

Winona Bridge Work Package #5

Bridge No. 5900 (Existing Bridge) Rehabilitation and Reconstruction

Installment #2

Project Planning, Scoping, Preliminary and Final Design

February 29, 2016

To fully understand budget and/or cost increases or decreases on a specific project, one needs to understand when the baseline reference budget (or cost) being used at a starting point was from, or in other words at what phase in project delivery was the project when the scorecard was set. Measuring budget or cost performance from a budget set during the final design phase likely would lead to much different cost performance results than a budget set during the initial planning phase.

In the attached Project Development Process flowchart, the various phases of project development are depicted. In summary, the various phases represent:

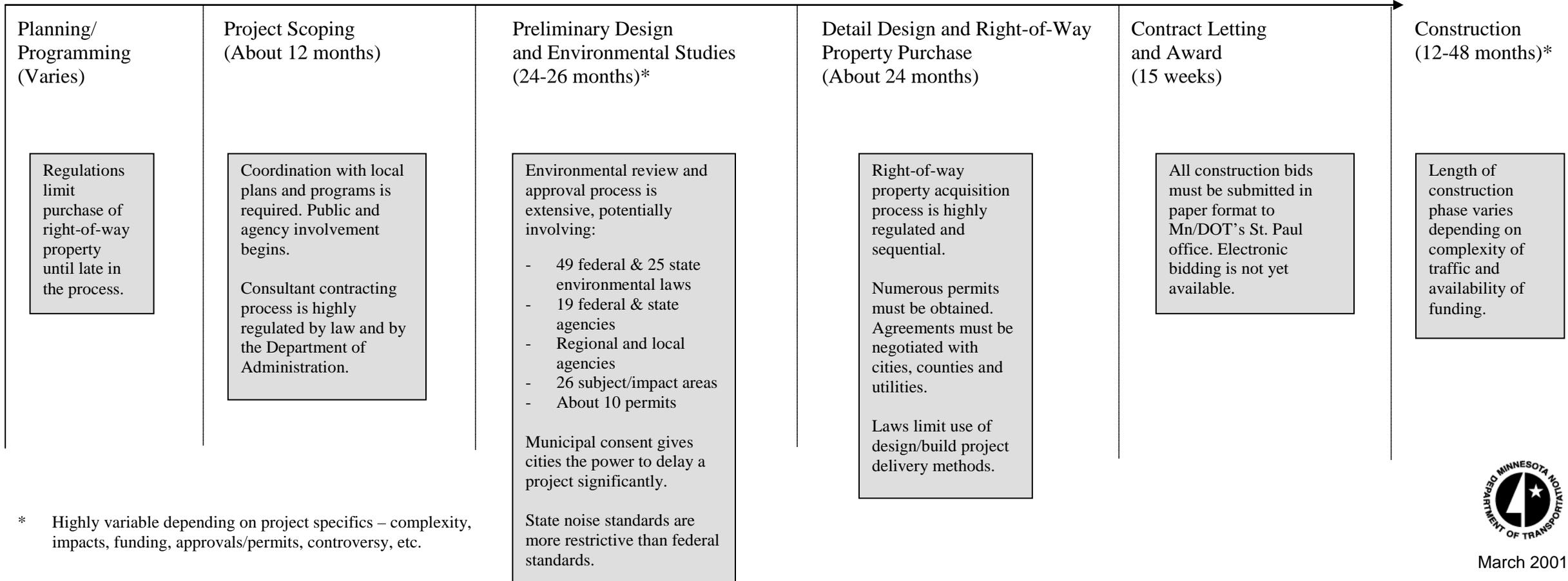
- Planning (and programming): this phase typically consists of writing plans, conducting data analysis, reviewing performance outcomes, and/or managing a capital program. For a specific project, it may be the result of a trunk highway corridor study, a safety study, or a partnership with a local agency in relation to coordinated planning.
- Scoping: this phase typically consists of determining the requirements for a specific project or suite of projects. The intended performance outcomes for a specific project are typically determined during scoping.
- Preliminary Design: this phase typically looks at environmental impacts and various options to minimize the impact to the environment. Depending on the size and complexity of the project, considerable public outreach may occur.
- Final Design (or Detail Design): this phase is where all of the previous work is put into development of formal plans and specifications by following design standards, guidelines and/ or guidance to develop a formal bid package.
- Construction: this phase typically is the construction work performed for the project by contractors, suppliers, subcontractors and all parties involved in building the project.

In regards to the budget and cost performance on the Winona Bridge project, the initial \$142 million budget was set during the Planning phase, which is the earliest phase of the project. This is the toughest approach to be graded by and is the scorecard the Winona Bridge project is using. MnDOT is making great strides in the areas of Project Management, Scoping and Cost Estimating and we've seen some good results in recent years with project budgets and lettings.

Project Development Process

Project development – steps that must occur before construction – takes five to eight years for major projects that encounter relatively few obstacles. Projects that require extensive environmental reviews or that involve a variety of challenges and conflicting interests can take many more years as with Hiawatha Avenue reconstruction (25 years) and the Stillwater replacement bridge (40 years and counting.) The project development process is not necessarily linear and phases may overlap or occur simultaneously.

PHASES
CONSTRAINTS



* Highly variable depending on project specifics – complexity, impacts, funding, approvals/permits, controversy, etc.

