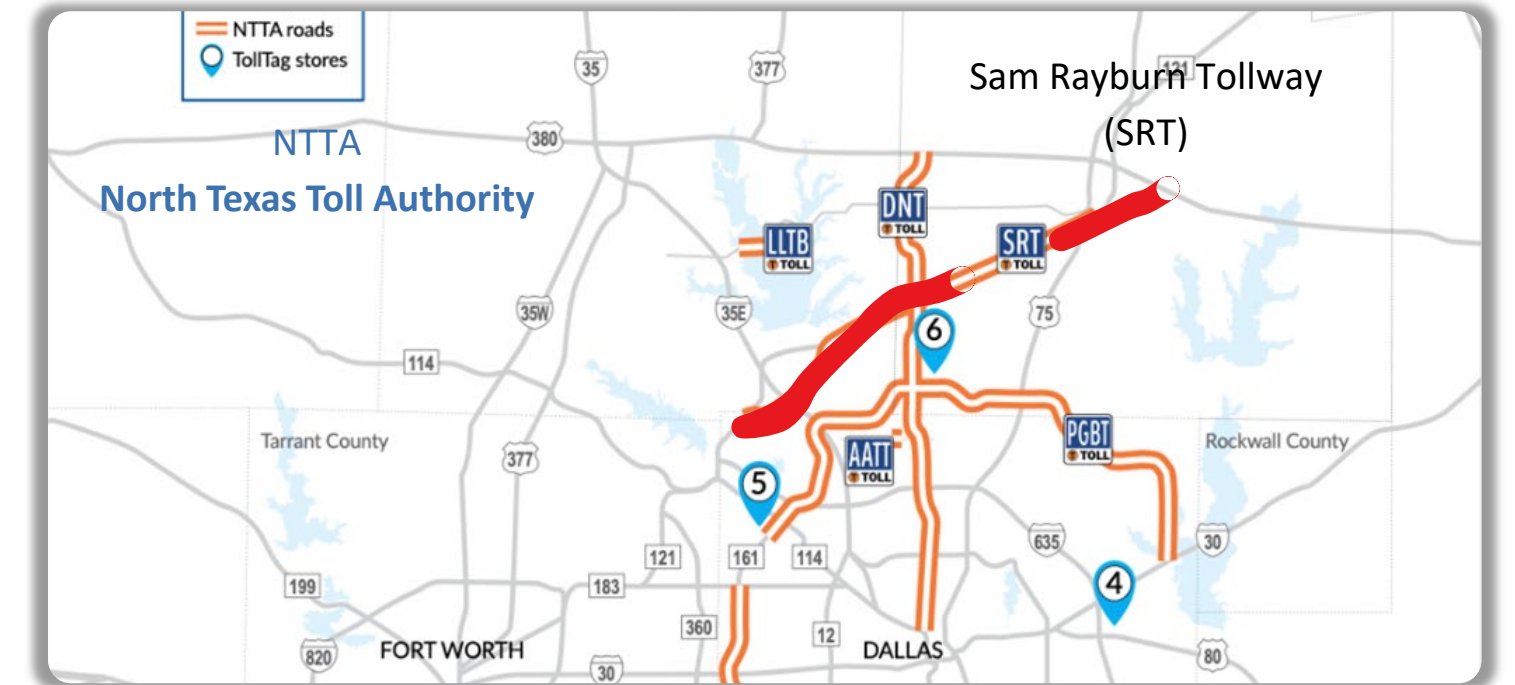
- Public opposition to tolls
- Regional agency NTTA ambition to implement the project

Fate

- February 2007 Cintra/JP Morgan selected as P3 team \$2.8B, 50-YR; \$2.1B upfront payment
- Spring 2007 NTTA secured legislative authority to bid on project
- June 2007 NTTA awarded P3 project at \$3.2B
 - NTTA increased tolls region-wide
 - 2007 Global Financial Crisis reduces demand
 - NTTA' leveraged financial profile - bond rating reduced

Impact – Off-Balance Sheet Funding & Revenue Risk

- Regional toll system users bore project costs rather than private equity and lenders
- Public entity balance sheet versus private P3



P3 proposed One Project: 26-mile highway in northeastern Dallas-FT Worth, Texas

- 1990s development interests of SH 121
- 1998 NTTA's feasibility reports - tolls would not support SH 121 development cost
- 2005 – TxDOT Report tolls will support

2

CASE STUDY

Interstate 10 Mobile River Bridge and Bayway Project - Alabama (ALDOT)

Challenge - Political and Economic

- Public and political opposition to tolls

Fate

- State lacked project funding for 20 years
- 2016 P3 DBFOM RFQ
- \$6.00 toll proposed as feasible solution
- Political opposition exploded; Eastern Shore MPO removed project from TIP/LRTP - P3 became ineligible for federal grant funding – P3 Canceled
- 2022 – Progressive Design-Build – 2 projects
- \$2.50 toll approved - balance of funds from state/federal loans and grants

Impact

- Project implementation delayed; project cost increased from \$2.1B (estimate) to \$2.7B (2023)
- State accepting revenue risk



P3 proposed One Project: 10-mile route and new bridge to supplement Wallace Tunnel

- Wallace Tunnel was design for 35,000 vehicles daily
- Experiences 75,000 vehicles daily
- Projected to 95,000 vehicles daily by 2040

3

CASE STUDY

The Denver Airport (DEN) Great Hall Project - Colorado

Challenge - Bureaucratic Capacity

- After Action Report: Inadequate contract terms
- DEN administrative capacity

Fate

- 2016 selects P3 DBFOM team Ferrovial/Saunders/JLC, at \$1.8B and upfront concessionaire payment of \$200M
- 2018-2019 DEN and P3 team issues surfaced in design, demolition and early phases of construction
- 2019 P3 agreement terminated, included termination fees
- 2019 DEN contracts with a CMAR, splits into 3 phases – final phase completed project 2027

Impact

- Reversion to traditional contracting methods
- No explicit linkage between design and construction and long-term O&M
- Current projected costs exceed P3 initial costs-



P3 Project: Great Hall Project

- DEN was constructed in 1995 designed to accommodate 50M passengers annually
- 2014 exceeded 53M passengers annually
- 2019 exceeded 69M passengers annually

Extended Research

12 Operating Projects – On-Time and On-Budget Performance

All 12 Operating Projects Survived and Reprocured

- Seven (7) projects were cancelled
 - Reprocured, in some cases at much later dates
 - If project scope was modified and divided into segments, often necessitating two, three, or more separate contracts resulting in overall increased project costs and delayed construction
- Four (4) projects were terminated
 - Negotiated termination terms were successful and facilitated a seamless transition from the P3 team to the public partner, ensuring agreeable transfer terms without resulting in litigation or disruption to service.
 - All four terminated projects reverted to public agency control with the public agency managing the project's finances and bearing risk shortfalls
- One (1) project was renegotiated and remained a P3.

Three Case Studies Review

- All three case study projects eventually proceeded with construction, even after cancellation or termination of the initial P3 project. The project objectives were focused on enhancing transportation systems to accommodate increasing public demand, alleviating congestion, or preparing for projected growth.

Extended Research

Interaction effects of the challenges that led to the cancellation, deferral, or termination of the 36 projects

Logistic Regression Analysis of Four Singular Challenge

- The following results are based on singular challenges: Economic (Econ), Political (Poli), Environmental (Enviro), and Bureaucratic Capacity (Bureau).
- The Model Fit Measures Deviance and AIC results suggest that the model has some explanatory power. The McFadden's R-squared value of 0.229 indicates the model explains about 22.9% of the variance in whether a project survives or not based on the four challenges. This suggests a moderate level of explanatory power.
- The Omnibus Likelihood Ratio Tests indicate that economic, political, and bureaucratic capacity do not have a statistically significant impact on project survival. The only predictor variable that has a substantial and statistically significant impact on project survival is the Environmental challenge.

Binomial Logistic Regression

Model Fit Measures

Model	Deviance	AIC	R ² _{McF}
1	38.5	48.5	0.229

Omnibus Likelihood Ratio Tests

Predictor	χ^2	df	p
Econ	0.241	1	0.623
Poli	0.297	1	0.586
Enviro	8.807	1	0.003
Burea	1.167	1	0.280

[3]

Model Coefficients - Survive

Predictor	Estimate	SE	Z	p	Odds ratio	95% Confidence Interval	
						Lower	Upper
Intercept	0.288	1.055	0.27321	0.785	1.334	0.169	10.54
Econ:							
1 - 0	0.420	0.859	0.48946	0.625	1.522	0.283	8.19
Poli:							
1 - 0	-0.478	0.883	-0.54082	0.589	0.620	0.110	3.50
Enviro:							
1 - 0	-18.926	2588.399	-0.00731	0.994	6.03e-9	0.000	Inf
Burea:							
1 - 0	1.226	1.224	1.00176	0.316	3.409	0.309	37.56

Note. Estimates represent the log odds of "Survive = 1" vs. "Survive = 0"

CONCLUSIONS & RECOMMENDATIONS

Economic

Re-procurement most likely

Risk

- Issues with funding and financial viability, revenue unpredictability, and lifetime costs
- Feasibility in rural locations, and economic repercussions

Mitigation

- Strong financial planning and comprehensive cost-benefit analysis, robust traffic estimates
- Long-term maintenance plans and fairness considerations

Political

Tolling volatile

Risk

- Public opposition, regulatory complexities and political will
- Risk allocation and transparency concerns

Mitigation

- Proactive engagement with the public and effective coordination among government entities
- Clear legal frameworks



CONCLUSIONS & RECOMMENDATIONS

Environmental

Often fatal

Risk

- Issues include impact assessment and mitigation, climate change resilience, and biodiversity conservation

Mitigation

- Robust environmental planning and adherence to regulations
- Proactive measures to minimize ecological impacts

Bureaucratic Capacity

Risk

- Inadequate contract terms with ambiguous or incomplete scope of work

Mitigation

- Negotiate clear contract terms
- Ensure transparency and accountability
- Stakeholder engagement mechanisms are essential for maintaining public support



BROAD OBSERVATIONS & DISCUSSION

Once a P3 is cancelled or terminated early, it is unlikely for the project to resurface as a P3
Public value creation depends on the successful completion of the procurement process

When a P3 is cancelled, deferred or terminated early

- What is the impact on the public agencies financial position - balance sheet, credit ratings, borrowing costs, opportunity costs, termination fees, and other costs incurred?
- What is the impact on the public?

Active Projects that were Re-procured

- How to compare the challenged P3 project to the re-procured project – On-Time, On-Budget, and asset performance

Inactive Projects that were NOT re-procured

- Did the objectives of project proponents remain unsatisfied?
- Did other projects satisfy those objectives?



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Questions?

Comments on Research?

Other Sources to Consult?

