



# **SR 37: AFFORDABILITY ANALYSIS & FINANCING OPTIONS**



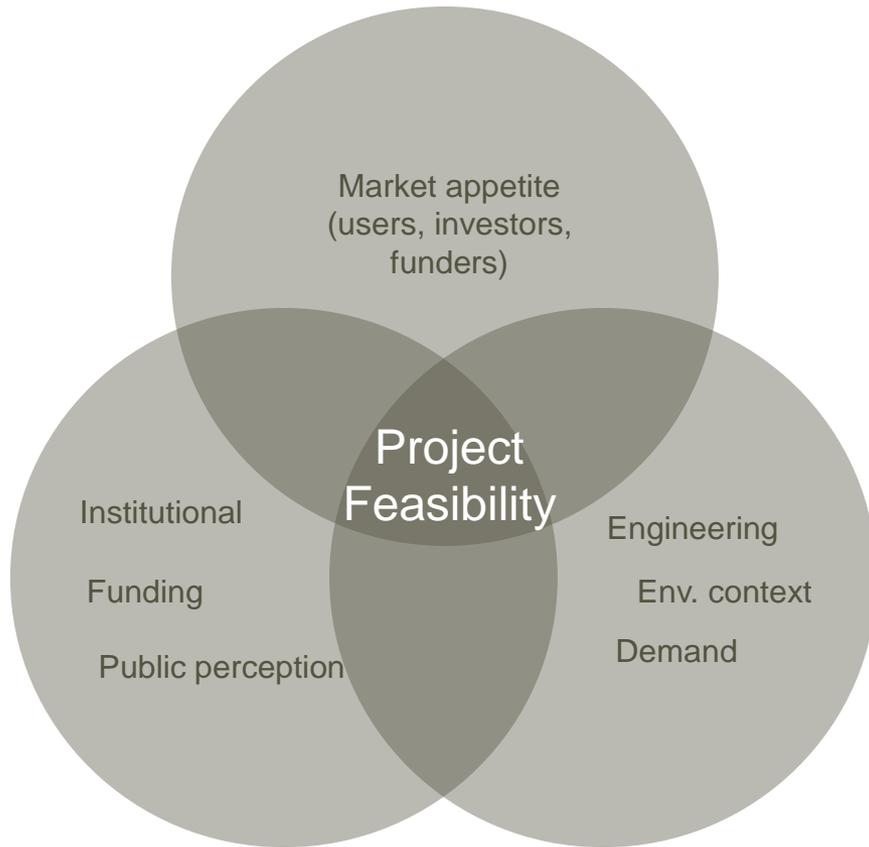
# AGENDA

1. Introduction
2. Affordability analysis
3. Next steps
4. Q&A

# PFAL ROLE & SCOPE

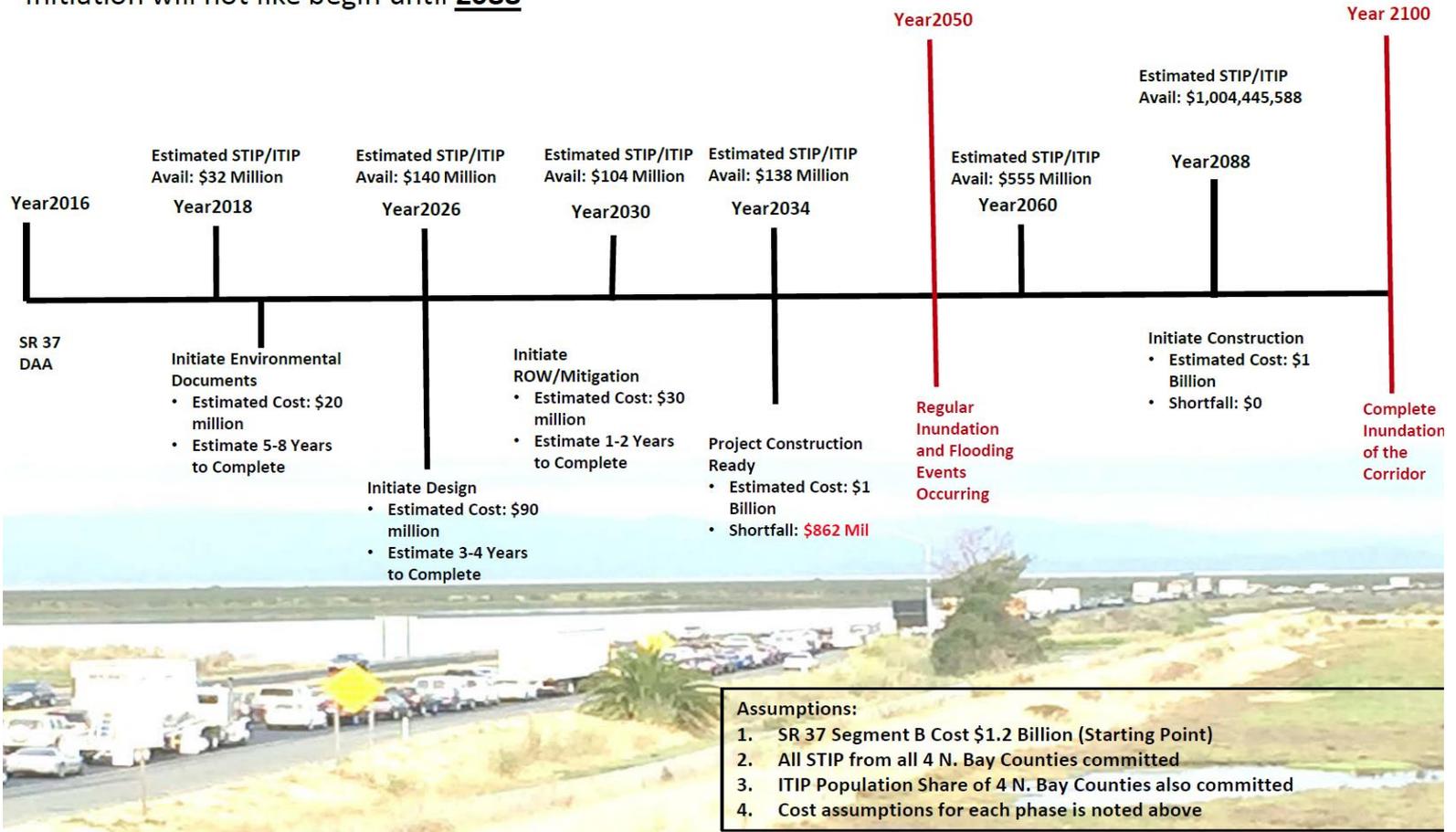
- Financial and policy resource expertise for the SR 37 Policy Committee and Transportation Authorities of Marin, Napa, Solano and Sonoma Counties
- Scope included:
  - Deriving lessons learned from case studies (6) for similar facilities
  - Creating a decision making roadmap for project delivery alternatives
    - Traditional design-bid-build
    - Public Private Partnership (P3)
    - Bay Area Toll Authority Model (public-public)
    - Privatization
  - Sampling investor and developer market interest and feedback for a new project of this size and type
  - Developing high-level revenue forecasts for different tolling concepts
  - Defining financial affordability thresholds to define a project “feasibility envelope”

# FEASIBILITY ENVELOPE



# RATIONALE

Traditional Public Finance Option Timeline:  
 Under Ideal Traditional Funding Circumstances, Construction  
 Initiation will not like begin until **2088**



# GETTING TO THIS POINT

## May 2016

- Education & Background

## Jul.-Aug. 2016

- Six Case Studies

## January 2017

- Key Revenue & Affordability Concepts

## March 2017

- Revenue & Affordability Analysis

## April 2017

- Industry/Market Outreach & Feedback

## May 2017

- Summary Findings & Next Steps

# PROCESS OVERVIEW



# TOLLING CONCEPTS



“Toll Road”

## Three toll locations

Toll charge per mile travelled

Segment	Toll
A	\$1.70
B	\$2.25
C	\$1.05
Total	\$5.00



“Toll Bridge”

## One toll location

Toll charge per “crossing”

Segment	Toll
A	-
B	\$5.00
C	-
Total	\$5.00

# ALTERNATIVE TOLL REVENUE GENERATION SCENARIOS TESTED

Scenario	Toll Rate	Toll Option	Total Revenue
Four lanes tolled	\$5 ⇄	Toll Road (3 locations)	\$12.5 b
		Toll Bridge (1 location)	\$9.3 b
Two lanes tolled one direction	\$7 →	Toll Road (3 locations)	\$9.4 b
		Toll Bridge (1 location)	\$7.5 b
One reversible lane tolled	\$5 ⇄	Toll Bridge (1 location) AM – westbound PM - eastbound	\$0.3 b

\* Total revenue generated over 50 years of tolling. Toll rate escalated over this period.

Order-of-magnitude comparison, for illustrative purposes only.

e/w = each way; o/w = one way

# TOLL REVENUE CONCLUSIONS

## Tolling

### Necessary to Accelerate Project Delivery

- Tolling is required to fund a replacement project.
- There are scenarios that generate enough toll revenue to fund a major replacement project.

## Revenue Potential

### Preliminary Analysis Supports Business Case

- Toll revenue generated is \$300 million to \$12.5 billion over 50 years depending on tolling strategy (i.e. toll road vs. toll bridge), toll rates and number of tolled lanes.

## Tolling Two Lanes

### Necessary to Support Project Costs

- Tolling at least two lanes in one direction is necessary to fund a viable project.
- Tolling only one reversible lane (i.e. leaving at least one lane free in each direction) is insufficient to fund the lowest cost \$1 billion solution.

## Additional Cash

### Surplus Expected in the Long Term

- Potential for “additional cash” beyond initial investment scope, which could be used for other project improvements in the corridor.

## Traffic Diversion

### Next Phase of Study

- Further analysis required to assess the impact of increased traffic diversion to “free” alternatives, if a toll is imposed on the SR 37 facility.

## FINANCING THE PROJECT - NEXT STEPS

Q1: What financing strategy(ies) should we pursue?

The strategy will determine what project size we can afford using a combination of tolling and financing options.

# TECHNICAL ALTERNATIVES



## 1. Levee/Embankment

Segment	Construction Cost in 2030	Construction Cost in 2022
A	\$0.5 b	\$0.4 b
B	\$0.7 b	\$0.5 b
C	\$0.1 b	\$0.1 b
<b>Total</b>	<b>\$1.3 b</b>	<b>\$1.0 b</b>



## 2. Slab Bridge Causeway

Segment	Construction Cost in 2030	Construction Cost in 2022
A	\$1.3 b	\$1.0 b
B	\$2.2 b	\$1.7 b
C	\$0.3 b	\$0.3 b
<b>Total</b>	<b>\$3.8 b</b>	<b>\$3.0 b</b>



## 3. Box Girder Causeway

Segment	Construction Cost in 2030	Construction Cost in 2022
A	\$1.4 b	\$1.1 b
B	\$2.5 b	\$2.0 b
C	\$0.4 b	\$0.3 b
<b>Total</b>	<b>\$4.3 b</b>	<b>\$3.4 b</b>

Source: UC Davis Study, 2016

# DELIVERY OPTIONS

## 1. Traditional

- **Revenue:** non-tolled facility
- **Facility Ownership:** public
- **Contract:** traditional inter-agency agreements
- **Funding:** only public funds (local/state/fed grants)
- **Delivery Method:** Design-Bid-Build (DBB)

## 2. Public-private partnership (P3)

- **Revenue:** tolls, sales tax
- **Facility Ownership:** public
- **Contract:** long term lease with private partner (e.g. 30 to 50 years)
- **Funding:** mix of public funds (local/state/fed grants) and private funds (equity & debt)
- **Delivery Method:** Design-Build-Finance-Operate-Maintain (DBFOM), DBFM and DBF

## 3. Public-Public

- **Revenue:** tolls, sales tax
- **Facility Ownership:** public
- **Contract:** Cooperative Agreement e.g. Bay Area Toll Authority (BATA)
- **Funding:** publicly financed (e.g. revenue bonds), grants
- **Delivery Method:** DBB, DB

## 4. Privatization

- **Revenue:** tolls
- **Facility Ownership:** private
- **Contract:** Acquisition & Development Agreement
- **Funding:** 100% privately financed (equity & debt)
- **Delivery Method:** full private responsibility for asset

Goals/Objectives:  
Roles &  
Responsibilities

Determine  
“Best Value”  
approach via  
Value-for-  
Money  
Assessment

Industry/Market  
Feedback

# AFFORDABILITY CONCLUSIONS

## Minimum Toll Rate

- Toll Road: \$6 one-way or \$3 each-way funds \$1 billion solution for Segment A, B & C.
- Toll Bridge: \$4 one-way or \$ 2 each-way funds \$500 million solution for Segment B.

## Upper End Toll Rate

Comparable to other Bay Area toll facilities

- Toll Road: \$7 each-way funds \$2.6 billion project.
- Toll Bridge: \$7 each-way funds \$1.9 billion project.

## Responsibilities & Transfer of Risk

Opportunities to create efficiencies in delivery

- Identify acceptance and transfer of risk.
- Desire for risk transfer needs to be balanced with a potential to have a higher or lower investment return.

Note: affordability assessment includes funding design, construction, O&M, full lifecycle and financing costs for years 1-50

# DELIVERY - NEXT STEPS

Q1: What risks and responsibilities can the public sector transfer to the private sector?

Q2: How will the public sector fund the risks and responsibilities it chooses to retain?

Trade-off analysis (considering cost, availability of funding, level of control and revenue sharing potential) will determine which delivery method is most appropriate.

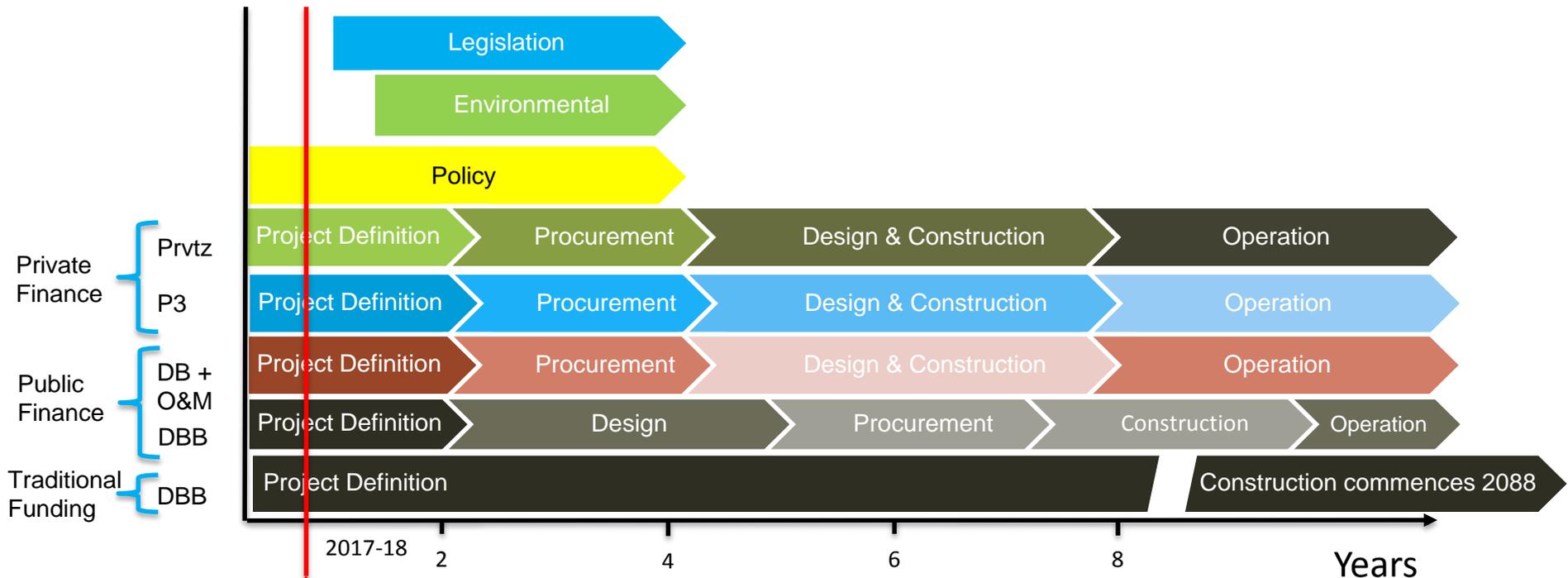
# RISK TRANSFER

Typical risk transfer and funding responsibility under alternative delivery methods. Trade-offs include availability of public funding, level of control and revenue sharing.

Delivery Option	Project Definition	Environmental	Design	Construction	Operations & Maintenance	Toll Revenue
Traditional (DBB)	Public					N/A
P3 (DBFOM)	Public	Private				Public or Private
Public (DBB or DB)	Public	Private*			Public	Public
Privatization	Private					Private

\* Private sector does not fund or finance but is compensated on a “pay-go” basis

# PROJECT DEVELOPMENT INDICATIVE TIMELINES



Delivery models: Prvtz = Privatization, P3 = Public Private Partnership Design-Build-Finance-Operate-Maintain, DB = Design Build, O&M = Operate & Maintain, DBB = Design Bid Build

Private finance means private debt/equity e.g. developer/infrastructure funds, bank debt, private placement, PABs;  
 Public finance means municipal/federal debt e.g. revenue bonds, TIFIA loan;  
 Traditional funding means the highway is not tolled e.g. federal/state/local funding such as STIP/ITIP;

# Q&A

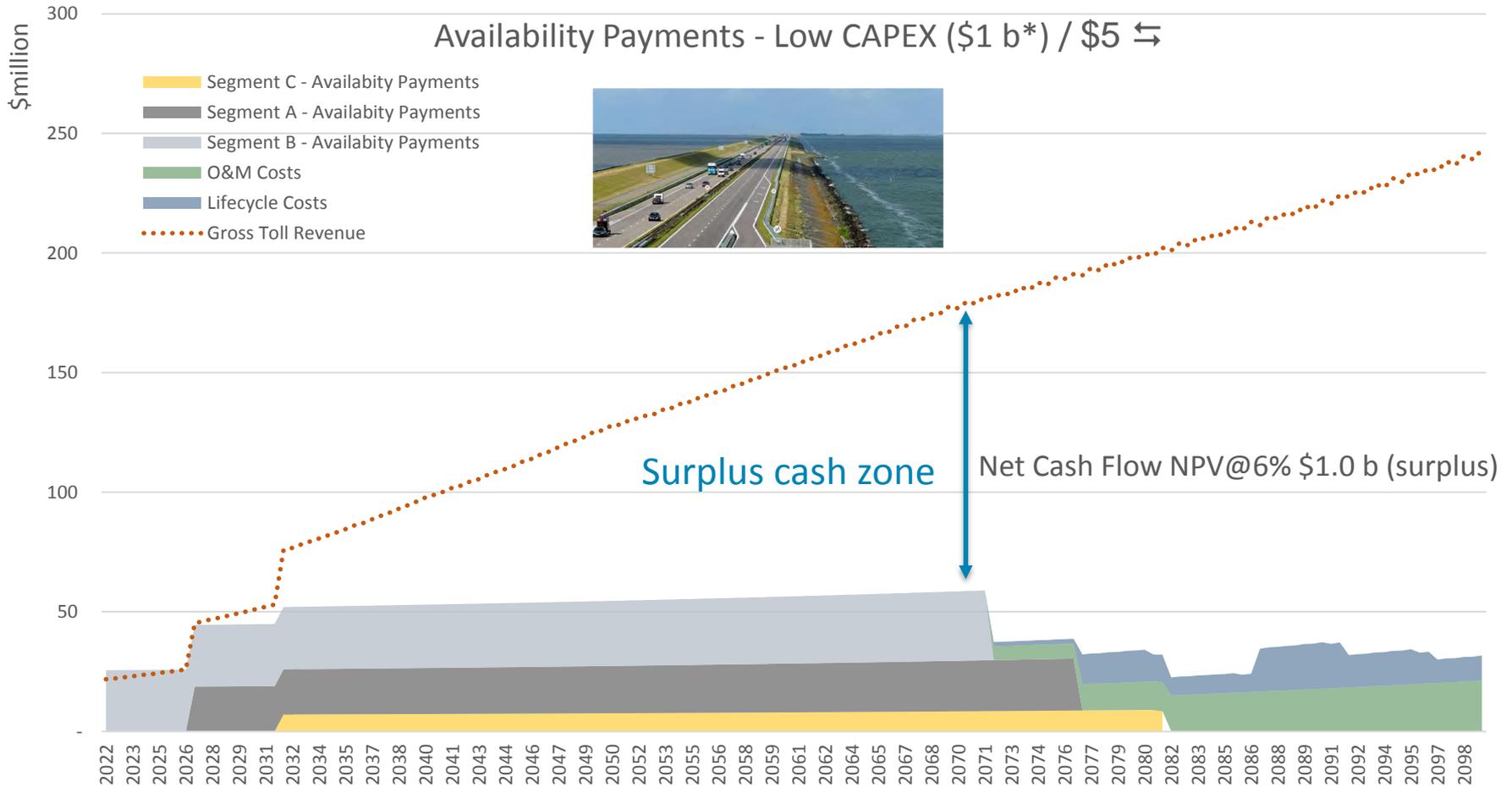
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# CASE STUDY: KEY DATA POINTS

Theme	SBX	US-36	Presidio	I-4	S. Norfolk*	G. Bush
<b>Project Size</b>	• \$635 million	• \$497 million	• \$1.1 billion	• \$2.9 billion	• \$142 million	• \$1.2 billion
<b>Project Delivery Performance</b>	• 12 year delay	• On-time	• On-time	• Under construction	• 9 months after planned	• On-time
<b>Toll Rate Setting Control</b>	• Private sector sets toll up to 18.5% cap on equity return	• Private sector sets dynamic toll to achieve specified service requirement	• No tolls	• Public sector sets dynamic toll to achieve specific service level	• Private sector set toll rates with no defined limit	• Public sector
<b>Revenue Control</b>	• Shared with public sector beyond a defined limit	• Shared with public sector beyond a defined limit	• Not applicable	• Public sector	• Private sector	• Public sector
<b>Established Traffic History</b>	• No • Greenfield	• Yes • Expansion	• Yes • Replacement	• Yes • Expansion	• Yes • Replacement	• No • Greenfield
<b>Competitive Procurement Process</b>	• Partial (RFQ only)	• Yes	• Yes	• Yes	• No	• No
<b>Environmental Approval Process Responsibility</b>	• Private sector, initiated post award	• Public sector, substantially completed prior to procurement	• Public sector	• Public sector	• Private sector	• Public sector

\*Note: some facts have been disputed by UBP

# P3: FULLY FUNDED PROGRAM



\* Construction costs from the UC Davis Study, 2016.  
NPV means Net Present Value.