

Public-Private Partnership Value for Money Assessment using P3-VALUE 2.1

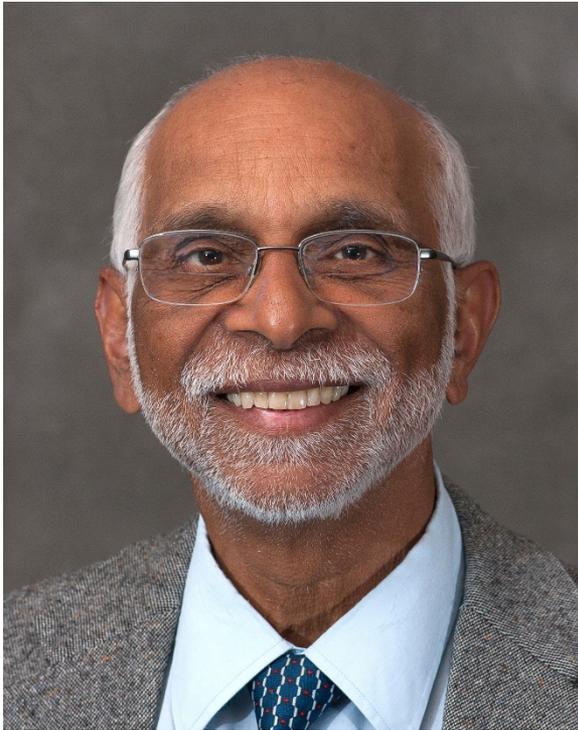
P3-VALUE 2.1 Webinar
March 22, 2018

Pre-Requirement

- Pre-requirement: Webinar on VALUE FOR MONEY ANALYSIS, February 8, 2016
- *Pre-requirement webinar presentations, recordings and transcripts are available on FHWA's web site at: https://www.fhwa.dot.gov/ipd/p3/p3_training/webinars.aspx*



Instructors



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Webinar Outline

- Part 1** Recap of Value for Money (VfM) Assessment
- Part 2** P3-VALUE 2.1 Enhancements
- Part 3** Illustrative Application VfM Assessment



Part 1: Recap of Value for Money Assessment

P3-VALUE 2.1 Webinar

Timing of Value for Money Assessment

1. Planning

- High level screening for financial viability and VfM

2. Project Development

- More detailed quantitative assessment of financial viability and VfM

3. Procurement

- Refine financial and VfM analyses as cost and revenue estimates are refined and bids are received

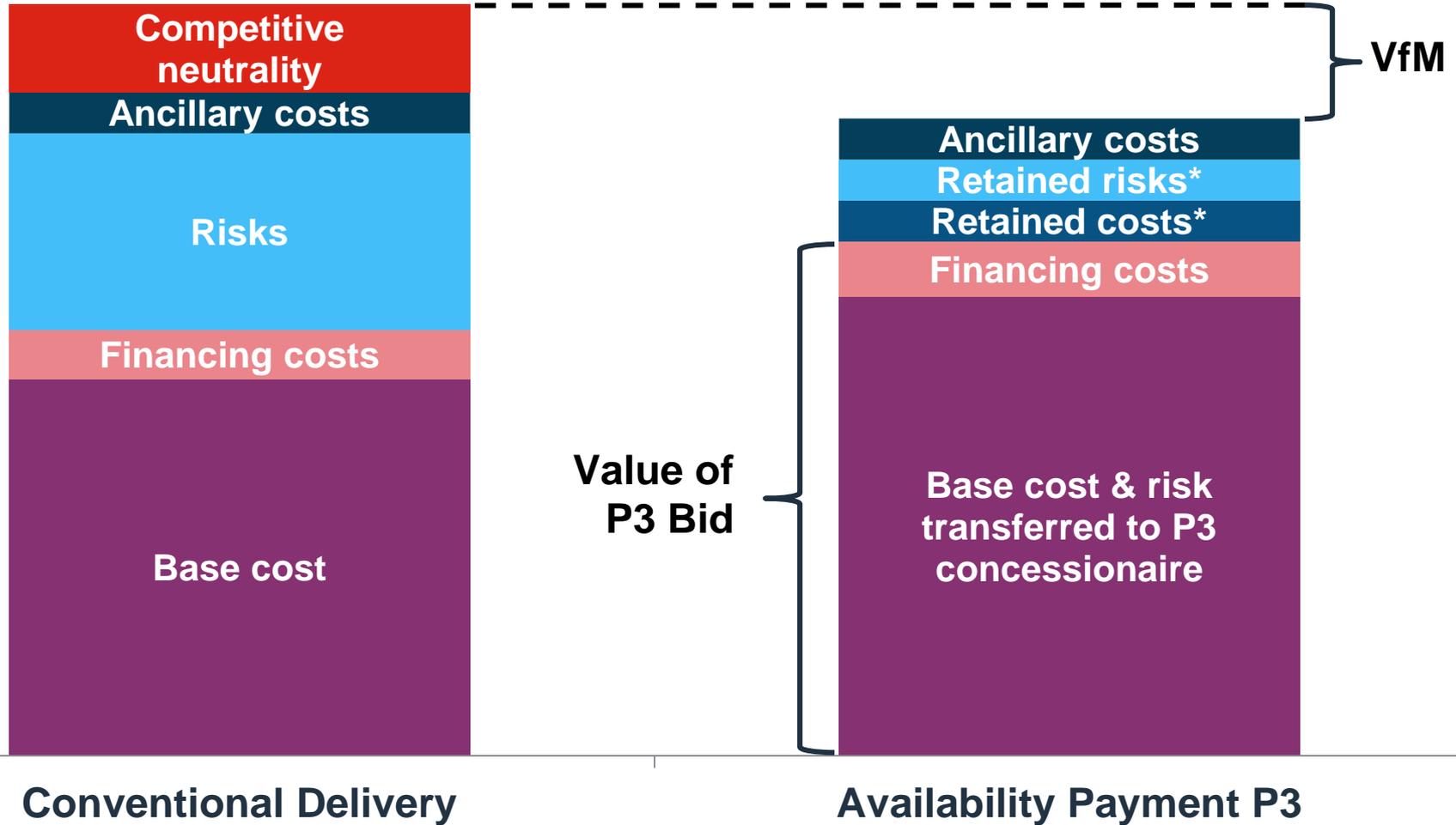


High-Level P3 Screening

- P3-VALUE 2.1 quantitative analysis:
 - Use simplified input sheet
 - For very early stage of project development



Quantitative Value for Money Analysis



* Retained by Agency

Key Issues

- Conventional delivery is assumed to occur in the same time frame as P3
- Non-financial benefits are not included in the quantitative estimates





Key Questions for Transparency

- How do key drivers affect VfM?
 - P3 investment differences
 - P3 financing cost differences
 - Long-term risk differences





Key Questions for Transparency (contd.)

- Have all other cost differences been considered?
 - Procurement and oversight
 - Competitive neutrality
 - No Build O&M cost savings
 - Social benefits



For More Information

- FHWA's ***Value for Money Assessment for Public-Private Partnerships: A Primer***
https://www.fhwa.dot.gov/ipd/pdfs/p3/p3_primer_financial_assessment_1213.pdf
- FHWA's ***Guidebook on Value for Money Assessment***
https://www.fhwa.dot.gov/ipd/pdfs/p3/p3_guidebook_vfm_1213.pdf



Part 2: Introduction to P3- VALUE 2.1 Enhancements

P3-VALUE 2.1 Webinar

What is P3-VALUE 2.1?

- An analytical tool
- Educational
- Quantitative screening





Tool and References

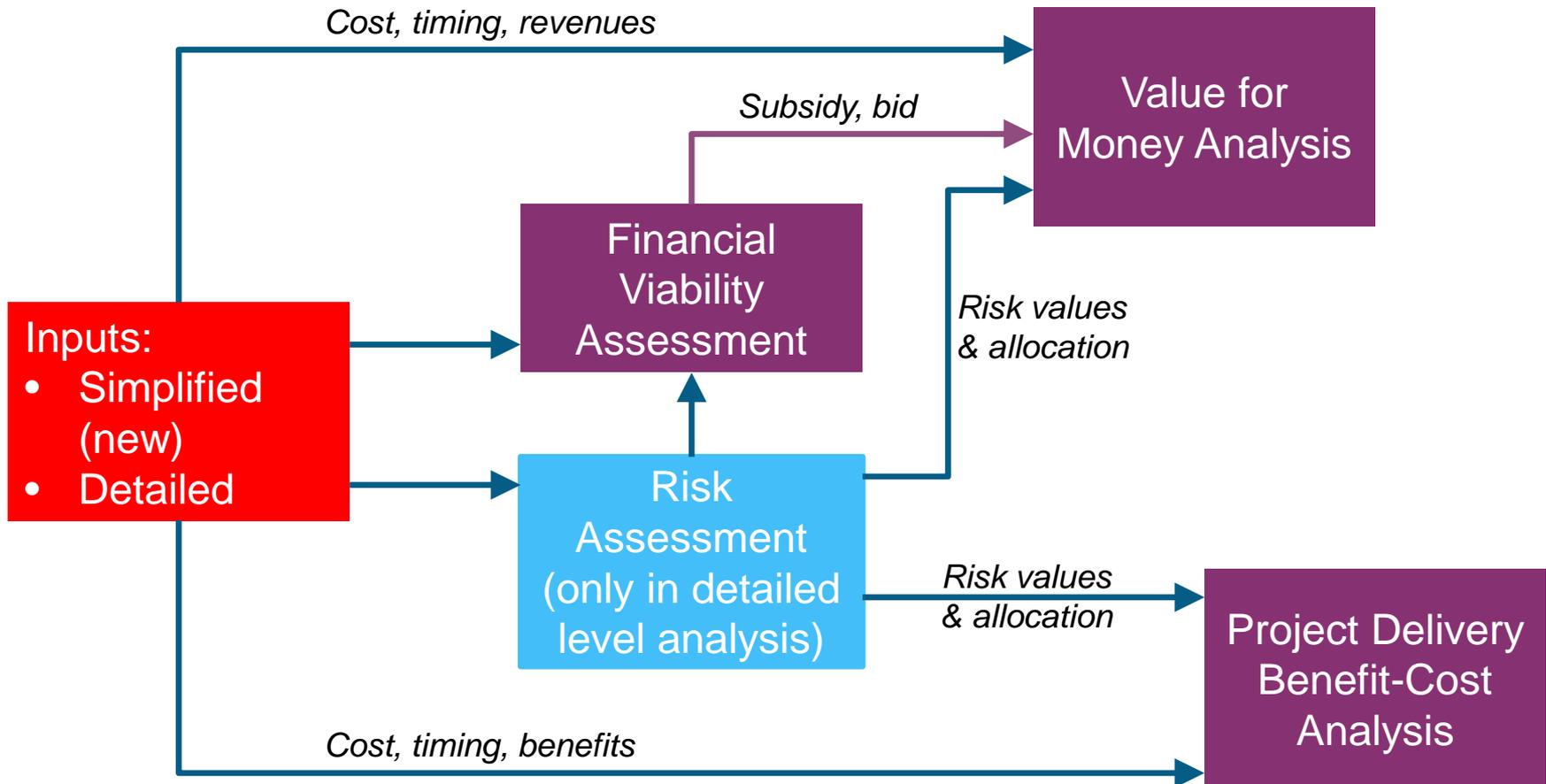
P3-VALUE 2.1 Excel
Spreadsheet

User Guide, Quick
Start Guide, FAQs

Primers &
Guidebooks



P3-VALUE 2.1 Tool Structure



P3-VALUE 2.1 Enhancements

- Simplified input sheet
 - Reviewed in webinar on February 22
- **Transparent** output for value for money analysis
 - Reviewed in today's webinar
- Benefits from ridesharing (carpools and transit) included in benefit-cost analysis
 - To be reviewed in webinar on April 26

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- Please stand by while we open the P3-VALUE 2.1 tool to show the enhanced features



Part 3: Illustrative Application of P3-VALUE 2.1 for VfM Assessment

P3-VALUE 2.1 Webinar



Example Hypothetical Project

- Managed lanes added to existing facility
- Delayed construction completion under PSC



Project Information

- 20 miles highway expansion, from 3 lanes to 5 lanes in each direction
 - 3 General Purpose Lanes (GPL); 2 new Managed Lanes (ML)
- Costs under PSC (including contingencies for risks):
 - Pre-construction \$25M
 - Construction: \$400M
 - Routine O&M: \$4M per year
 - Major maintenance: \$10M every 8 years
- Timing:
 - Preconstruction start: 2018 (2 years duration)
 - Construction duration: 4 years for PSC, 3 years for P3
 - Concession term: 46 years
 - Delay in start under PSC 5 years





P3 Options

1. Toll Concession

- Not considered -- potential impact on revenue, relative to conventional delivery
 - Toll rates set to maximize revenue
 - Innovations to increase access to managed lanes

2. Availability Payment Concession



DELIVERY, TIMING, COST & FINANCING INPUTS

Project Delivery Inputs	PSC	P3
Facility tolled?	TRUE	
P3 delivery model		Toll concession

Project Timing Inputs	PSC	P3
Pre-construction start year	2018	2018
Pre-construction duration (in years)	2 years	2 years
Construction duration (in years)	4 years	3 years
Operations duration (in years)	40 years	41 years
Delayed PSC pre-construction start year	2023	

Capital Cost Inputs (Risk Adjusted)*	PSC	P3*	
Public procurement cost (in million \$)	\$5.0M	\$10.0M	0%
Private procurement cost (in million \$)	\$5.0M	\$10.0M	100%
Pre-construction cost (in million \$)	\$25.0M	\$22.5M	100%
Construction cost (in million \$)	\$400.0M	\$367.5M	100%

Financing Inputs for Toll Concession

Financing Inputs	PSC	P3
Subsidy/milestone payment (in million \$)	\$100.0M	\$100.0M
Cost of equity (in percent)		12.00%
Gearing (in percent)		75.00%
Debt maturity (from start construction, in years)	35 years	30 years
Debt interest rate (in percent)	4.00%	6.00%
Equity bridge loan interest rate (in percent)		6.00%
Minimum required DSCR (multiple of debt service)	1.30x	1.30x
Interest rate on reserves (in percent)	2.00%	2.00%
Debt issuance/arrangement fee (in percent)	1.00%	1.00%

Financing Inputs for Availability Payment Concession

Financing Inputs	PSC	P3
Subsidy/milestone payment (in million \$)	\$100.0M	\$100.0M
Cost of equity (in percent)		10.00%
Gearing (in percent)		85.00%
Debt maturity (from start construction, in years)	35 years	30 years
Debt interest rate (in percent)	4.00%	6.00%
Equity bridge loan interest rate (in percent)		6.00%
Minimum required DSCR (multiple of debt service)	1.30x	1.20x
Interest rate on reserves (in percent)	2.00%	2.00%
Debt issuance/arrangement fee (in percent)	1.00%	1.00%

Risk Inputs

Lifecycle Performance Risk & Revenue Uncertainty Adjustment Inputs

Lifecycle performance risk calculation method (see options below)	Option 1
Lifecycle performance risk aggregate premium (in million \$, option 2 only)	\$400.0M
Revenue uncertainty adjustment calculation method (see options below)	Option 1
Delta between availability payment & toll concession WACC (in percent, option 1 only)	1.60%
Revenue uncertainty adjustment (% of toll revenue collection, option 2 only)	28.00%

Guidance for Valuation Options

Option 1: WACC-based risk premium is calculated to determine the value of lifecycle performance risks/revenue uncertainty adjustment

Option 2: User to provide a risk premium for the value of lifecycle performance risks/revenue uncertainty adjustment

Option 3: Lifecycle performance risks/revenue uncertainty adjustment are ignored in the analysis

Competitive Neutrality Inputs

Taxation Inputs	State	Federal
Tax rate (in percent)	10.00%	25.00%
Tax considered for competitive neutrality adjustment?	TRUE	TRUE
Competitive Neutrality Adjustment Inputs		
Value of construction self-insurance (% of transferred construction costs)	0.00%	
Value of O&M and major maintenance self-insurance (% of transferred costs)	0.00%	
Value of credit subsidy or tax benefits under PSC delivery (in million \$)	\$0.0M	
Value of credit subsidy or tax benefits under P3 delivery (in million \$)	\$0.0M	



Review of Model Outputs

1. Toll Concession
2. Availability Payment Concession



VfM Output for Toll Concession

- Toll Revenues
- Base Costs – Construction and O&M phases (includes contingencies)
- Financing Costs
- Long-term Risks – life-cycle performance and revenue risks
- Ancillary Costs – procurement & oversight; O&M savings
- Competitive Neutrality: Taxes & Insurance; Federal subsidies
- Social Welfare Benefits



Transparent investment and financing costs

REVENUES & COSTS (NPV @ 4.00%, 2018)	PSC	P3
Toll revenues		
Toll revenues to Agency	\$784M	-
Toll revenues to P3 Developer		\$806M
<i>Toll revenues subtotal</i>	\$784M	\$806M
Cost component 1a: Total/transferred base costs (including risks transferred to subcontractors)		
Total (PSC)/Transferred (P3) pre-construction (including private procurement costs)	(\$28M)	(\$30M)
Total (PSC)/Transferred (P3) construction costs	(\$374M)	(\$347M)
Total (PSC)/Transferred (P3) O&M costs (including private procurement costs)	(\$129M)	(\$120M)
<i>Base cost subtotal 1a</i>	(\$531M)	(\$497M)
Cost component 1b: Retained base costs (P3 only)		
Retained pre-construction costs		-
Retained construction costs		-
Retained O&M costs (including P3 oversight costs)		-
<i>Retained base cost subtotal 1b</i>	-	-
<i>Base costs subtotal (1a + 1b)</i>	(\$531M)	(\$497M)
Cost component 2: Financing costs		
Financing cost	(\$3M)	(\$397M)
<i>Financing cost subtotal</i>	(\$3M)	(\$397M)
<u>P3 Shadow Bid (Revenues to P3 minus cost components 1a & 2)</u>	N.A.	(\$88M)

Shadow Bid



Long-term risks, procurement and oversight costs, competitive neutrality, O&M cost savings and social benefits

REVENUES & COSTS (NPV @ 4.00%, 2018)

PSC

P3

Cost component 3: Long-term risks retained by Agency

Calculated market value of lifecycle performance risk	(\$105M)	//////
Calculated market value of revenue uncertainty adjustment	(\$162M)	-
<i>Long-term risks retained by Agency subtotal</i>	(\$267M)	-

Cost component 4: Ancillary costs & cost savings

Procurement & oversight cost in the design-build phase	(\$5M)	(\$9M)
No Build cost savings	\$250M	\$259M
<i>Ancillary costs & cost savings subtotal</i>	\$245M	\$250M

Cost component 5: Competitive neutrality adjustment

State taxes	//////	\$36M
Federal taxes	//////	\$81M
Value of public agency self-insurance	//////	-
Net credit subsidy adjustment (NPV of PSC credit subsidy - NPV of P3 credit subsidy)	//////	-
<i>Competitive neutrality adjustment subtotal</i>	-	\$116M

Total net value after revenue

\$228M **\$278M**

VfM

Comparison

Note: Calculated market value of lifecycle performance risk

(\$105M)

Note: Calculated market value of revenue uncertainty adjustment

(\$162M)

Social welfare benefits due to P3 delivery (excluding No Build cost savings)

\$166M

Social welfare benefits due to project acceleration

\$431M





VfM Output for Availability Payment Concession

- Difference relative to toll concession – tolls and revenue risk retained by public agency



Transparent investment and financing costs

REVENUES & COSTS (NPV @ 4.00%, 2018)	PSC	P3
Toll revenues		
Toll revenues to Agency	\$784M	\$806M
Toll revenues to P3 Developer		-
<i>Toll revenues subtotal</i>	\$784M	\$806M
Cost component 1a: Total/transferred base costs (including risks transferred to subcontractors)		
Total (PSC)/Transferred (P3) pre-construction (including private procurement costs)	(\$28M)	(\$30M)
Total (PSC)/Transferred (P3) construction costs	(\$374M)	(\$347M)
Total (PSC)/Transferred (P3) O&M costs (including private procurement costs)	(\$129M)	(\$120M)
<i>Base cost subtotal 1a</i>	(\$531M)	(\$497M)
Cost component 1b: Retained base costs (P3 only)		
Retained pre-construction costs		-
Retained construction costs		-
Retained O&M costs (including P3 oversight costs)		-
<i>Retained base cost subtotal 1b</i>	-	-
<i>Base costs subtotal (1a + 1b)</i>	(\$531M)	(\$497M)
Cost component 2: Financing costs		
Financing cost	(\$3M)	(\$180M)
<i>Financing cost subtotal</i>	(\$3M)	(\$180M)
P3 Shadow Bid (Revenues to P3 minus cost components 1a & 2)	N.A.	(\$677M)

Revenue risk borne by Agency

Shadow Bid



Long-term risks, procurement and oversight costs, competitive neutrality, O&M cost savings and social benefits

REVENUES & COSTS (NPV @ 4.00%, 2018)

PSC

P3

Cost component 3: Long-term risks retained by Agency

Retained revenue risk

Calculated market value of lifecycle performance risk	(\$142M)	
Calculated market value of revenue uncertainty adjustment	(\$184M)	(\$190M)
<i>Long-term risks retained by Agency subtotal</i>	(\$326M)	(\$190M)

Cost component 4: Ancillary costs & cost savings

Procurement & oversight cost in the design-build phase	(\$5M)	(\$9M)
No Build cost savings	\$250M	\$259M
<i>Ancillary costs & cost savings subtotal</i>	\$245M	\$250M

Cost component 5: Competitive neutrality adjustment

State taxes		\$15M
Federal taxes		\$34M
Value of public agency self-insurance		-
Net credit subsidy adjustment (NPV of PSC credit subsidy - NPV of P3 credit subsidy)		-
<i>Competitive neutrality adjustment subtotal</i>	-	\$49M

Total net value after revenue

\$169M **\$239M**

VfM

Comparison

Note: Calculated market value of lifecycle performance risk

(\$142M)

Note: Calculated market value of revenue uncertainty adjustment

(\$184M)

Social welfare benefits due to P3 delivery (excluding No Build cost savings)

\$166M

Social welfare benefits due to project acceleration

\$424M



FHWA P3 Webinars

- Prior webinar presentations, recordings and transcripts are available at:
https://www.fhwa.dot.gov/ipd/p3/p3_training/webinars.aspx)
- Upcoming webinar topics:
 - **April 26:** P3 Benefit-Cost Analysis using P3-VALUE 2.1
- Pre-registration is required for this webinar. Please register at: <https://www.eventbrite.com/e/p3-value-21-webinars-registration-42478716986>



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