Civil Engineering Construction Sample Proposal

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- Project Plan
- Site Preparation
- Scheduling
- Impact Statement
- Infrastructure
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- Project Budget
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November 17, 20XX

Justina Crowley
Manager
Pennsylvania Department of Transportation
Suite 100
900 Government Plaza
Philadelphia, PA 19109

Dear Ms. Crowley,

XJM Engineering Ltd. is pleased to submit this proposal in response to your RFP for the Tolliver Bridge Replacement infrastructure renewal project.

XJM Engineering Ltd. is uniquely qualified to oversee this project and complete it on time and within budget.

We strongly believe our proposal has been thoroughly outlined and will meet or exceed all of your expectations and requirements. We will call you to schedule a meeting on December 1, 20XX Thank you for your consideration and for putting your trust in XJM Engineering Ltd.

Sincerely,

Marcus Herrera
Senior Project Manager
XJM Engineering Ltd.
484-555-5599 ext. 41
Marcus.Herrera@XJM-Engineering.com
www.XJM-Engineering.com
Tolliver Bridge Replacement Plan

Prepared for: Justina Crowley
Manager, Pennsylvania Department of Transportation

Prepared by: Marcus Herrera
Senior Project Manager
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STATEMENT OF WORK

The State of Pennsylvania Department of Transportation has requested a bid for the replacement of the antiquated Tolliver Bridge.

Summary of Work Requested

Replace the current obsolete two-lane Tolliver Bridge with a dual-span structure of four traffic lanes (two in each direction) and one northbound auxiliary lane and one southbound auxiliary lane for merging/exiting traffic.

Improve/expand drainage and approach-roadway exit/entry transitions to bridge.

Construct a pedestrian/bicycle walkway on the north side of the new bridge, connecting to existing paths on either side.

Mitigate environmental impacts from construction to protect the Tolliver River.

Company Background

XJM Engineering Ltd. has forty years of experience in civil engineering projects ranging from building major highway interchanges to constructing double-decker bridges. See our website for catalog of the projects we have achieved. 85% of our projects come from repeat customers.

Personnel

Margaret Madsen, Senior Project Manager
Jagger Smith, Senior Engineer
David Davenport, Senior Engineer
William Oliver, Senior Construction Supervisor
Finn Babinski, Senior Construction Supervisor
Benefits

The current bridge was constructed in 1962. It is obsolete and has been declared at risk of failure due to heavy use well beyond its original projected lifespan of fifty years. The new bridge will expand the current route from two lanes to four, increasing traffic capacity and safety for vehicles, and will add a safe, separate path for bicyclists and pedestrians, encouraging more commuting by bicycle and walking within our city.

Milestones

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Complete and Public Notified of Bridge Closure</td>
<td>February 27, 2018</td>
</tr>
<tr>
<td>Site Barriers and Detour Signs in Place</td>
<td>March 13, 2018</td>
</tr>
<tr>
<td>Site Preparation Begins</td>
<td>March 16, 2018</td>
</tr>
<tr>
<td>Removal of Old Bridge Begins</td>
<td>August 21, 2018</td>
</tr>
<tr>
<td>Construction of New Bridge Begins</td>
<td>December 13, 2018</td>
</tr>
<tr>
<td>New Bridge Span in Place</td>
<td>October 23, 2019</td>
</tr>
<tr>
<td>New Bridge Opens to Traffic</td>
<td>April 10, 2020</td>
</tr>
</tbody>
</table>

Management

XJM Engineering Ltd. will oversee the work of multiple contractors during the course of this three-year project.

Expected Results

The new bridge will alleviate traffic congestion, allow larger trucks to pass over it instead of detouring through nearby towns, and create a new safe route for pedestrians and bike riders.
A. General Information

XJM Engineering Ltd. will act as general contractor for this project, overseeing all aspects of subcontractor work for the Tolliver Bridge Replacement Project.

Subcontractors and responsibilities are listed below.

B. Subcontractors

The following expert subcontractors will work on this project.

<table>
<thead>
<tr>
<th>Name</th>
<th>Work Contract</th>
<th>Phone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA Road Engineers</td>
<td>All earthmoving and road building work, including final asphalt and striping tasks</td>
<td>555-972-4300</td>
<td>AAARoadEngineers.com</td>
</tr>
<tr>
<td>Penn Deconstruction Services</td>
<td>Removal and recycling of old bridge structure</td>
<td>555-972-9282</td>
<td>PennDeconstruct.com</td>
</tr>
<tr>
<td>Bascom Bridge Technology</td>
<td>Construction and installation of new bridge</td>
<td>555-303-1110</td>
<td>BascomBridgeTech.com</td>
</tr>
<tr>
<td>Williams Wiring</td>
<td>Electrical cables over bridge, electric signs and solar power box</td>
<td>555-932-3322</td>
<td>WilliamsWiring.com</td>
</tr>
<tr>
<td>EverPenn Earthworks</td>
<td>Landscaping and planting in final phase</td>
<td>555-452-9412</td>
<td>EverPennEarthworks.com</td>
</tr>
<tr>
<td>BigWorld Architects</td>
<td>Project blueprints and specifications</td>
<td>555-303-3195</td>
<td>BigWorldArchitects.com</td>
</tr>
</tbody>
</table>
C. Plan Summary

1. Plan Description

Plan and provide signage for detour, deconstruct and remove old Tolliver Bridge, replace it with new 4-lane+ pedestrian/bicycle path bridge, widen PA-160 to bridge, build access ramps, landscape site and install signage.

2. Plan Goals

<table>
<thead>
<tr>
<th>Project Objective</th>
<th>Plan Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove bottleneck of narrow bridge from highway</td>
<td>Replace antiquated two-lane bridge with new four-lane bridge and widen access accordingly</td>
</tr>
<tr>
<td>Create safe route for pedestrians and bicycles</td>
<td>Add protected pedestrian/bike walkway to each side of bridge, construct path in adjacent areas to connect to existing foot/bicycle paths</td>
</tr>
<tr>
<td>Replace outdated, unsafe structures with ones that will work for the future</td>
<td>The new bridge's predicted lifespan is 150 years</td>
</tr>
<tr>
<td>Take advantage of current federal grants for infrastructure funding</td>
<td>The state has already secured the grant and XJM Engineering Ltd. will begin this project as soon as we receive final approval from Pennsylvania DOT and other parties</td>
</tr>
</tbody>
</table>
3. Milestone Summary

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Expected Dates</th>
</tr>
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<tbody>
<tr>
<td>Plan Complete and Public Notified of Bridge Closure</td>
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</table>

4. Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKM Equipment Rentals</td>
<td>Supplier of heavy equipment to be leased as needed</td>
</tr>
<tr>
<td>PennCo Asphalt</td>
<td>Supplier of asphalt</td>
</tr>
<tr>
<td>Sureway Cement and Gravel</td>
<td>Supplier of cement and gravel products</td>
</tr>
<tr>
<td>Variety of state inspectors</td>
<td>Inspectors from various departments will be needed to approve work so we can pass from one stage to the next</td>
</tr>
</tbody>
</table>
### 5. Plan Risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Backup Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work slowdown or stoppage due to extreme weather such as thunderstorms, flooding, and blizzards</td>
<td>Unfortunately, the weather cannot be controlled, but if it happens, we will work more hours to make up as best we can for lost time.</td>
</tr>
<tr>
<td>2. Work slowdown or stoppage due to lack of vital materials such as cement and steel</td>
<td>We have experienced problems in the past due to worldwide shortages of certain materials. When we can, we will purchase materials well in advance of need and identify several suppliers instead of only one.</td>
</tr>
<tr>
<td>3. Stoppage due to major accident on site.</td>
<td>XJM Engineering Ltd. has a stellar safety record and will insist that subcontractors meet our standards in all areas to protect workers and equipment.</td>
</tr>
</tbody>
</table>
The Tolliver Bridge lies in a rural section of PA-160, a state highway. The highway is four lanes wide in this section but must narrow to two lanes to pass over the old two-lane bridge. The load limit of the bridge makes it unsafe for large trucks, and pedestrians and bike riders must share the traffic lanes with vehicles.

This Impact Statement deals with transportation impacts. For environmental impacts on the Franklin River, see the Environmental page.

Description of Impact

The replacement of the Tolliver Bridge will necessitate a detour from PA-160 through the nearby town of Johnstown for a period of approximately 30 months. This may cause considerable congestion in and around that city, but the project is necessary to update the state highway and prepare for the future.

Methods for Determination of Impact

As this is a rural bridge, the only method we used to determine impact was to calculate daily traffic over the existing bridge. To do this, traffic counter strips were laid across the road at the eastern side of the bridge and attached to recording boxes. Traffic was counted for two months, July 20XX, which is considered the highest for vehicular traffic, and October 20XX, which is considered a low-travel month. The average daily vehicle traffic was 971, making a monthly average of approximately 29,616 vehicles per month or 355,386 per year. It should be noted that of these vehicles, approximately 40% are commercial trucks weighing two tons or more.

In comparison, traffic was counted on the Main Street of Johnstown during the same months. Average daily traffic there was 699 vehicles, which were 80% passenger cars and trucks, 20% commercial vehicles weighing two tons or more.
Impact Comparison

As this bridge is in a rural section of Pennsylvania on a modestly used highway, the impact to the state as a whole can be judged to be minimal. However, the city of Johnstown may find the impact of increased traffic, especially large trucks, to be quite substantial.

Remediation of Impact

There is no remedy for re-routing traffic during the bridge replacement project. However, the traffic from PA-160 need not be routed down Main Street in Johnstown. Instead, we should consider routing it down in a bypass down Oak Leaf Road, Bender Lane, and Road 122, all rural routes. This would impact far fewer people and commercial properties.

Next Steps

Some local merchants in Johnstown have expressed an interest in keeping the detour route through the heart of their city, in hopes that drivers and passengers may choose to stop and shop or eat in restaurants there. The final detour route must still be determined.
SITE PREPARATION

To prepare the site for removal of the old bridge and installation of the new span, the following steps must be taken:

- **Removal of utilities from current bridge site**
  
  Electric cables and water lines are connected to the old bridge and must be removed with service remaining intact for customers.

- **Current bridge span removed**
  
  An additional temporary access road will need to be constructed to allow removal of bridge sections.

- **Removal of trees and rocks from banks to prepare ground surface for new bridge**
  
  With two more lanes and a separate pedestrian/bike path, the new bridge is thirty feet wider than the old bridge.

- **Preparation of wider highway lanes and two access routes to new bridge**
  
  PA-160 narrows from four lanes to two approximately 300 feet on either side of the bridge. The existing four lanes must now be extended to join up with the new four-lane bridge. This will necessitate some earth moving and removal of vegetation.

- **Preparation for pedestrian/bike path to bridge**
  
  On the north side of the bridge, a new pedestrian/bike path must be cleared to connect to the existing path along PA-160.
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ProposalKit.com/htm/proposal-software-products.htm