



2017 National ABC Conference

Programmatic Approach to Accelerated Bridge Construction



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Presentation Outline:

- Accelerated Bridge Program Overview
- **Expedited Project Delivery**
 - Scoping Process
 - Expedited Project Development Process
- Programmatic Implementation of ABC
 - Outreach
 - Standardization
 - Lessons Learned
- ABC Results – Cost, schedule and customer satisfaction data
- Round Table Discussion on Programmatic Implementation of ABC



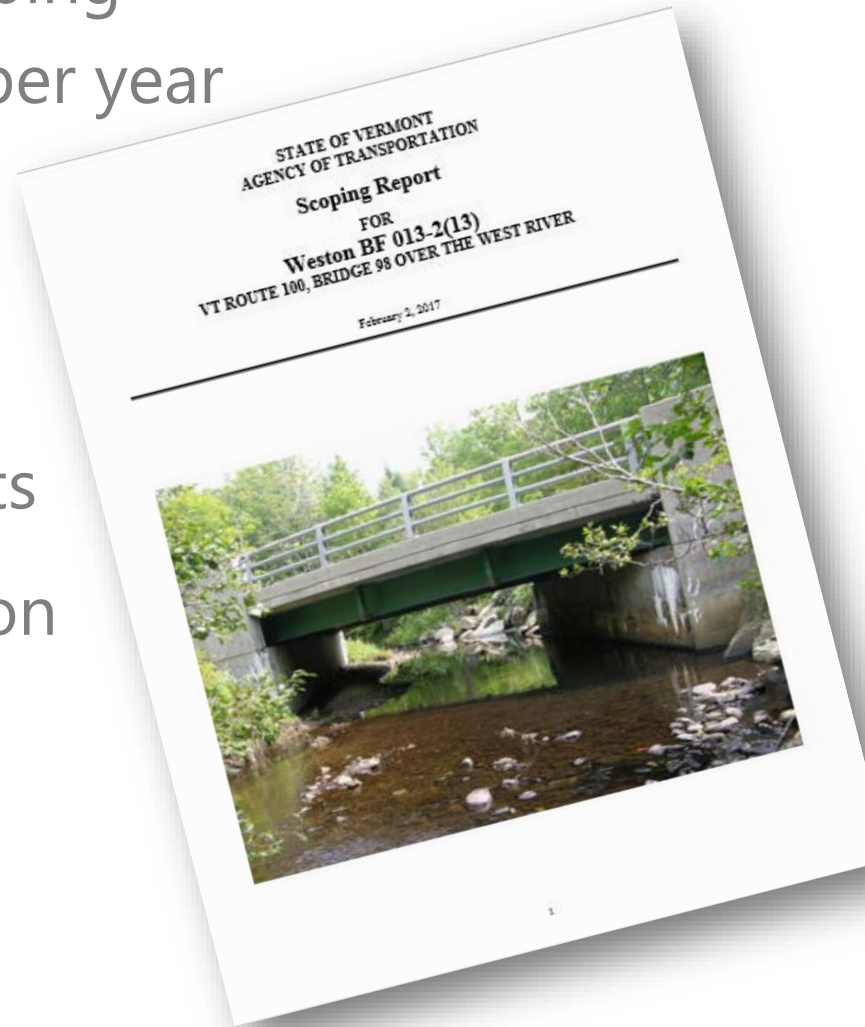
Project Initiation and Innovation Team



**Accelerated
Bridge
Program**
VTRANS

Project Initiation & Innovation Team

- Dedicated team for project scoping
- Initially 20-30 projects scoped per year
 - Projects programmed by VTrans Asset Management Bureau
- Senior Structures leadership reviews all programmed projects
- Heavy emphasis on collaboration
- Public Outreach begins



Programming Projects

- Prioritization Based Heavily on Condition and Regional Ranking of Importance (Town Highway Bridge Program)

Structures

Bridge Condition

30 points maximum

Remaining Life

10 points maximum

Functionality

5 points maximum

Load Capacity and Use

15 points maximum

Waterway Adequacy and Scour Susceptibility

10 points maximum

Project Development and Momentum

5 points maximum

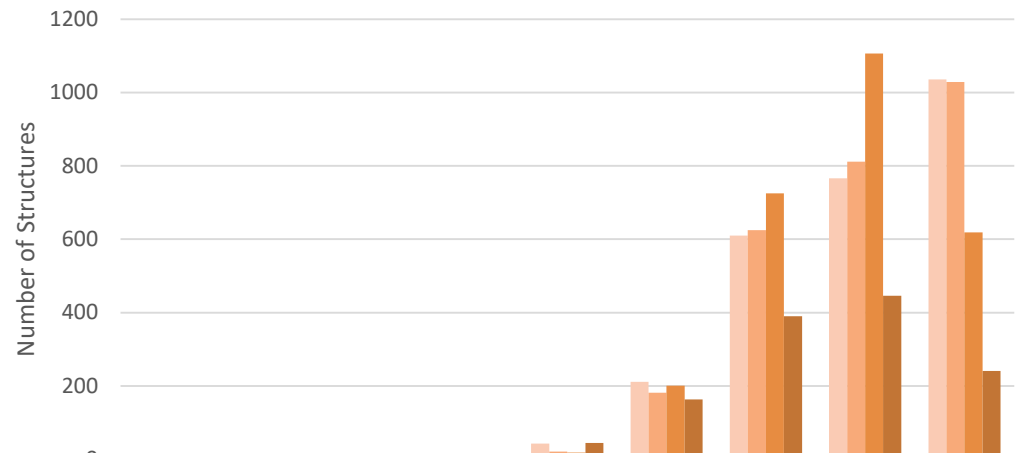
Regional Input and Priority

15 points maximum

Asset—Benefit Cost Factor

10 points maximum

Current Structure Conditions



	0	1	2	3	4	5	6	7	8
Deck Rating	2	0	0	5	43	211	610	766	1036
Superstructure Rating	3	0	2	1	21	181	625	812	1029
Substructure Rating	0	1	0	3	18	201	725	1107	619
Culvert Rating	1	0	1	14	44	163	390	446	241

Developing Alternatives

- All bridge projects scoped
 - Full Replacement
 - Rehabilitation
 - Major Maintenance
- Schedule determination (Accelerated or Conventional)
 - ROW Impacts
 - Utility Impacts
 - Project Complexity
- ABC option is always first consideration, regardless of program.

Batching Projects for Resources

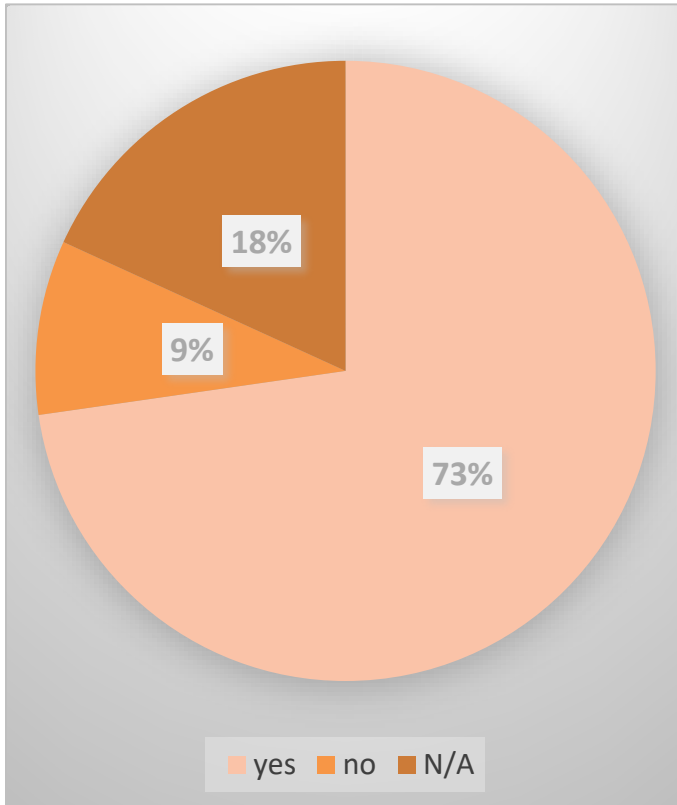
- Prior to 2012
 - Projects were assigned to several PMs (Scope through Advertisement)
 - Competition between the PMs for resources
 - Difficult for resource groups to prioritize
- Since Creation of Project Initiation and Innovation Team
 - Resource Requests are Prioritized
 - One Point of Contact
 - Efficiencies in Site Visits by proximity

Collaboration Phase

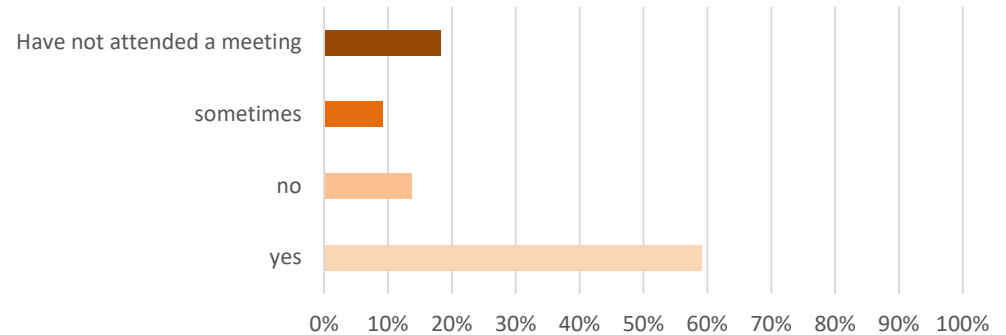
- Scoping report is sent out to all internal stakeholders for review
 - Operations and Maintenance
 - Planning
 - Design
 - Resource Groups
 - Bike/Ped Specialist
 - Construction
- Following review, an internal collaboration meeting is held
 - Discuss existing conditions, project constraints, and associated requirements
 - Vet the preferred alternative
- Ensures proper scope and results in fewer scope changes

Collaboration Phase

- Are you able to communicate your ideas and are your concerns addressed?



- Does your input at the collaboration meeting have an impact on the chosen preferred alternative?



“One improvement could be to extend the process throughout the agency”

“Collaborating is a concept that has been embraced. By virtue of it's meaning it brings people together to produce the best engineering solution.”

“Kudos for reaching out and trying to improve this most important phase of our definition and design process!”

Management Approval of Scope

- Preferred alternative presented to structures senior staff and management
- MAOS memo signed by Program Manager
- Obtained prior to Public Meeting

Management Approval Of Scope
November 6, 2017

Project: Proctor Town Highway 11, Bridge 3 over the Vermont Railway

Project Manager: Nick Wark

Project Briefing: After evaluating various alternatives for this project, we have concluded that a full bridge replacement is appropriate and feasible. The proposed typical section of the new bridge will be 9' 2" (22' curb to curb) with a sidewalk on the eastern side to match the existing corridor. The finished grade at the bridge will be raised approximately 3-feet to provide a minimum 23-foot vertical clearance for the railroad. The new abutments will be placed back on the bedrock outcrop.

Maintenance of Traffic: Bridge 3 will be closed for a maximum of 90 days during construction and traffic will be maintained on an offsite detour. A temporary pedestrian bridge will be provided on the eastern side of the road.

(Please See MAOS and Scope Collaboration Meeting Notes on Page 2 and 3 of this form)

Structures Management approves the project scope.

Structures Management will require more information before making a decision.

Structures management recommends getting higher level approval for the proposed scope.

Structures does not recommend the project scope.

Structures Management approves the project scope with modifications.

Kristin M. Higgins
Structures Program Manager

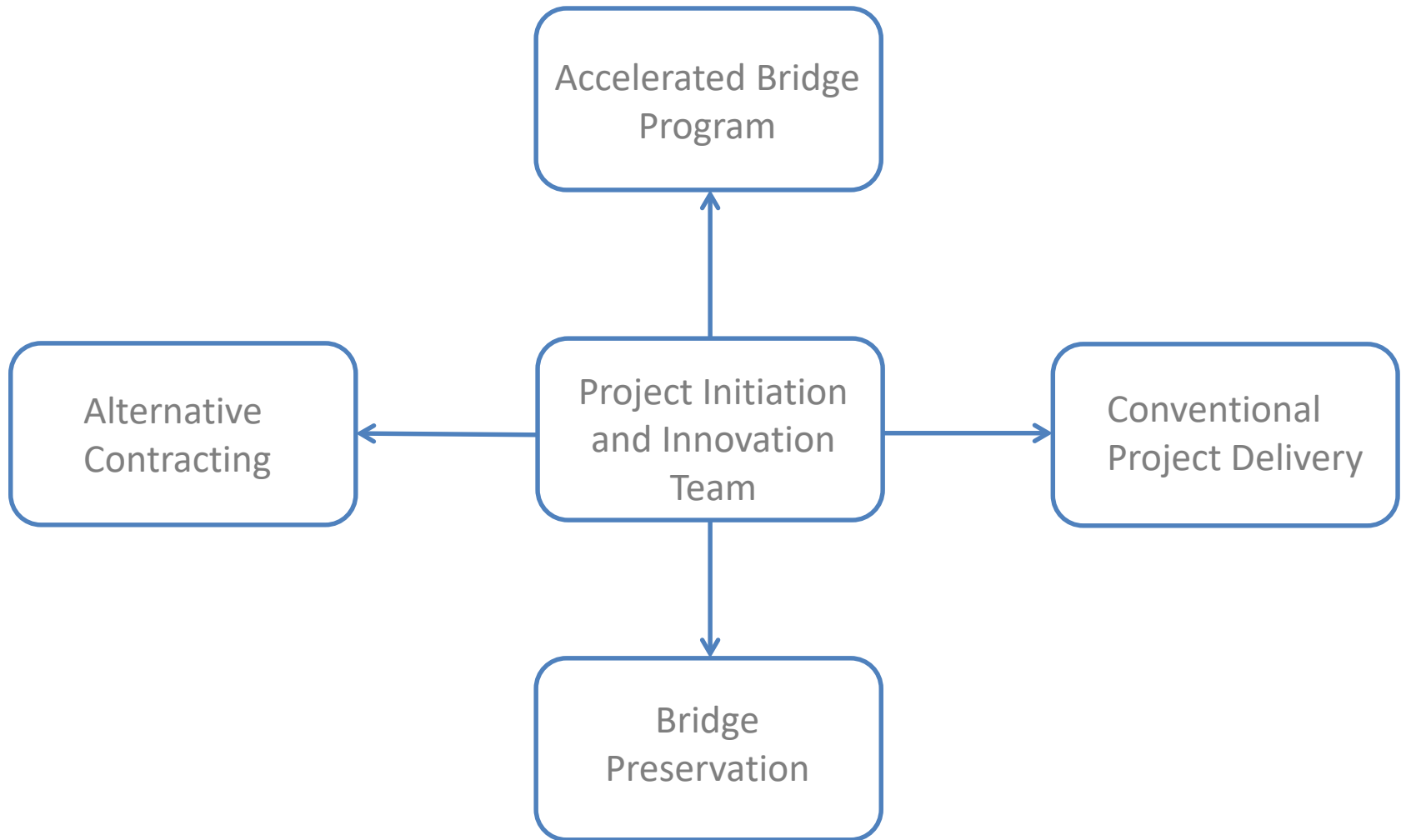
Date 11/7/19

Public Outreach/Public Participation

- Input PRIOR TO funding from Regional Planning Commissions
- Request local input immediately after funding
 - Local/Community Input Questionnaire filled out by Town and RPC
- Working closely with Regional Planners
- Additional Meetings as needed for more complex projects
- Internal/External reviews
- Scoping Report on SharePoint Site
- Polling Clickers at presentations
- Project Factsheets

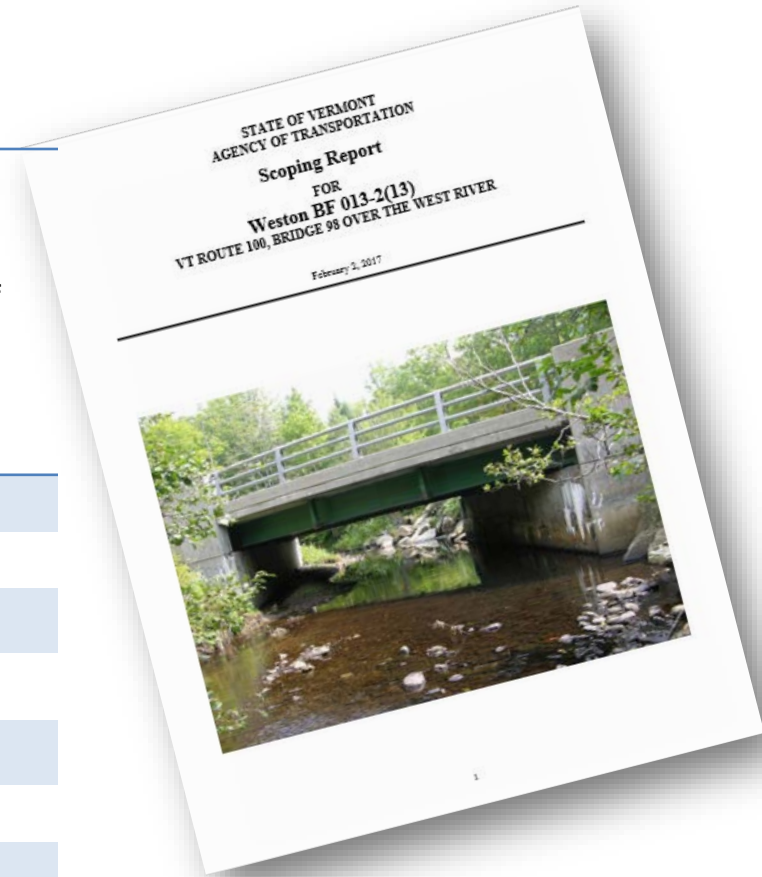


Project Distribution from the PIIT

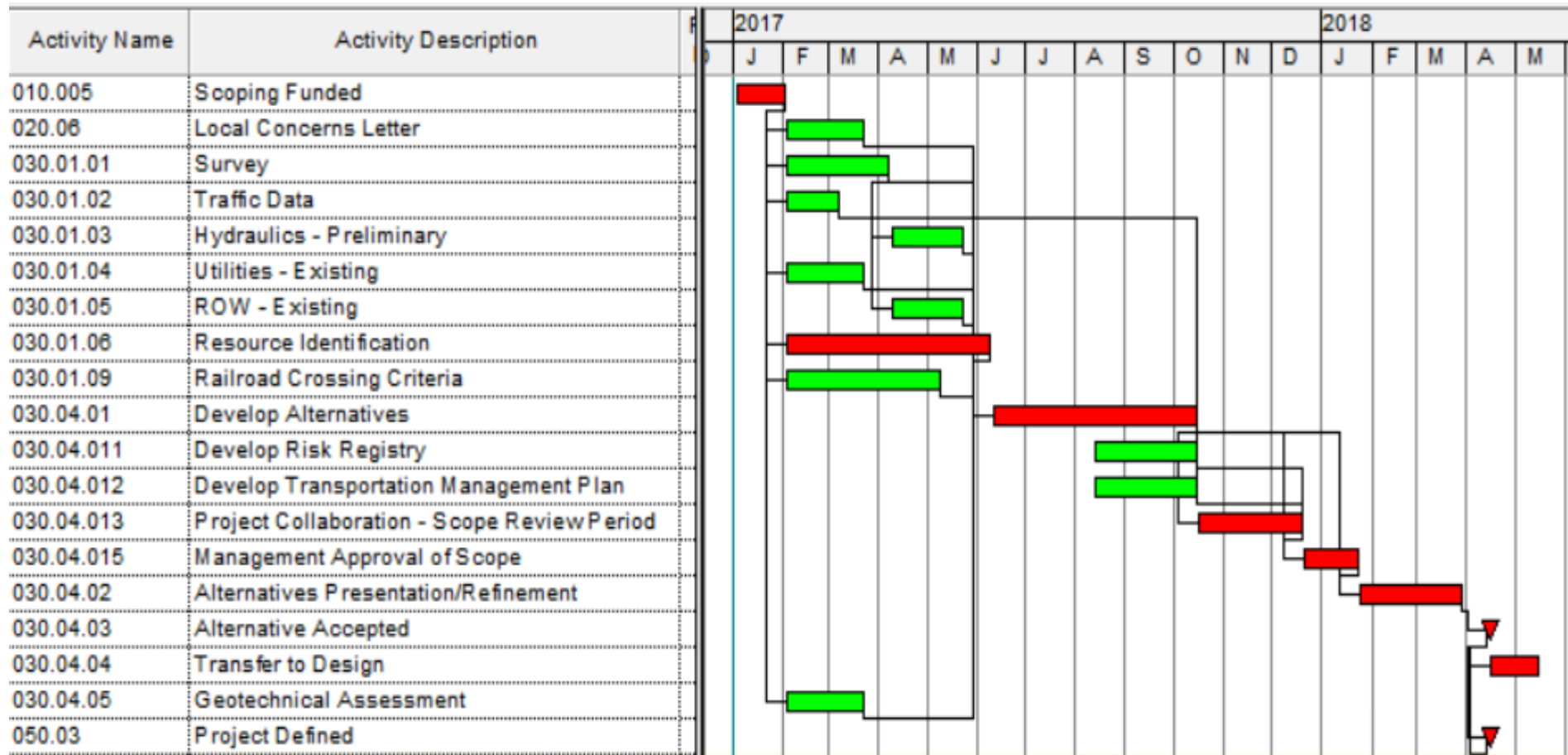


Project Initiation & Innovation – Report Card

Year	Percent of Bridges in ABP	Percent of Bridges in Conventional Program	Total Number of Projects
2012	25%	75%	16
2013	43%	57%	21
2014	54%	46%	26
2015	26%	74%	31
2016	50%	50%	16
2017	52%	48%	23
2018	21%	79%	14
2019	19%	81%	16



Scoping Schedule



Transferring to Design

- Hand off to design PM during Project Definition phase
- Project Definition Includes
 - Scoping report
 - Draft Traffic Management Plan
 - Public Involvement Plan
 - Project Risk Registry
 - Validated and Credible CPM Project Schedule
 - Design and Construction Estimate
- Project Definition starts the Design Phase
- Project Manager and Scoping Engineer present recommended alternative to the public together

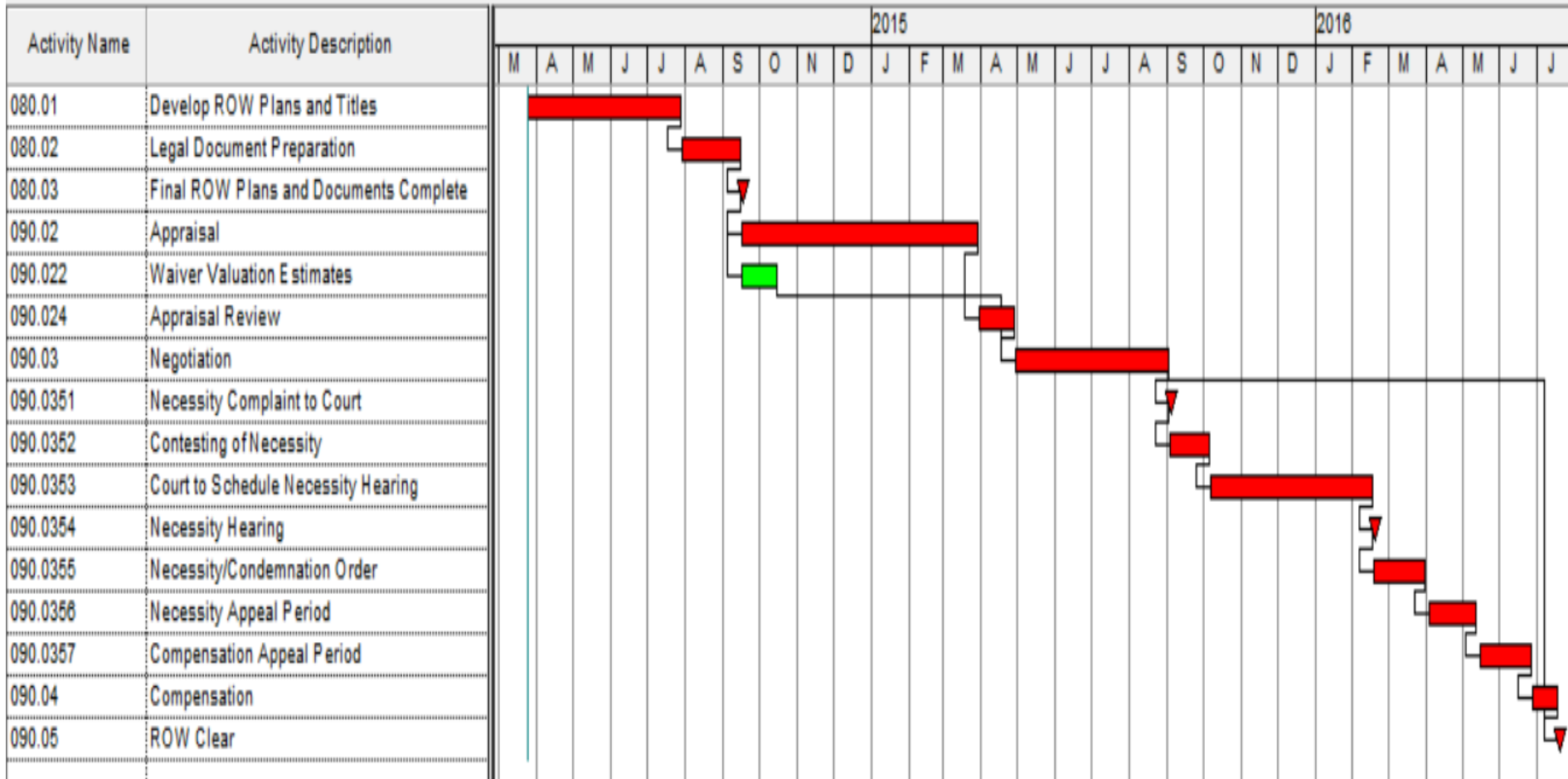


Expediting Project Delivery

Project Schedules

- All projects require a CPM schedule
- Project Development Schedule Templates
 - Conventional Design Projects
 - Accelerated Bridge Program Projects
 - Bridge Preservation/Maintenance
 - Design Build
 - Construction Manager/General Contractor
 - All have Milestone dates to track delivery performance
 - Outreach activity included in all schedules
 - Outreach offered at every milestone

VTrans Right of Way Process

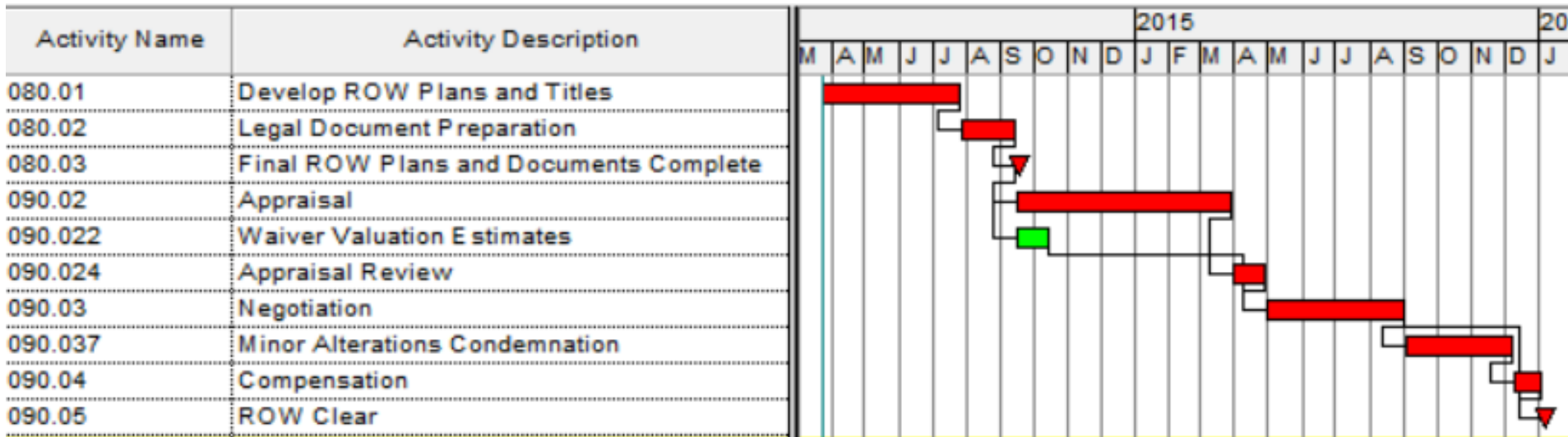


Full process (No Minor Alteration) – 27 months

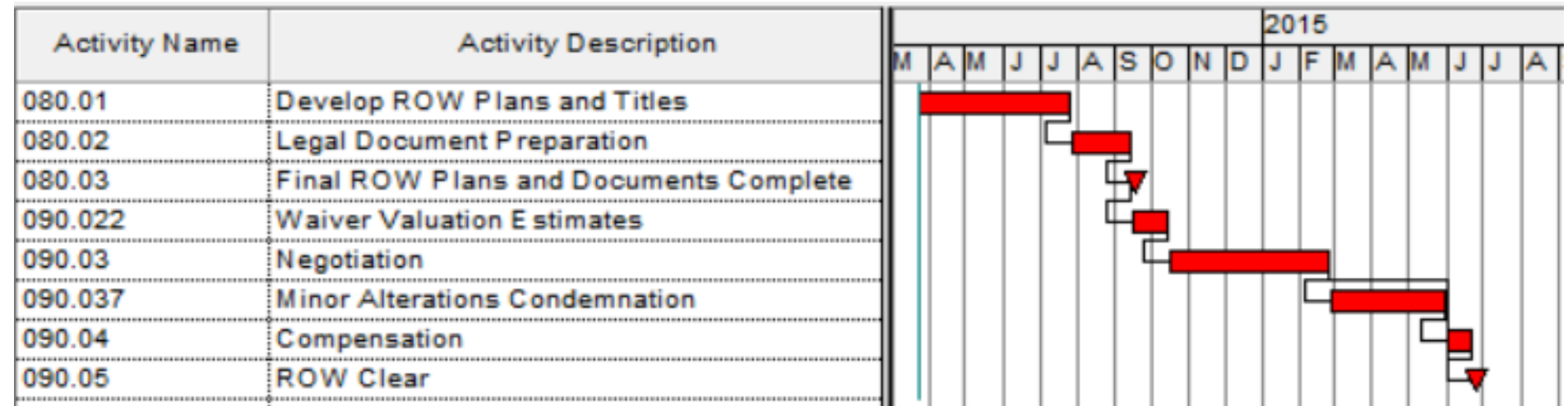
Re-defining the Right of Way Process

- New Minor Alterations Process developed in 2013
 - Only for projects that are considered a minor alteration to the transportation system
 - Required to hold one public meeting – Alternatives Presentation
 - Right-of-Way Section leads this process
 - If negotiations fail – Minor alterations hearing
 - VTrans presents project to a hearing officer
 - Hearing officer makes determination on reasonableness of takings
 - Property owner can appeal the process while project moves forward

Revised Right of Way – Minor Alteration



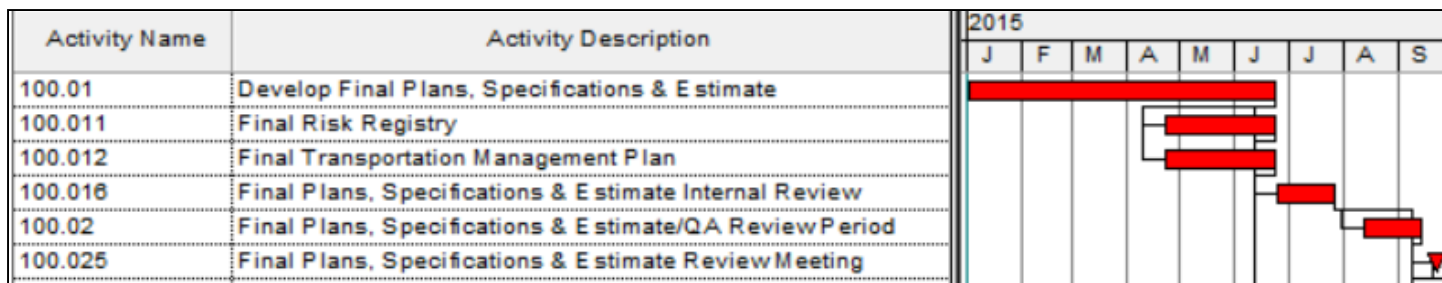
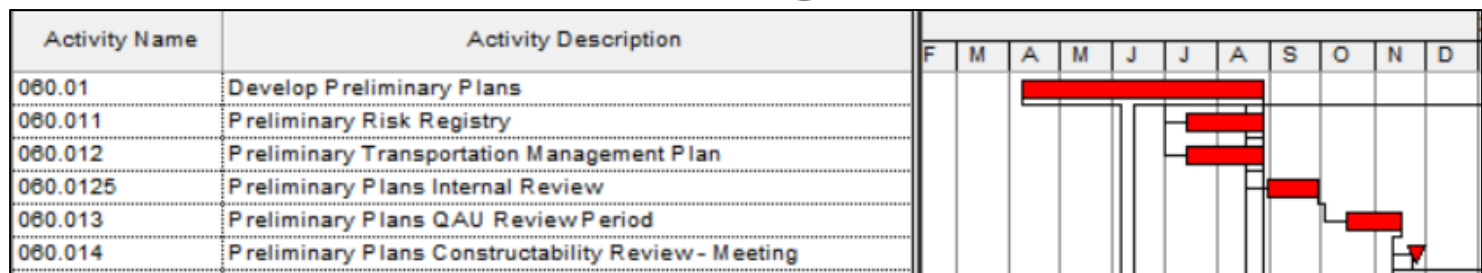
Schedule with Appraisal – 20 months



Schedule with Waiver Valuation – 12 to 15 months

Project Quality Control

- Internal Reviews at Project Milestones
 - Preliminary Plans (60%)
 - Final Plans (90%)
- Distributed Reviews at Project Milestones
 - Preliminary Plans (60%)
 - Final Plans (90%)
- Constructability Meeting at Preliminary Plans
- Plans, Specifications & Estimate Meeting at Final Plans





Team Meetings

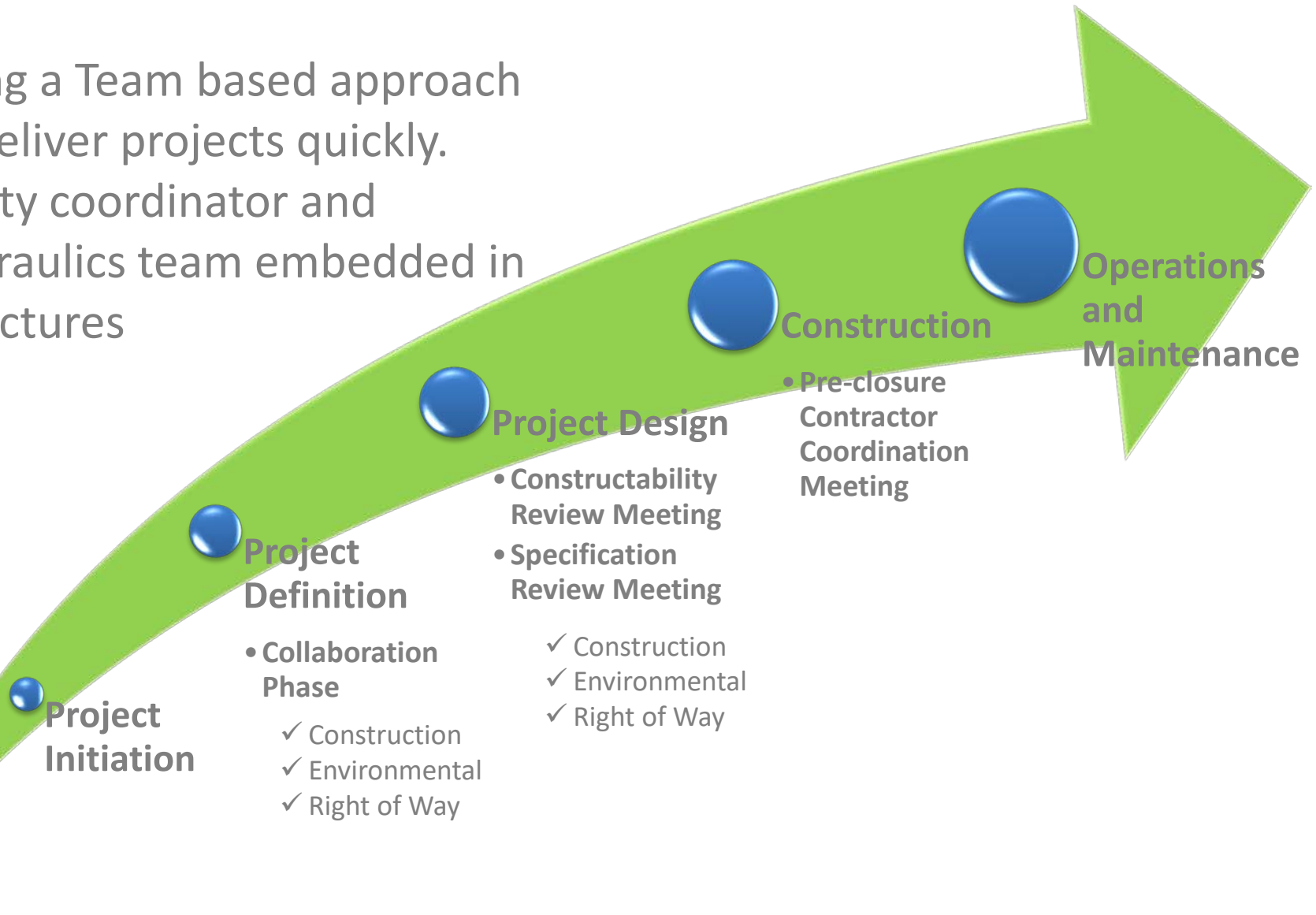
Constructability Review Meetings

Constructability Review Meetings and Mitigating Risks

- Looping in Resources to review project scope, details, and schedule
 - Environmental
 - Geotechnical
 - Hydraulics
 - Construction
- Early Input to mitigate project risks
 - Project Delivery Risks
 - Permitting
 - Right-of-Way
 - Utilities
 - Construction Risks
- Risk Register added to schedules

Cultivating teams through Co-location and Co-organization

Using a Team based approach to deliver projects quickly.
Utility coordinator and Hydraulics team embedded in Structures



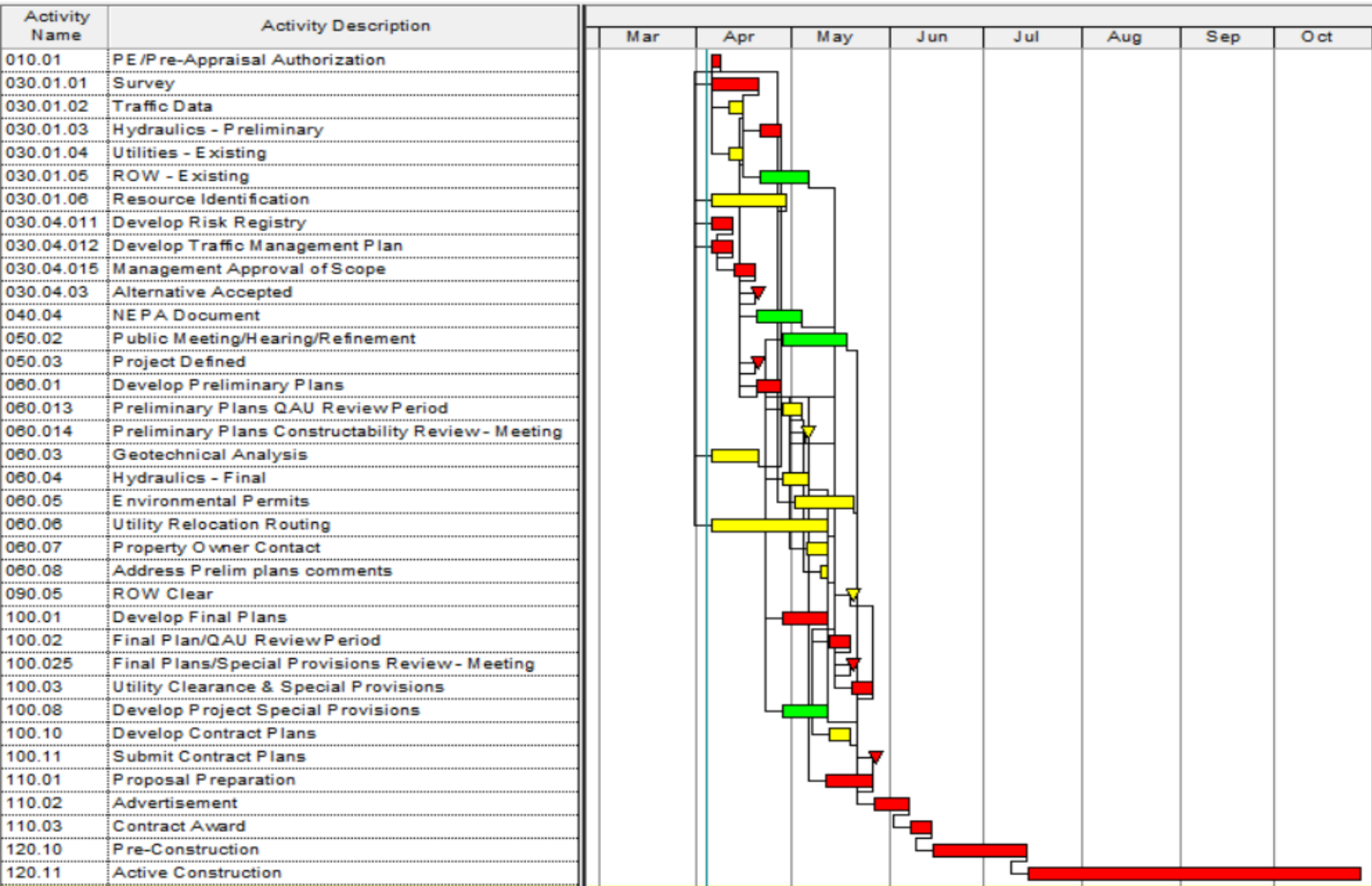
Duxbury Culvert Replacement



Success in Expedited Project Delivery

- Project delivered in just 6 weeks
 - Programmed on April 4
 - Advertised just before Memorial Day Weekend
- Colocation proved advantageous
 - Utility Coordinator working with ROW
 - Hydraulics Engineer embedded in Structures and running real time modeling as spans were developed
 - Right of Way section prepared documents, negotiated and cleared right of way in 4 weeks – Worked closely with Utility coordinator
- Innovative Contracting
 - Simplified bidding
 - Shortlisted three contractors

Project Schedule – 6 Weeks



Duxbury Culvert Replacement

- Early Procurement of long lead items
 - Request for Quotes (RFQ) – Concrete structure
 - Contract with fabricator to produce and deliver precast arches, headwalls and wingwalls
- Meeting an aggressive construction Schedule
 - Reduce time for submittal reviews
 - Eliminated restrictions in contract facilitating early construction start



Break