Advanced Project Bundling

How-to Brief: When to Bundle





U.S. Department of Transportation
Federal Highway Administration

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16. Abstract **Project bundling is the awarding of a single contract for several preservation, rehabilitation, or replacement projects to help agencies reduce costs, gain efficiencies, and achieve program goals. Early consideration of bundling's potential benefits as part of the routine project development process is a critical success factor. Additionally, a bundling process in place allows an agency to take advantage of unique funding opportunities quickly.**		
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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Alternative contracting method
CIP	Capital Improvement Plan
GIS	Geographic information system
PB	Project bundling
ROW	Right of way
STIP	State Transportation Improvement Program
TAMP	Transportation Asset Management Plan

1. Introduction

Project bundling (PB) is the awarding of a single contract for several preservation, rehabilitation, or replacement projects to help agencies reduce costs, gain efficiencies, and achieve program goals. In some instances, PB may also be used in delivering multiple projects within a local public agency's Capital Improvement Plan (CIP). More advanced bundling has been used to streamline all phases of project delivery, including permitting, procurement, design, contracting, and construction. It allows agencies to capitalize on economies of scale to increase efficiency and supports greater collaboration during project delivery and construction. PB offers a comprehensive and accelerated delivery solution for addressing strategic program goals. PB can improve the delivery of agency construction programs and more strategically and rapidly address system performance issues, such as deficient roadways, load-posted bridges, and safety hot spots.

PB is not new to many State and local transportation agencies; projects have been bundled into single contracts for many reasons, including:

- Making a single contract large enough to increase competition among qualified contractors, subcontractors, or designers.
- Reducing the long-term disruption to the traveling public.
- Optimizing the use of available funding by leveraging economies of scale.
- Accelerating the planning, design, and construction of transportation improvements.
- Building political capital by getting projects "off the books."
- Optimizing construction schedules and reducing contractor mobilization costs.
- Supplementing agency staff with contractor or consultant staff.
- Reducing procurement actions.
- Ability to combine multiple projects from different municipalities and agencies.

Implementing PB culminates with more effective agency program delivery to accomplish established goals. This how-to brief explains how to:

- Identify good project bundling candidates
- Integrate PB into an agency asset management program.
- Translate agency strategic objectives into a systematic business process responsive to funding constraints, political issues, and stakeholder requirements that support the rapid advancement of agency asset management and work program objectives.

2. How to implement strategic bundling goals and objectives

A vital aspect of a successful PB process is a clear vision, strategic goals, and objectives specifically developed to focus on the PB program within the context of the agency's programmatic, statutory, political, and industry constraints. These can sometimes entail finetuning and clarifying existing objectives articulated in the agency's transportation asset management plan (TAMP). Table 1 uses key objectives from the Minnesota Department of Transportation TAMP to show how they could be extended into advanced PB objectives.

Table 1. Translating an agency TAMP objective into a supporting advanced PB objective.

MnDOT TAMP Objective[1]	Possible Supporting Advanced PB Objective
Integrate maintenance and capital investments.	Exploit economies of scale by increasing contract size to pay for higher safety design factors that address an asset's lifecycle cost or total cost of ownership.
Consider risk in decision-making.	Mitigate construction material availability risks by combining small contracts. Address large number of asset improvement needs simultaneously utilizing a programmatic bundling approach.
Make informed tradeoff decisions.	Build business rules for bundling various assets using benefit-cost analysis to allow for value-based decisions. Evaluate an optimum number of projects in a bundled contract.

Ideally, deciding what projects are suitable for bundling and how to bundle them would occur before projects are listed in the statewide transportation improvement program (STIP).[2] This is referred to as advanced PB and is the subject of the *Advanced Project Bundling: A Reference for Getting Started* (FHWA-RC-21-0008). While still offering benefits, bundling projects already listed in the STIP will likely require changes to the projects' programmed funding and milestone schedule authorizations.

Often, the best candidate projects for bundling fall within system preservation and strategic improvement programs for safety, bridges, drainage, signs, and Americans with Disabilities Act ramps and pavements. As such, a bundling process or business rules for bundling implementation should draw from agency strategic goals for asset management and performance management, which would, in part, drive the candidate projects and bundling decisions. The specifics of the bundled projects are typically related to identifying candidate projects and determining which will be part of a given contract bundle. Three typical bundling methods are explained below.

Individual bundling contracts: Individual bundling contracts are usually the result of identifying several projects with similar characteristics in proximity to each other that would benefit from having a single contractor construct them. The agency then conducts the necessary analysis and determines precisely which projects will be built under the individual bundling contract. In many cases, this is a post-STIP decision and seeks to leverage the benefits of bundling on projects already authorized for funding.

Routine or institutionalized business process in capital program development: This process recognizes the potential benefits of bundling and is based on preestablished criteria that identify candidate bundled projects. The key is developing the bundling criteria. An example list of potential projects for bundling is an agency's five-year CIP.

Special program or initiative: In this case, bundles are developed to take advantage of available funding for special purposes such as the "shovel-ready" American Recovery and Reinvestment Act of 2009 (P.L. 111-5) and similar State-level programs. The Bipartisan Infrastructure Law,[3] enacted as the Infrastructure Investment and Jobs Act (P.L. 117-58), refers explicitly to bundling and provides a mechanism for this type of PB. Bundling can serve as justification for requesting special funding for specific local infrastructure improvements, such as enhancing resiliency or making drainage upgrades to accommodate climate changes.

[1] MnDOT, *Transportation Asset Management Plan*, August 2019.
[2] 23 CFR § 450.218
[3] https://www.fhwa.dot.gov/bipartisan-infrastructure-law/

3. How to create a systematic agency business process for selecting projects to bundle

Advanced PB is not intended as a separate, stand-alone process but rather an enhancement to the agency's current capital project delivery and asset management program. It can be thought of as merely an additional process for delivering its program more effectively. Figure 1 describes the framework for developing a systematic approach for bundling project selection.

Step 1 – Consider PB.

Step 1A – Complete organizational self-assessment. As shown on the left side of Figure 1, an agency can perform a self-assessment of its current bundling business practices to identify practices for improvement and create an improvement plan. Refer to the Project Bundling Organizational Self-Assessment Tool.

Step 1B – List bundling candidate projects. The agency starts by listing the set of projects that are candidates for bundling.

Step 2 – Determine constraints by work type and proximity. Next, the agency decides if the bundle composition will be constrained by work type, project location, or both.

Step 3 – Determine final candidate projects. Once work type and proximity constraints are determined, a list of final candidate projects remains, and the agency can then move forward and choose the optimum bundle size.

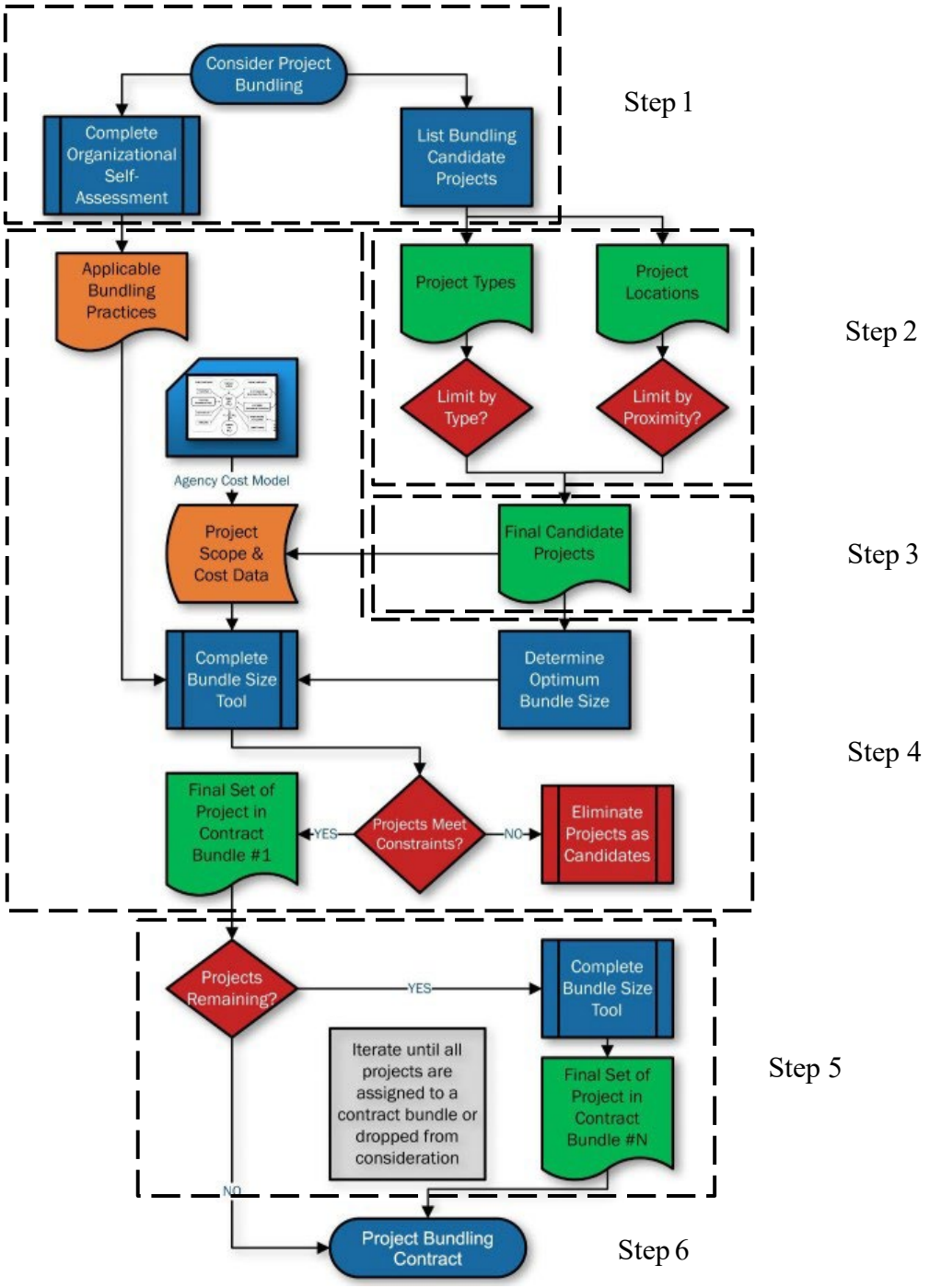
Step 4 – Determine the optimum bundle size. This step can be completed quantitatively in a framework developed by Qiao (Qiao Y. J., 2019) or, if the necessary agency data and cost models are unavailable, qualitatively using the project screening criteria shown in Table 3. In either case, the desired result is to determine an optimized bundle containing a specific number of projects that will define the total scope of work for a single contract.

Step 5 – Iterate. If candidate projects remain, the agency repeats the process as often as necessary. It develops additional bundled contracts until all candidate projects are either assigned to a bundle or dropped from the analysis.

Step 6 – Establish a PB program with proven business rules and bundling criteria. The process for arriving at the final composition of each bundled contract and its overall contract scope will result in the agency's bundling practice.

These steps should also incorporate the following considerations and be adjusted to realize the potential benefits.

- Evaluate available funding and determine whether bundling will create additional value.
- Assess the potential projects that might benefit from bundling.
- Determine deadlines for projects that may necessitate bundling.
- Determine any statutory or policy constraints that might make it wise to limit the total number of projects or the total value of a single bundled contract.
- Assess the impact of bundle size on the local construction industry.
- Evaluate PB alignment with agency asset management goals.



Source: FHWA

Figure 1. Systematic bundled project selection framework.

4. How to assess funding constraints in the project selection process

Funding constraints are an objective filter in project selection and generally come from three sources:

- Statutory limitations: project types, fiscal year expenditures, ability to access innovative financing, debt limits, amortization periods, and in some cases, project types eligible for specific types of funding.

- Funding source limitations: proper expenditure of Federal aid, State funding, local and municipal contributions, and applicability of legislative mandates and funding agency regulations to specific improvements.
- Industry capacity constraints: contract size maximums for which the typical pool of competitors can furnish a performance bond, pressure to maximize local participation, construction carrying costs limitations, and constraints on the number of construction materials, other commodities, design consultants, inspection staff, and qualified subcontractors.

PB seeks to maximize the number of initially considered projects, so excellent candidates are not unintentionally excluded. Each funding constraint source provides a reason for eliminating a project from the bundling candidate pool. For example, suppose a project is not eligible for Federal-aid, and there are no other immediate sources. In that case, the project could be dropped from consideration because the funds are unavailable to advance the project. Note that there are exceptions to this, depending on the program. Table 2 lists other possible funding issues and constraints to evaluate.

Table 2. Advanced PB funding issues.

Funding Issues	Description
Federal-aid eligible work types	Understanding Federal-aid eligible work types will allow for more efficient bundles if non-eligible and eligible work types are not combined.
Innovative financing	Bundling allows the agency to maximize the use of all types of available funding. FHWA's Center for Innovative Finance Support aids with alternative financing, including State Infrastructure Banks, Grant Anticipation Revenue Vehicles, and Private Activity Bonds. Additional programs like the Value Capture initiative and private financing through a public-private partnership or "P3" delivery also apply to bundling.
State or local funding	Excluding Federal-aid funding eliminates specific Federal requirements.
Budget control	Flexibility to match budget by adding or removing project locations to meet the budget. Avoid delays by including only project locations that are ready for letting.

Internal agency preferences, biases, stakeholder and political concerns and commitments, and unwritten policies often add to the constraints that must be addressed when considering projects for inclusion in a bundling contract. Once the constraints are determined, the impact of bundling on available funding can be evaluated. To do so, cost models can be developed to conduct the analysis. Many agencies already have a standard model for estimating construction costs, which can be used in the initial evaluation. For unit price contracts, the significant change associated with bundling is an increase in the bid quantities of work and potential funding sources. Based on economies of scale, unit prices generally decrease for those increased quantities of work. Hence, a simple evaluation of bundling's impact might be estimated using agency-specific curves, like the one shown in Figure 2, for those pay items that will increase. Another approach would be to hire an independent cost estimator to determine more accurate planning level costs using industry costs versus historical bid tabs. Alternate cost

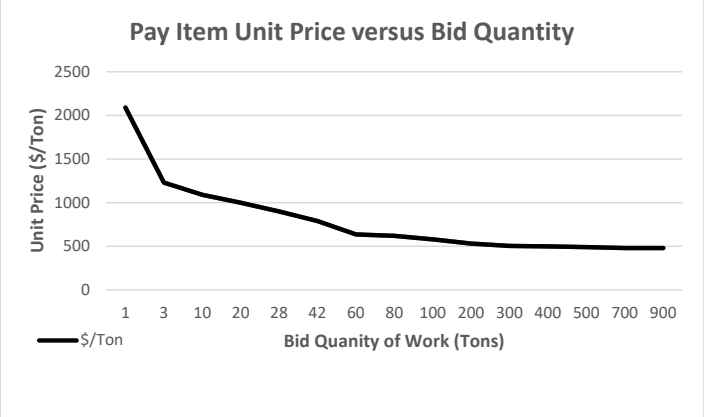


Figure 2. Hypothetical pay item unit price extrapolation curve. Source: Advanced Project Bundling: A Reference for Getting Started (FHWA-RC-21-0008)

estimates can then be run to determine if bundling will mitigate a constraint on available funds. If the outcome is positive, this preliminary analysis can be used later to provide input to determine the optimum number of projects in each bundled contract. Additional detail can be found in section 7.

5. Integrating project selection into the TAMP development process

Integrating PB into an agency asset management plan is a data-driven process. Most agencies will have several asset condition databases that include: the pavement management information system, the National Bridge Condition Inventory, the numbers and types of traffic crashes, congestion and delays, anticipated asset service lives, current infrastructure condition ratings, previous maintenance investment levels, as well as predicted future condition ratings based on future investment strategies. The datasets are maintained by multiple operational business units within the agency and are often summarized in the TAMP. The TAMP outlines how each DOT will best manage its highway pavements, bridges, and other physical assets for the long term. The TAMP is aligned with 'state of good repair' goals and selected performance measures. Incorporating the TAMP data and strategies into the PB selection process is essential. Alignment of the Long-Range Transportation Plan,[4] TAMP, and STIP will encourage enhanced coordination between the maintenance, preservation, and capital programs. Integrating PB into the agency asset management development process opens a pathway to address the goals and objectives of all three.

The mechanics of the integration process can be complicated, depending on the maturity of the agency asset management program and the number of separate databases that exist. However, the integration process framework is straightforward and consists of the following steps:

1. Determine the asset management objectives to address with bundling.
2. Develop a PB supporting objective for each (Table 1).
3. Assess the performance outcomes of interest in the asset management program. For example: reducing the lane miles of State highways rated unsatisfactory.
4. Develop filter criteria to eliminate bundling consideration projects that do not impact the selected performance outcomes. For example, all non-roadway projects not eligible for Federal-aid funding, projects with average annual daily traffic < 100, etc.
5. Assess the project pool and remove all projects that meet the filter criteria.
6. The remaining list of projects becomes the pool of candidates that satisfy the desired asset management objectives and can be further evaluated for inclusion in a subsequent bundling contract.

[4] 23 CFR § 450.324

6. Bundling Data Requirements for Project Selection

As previously stated, advanced PB is a data-driven activity. Determining which projects offer the best bundling opportunities (Figure 1, Step 4) may require data sources such as cost and transportation system asset conditions. Historical data requirements are driven by the level of complexity found in agency cost models developed for bundling. The purpose of the data analysis is not to create a final cost estimate for the bundled contract but rather to determine the number of projects in each bundle. The analysis process can be simplified by applying the Pareto principle, where research has shown that roughly 80 percent of the value is found in 20 percent of the pay items in a typical State DOT highway project. Hiring an independent cost estimator to establish cost estimates based on the actual market and industry practices versus historical data is recommended.

In this approach, the first step in developing the cost model input data requirements for each category of bundled work type is to determine those pay items where approximately 80 percent of the cost resides and create a list of items, quantities, and unit prices. If desired, the agency can use a multiplier to mark up the rough order of magnitude estimate to account for the minor items that constitute the remaining 20 percent of the cost. This process will filter out projects not having common high value pay items.

Figure 3. INDOT machine-learning results
Source: FHWA.

The Indiana Department of Transportation (INDOT) has established "business rules" and a scoring system for evaluating projects to bundle. INDOT recognizes that how projects are scoped, packaged, and delivered can greatly influence bid prices, user impacts, and the agency's level of effort during procurement and delivery. Efficiencies and direct cost savings may be generated through logical groupings of projects. See INDOT business rules in Appendix G of the ***Advanced Project Bundling: A Reference for Getting Started***.

The remaining data requirements should support the advanced PB objectives, as shown in Table 1. For example, suppose a TAMP performance outcome is to reduce the State highway lane miles rated unsatisfactory. In that case, the following data might be required to furnish the necessary input to the candidate selection process:

- Current condition ratings.
- Geographic information system (GIS) spatial coordinates for sections rated unsatisfactory.
- As-built plans for sections rated unsatisfactory.
- Intersection with other asset classes such bridges, culverts, etc.
- Agency objectives for prioritizing fund allocation.
- Other data specific to the analysis.

Use the data to analyze bundle candidates (Figure 1, step 2). Create the interim candidate pool based on the objectives for a specific bundled contract (Figure 1, steps 3 and 4). See Table 3 for project selection criteria that could apply to bundled contracts.

Table 3. Project selection criteria considerations for bundled contracts.

Screening Criteria	Considerations
Geographic location and proximity	Projects in the same geographic area and proximity can reduce mobilization and inspection costs.
Road type, geometry, traffic, and work zone control	Similar road types and traffic volumes can result in construction efficiencies through similar work zone control setups.
Project size	Bundling projects of similar size results in fewer complications.
Similar project types	Bundling similar project types results in fewer complications and less need for different designs, construction means, and methods.
Similar work types	Bundle by similar work types: • Preservation activities • Rehabilitation activities • Replacements The projects in the bundle should use the same unit pay items of work as much as possible.
Similar risk profiles	Including projects with divergent risk profiles will reduce competition and may impact the potential to accrue benefits from bundling.
Similar benefits from alternative contracting methods	Not all projects will benefit from ACM delivery. Thus, bundles that can benefit from early contractor involvement are eligible for private funding, and innovations found in ATCs are desired.
Environmental permitting	Location-specific studies may be necessary but may allow for a streamlined process if bundled.
Hydrology and hydraulics	Advance analysis results in contracts with less risk to the contractor, resulting in lower costs.
Geotechnical conditions	More advanced work and data reduce contractor risk, resulting in lower costs.
Utilities/third parties	Minimizing bundling projects with utilities (or securing utility agreements in advance) will reduce construction risks.
Right-of-Way (ROW)	ROW is often a key consideration. Choose locations where work can be completed within the existing ROW to reduce risks.
Railroads	Risk typically remains with the agency. If the risk is transferred by contract, it may result in additional costs or delays. Projects involving railroads should generally be avoided if possible.

It is sometimes challenging to restrict any project's scope to a single asset class, and the difficulty increases as additional unique projects are included in the bundle. However, this issue can be a potential benefit by recognizing that an opportunity exists to address more than a single asset management performance outcome. For instance, if geographic proximity is a critical factor in bundled project selection for a bundle aimed at rehabilitating roadways, then each roadway project will generally entail supporting work in other asset classes, which, if considered, can contribute to other TAMP objectives. In this example, the additional work might also involve the extension of existing culverts and other site drainage features. By pulling that opportunity into the decision criteria, the agency may be able to advance its TAMP objective to enhance resiliency to flash flooding.

Many agencies have linked these databases with their GIS program, further enhancing their value in the project selection decision process. GIS is an umbrella tool for bundling projects if available. Theoretically, this overarching database can assist the project selection decision by providing a coordinated set of input information correlated by geospatial relationships. Depending on the actual content of an agency's GIS program, this powerful tool might already be populated with other information such as political and agency operating unit boundaries, asset condition information, and unit price data. Thus, an agency with a mature, robust GIS program associated with its asset management program should be able to obtain most of the necessary input data to make informed PB contract composition decisions.

7. Project Selection Methodology for Bundling

The final process to assemble the projects (Figure 1, step 5) that will compose a bundled contract involves iterating the steps described in this document. The last bundle decision is driven by work type, asset class, and proximity. Typical parameters for bundled contracts include:

- Work type: Paving, structural rehabilitation, signing, signalization, Americans with Disabilities Act upgrades, drainage improvements, and guardrail.
- Asset class: Bridge, roadway, drainage, lighting, and signage.
- Proximity: Maximum radius between projects, corridors, and agency operational and political boundaries.

Work type and proximity constraints can have a combined impact on the ability of a bundle to achieve the expected value for the money. While using these two parameters in tandem is ideal, it is not always possible. One approach is to constrain the bundle by work type and assess the impact on project costs. Then, re-bundle the projects based on proximity and determine which alternative provides the most benefit. Start and finish deadlines may also impact the decision to bundle when a specific date causes challenges.

After considering work type and proximity, consider external factors that may influence the bundled contract, such as competition. Determine the availability of qualified, experienced contractors and subcontractors. Look at the average number of bidders on projects of similar value and type to assess potential competition for a specific bundle size. Additional considerations include:

- While bigger bundles may be more attractive to large contractors, they may reduce competition among smaller contractors. However, some large bundles rely on many smaller contractors to work on multiple sites simultaneously.
- Developing bundled contracts with bid alternates for different-size bundles may provide flexibility in bond capacity.
- Increasing the number of projects in a bundle decreases agency transaction costs.
- Keeping bundles homogenous by work type reduces the amount of subcontracting, may reduce the price, and increase competition among subcontractors in each trade. However, differing project types may reduce project overhead and mobilization costs.

The potential impact on industry bonding capacities should also be considered. Each eligible contractor/subcontractor has a maximum amount of work for which it can be bonded. Thus, the depth of the pool of qualified, competent contractors and subcontractors that would usually bid on the bundle's work type should be assessed to determine if the bundle's value might exceed the local industry's ability to compete. If projects are too large, this may encourage joint ventures between two or more contractors and large contractors from outside the area. Alternatively, larger contractors can often provide bonding capacity for smaller subcontractors, enabling them to do work they otherwise could not do.

The third external consideration is related to the proximity of bundled projects and their potential collective impact on traffic operations within the impacted area. Allowing a single contractor to initiate construction on multiple projects within the same timeframe can significantly increase the disruption to the traveling public (unless separated adequately into multiple phases) and may have unintended consequences on mobility. Alternatively, letting a series of projects to a single contractor allows construction sequencing to avoid unnecessary mobility issues or assist logistically with potential interference issues with adjacent projects and contractors.

Utility impact considerations may follow much the same logic as mobility considerations. A single contractor can simplify utility coordination by consolidating utility permits for several projects into the same application. However, if the impact on utility availability (e.g., temporary outages and requirements to move or protect utility services) becomes unacceptable to a utility owner the bundled contract could have the opposite effect, increasing rather than decreasing utility-related schedule risk. The same is true for the final external factor: environmental permitting considerations. On the positive side, a proactive, pre-STIP PB program can pave the way for the agency to request and receive programmatic environmental permits far before the bundled contract's award. On the negative side, if the bundle is not carefully assembled, an environmental issue on one project in the bundle could impact the permit for all other projects. Projects in a bundle can be separated into multiple phases to minimize these impacts.

The primary internal consideration has to do with agency staffing. Bundling by work type and proximity, with the same staff team assigned to several projects with roughly the same technical and contractual characteristics, can lead to enhanced program management, resulting in consistency and more effective deliveries. The agency should be careful that it is within its existing staff capacity to oversee the design and construction of multiple projects built in different locations simultaneously. As such, agency staff levels may limit the final number of projects in a bundled contract. However, it is important to note that bundling should reduce the project management burden on staff due to leading one PB team (with multiple projects within the bundle) versus managing every project separately using traditional individual procurement and administration.

8. Summary

The PB process starts with identifying potential projects within the agency's STIP, assessing each project's potential to be effectively bundled, and assembling alternatives for PB contracts to support the agency's TAMP. Figure 1 graphically summarizes the process from start to finish. To summarize, a successful PB process involves the following components.

- Organizational self-assessment to identify applicable bundling practices within the agency.
- An agency data-driven cost model provides the basis for quantifying the costs and benefits of PB alternatives.
- Analysis of technical, geographic, and external requirements and constraints for candidate projects.
- A methodology for optimizing the content of a PB contract.
- A decision-making process that considers the various drivers discussed in this document and informs the decision regarding the final package of bundled projects.

9. Conclusion

A PB program targets a defined set of project types planned for preservation/preventive maintenance, rehabilitation, or replacement in a timely and efficient manner through a series of contracts. These contracts can be supported with various funding options and partnerships and may include a program completion time frame.

The potential benefits of bundling include better risk allocation, cost savings due to economies of scale, expedited and consolidated procurement, earlier completion, technical innovation, the increased service life of assets, coordinated construction staging, reduced burden on agency staff, lowered mobilization costs, and funding and financing innovation.

Early consideration of bundling's potential benefits as part of the routine project development process is a critical success factor. Additionally, having a bundling process in place positions an agency to quickly take advantage of special funding opportunities.

Every bundling project starts with describing the project's vision, goals, and objectives. It is an iterative process that is modified as detailed information becomes available. With the vision, goals, and objectives identified, a guiding coalition[5] can be established, and a project leader selected. Achieving the project's vision, goals, and objectives depends on understanding the challenges and opportunities.

[5] See Chapter 4 of the FHWA Bridge Bundling Guidebook.

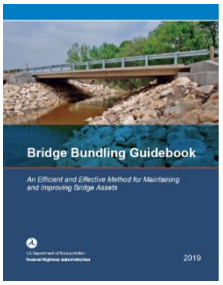
Appendix A: Additional Resources

Websites

These two FHWA web pages feature many project and bridge bundling resources:
FHWA Bundled Facilities Overview
Every Day Counts: Project Bunding

Guidebooks

Advanced Project Bundling: A Reference for Getting Started provides information for State transportation departments, local public agencies, and Tribal Nations to consider advanced PB for all funding sources. Topics covered include advanced PB benefits and practices; organizational self-assessment; getting started with planning, budgeting, and funding; and creating agency business rules, processes, and procedures for consistently selecting effectively bundled projects. The document includes case studies, tools, and checklists.



Bridge Bundling Guidebook provides information and a step-by-step process for State departments of transportation and local public agencies to consider bridge bundling for all funding sources. Topics covered include defining successful bridge bundling projects and programs, goals and objectives, funding and financing, coalition building, risk assessment, work types, project delivery methods, environmental review and preliminary design, quality assurance, and close-out. The document includes case studies.

Resource Database

The FHWA Project Bundling Resource Database captures PB-related information, the "how, why, and by what means,' to assist agencies and others in developing PB projects, programs, and initiatives. It comprises five categories - case studies, contracts, programs, references, and research.

Case studies: This tab features a variety of State and local agency bundling case studies and includes work types, project delivery methods, funding mechanisms, and scope (local to statewide).

- The contracts tab includes actual PB contracts with links to contract documents.
- The programs tab summarizes successful agency PB programs.
- The references tab provides PB-related guidance from FHWA, State transportation departments, local agencies, and others.
- The research tab summarizes PB-related academic and agency-sponsored research.

Tabs can be searched by keywords, sorted by columns, or by PB practice. The 25 practices are defined in the FHWA PB Organizational Self-Assessment Tool.

Organizational Self-Assessment Tool

The FHWA Project Bundling Organizational Self-assessment Tool allows agencies to assess their current PB practices. It highlights practices from other agencies and identifies steps for improvement by considering practices that could be used for their bundling project or program. It uses the organizational capability approach, defined as the level to which an organization has institutionalized its policies, processes, and procedures, documenting them so they can be consistently applied across the agency. The organizational self-assessment tool provides a structured format for conducting an organizational capability assessment workshop.

Webinars

FHWA has hosted two series of webinars to promote advanced PB. All webinar recordings and transcripts are available online at:

The first webinar series detailed national practices.

- Advancing PB: Examples Beyond Bridges
- Moving Towards Advanced PB: Key Characteristics of Lead Agencies
- Advancing PB: Making the Business Case
- PB for Local Public Agencies
- Advancing PB: How-to

The second webinar series focused on the project development process to help agencies answer three questions: What is PB? Why bundle projects? When and how should an agency bundle projects? These six webinars highlight business processes and rules, programming, planning, environmental analysis, preliminary design, project delivery decisions, and construction as they relate to PB.

- What Does Success Look Like?
- The Business Process
- Planning and Capital Programming
- Preconstruction
- Local Agency Partnering
- Construction and Contract Considerations

College Lecture

FHWA developed a PB college lecture with exercises. Although intended for colleges, this lecture also applies to agencies wishing to expand PB knowledge within their agency. The learning objectives for this 50-minute course are:

- Define PB for public agencies.
- Understand and define PB success.
- Describe how and when to create a project bundle.
- Apply and evaluate PB.
- Enumerate available PB resources.

Local Public Agency Training Course

The FHWA Center for Local Aid Support developed three 2.5-hour self-paced training courses for transportation professionals. The end-of-course final assessments require a 70% or higher score to earn a completion certificate.

Course 1: Fundamentals

- Introduction
- Planning considerations
- Successful projects and lessons learned

Course 2: Staging the Bundle

- Goals and communications
- Funding strategies
- Environmental review and other impacts
- Risk assessment

Course 3: Creating and Contracting the Bundle

- Project bundle selection and design
- Project delivery methods
- Procurement methods
- Project management, quality assurance, and close-out

Case Studies

FHWA has researched PB practices and developed numerous case studies on how State DOTs and local public agencies utilize PB to take advantage of the efficiencies inherent in bundling. These case studies demonstrate how different project delivery methods and funding sources have been successfully used to bundle projects.

Bundled Project Case Studies
Bundled Facilities "Projects"