



PennDOT P3 Rapid Bridge Replacement Project

December 08, 2023



Project Purpose

- ✓ Accelerate replacement of 558 poor condition bridges throughout Pennsylvania
- ✓ Minimize impact to traveling public
- ✓ Showcase P3 as a viable delivery method
- ✓ Allocate risks to party best able to manage them



Project Benefits

- ✓ Replaced poor condition bridges more quickly
 - Standardization of design techniques and construction method
- ✓ Better value to taxpayers
 - Higher construction quality
 - Economy of scale savings
 - Lower maintenance costs expected
- ✓ Use of PA-based contractors and designers
- ✓ 25-year Maintenance term



Bridge Selection

- ✓ Analyzed inventory of poor condition bridges statewide (6,000 at time of project inception)
- ✓ Evaluated over 2,000 poor condition bridges with similar criteria
 - Minimal ROW takes
 - Minimal environmental impacts
 - Limited utilities
 - Non-complex structures (culverts, single-span, simple multi-span)
- ✓ Selected 558 bridges for the project



Bridge Construction Prioritization

87 Early Completion Bridges (ECBs)

- **PennDOT provided (similar to D/B):**
 - Type, Size and Location
 - H&H
 - NEPA
 - Right-of-Way
 - Utility Clearance
 - Permits
- Development Entity performed Final Design
- Construction started in 2015

471 Remaining Eligible Bridges (REBs)

PennDOT provided:

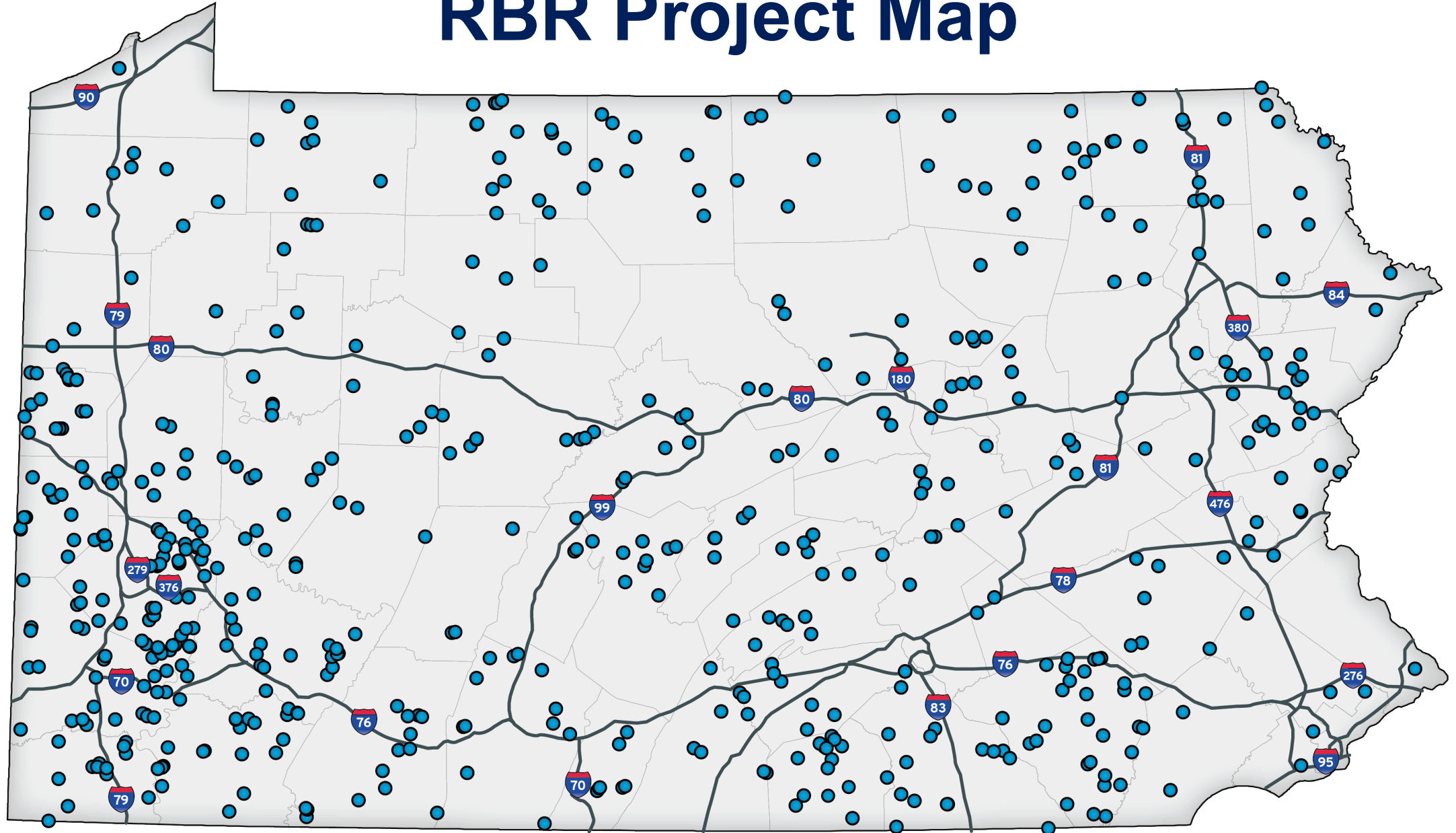
- Scoping documents
- Minimum bridge width
- Detour or staged
- 2 borings per bridge
- ROW acquisition
- Utility relocation costs

Development Entity

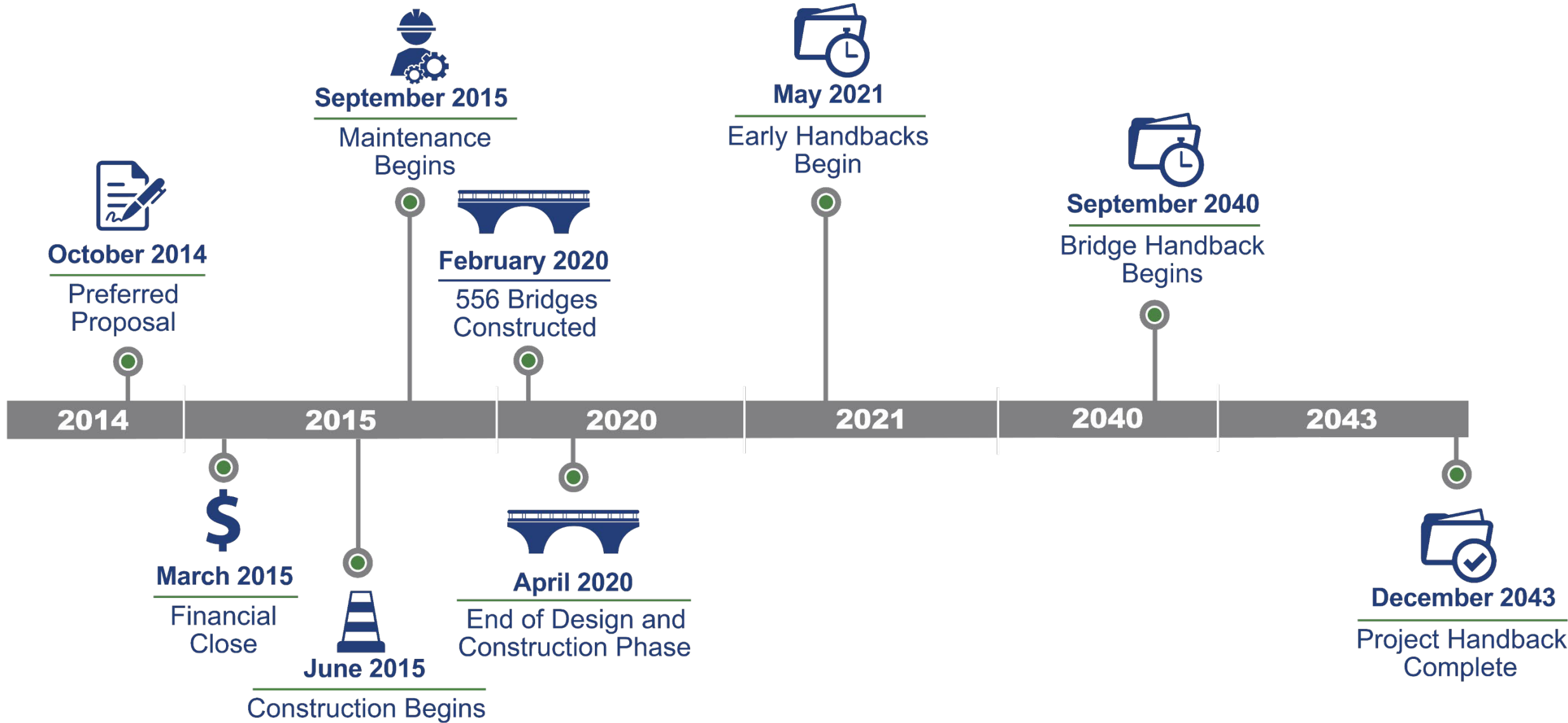
provided:

- NEPA
- Type, Size and Location
- H&H
- Survey
- ROW Plan
- Permits
- Final Design

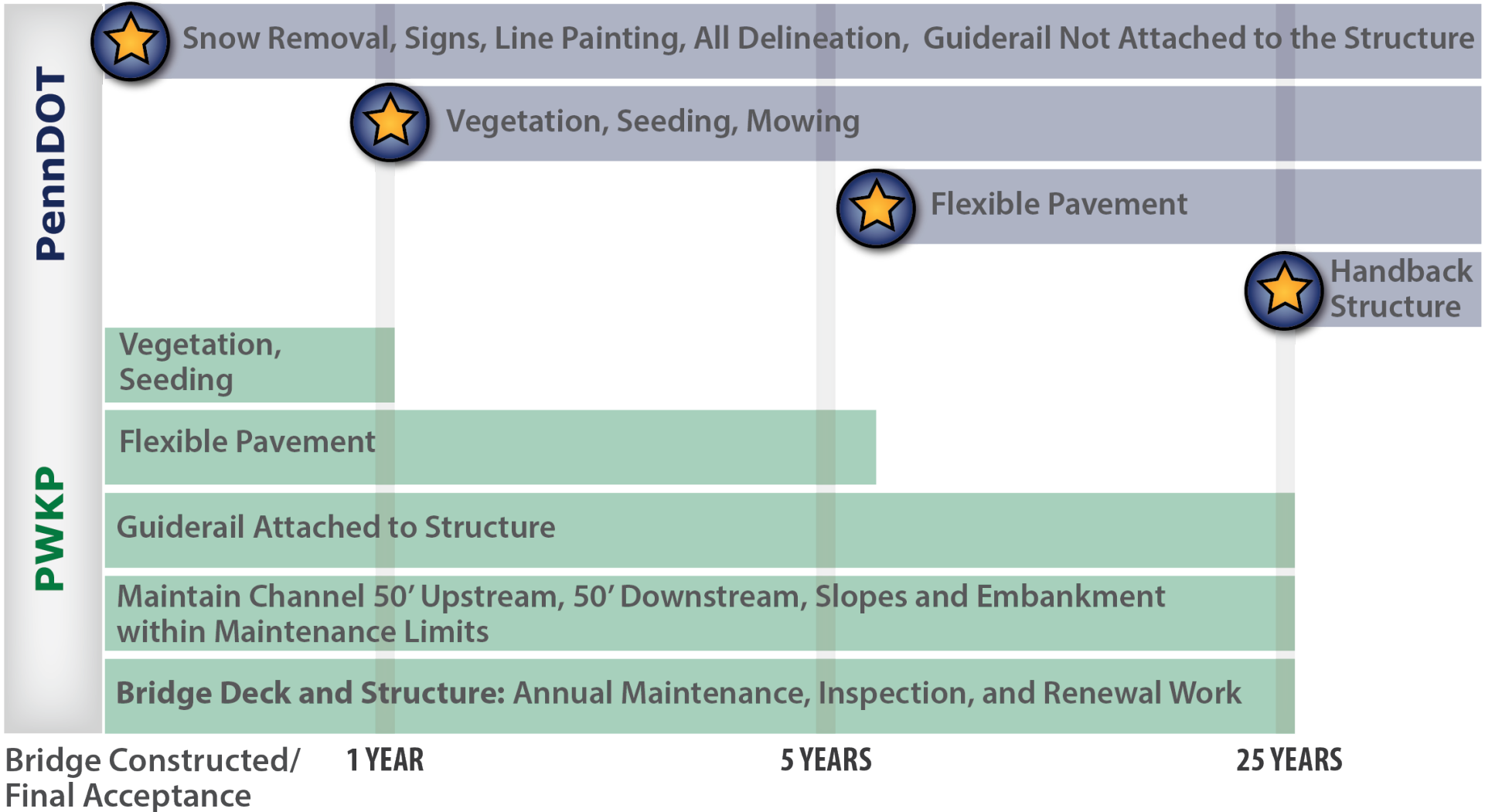
RBR Project Map



RBR Project Timeline



Handbacks Timeline

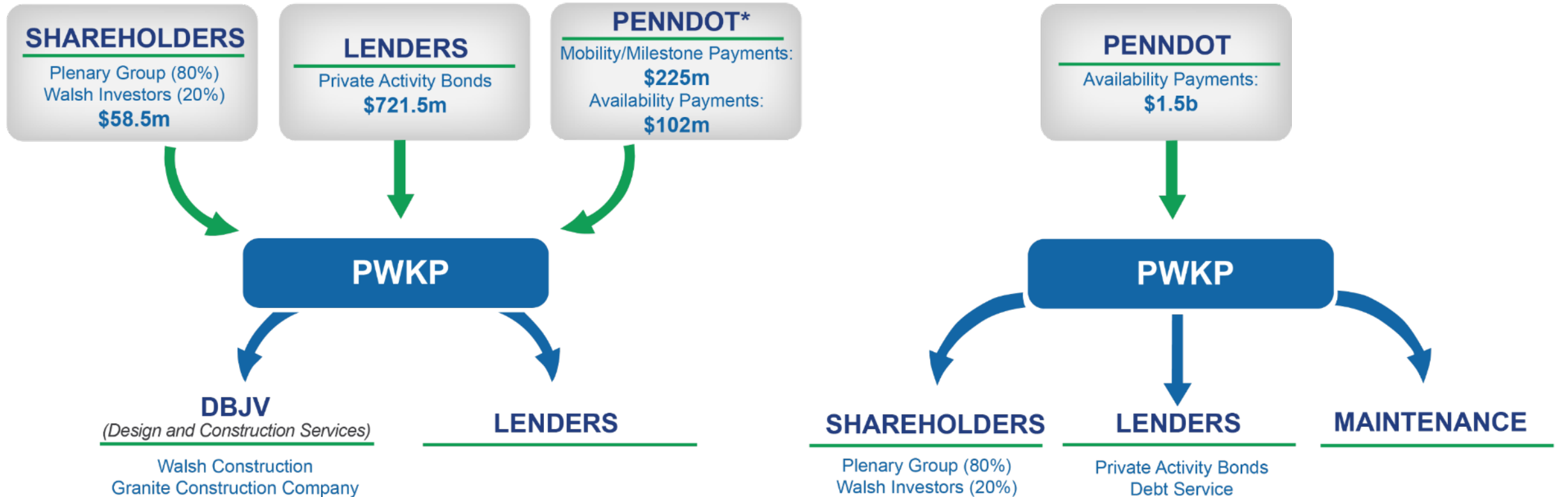


 - Conditions Assessment Prior to Handback

RBR Project Approach

DESIGN & CONSTRUCTION PHASE (5 years)

MAINTENANCE TERM (25 years)



* Total cost for D&C phase: \$1.1b
 Total cost paid by PennDOT: \$327m

Maintenance Focus

RBR Maintenance Guidance Document (Pub. 104)

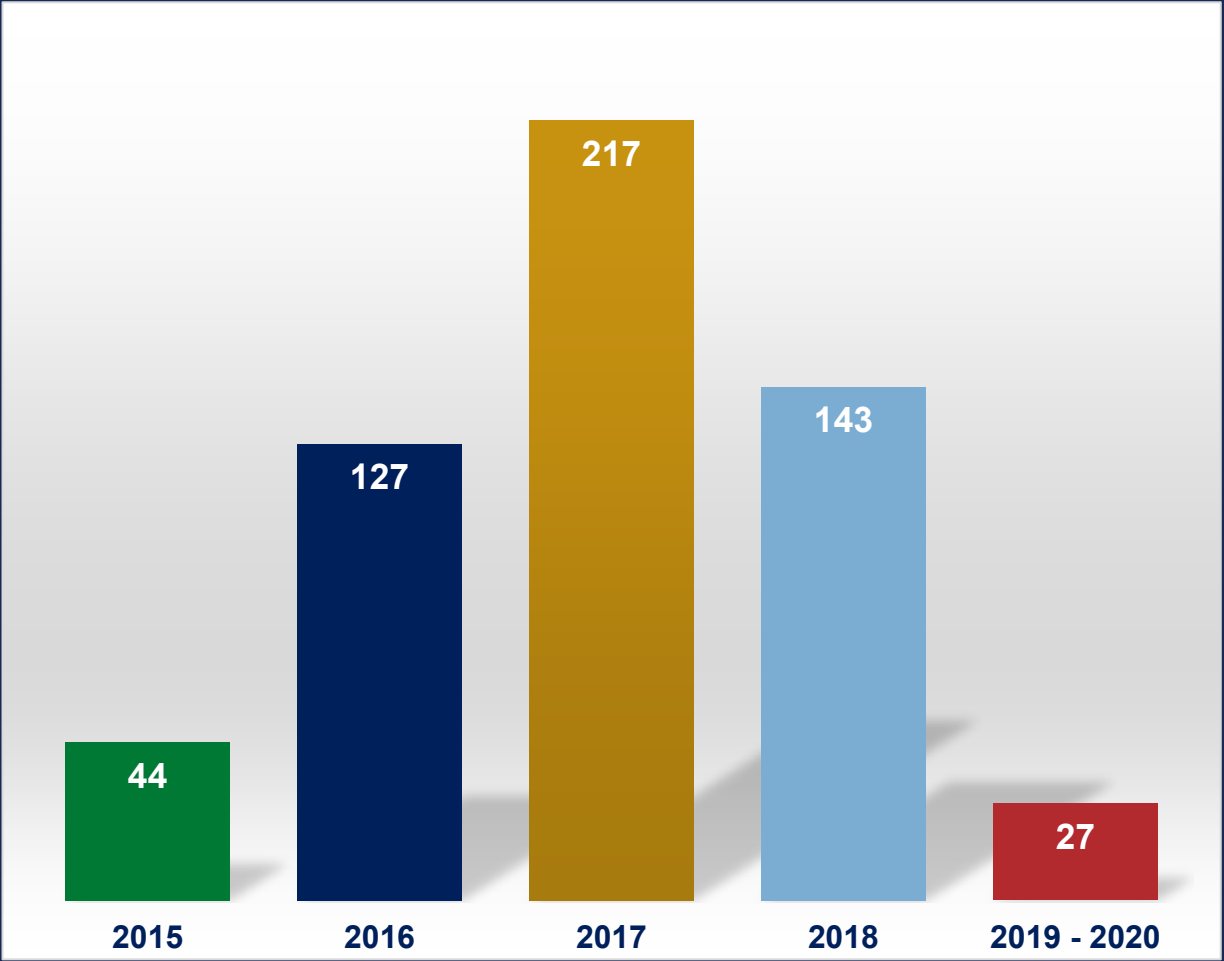
- ✓ Comprehensive, user-friendly guide
- ✓ Consolidates PennDOT's post-construction responsibilities and expectations
- ✓ Dynamic document, updated as needed

PennDOT Public-Private Transportation Partnership (P3)



Rapid Bridge Replacement (RBR)
Maintenance Guidance Document

RBR Bridges Constructed by Year



All 558 bridges built and open to traffic

Noteworthy Statistics

- 5,251** Design Items Reviewed by Districts
- 27,325** Project Document Submissions Processed by PennDOT Team
- 558** NEPA Approvals
- 99** Section 4(f) Resources
- 80** Section 106 Resources
- 457** General Permits (GP-11)
- 1,709** Utility Relocations
- 80** Joint Permit Applications
- 1,808** Right-of-Way Acquisitions

Project Successes

- ✓ 558 poor condition bridges were replaced
- ✓ Utilization of SEP-15 allowed the DE to develop the NEPA documents in a streamlined, efficient manner
- ✓ Implemented processes to ensure all design submissions were automated and set up tracking processes that can be utilized on future projects
- ✓ Construction innovations





Lessons Learned

Primary Lessons Learned Themes

- ✓ PennDOT Procurement & Asset Selection
- ✓ PennDOT and Development Entity Shared Requirements
- ✓ Development Entity Performance
- ✓ PennDOT Requirements for Project Management



- ✓ Utilization of SEP-15 allowed the DE to develop the NEPA documents in a streamlined, efficient manner
- ✓ Polyester Polymer Concrete (PPC) overlay
 - Applied on all RBR bridge structures
 - Reduces long-term maintenance costs

Innovations & Successes



- ✓ Commitment to communication at all levels
- ✓ Appropriate risk allocation
- ✓ Proper balance of performance and prescriptive requirements
- ✓ Project-specific business plan

Outcomes & Best Practices



- ✓ Systems and tools developed for use in PennDOT's standard program
 - ROW / utilities acquisition management
 - Automated design submission tracking
- ✓ Develop issues resolution process
- ✓ Audits for project performance
- ✓ Coordination with outside agencies

Outcomes & Best Practices



Questions

Michael Bonini
Director, PennDOT P3 Office

For more information on
Public-Private Partnerships
and to view the
RBR Lessons Learned Report:

<https://www.penndot.pa.gov/ProjectAndPrograms/p3forpa/Pages/default.aspx>

