INNOVATIVE PRECAST ABUTMENT SYSTEM (PAS) FOR SHORT SPANS AND LOW VOLUME APPLICATIONS

Tight budgets and accelerated timelines confront all municipalities, counties and states that must preserve transportation infrastructure that contain a wide range of bridges and highways. Handling smaller bridge replacement projects with similar methods used for complex, multimillion dollar projects can waste valuable resources.

For the typical short span, low volume bridge replacement, four primary alternatives exist. Depending on site-specific data, roadway approach, and time/budget considerations, decision makers can consider four-sided structures, three-sided structures, integral abutment systems, or non-conventional systems. Our innovative solution of a precast abutment system with a steel or precast concrete superstructure provides a simple, economically attractive, and streamlined solution for smaller bridge superstructure replacement projects.

PAS SYSTEM COMPONENTS

For a typical two-lane, thirty foot span bridge replacement, key decision factors are outlined below. Significant savings in time and money can be realized with our PAS system.

<table>
<thead>
<tr>
<th>ABUTMENT TYPE</th>
<th>APPEARANCE</th>
<th>TYPICAL COST</th>
<th>INSTALLATION CONSIDERATIONS</th>
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</thead>
</table>
| INTEGRAL      | ![INTEGRAL](image) | Approximately $100,000 | - Drilling equipment required  
- Abutment forming necessary if units are cast-in-place  
- Heavy equipment needed if precast units are used |
| CANTILEVER    | ![CANTILEVER](image) | Approximately $65,000  | - Abutment forming necessary if units are cast-in-place  
- Heavy equipment needed if precast units are used |
| PRECAST (PAS) | ![PRECAST (PAS)](image) | Approximately $30,000  | - Medium size excavation equipment and existing crews can usually handle abutment placement |
PRECAST ABUTMENT SYSTEM (PAS) VERSUS ALTERNATIVES

Several types of concrete abutments are typically considered for short span, low volume bridge replacement projects. Integral abutments, cantilever abutments, and non-conventional approaches such as our PAS system can all perform well, but each has significantly different attributes and shortcomings.

<table>
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<tr>
<th>ABUTMENT TYPE</th>
<th>ATTRIBUTES</th>
<th>SHORTCOMINGS</th>
</tr>
</thead>
</table>
| INTEGRAL      | 1. NYSDOT Preferred Abutment Type  
2. Jointless Bridge System  
3. Less Concrete & Reinforcement than Gravity Abutments  
4. Relatively Fast Construction Time | 1. Not Suitable for All Soil Conditions  
2. Not Suitable for Large Skews  
3. Requires Deep Foundation  
4. More Expensive than Gravity Abutments |
| CANTILEVER    | 1. Conventional System, Easy to Construct and Design  
2. Suitable for Most Soil Conditions (Rock or Shale)  
3. Can be Used with Any Skew | 1. Not Economical For Poor Soils  
2. Requires Large Amount of Concrete  
3. Requires Large Quantity of Reinforcement  
4. Requires Large Volume of Excavation  
5. Requires a Deck Joint |
| PRECAST (PAS) | 1. Simple and Flexible Design  
2. Easy to Handle and Install  
3. Small Sections Compared to Conventional Design  
4. Fast Construction  
5. Economic Design  
6. Concrete Cap Accommodates Bridge Seat Requirements  
7. Can be Installed with Mid Size Excavator | 1. Aesthetics |

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