U.S. Department of Transportation
Federal Highway Administration

On-Ramp to Innovation
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Value Capture, Innovative Finance & Project Bundling

Outline of Presentation

- Key Distinctions: Funding, Financing, & Project Delivery
- Transportation Grants Funding from Bipartisan Infrastructure Law (BIL)
- Federal Innovative Finance Programs Applicable to Bridge/Project Bundling
- The Case for Innovations
- Q&A

Funding, Financing, & Project Delivery

 # 1 Sources of Funds

Funding

1. **Taxpayer**
   - **Federal Funds**
   - State & Local Funds
   - New Taxes
2. **Direct Users**
   - Tolls/Fares
3. **Beneficiaries**
   - **Value Capture Sources**

Leveraged with

#2 Financing Options

Financing

Traditional

- Cash/Pay-Go
- Revenue Bonds
- Private Bank Loans
- Project Finance

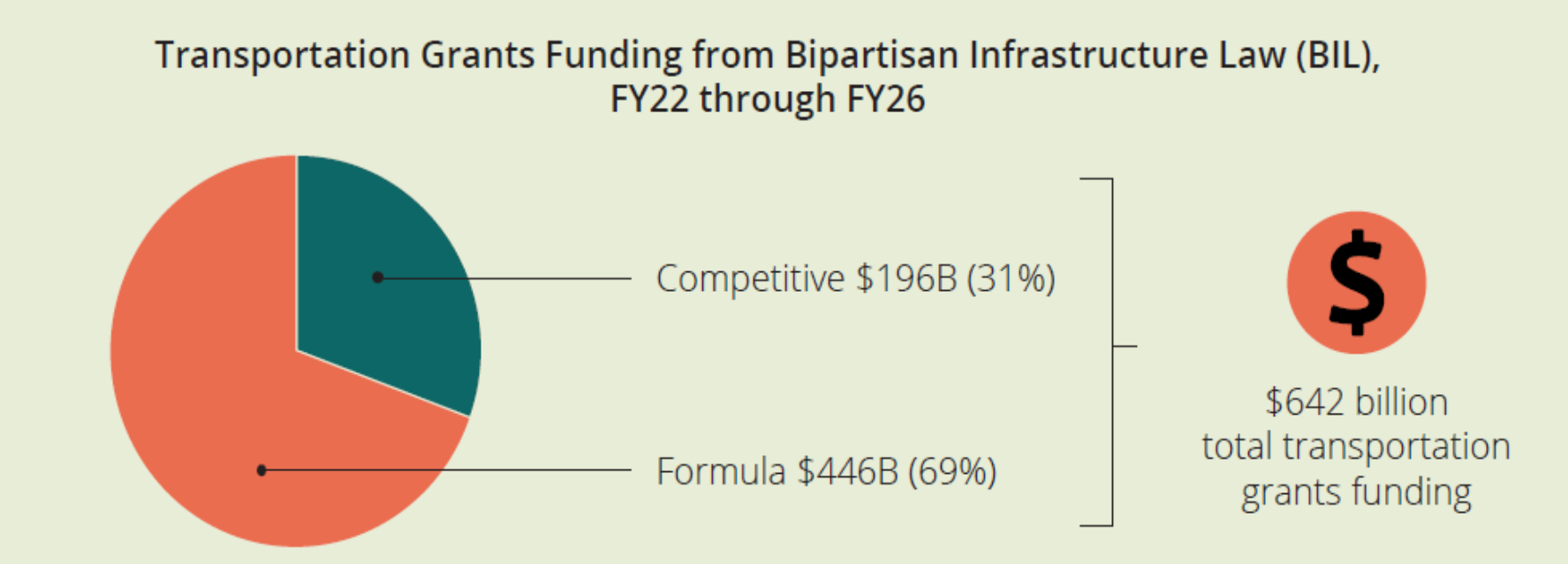
Innovative

- GARVEE Bonds
- Private Activity Bonds
- Federal Low-Interest-Rate Loans (TIFIA, RRIF, SIBs)
- State Infrastructure Banks
- Investor Equity
- **Project Bundling for Finance**

#3 Uses of Funds

Project/ Bridge Bundling → **Construction Costs DBB, CMGC, DB, DBOM, etc.** | **DBOM, DBF, or P3 Concessions** | **Operation & Maintenance Costs**

EDC



Source: [U.S. Department of Transportation]

Access to Transportation Funding

1. **Competitively**, through federal grant programs. Apply for federal funds directly on your own or with eligible partners as a team
2. **Suballocations based on population** from state departments of transportation, i.e. Surface Transportation Block Grant Program
3. **Federal formulas** via your state

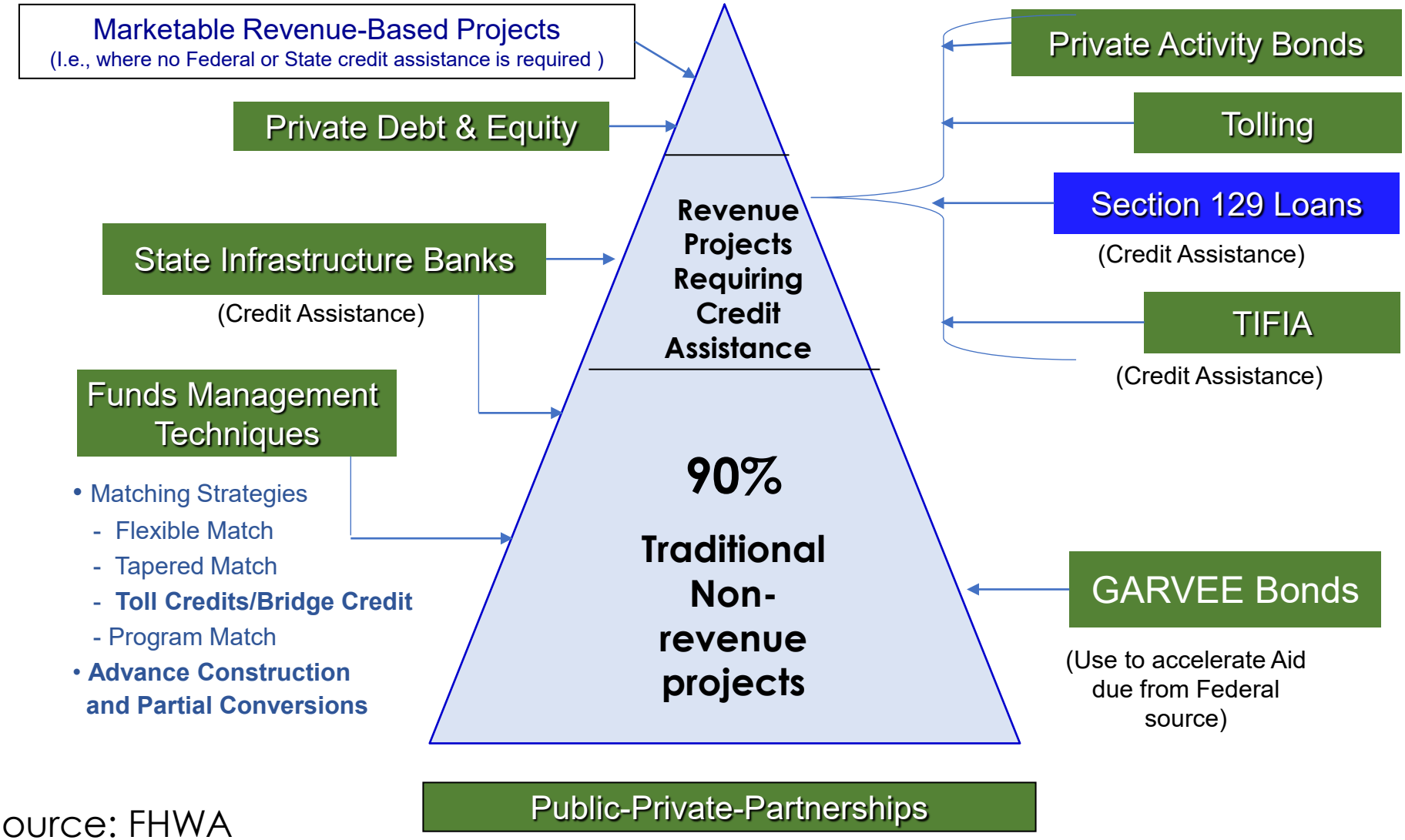
Bipartisan Infrastructure Law- Competitive Grants Programs

1. Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Discretionary Grant program
2. Infrastructure for Rebuilding America (INFRA) Grant Program
3. National Infrastructure Project Assistance (also known as "Megaprojects" or "MEGA")
4. Rural Surface Transportation Grant Program (Rural)
5. Safe Streets and Roads for All Grant Program
6. Reconnecting Communities Pilot Program – Planning Grants and Capital Construction Grants
7. Bridge Investment Program
8. Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Discretionary Grants

Bipartisan Infrastructure Law- Competitive Grants Programs

9. Tribal High Priority Projects Program
10. National Electric Vehicle Infrastructure (NEVI) Set-aside Discretionary Grant
11. Charging and Fueling Infrastructure Grants Program (Community Charging)
12. Charging and Fueling Infrastructure Grants Program (Corridor Charging)
13. Nationally Significant Federal Lands and Tribal Projects (NSFLTP) Program
14. National Culvert Removal, Replacement, and Restoration Grants
15. Advanced Transportation Technologies and Innovative Mobility Deployment
16. Accelerated Innovation Deployment (AID) Demonstration Program

Project Bundling Financing Tools



Source: FHWA

Project Bundling Innovation

- Single contract award of 2 or more projects
- Preservation, rehabilitation, or replacement
- Roads, bridges, traffic signalization, lighting, etc.
- Procured: D-B-B, D-B, CM/GC, P3s, etc.
- Covers a single county, multiple counties, district(s), and/or states

Project Examples

- City of Oakwood, GA, Multi-City Pavement Bundling
  - Project Delivery: Design-Bid-Build (DBB)
  - Financing: State and Local Option Sales Tax
- Georgia DOT Design-Build (DB) Bridge Replacement Program
  - Project Delivery: DB Low Bid
  - Financing: 100% State-Funded. No local match
- DelDOT Culvert Replacement Bridge Bundling Program
  - Project Delivery: DBB, IDIQ, & DB
  - Financing: Federal and State Funds
- Osceola County, FL Roadway & Bridge Bundling Program
  - Project Delivery: CM/GC
  - Financing: Value Capture – Impact Fees
- Nebraska DOT County Bridge Match Program
  - Project Delivery: DBB, CM/GC, & DB
  - Financing: 100% State Funds

Project Examples

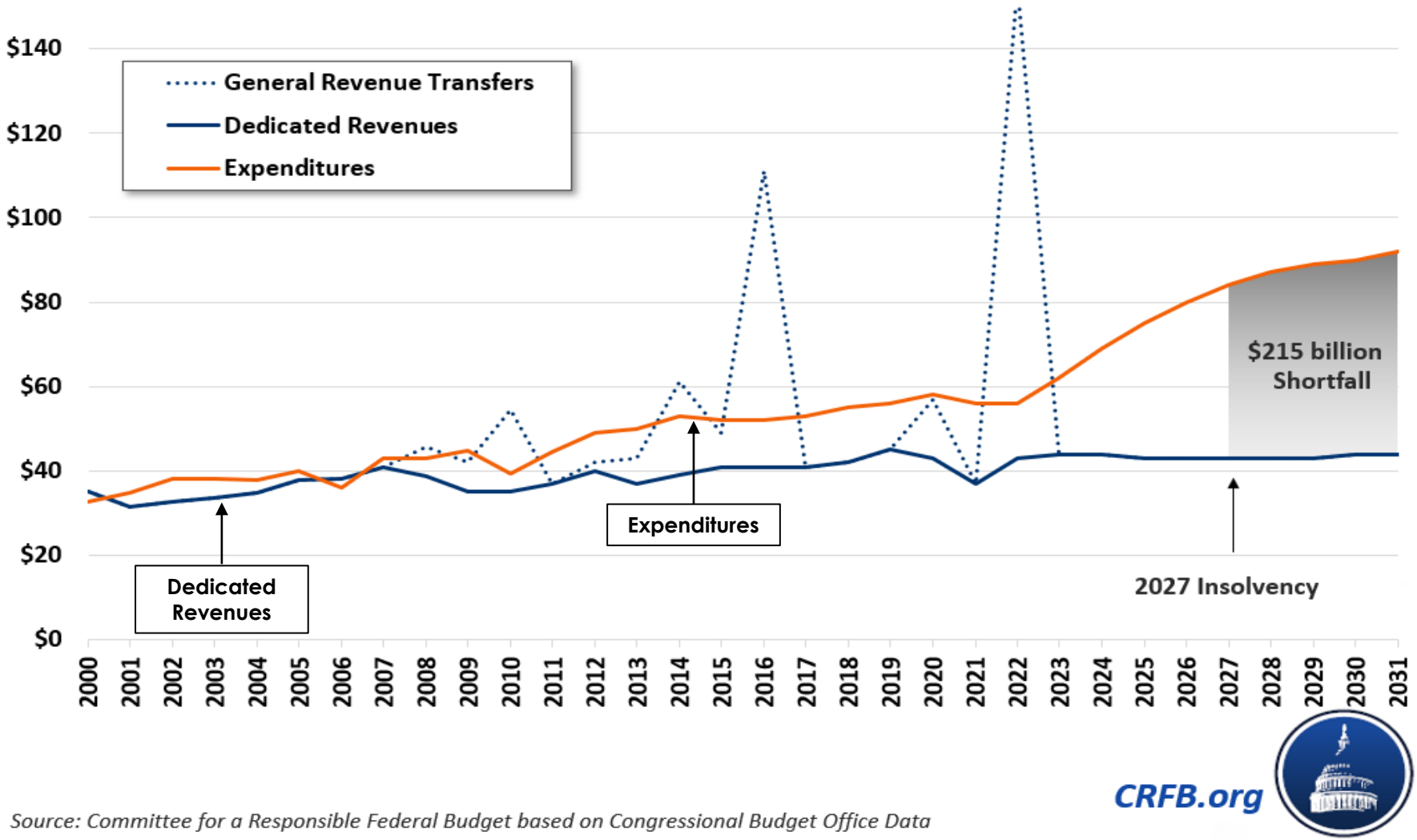
- Missouri Safe and Sound Bridge Improvement Program
  - Project Delivery: DBB (248 bridges) & DB (554 bridges)
  - Financing: GARVEE Bonds
- Ohio Bridge Partnership Program
  - Project Delivery: DB
  - Financing: GARVEE bonds and toll credits
- I-75 Modernization Project Segment 3, MI
  - Project Delivery: DBFM Availability Payment
  - Financing: Private Activity Bonds and Private Equity
- Pennsylvania Rapid Bridge Replacement Project
  - Project Delivery: DBFM Availability Payment Concession (28yrs)
  - Financing: Private Activity Bonds, Private Equity, Mobilization and Milestone Payments

The Case for Innovations-The Perfect Storm

- **Federal** – Highway Trust Fund delayed insolvency to 2027
- **State & Local** – Infrastructure aging and deteriorating and are mostly unwilling to raise taxes
- **User Fees:**
  - **Transit –** Fares cover 35 – 40% of operating costs
  - **Highway** – Offers most potential on leveraging access to private capital but require significant transition period before big impact on revenue (meanwhile the market is inflating)
- **Innovative Finance & Bridge/Project Bundling Tools –** Useful, but need to understand the implementation of each tool and all implications
- **Emerging technologies** (such as connected and automated vehicles) require smart infrastructure

Highway Trust Fund Faces Shortfall After 2027

Trust Fund Spending and Revenue After the Enactment of the Bipartisan Infrastructure Bill (billions)



CRFB.org

Source: Committee for a Responsible Federal Budget based on Congressional Budget Office Data

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Thay N. Bishop, thay.bishop@dot.gov or valuecapture@dot.gov

Questions & Answers

Project Bundling Agenda

1. Project Bundling – What is It?
2. Project Bundling Case Studies
   A. Osceola County, FL
   B. Pueblo of Acoma Bundling Program
   C. Pawnee Nation Bundling Program
3. Available Resources
4. Questions / Contact Information

Disclaimer

This presentation was originally created by the Project Bundling Team at the Federal Highway Administration (FHWA). Its contents do not have the force and effect of law and are not meant to bind the public in any way. This presentation is intended only to provide information to the public regarding existing requirements under the law or agency policies.

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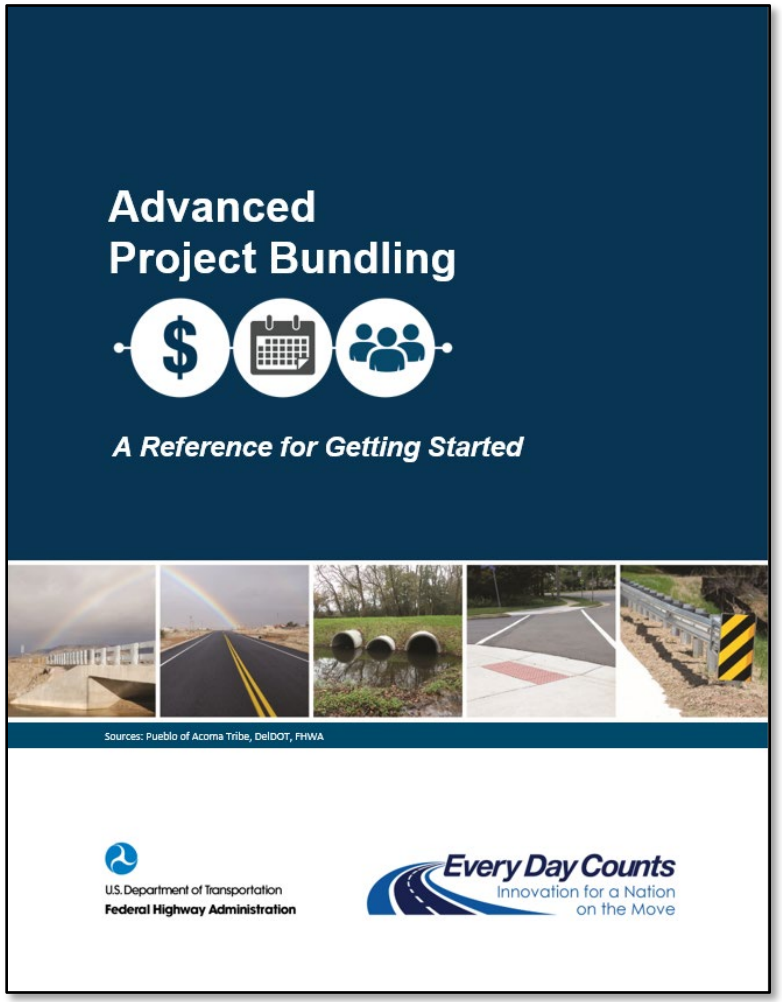
Unless noted otherwise, FHWA is the source for all images in this presentation.

Project Bundling – What is it?

Project bundling is a process by which a single contract award is used to deliver multiple preservation, rehabilitation, or replacement projects.

What is the *ADVANCED PROJECT BUNDLING: A Reference for Getting Started?*

- Supports the FHWA EDC-5 Project Bundling initiative - https://www.fhwa.dot.gov/ipd/pdfs/alternative_project_delivery/Advanced_Project_Bundling_Report.pdf.
- Supplements the FHWA Bridge Bundling Guidebook - https://www.fhwa.dot.gov/ipd/pdfs/alternative_project_delivery/bridge_bundling_guidebook_070219.pdf.
- Provides additional information on
  - creating bundles
  - bundling process



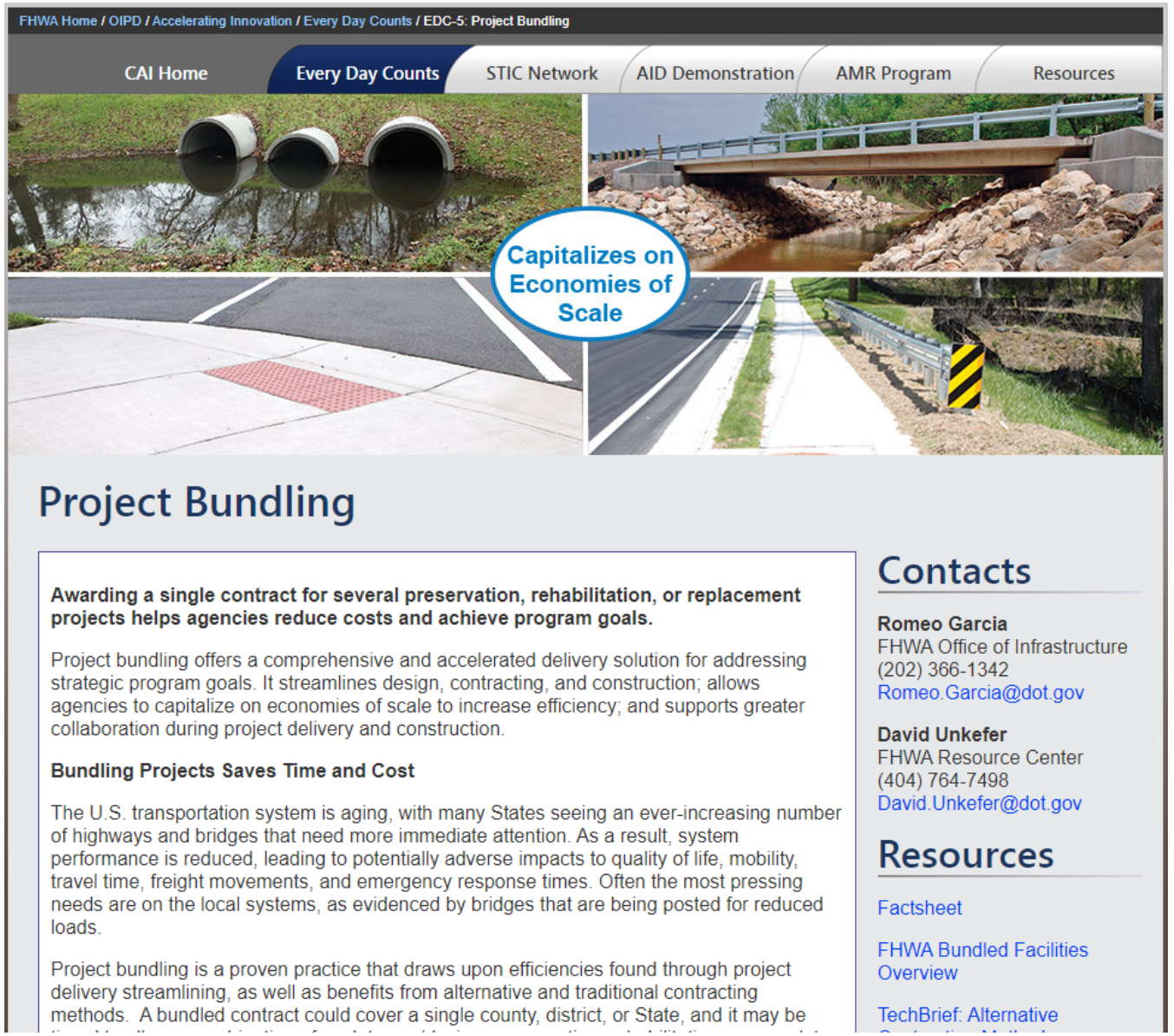
Source: FHWA

FHWA EDC-5 Project Bundling website

Search for "FHWA Project Bundling"

EDC-5
https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/project_bundling.cfm

Center for Innovative Finance Support website "Bundled Facilitates" page:
https://www.fhwa.dot.gov/ipd/alternative_project_delivery/defined/bundled_facilities/



Source: FHWA

Strategic Project Bundling – What is it?

- ✓ Reduce project backlog
- ✓ Innovation / cost savings
- ✓ Rapid delivery
- ✓ Success of other agencies
- ✓ Better competition
- ✓ Economic stimulus

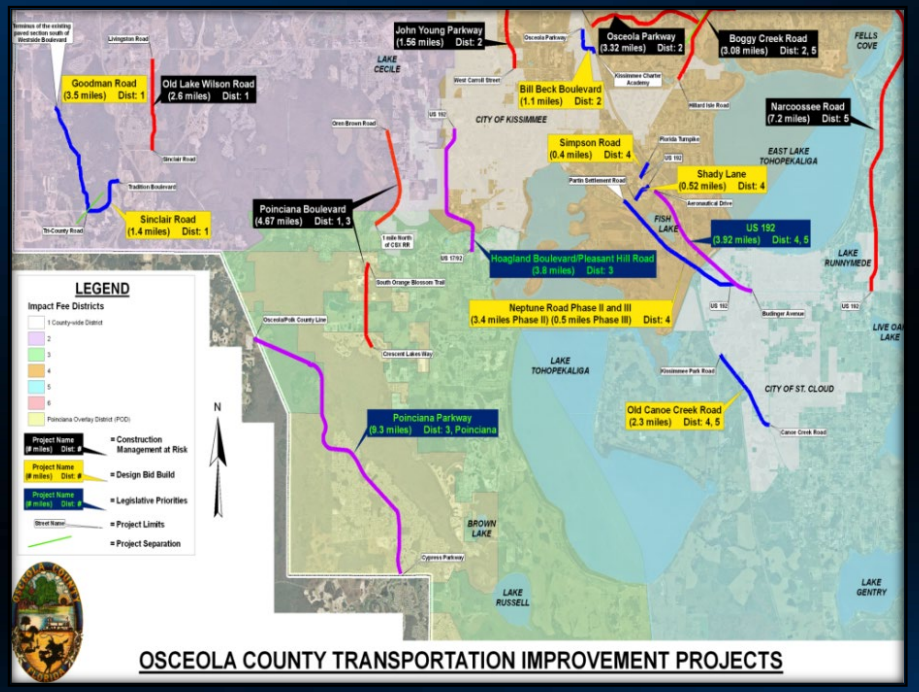
Osceola County, FL - Case Study

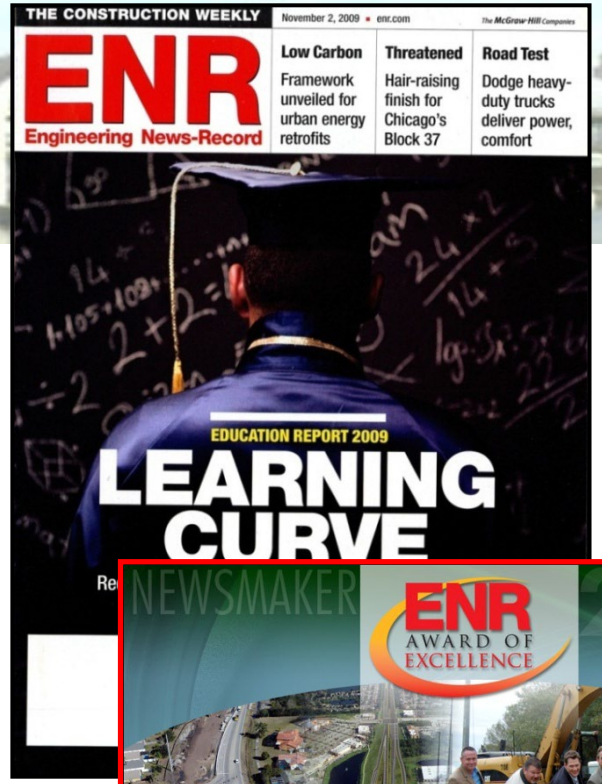
"Most rapidly deployed Program in the nation"

Narcoossee Rd. Phase I

Osceola County, FL - Case Study

- Nearly $1 billion program
- In 7 Years - 18 Projects (400M) Behind Schedule
- Designs 200% over budget – $5M unaccounted for
- Most recent completed project – $20 million over budget
- Fatal ($100 million) estimating error



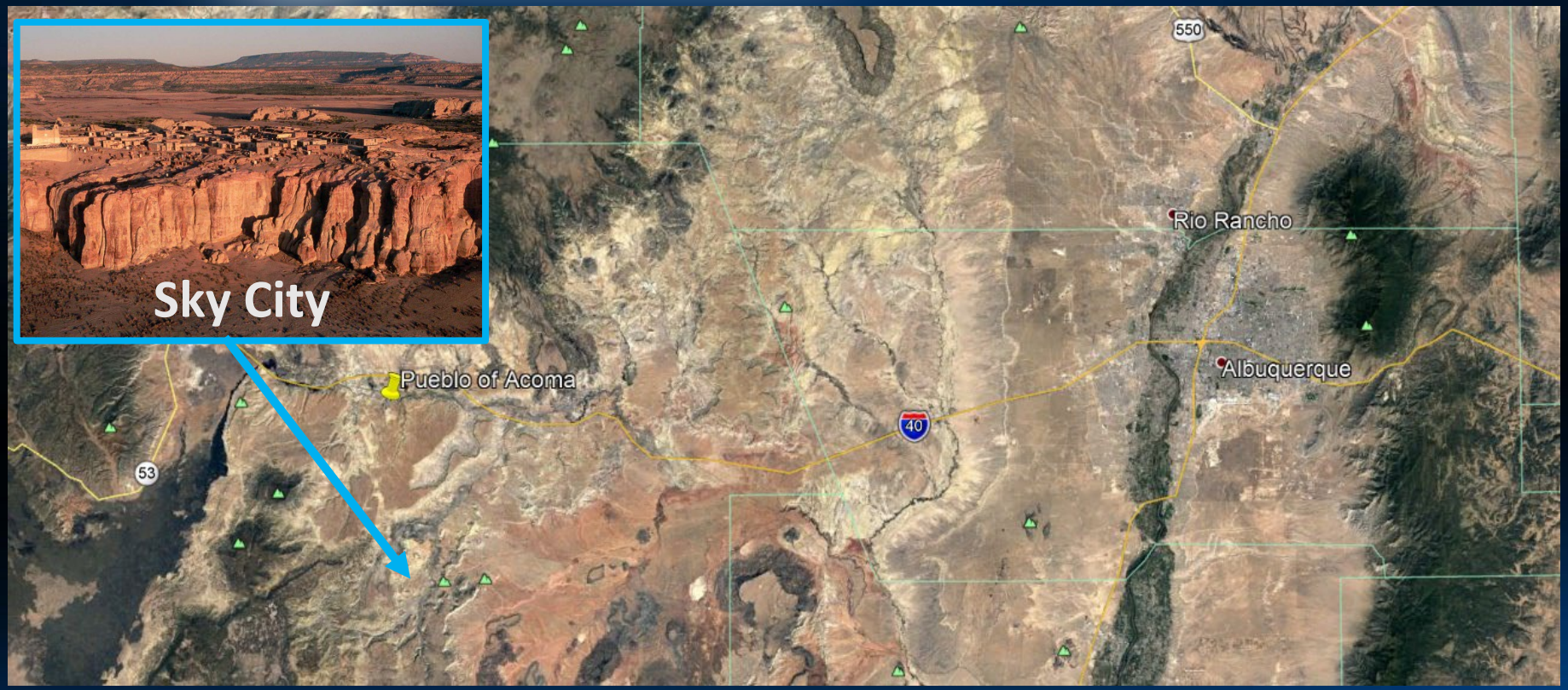


"Top 25 Newsmakers of 2009…Veteran Engineer Revives Road Program"

Pueblo of Acoma
HAAKU

Case Study

(2016 – 2017)



Pueblo of Acoma Case Study

Pueblo of Acoma Case Study






What types of Projects?

Pueblo of Acoma, NM – 2nd Round - Programmatic Use of PB on Tribal Lands

Project Name	Priority	Estimated Cost for Design and Construction [1]	Funding Sources	Design (% Complete)	NEPA Clearance Completed	ROW Needed	BIA Coordination	Construction Completed
FEMA 4352	5	$13.2M	Federal	100	YES	No	NO	December 2020
Baseball Fields	4	$175K	State	0	YES	Maybe	Yes	September 2019
SP-130 Veterans Blvd	3	$1.2M	Federal	0	YES	Yes	Yes	December 2021
Transportation Complex	2	$1.8M	Federal	0	YES	Yes	Yes	December 2020
Mesa Hill Bridge		Unknown						
Total		**$16.3M**						

Pawnee Nation Case Study

Source: Pawnee Nation of Oklahoma
(https://www.pawneenation.org/)
Used by permission

Vertical & Horizontal Project Bundles: The Pawnee Nation

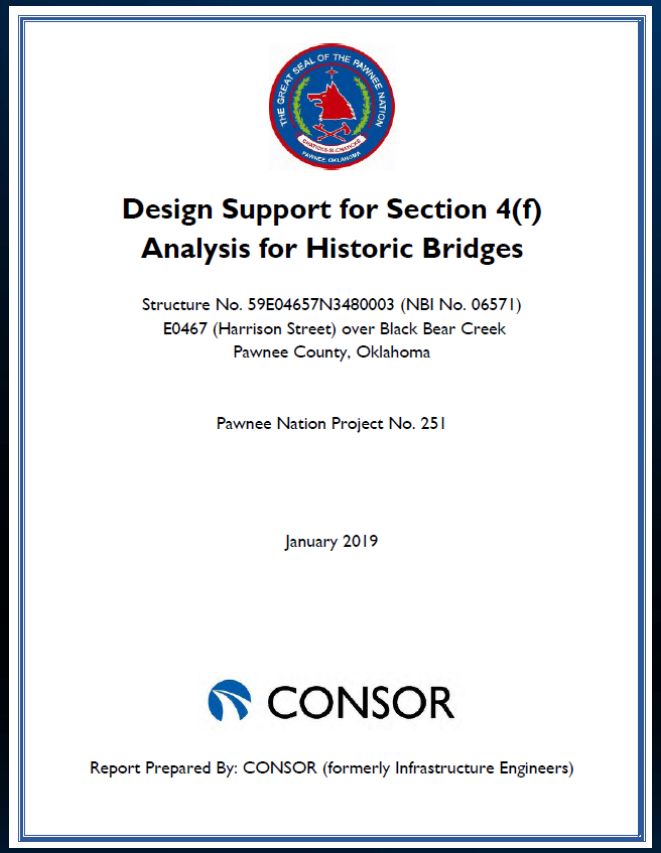
- Horizontal Projects (FHWA)
- Vertical Projects (HUD)
- Vertical & Horizontal Projects (Tribal & Disney Grant)

Pawnee Nation Case Study

Safety and Enhancement Projects

Internal Planning Process

Pawnee Nation Case Study



Design Support for Section 4(f) Analysis for Historic Bridges

Structure No. 59E04657N3480003 (NBI No. 06571)
E0467 (Harrison Street) over Black Bear Creek
Pawnee County, Oklahoma

Pawnee Nation Project No. 251

January 2019

CONSOR

Report Prepared By: CONSOR (formerly Infrastructure Engineers)

Green Bridge rehabilitation – just received funding

Pawnee Nation Case Study

Pawnee Nation – Groundbreaking same day as NTP

Project Bundling Strategies

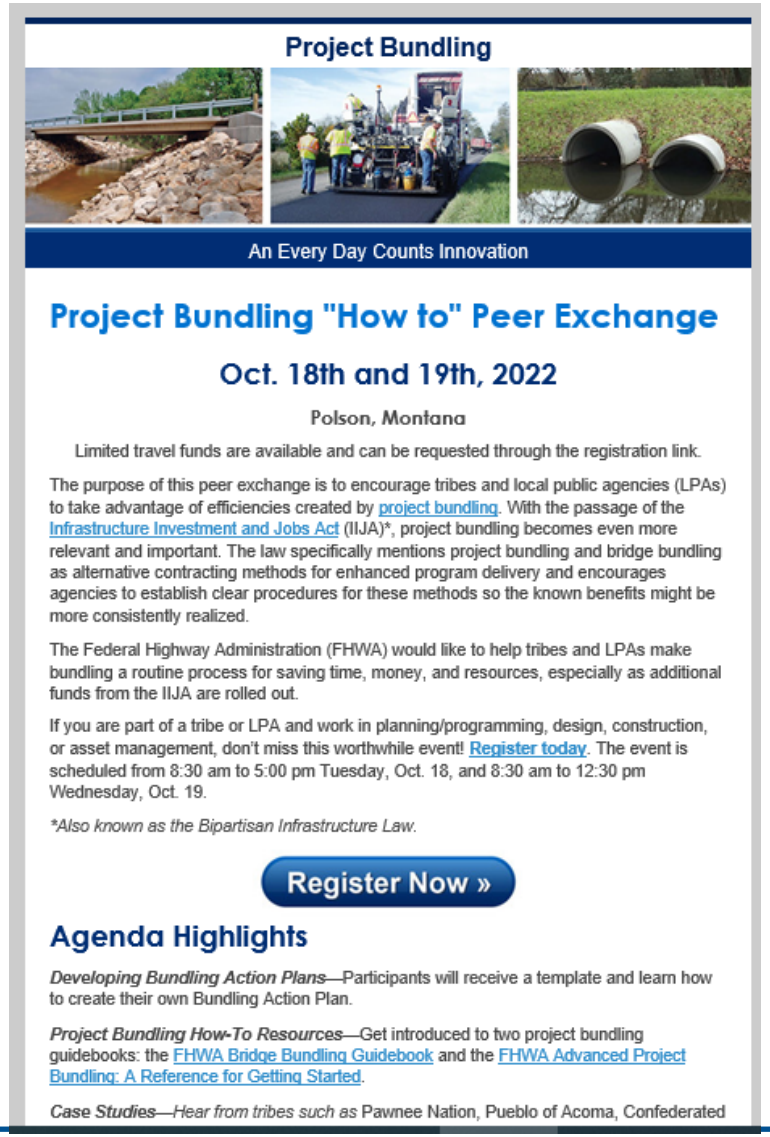
- Recruit Champions at the National Level
- Recruit Experts at Practitioner Level (SMEs)
- National "award-winning" successful EDC Federal Initiatives
- ACMs (ATCs, D-B, CM/GC
- Value Capture - Innovative Financing & Funding / Revenues
- Project Bundling – 30% Efficiencies
- Facilitate Partnerships Between Stakeholders / Project Owners - Stretching limited Resources w/ minimum Impact to Public Saving Time & Money
- Rapidly Reduce Deficient Infrastructure

EDC-5 Project Bundling Resources

Available Resources

- FHWA EDC-5 Project Bundling Website
- Bridge Bundling Guidebook (includes case studies on Tribal & LPA bundling)
- Agency Self-Assessment Tool, Resource Database & Case Studies
- On-demand webinars (series #1 & series 2)
- LPA online training course
- Implementation/Technical Assistance, webinars, workshops, Presentations (local, regional, & national events)

Available Resources



Project Bundling

An Every Day Counts Innovation

Project Bundling "How to" Peer Exchange

Oct. 18th and 19th, 2022

Polson, Montana

Limited travel funds are available and can be requested through the registration link.

The purpose of this peer exchange is to encourage tribes and local public agencies (LPAs) to take advantage of efficiencies created by project bundling. With the passage of the Infrastructure Investment and Jobs Act (IIJA)*, project bundling becomes even more relevant and important. The law specifically mentions project bundling and bridge bundling as alternative contracting methods for enhanced program delivery and encourages agencies to establish clear procedures for these methods so the known benefits might be more consistently realized.

The Federal Highway Administration (FHWA) would like to help tribes and LPAs make bundling a routine process for saving time, money, and resources, especially as additional funds from the IIJA are rolled out.

If you are part of a tribe or LPA and work in planning/programming, design, construction, or asset management, don't miss this worthwhile event! Register today. The event is scheduled from 8:30 am to 5:00 pm Tuesday, Oct. 18, and 8:30 am to 12:30 pm Wednesday, Oct. 19.

*Also known as the Bipartisan Infrastructure Law.

Register Now »

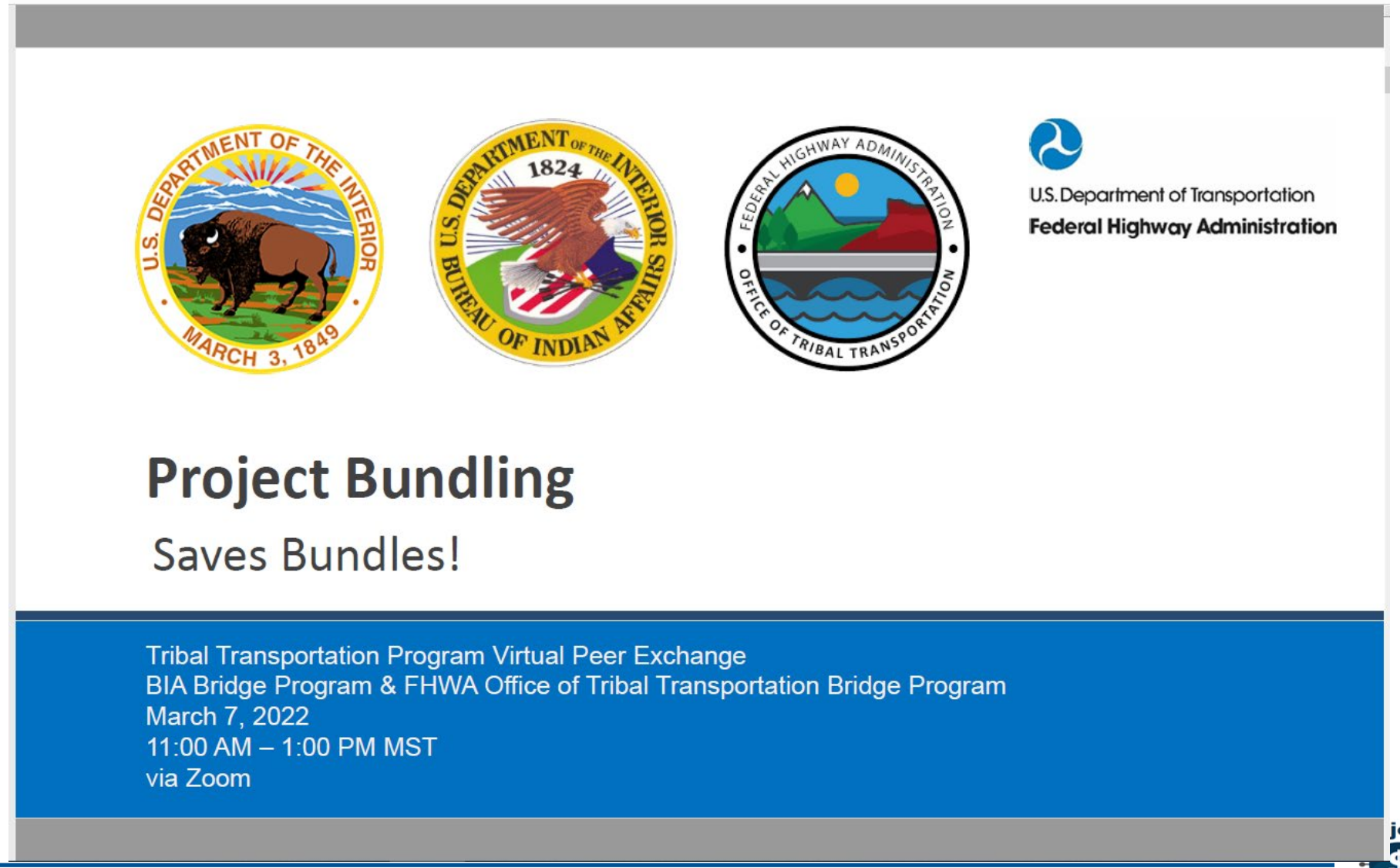
Agenda Highlights

Developing Bundling Action Plans—Participants will receive a template and learn how to create their own Bundling Action Plan.

Project Bundling How-To Resources—Get introduced to two project bundling guidebooks: the FHWA Bridge Bundling Guidebook and the FHWA Advanced Project Bundling: A Reference for Getting Started.

Case Studies—*Hear from tribes such as* Pawnee Nation, Pueblo of Acoma, Confederated

Available Resources



Available Resources

Project Bundling Saves Bundles!

Federal Highway Administration
LPA Project Bundling and Partnering Peer Exchange
October 4-5, 2022
San Diego, CA

DRAFT

Objective: To understand project bundling and how to utilize efficiently in California.

Agenda – Day 1 - October 4, 2022

Zoom link: xxxxxxxxx

Time (PST)	Topic	Facilitator/Presenter
Session 1 - Bundling – Partnering Benefits		
8:00 AM- 8:30 AM	1.A. Caltrans welcome - why we are here! • Caltrans leadership's vision for the Local Public Agencies (LPA) risk assessment (certification program). • Key benefits to LPAs	Dee Lam, Division of Local Assistance Chief, Caltrans Felicia Haslem, Caltrans Paul Vo, Caltrans
8:30 AM – 8:40 AM	1.B. FHWA welcome and introductions	David Unkefer, FHWA Matt Corrigan, FHWA
8:40 AM - 9:00 AM	1.C. Participant introductions (presenters, chat pod) • What is bundling? (quick poll on definitions, have you bundled?) • Review/discuss "What do you hope to get out this Peer Exchange?"	D. D'Angelo, Applied Research Associates (ARA)
9:00 AM – 9:30 AM	1.D. Project Bundling Action Plan • Template preview and example	D. Unkefer, FHWA
9:30 AM – 10:15 AM	1.E. Why bundle? • Project bundling for SB1 savings ($40 M) • IIJA overview - bundling opportunities and High level - LPA's experience in delivering federal projects including tools, policies; and bumps. • Details - Nationwide Project Bundling case studies (LPAs, Tribal Nations, state DOTs): why bundling, what was the problem we were solving, what did we achieve/results.	• Jeff Wiley (virtual) • D. Unkefer, FHWA • D. D'Angelo, ARA
10:15 AM – 10:30 AM	Networking Break	
10:30 AM – 11:30 AM	1.F. How to Bundle, Developing a Strategy • Bridge Bundling Guidebook • Advanced Project Bundling Reference (Program and Project Bunding Guidance, case studies, and tools. Bundling projects with multiple LPAs. Key partnering issues related to bundling - MOU lessons learned between partner agencies, joint project specifications, and federal requirements)	D. D'Angelo, Applied Research Associates
11:30 AM – 11:45 AM	Q&A Round Table Discussion	D. D'Angelo, facilitator

Project Bundling Saves Bundles!

Federal Highway Administration
LPA Project Bundling and Partnering Peer Exchange
October 4-5, 2022
San Diego, CA

11:45 AM – 1:00 PM	Lunch	Old Towne Restaurants (see list on last page)
Session 2 – Bundling Opportunities		
1:00 PM – 1:45 PM	2.A. LPAs Bundling • Introduction to LPAs and Bundling • Identifying project bundling candidates • Program bundle of projects as a single project • Request MPO to program in STIP • Mid-Coast Corridor project bundling experience • Q&A/Round Table Discussion	David Unkefer, FHWA - facilitator Greg Gastelum, San Diego Association of Governments (SANDAG)
1:45 PM – 2:30 PM	2.B. MPOs Bundling • Identifying project candidates for bundling and program e.g., San Francisco providing pavement data to build mutual bundles. • Combine TIP projects as requested by LPAs • Q&A/Round Table Discussion	David Unkefer, FHWA – facilitator Sui Tan, San Francisco Bay Area Metropolitan Transportation Commission (MTC)
2:30 PM – 2:45 PM	Networking Break	
2:45 PM – 3:30 PM	2.C. State DOTs – Discussion Panel • LPA partnering and bundling efforts • LPA risk assessment (certification program) related to bundling • Financial perspective	Daniel D'Angelo, moderator Tiffany Hamilton, Oregon DOT (program) Jeff Flowers, Oregon DOT (finance) Lorraine Moyle, Florida DOT (LPA Administrator)
3:30 PM – 4:15 PM	2.D. Caltrans – commitment & available resources • Establish forums to promote partnering and project bundling • Guidance • In collaboration with FHWA, provide training to staff and LPAs for bundling and partnering • Highway Bridge Program (HBP) participation	David Unkefer, FHWA, moderator Felicia Haslem, Caltrans Paul Vo, Caltrans Andy Chou, Caltrans (bundling examples)
4:15 PM – 4:30 PM	Round Table Discussion Day 1 Wrap-up	Daniel D'Angelo, ARA (facilitator) Mark Lancaster, Riverside County (virtual)
6:00 PM	Group Dinner (optional)	Old Towne Restaurants (see options listed on last page)

Available Resources

Project Bundling Implementation Plan

This project bundling implementation plan template includes a checklist and space for listing specific action steps your agency may take in delivering a successful a bundled project or program. It is intended to guide an agency through many of the critical steps and decisions essential in creating an effective bundled project or program. Additionally, it is a mechanism for recording decisions. It can also serve as a valuable critical thinking and communication tool for all project stakeholders. Note, although the steps are listed sequentially the process is iterative, so you may find your team coming back to earlier steps as your plan evolves and becomes more actionable. There are many ways to do bundling well, so the key to realizing the benefits is getting started with what works for your agency and any partners and stakeholders.

This tool is intended to be used in conjunction with the FHWA *Bridge Bundling Guidebook* (BBG), *Advance Project Bundling: A Reference for Getting Started* (APB Reference), *Project Bundling Reference Database* (Database), and case studies that provide additional insight on the steps and activities.

PROJECT BUNDLING IMPLEMENTATION PLAN - CHECKLIST & ACTION STEPS	
Project/Program Name (e.g., bridge preventive maintenance, corridor X, local roads safety plan):	
Date:	
Implementation Plan Team Members and Organizations Represented and roles (e.g., design, construction, finance, federal-aid offices):	
1.	**6.**
2.	**7.**
3.	**8.**
4.	**9.**
5.	**10.**
Brief Project Description/Scope of Work (including why bundling is considered for this project or program e.g., geographic proximity, similar work types, increase biddability and competition):	
Estimated Cost and basis (e.g., program budget, estimated number of projects):	
Estimated Start-End Date (including any constraints, e.g., funding timeframes, critical asset condition):	

U.S. Department of Transportation
Federal Highway Administration

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Source: FHWA

Available Resources
For additional information, please contact:

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FHWA – C&PM (25 Feb '23)
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Michigan's Local Agency Bridge Bundle Program

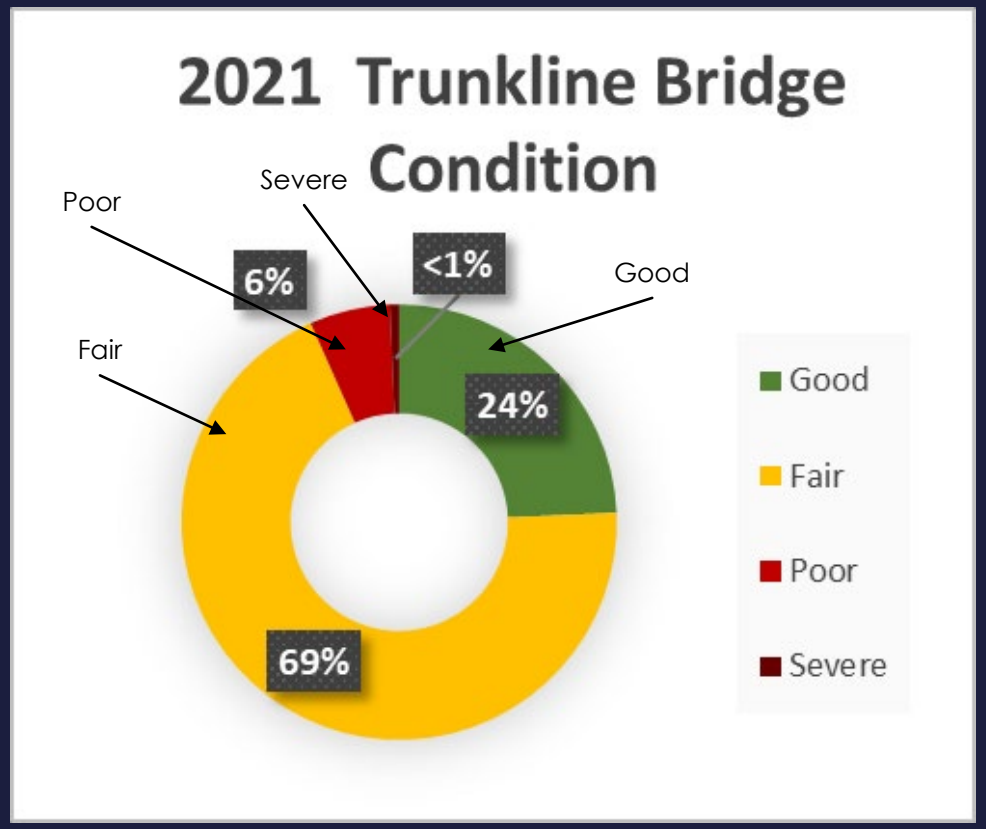
Rebecca Curtis
Chief Bridge Engineer
Michigan DOT

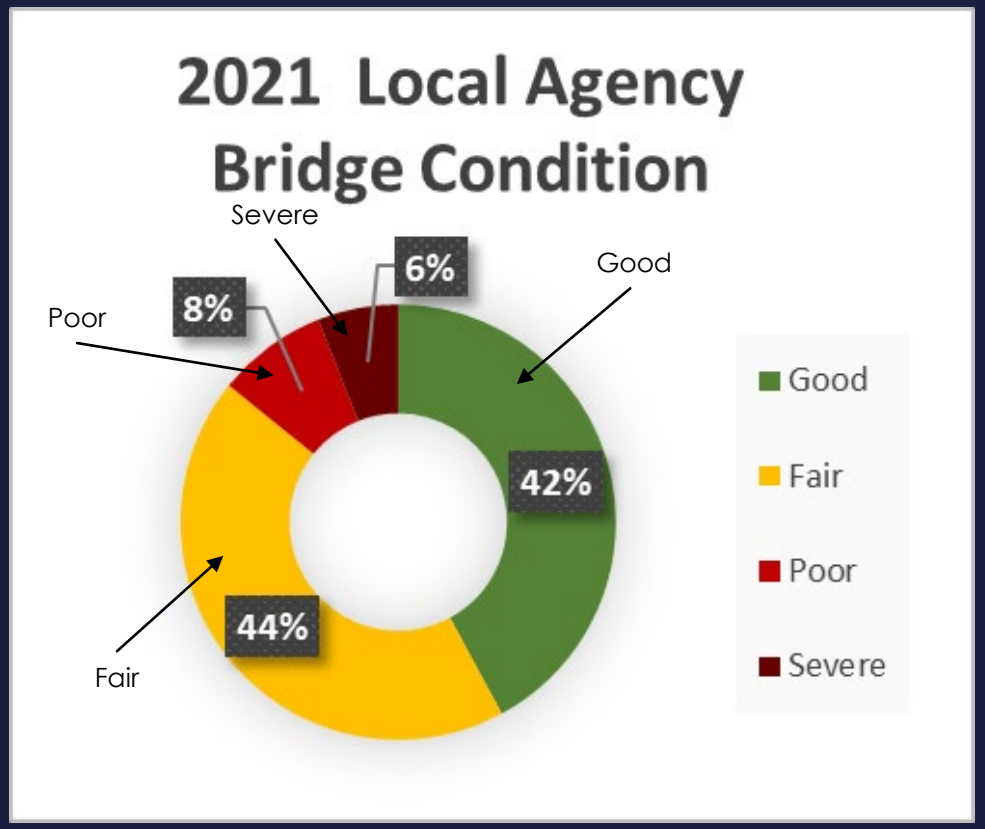
February 2023

Agenda

- Michigan Bridges
- Program Background
- Funding
- Candidate Selection
- Coordination
- Delivery

Michigan Bridges





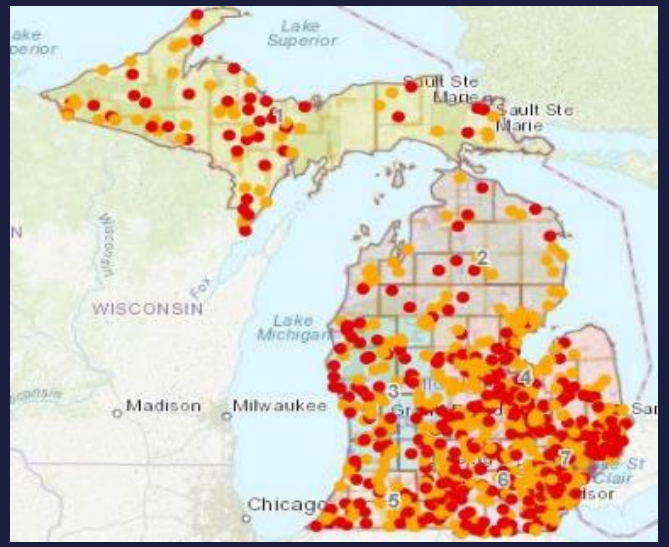
Collaboration

BUREAU of BRIDGES and STRUCTURES

Coordination

Program Background

- MDOT led statewide bundle program concept began over 5 years ago
- Feasibility Study Confirmed Condition Needs & No Extensive Funding Source
- Verified Emerging Crisis on Local System with Increasing Closures and Postings
- Need for Alternate Actions and Partnerships



Month/Year	Serious/Critical Local Bridges	Load Restricted Local Bridges
May 2019	413	1029
July 2020	400	1056
Dec 2022	493	1062

Collaboration — Coordination

BUREAU of BRIDGES and STRUCTURES

Funding – Phase I (Pilot)

$24.3 Million Total

- HIP Funding
- 2020 AID Grant (Awarded)
  - $1 Million
- 2021 AID Grant (Awaiting review)
  - Partnership with Local County
- Toll Credits

Candidate Selection – Phase I (Pilot)

- Condition
- Superstructure Candidate
- Plans / Data Availability
- Rural Location (funding requirement)
- Local Agency Willingness to Participate

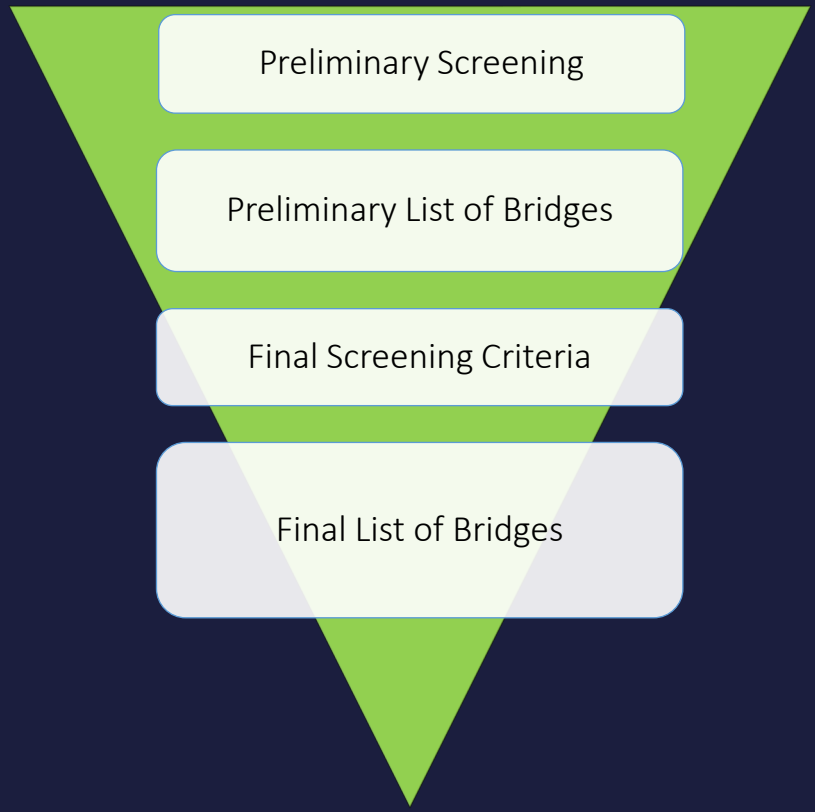
BUREAU of BRIDGES and STRUCTURES

Collaboration

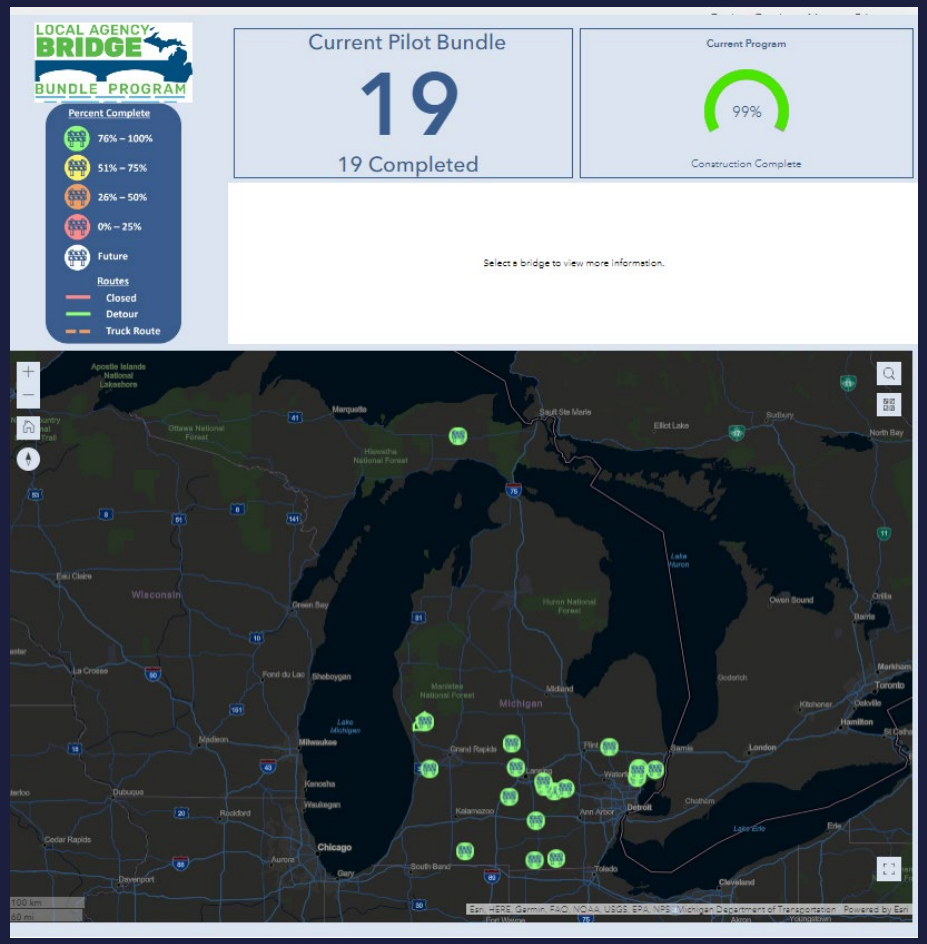
Coordination

Candidate Selection – Phase I (Pilot)

- Preliminary Screening-December 2019
- Procurement of Consultant Team-Early 2020
- Final Screening & Scoping-May to July 2020
- 20 Bridges Advanced into Final Pilot
- Bridges ‘screened out’ would be considered for future bundles



Coordination – Phase I (Pilot)



http://michigan.gov/bridgebundling

Collaboration

BUREAU of BRIDGES and STRUCTURES

Coordination

Coordination – Phase I (Pilot)
Local Agency Champion Responsibilities

- Provide project data needed
- Issue permits (right-of-way occupancy, trucking, etc.)
- Lead local public information & stakeholder engagement (if needed)
- Responsibility for any out of scope or betterments
- Develop and implement plan for future life-cycle maintenance of the bridge
  - Future NBIS Inspections

Delivery – Phase I (Pilot)

- Design-Build
- 14 Local Agencies
- Awarded to Design Builder March 2021
- Designs Completed February 2022
- 19 bridges Open to Traffic November 2022

Delivery - Phase I (Pilot) ATC

- Press Brake-Formed Tub Girders
- 60-90 Day Full Closures

BUREAU of BRIDGES and STRUCTURES

Collaboration

Coordination

Delivery - Phase I (Pilot)

Goal	Success
Reduce the number of serious and critical bridges	19 superstructure replacements opened in only 60-90 days (18 were serious or critical)
Develop Michigan's bridge bundle pilot into a scalable and repeatable program	CRRSAA bundle was developed and will build upon lessoned learned from pilot
Utilize innovations including strategic partnerships between MDOT, MML, CRA and individual bridge owners	Press Brake Steel Tub Girders used by Design Builder
	Partnerships with Local Champions, project Ombudsman, Project Consultants and Design Build Team

- Still in progress:
  - Asset management plans for each bridge
  - Benefit/Cost Analysis

Collaboration — BUREAU of BRIDGES and STRUCTURES — Coordination

Funding – Phase II (CRRSAA)

- 100% Federal Aid
- Must be Obligated by September 2024
- Allocated by the Governor and Legislature for the Purpose of Bridge Bundling

Candidate Selection - Phase II (CRRSAA)

- Closed
- Posted
- Prioritized by Regional Bridge Council

Coordination - Phase II (CRRSAA)

Collaboration — Coordination

BUREAU of BRIDGES and STRUCTURES

Coordination – Phase II (CRRSAA) Delivery Advisory Team

- Local Agencies not included in Phase II
- Review Phase II Goals
- Evaluate Developed Regional Bundles
- Prioritize Bundles
  - Minimum one bridge per agency
  - Local Agency Bridge Program Score
  - Other Considerations

Delivery – Phase II (CRRSAA)

- Ten Bundles/Projects
  - Three Removal Bundles
  - Four Replacement Bundles
  - Three Stand Alone Replacement Bridges
  - PE Only
- 59 Structures
- Anticipated Construction 2023-2026

Delivery – Phase II (CRRSAA) Strategy

- Bundles Organized Geographically and Risk-Based
- Design-Bid-Build for Permanent Removal Bundles
- Design-Build for Regional Replacement Bundles
- Stand Alone Design-Bid-Build For Unique Projects
- Bridge Scope, Size & Complexity

Delivery – Phase II (CRRSAA) Strategy

- Local Preferences (Permits, Public Engagement, etc.)
- Environmental Permit Constraints & Studies
- Coordination with Other Nearby Projects
- Construction Staging/Detour Requirements
- Approaches to Increase DBE/SBE Participation
- Pre-Construction & Post-Construction Meeting to Detail Inspections, As-Builts, Load Ratings, Routine Inspections and Responsibilities

Delivery – Phase II (CRRSAA) Goals

- Improve Local Bridge System Safety
- Obligate CRRSAA program funding by September 30, 2024
- Continue collaboration, communication and coordination
- Identify opportunities for DBE involvement
- Build upon success of Pilot to demonstrate bundling is a potential solution to address bridge condition challenges

Collaboration — Coordination

Questions?

Rebecca Curtis

Chief Bridge Engineer

Michigan DOT

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BUREAU of BRIDGES and STRUCTURES

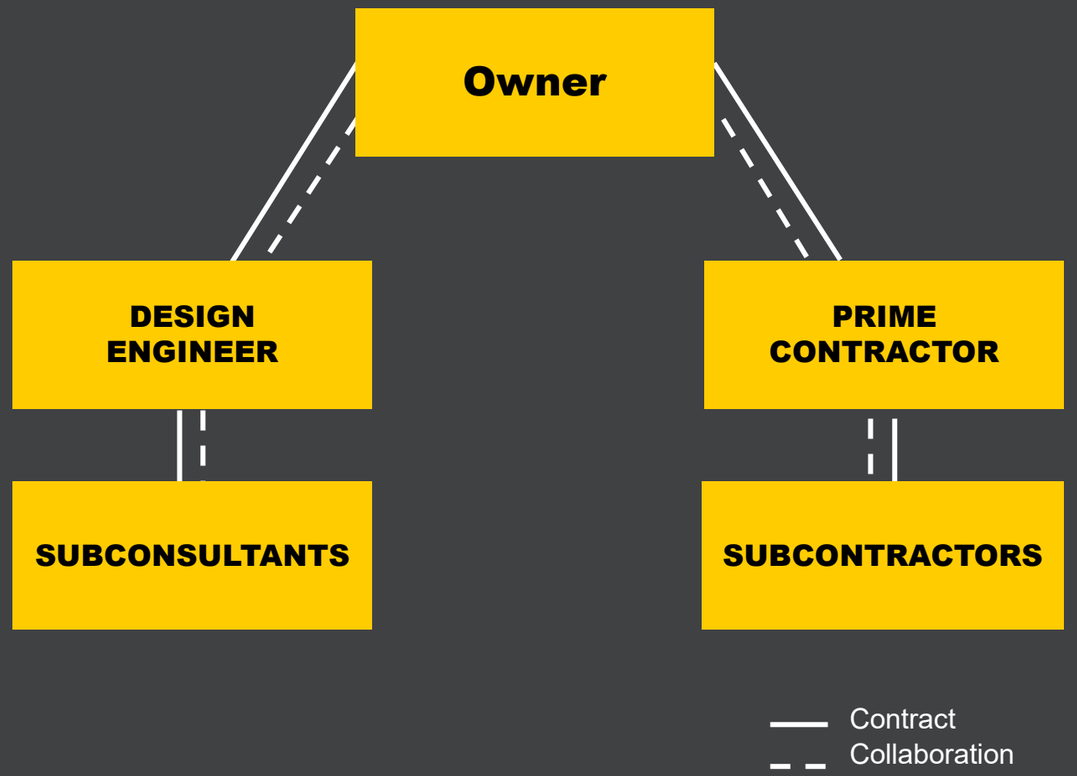
Collaboration

Coordination

FHWA Value Capture Webinar – Alternative Delivery

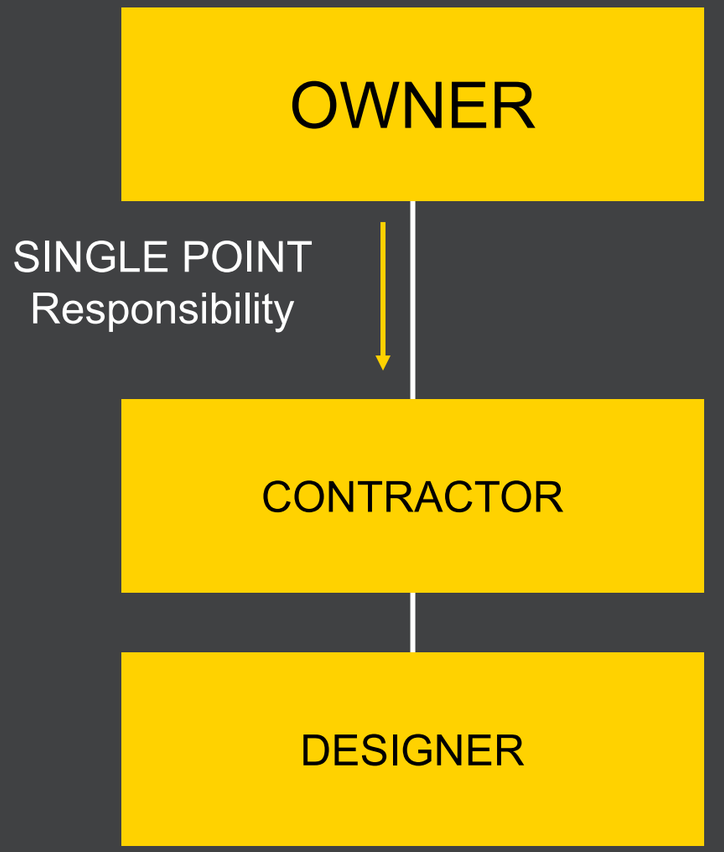
DESIGN-BID-BUILD

- ✓ Owner manages separate contracts with design-builder
- ✓ No direct accountability between contractor and designer
- ✓ Owner owns risk
- ✓ Change orders
- ✓ Priced at procurement – 100% Design



DESIGN-BUILD

- ✓ Owner manages one contract with design-builder
- ✓ Certainty of outcome – Price and Schedule
- ✓ Typically procured around 30% design
- ✓ Risk sharing (transfer)
- ✓ Allows for innovation in design and construction



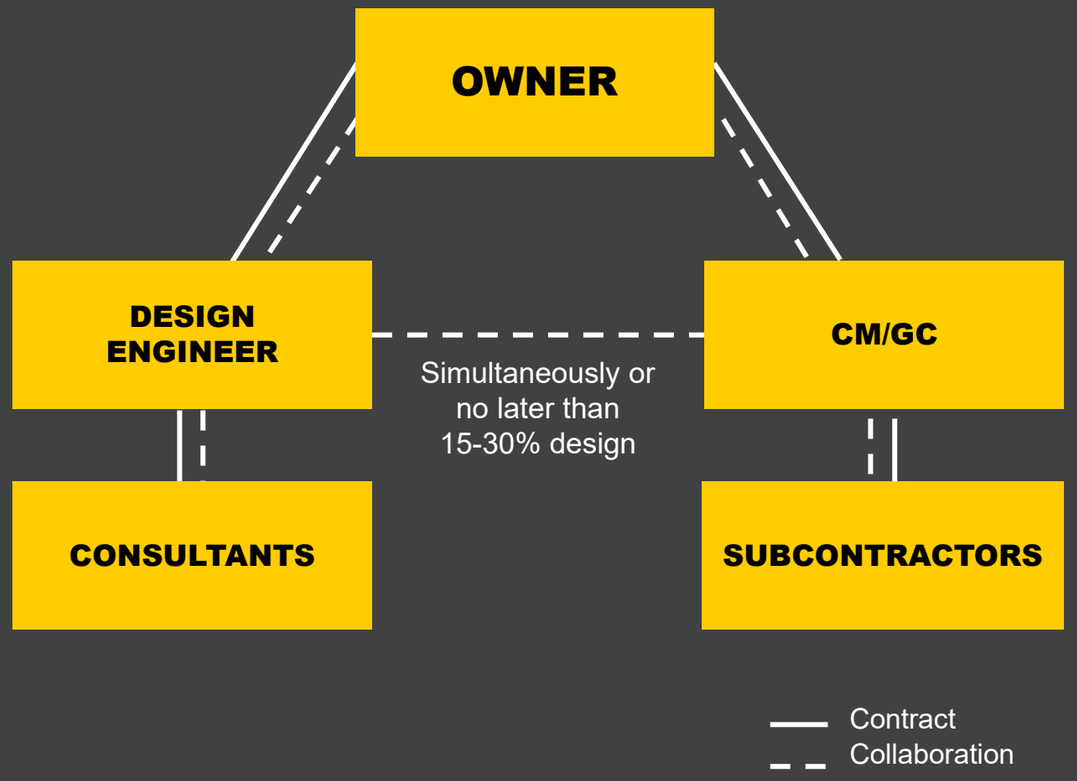
COLLABORATIVE APPROACH

What makes a project successful?

- Shared understanding of project goals
- Early and consistent engagement among all parties
- Understanding of risk and proper allocation
- Cost transparency & schedule certainty
- Project Management: Safety, Quality, Progress

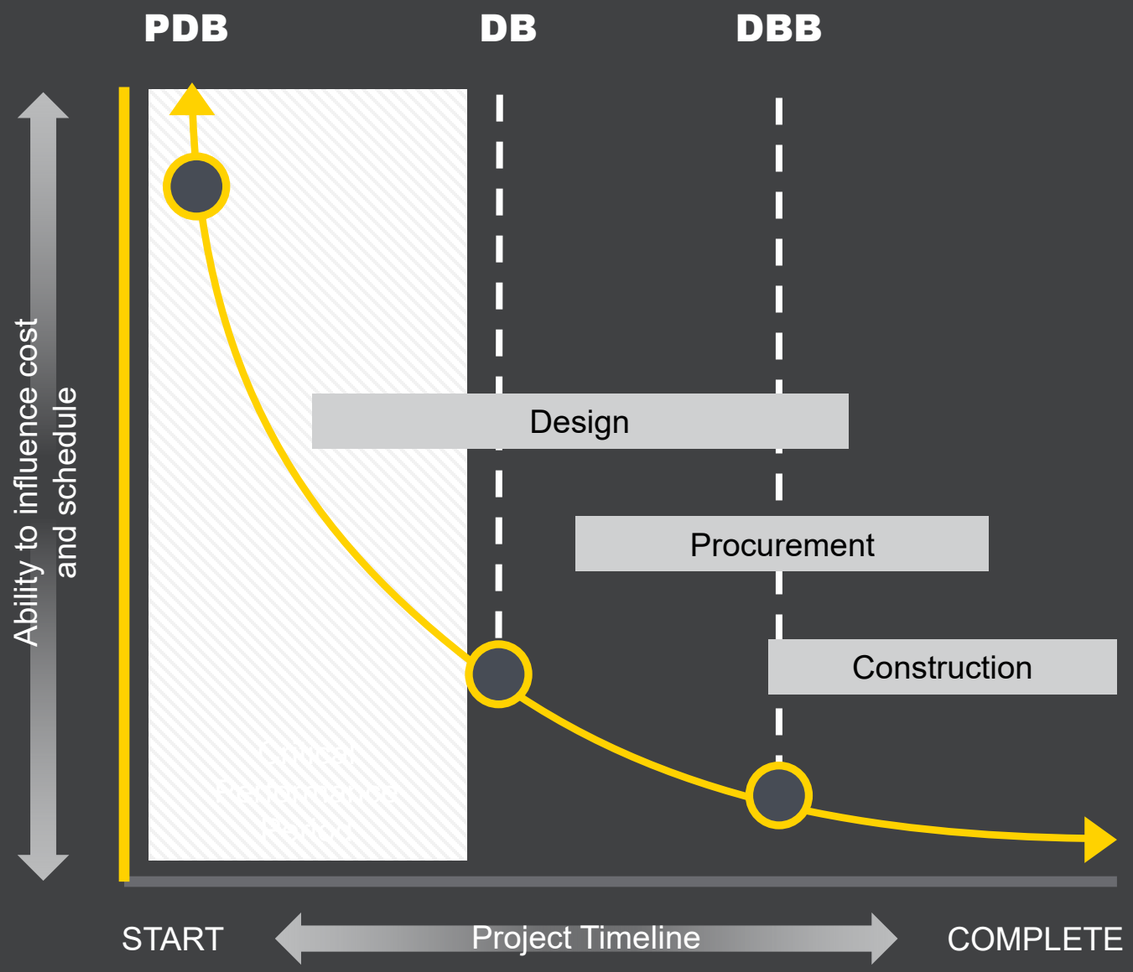
CONSTRUCTION MANAGER / GENERAL CONTRACTOR

- ✓ Owner selects and controls the preferred team.
- ✓ Earlier collaboration integrates Owner, engineer and contractor into a cohesive unit.
- ✓ Model yields more collaboration, fostering innovation and higher design quality with risk allocated to the party best equipped to manage it.
- ✓ Improves constructability and optimizes schedule.



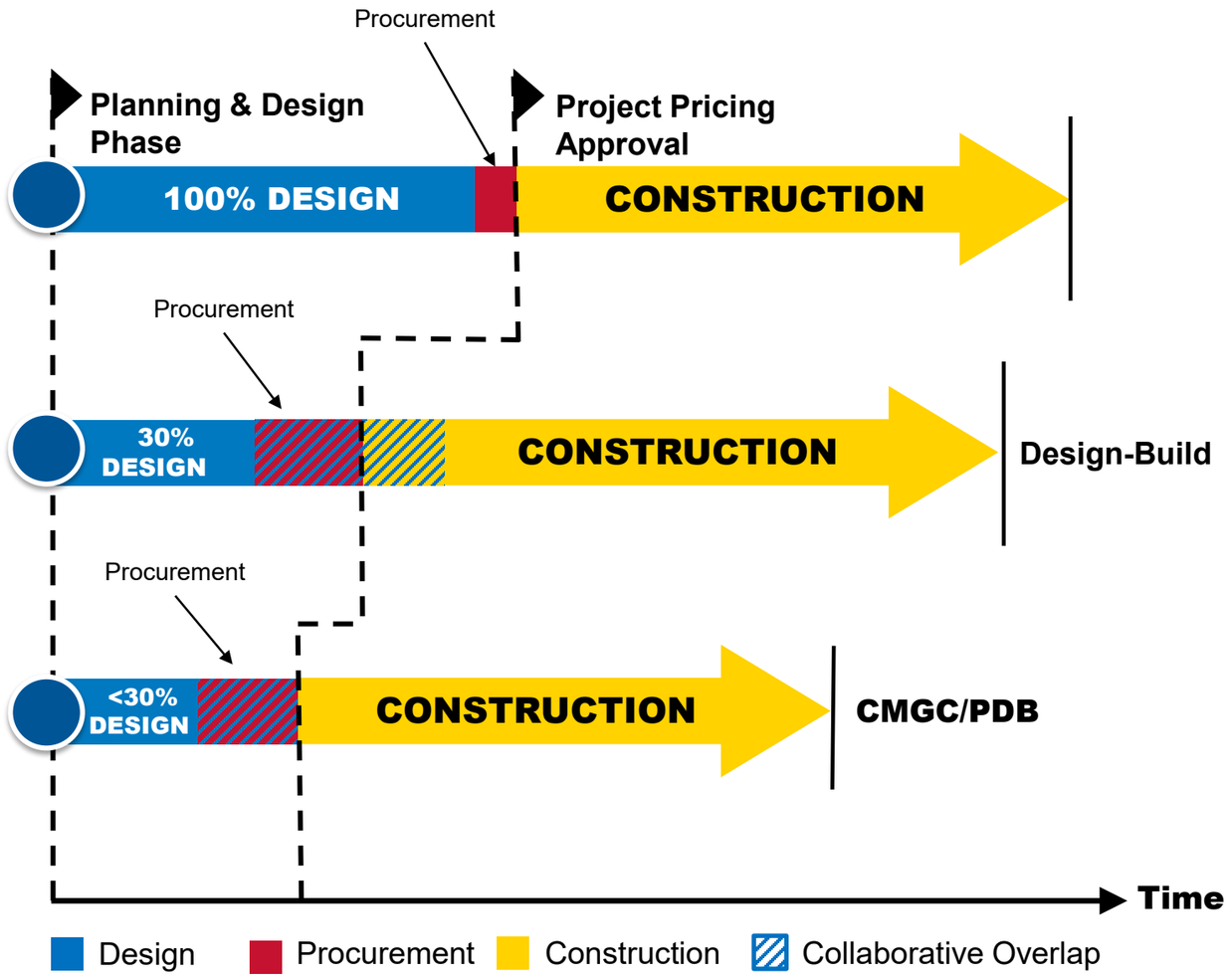
PROGRESSIVE DESIGN-BUILD

- ✓ Earlier collaboration that integrates Owner, engineer and contractor into a cohesive unit.
- ✓ Model provides value for projects with complex design and phasing, long lead time on materials, high risk, in-depth research, multiple stakeholders, and time/budget sensitivity.
- ✓ No surprises: updated cost and schedule provided with milestone reviews (monthly check-in and 30%, 60%, 90% updates)



ALTERNATIVE PROJECT DELIVERY

- Common goals, collaboration and transparency among the parties
- Contractor/Designer coordination
- Environment for innovation
- Risk mitigation through team analysis
- Cost certainty
- Speed to delivery
- Third party interaction
- Subcontractor engagement

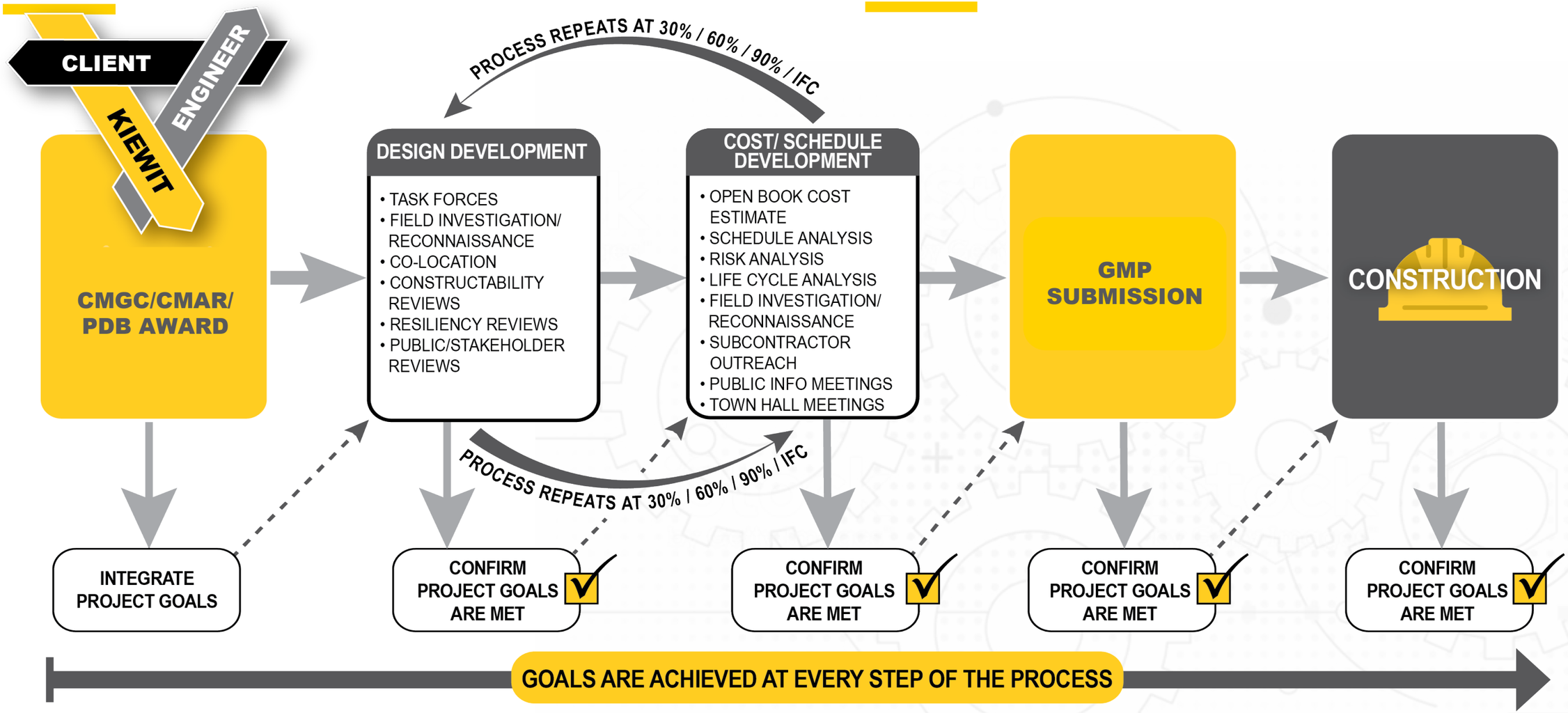


Source: FHWA, Alternative Contracting Method Performance in U.S. Highway Construction

COLLABORATIVE CONTRACTING – COST CERTAINTY

PHASE 1: PRE-CONSTRUCTION

PHASE 2: CONSTRUCTION



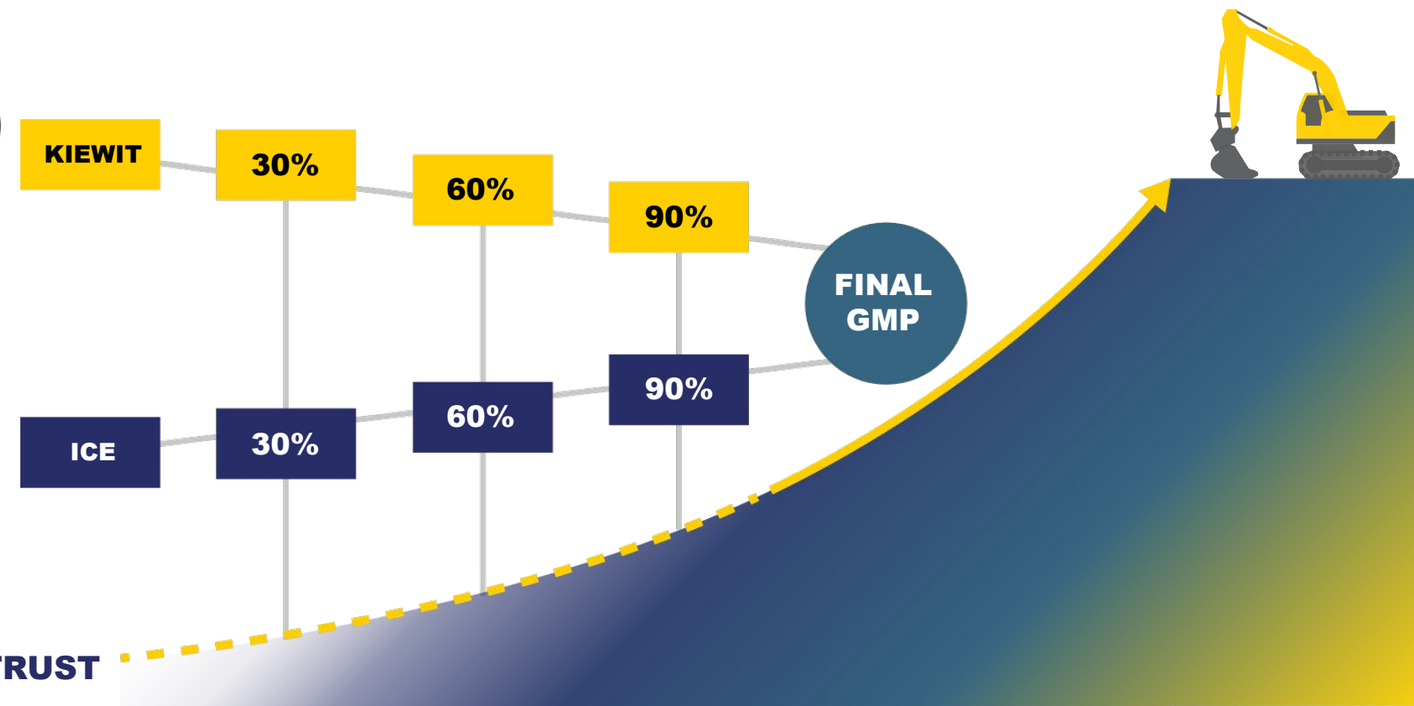
UNDERSTAND ESTIMATES WILL CONVERGE

ALIGNS OWNER, DESIGN-BUILDER, & ICE

- ✓ Estimate structures
- ✓ Subcontractor and supplier cost assumptions
- ✓ Risk buckets (or budget)

USE QUALIFIED ICE TEAMS

- ✓ Similarly sized ($) estimates



ALTERNATIVE CONTRACTING AND BUNDLING

- SCOPE – Flexibility with scope definition
- SCHEDULE
  - Early works and construction phasing
- COST CONTROL
  - Transparent pricing process
  - Construction Packaging
  - Multiple GMP’s

ALTERNATIVE CONTRACTING AND FUNDING

Funding

- “Right size” the scope while attaining goals
- Understanding cost implications of risk and properly allocating
- Cost transparency & schedule certainty
- Multiple GMPs / Construction (and/or Design) Packages

HOW THEY COMPARE

● Most Project Benefit ○ Least Project Benefit

Project Traits	DBB	CMAR/ CMGC	PDB	DB
Risk Management	○	◕	●	◐
Innovation	○	◕	●	◐
Constructability	○	●	●	◐
Mitigate Design Risk/Maximize Optimization	○	◕	●	◐
Third Party Interface	○	◕	●	◐
Owner/Eng/Contr Collaboration	○	◕	●	◐
Owner Control	●	◕	◕	◐
Competitive Pricing	●	◐	◐	◕
Price Certainty	◐	●	●	◕
Schedule Optimization	○	●	●	◕

MANAGING AND MITIGATING RISK

Risk Register	Construction Package	Discipline	Identified Risk	Title	Potential Cost Impacts	Probability	Cost Impact	Factored Cost	Risk Owner	Kiewit Risk	CDOT Risk	Shared Risk	Status and Review Comments
0	Construction Package	Discipline	Identified Risk	Title	Potential Cost Impacts	Probability	Cost Impact	Factored Cost	Risk Owner	Kiewit Risk	CDOT Risk	Shared Risk	Status and Review Comments
0					Risk Assessment				Allocation				
1	CP-4	All	Flood event damage to completed construction work. Including temp crossings.	Weather/Differing Site	Cost to rebuild the completed work caused by damage from a flood event. Deductible	33%	$300,000	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	$50K deductible out of floodplain and $250K deductible in the floodplain carry 1 each. A flood event is for over 5 year event
2	CP-4	All	Shortened construction calendars due to river flows and temperature	Weather/Differing Site	If river flows and/or temperature are above a typical year or the average construction season will be shortened	50%	$1,500,000	[redacted]	[redacted]		[redacted]		Production crews standby, and acceleration
3	CP-4	All	Ice buildup during winter months	Weather/Differing Site	Clearing ice jams in the river during winter months	0%	$35,100	[redacted]	[redacted]		[redacted]		Covered with agreed to equipment bid items
4	CP-4	All	QTY's growth and overruns.	Unknown Conditions	QTY growth	5%	$16,500,000	[redacted]	[redacted]		[redacted]		$110,000,000 x 15% = $16,500,000 Quantity growth between IFC and post IFC changes as well as overall quantity growth for the project.
5	CP-4	All	109 Spec items overrun: VTC	Quantity Risk	Work phasing will require VTC's to be continually moved. All other BMPs are allowed to overrun.	0%	$35,950	[redacted]	[redacted]	[redacted]			$3,595/per VTC, construct 10 additional over course of 1 yr. $71,900 cost impact. Mitigated with designed qty growth
6	CP-4	Dewatering	Additional dewatering pumps needed due to higher than anticipated flows entering the work zone.	Weather/Differing Site	Dewatering efforts can increase significantly with increased flows. Requires more pumps and dewatering equipment.	10%	$3,500,000	[redacted]	[redacted]	[redacted]			Total dewatering budget not including water treatment = $3.4 million. Used factored cost to account for 10% of dewatering budget.
7	CP-4	Environmental	Noise restrictions per Larimer County	Environmental	Noise restrictions at day/night from complaints by residents. Current construction practices are not within Larimer County allowable noise limits.	3%	$7,200,000	[redacted]	[redacted]		[redacted]		800 residents x 60 days x $150/night = $7,200,000. 3% = 24 residents for 60 days.
8	CP-4	Environmental	Wildlife Windows: Bird nesting, bats, bighorn sheep, mice, weeds etc.	Environmental	Project sequencing and material flow, all duration based costs	10%	$240,000	[redacted]	[redacted]		[redacted]		Re-sequencing material flow (20,000 CY/week x an additional $12/CY = $240,000)
9	CP-4	Environmental	Encountering contaminated or hazardous material	Differing Site	Cost of disposing of hazardous materials. CDOT to be named as the generator of the material	0%	$200,000	[redacted]	[redacted]		[redacted]		CDOT does not want to carry any money in this item. This would be covered under a change of conditions
10	CP-4	Environmental	BMP requirements for turbidity or stakeholder approval of construction methods.	Environmental	Cost for installation of additional BMP's while working in the river. Cost for any mitigation or corrective measures needed.	10%	$1,000,000	[redacted]	[redacted]		[redacted]		Change to $100,000 Per CDOT. Additional features potentially required above what was assumed at estimate time as directed by Engineer.
11	CP-4	All	Archeological impacts	Differing Site	Costs if shutdown or delayed. Mobilization to a different area. Impacts to material flow.	0%	$700,000	[redacted]	[redacted]		[redacted]		

*Big Thompson

Kiewit

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