Employment Impacts for Proposed Bay Delta Water Conveyance Tunnel Options

Presented to:
BDCP

Presented by:
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Agenda

Project Assumptions

Modeling Approach

Employment Measures

Results

Qualifications
Project Assumptions

♦ 15,000 cfs Option
• Five screened intakes
• Construction period cost of $12.5 billion including imports
• Operating period cost of $82.6 million per year

♦ 3,000 cfs Option
• One screened intake
• Construction period cost of $7.2 billion including imports
• Operating period cost of $40.5 per year

♦ Both Options
• 7.5 year construction period
• 50 year operating period
• Tunnel boring machine and large pumps are imported
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♦ IMPLAN (IMpact analysis for PLANning)
  • Economic impact modeling system with input-output core
  • Widely used, especially among state and federal agencies
  • Advantages
    ■ Transparent
    ■ Regional disaggregation
  • Disadvantages
    ■ Static
  • Provides detailed first approximation of employment impacts
Agenda

- Project Assumptions
- Modeling Approach
- Employment Measures
- Results
- Qualifications
Employment Measures

♦ **Direct Employment** – Jobs created in sector(s) of initial spending as a result of initial spending

♦ **Indirect Employment** – Jobs created as a result of purchases of goods, services, energy and labor from supporting industries by the sector(s) where initial spending occurred

♦ **Induced Employment** – Jobs created when households who see increased income as a result of direct and indirect employment creation purchase goods and services such as groceries and healthcare

♦ All employment impacts are converted to *full-time equivalent (FTE)* employment for reporting purposes
## Results: California

### Statewide FTE Employment Impacts of Proposed Conveyance Tunnel Options

<table>
<thead>
<tr>
<th></th>
<th>15,000 cfs Option</th>
<th>3,000 cfs Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction Period</td>
<td>Operating Period</td>
</tr>
<tr>
<td>Direct FTE Employment</td>
<td>13,938</td>
<td>100</td>
</tr>
<tr>
<td>Indirect FTE Employment</td>
<td>75,689</td>
<td>177</td>
</tr>
<tr>
<td>Induced FTE Employment</td>
<td>39,566</td>
<td>302</td>
</tr>
<tr>
<td>Total FTE Employment</td>
<td>129,193</td>
<td>579</td>
</tr>
</tbody>
</table>

Sources: IMPLAN v3; *The Brattle Group* 2011

Notes:
- All impacts are based on cost estimates in 2010 dollars.
- Construction period employment is given for the entire 7.5 year construction phase while operating period employment is given on an annual basis.
- FTE or full-time equivalent is defined as the number of total hours worked divided by the maximum number of compensable hours in a work year as defined by law. For example, an FTE of 1.0 means that the position is equivalent to 1 full time worker, while an FTE of 0.5 means the position is equivalent to a half time worker.
## Results: California

<table>
<thead>
<tr>
<th>IMPLAN Sector</th>
<th>15,000 cfs Option (FTE Jobs)</th>
<th>3,000 cfs Option (FTE Jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of other new nonresidential structures</td>
<td>35,842</td>
<td>22,724</td>
</tr>
<tr>
<td>Architectural, engineering, and related services</td>
<td>13,487</td>
<td>7,867</td>
</tr>
<tr>
<td>Other concrete product manufacturing</td>
<td>9,838</td>
<td>4,337</td>
</tr>
<tr>
<td>Food services and drinking places</td>
<td>4,591</td>
<td>2,611</td>
</tr>
<tr>
<td>Wholesale trade businesses</td>
<td>3,878</td>
<td>2,107</td>
</tr>
<tr>
<td>Real estate establishments</td>
<td>3,160</td>
<td>1,787</td>
</tr>
<tr>
<td>Employment services</td>
<td>2,844</td>
<td>1,438</td>
</tr>
<tr>
<td>Offices of physicians, dentists, and other health practitioners</td>
<td>2,561</td>
<td>1,192</td>
</tr>
<tr>
<td>Plate work and fabricated structural product manufacturing</td>
<td>2,084</td>
<td>1,102</td>
</tr>
<tr>
<td>Transport by truck</td>
<td>1,727</td>
<td>967</td>
</tr>
</tbody>
</table>

Sources: IMPLAN v3; *The Brattle Group* 2011

Notes:

FTE Jobs includes direct, indirect and induced employment.
## Results: County-Level

### County Level FTE Employment Impacts of 15,000 cfs All Tunnel Option

<table>
<thead>
<tr>
<th></th>
<th>Contra Costa County</th>
<th>Sacramento County</th>
<th>San Joaquin County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Period</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct FTE Employment</td>
<td>182</td>
<td>663</td>
<td>583</td>
</tr>
<tr>
<td>Indirect FTE Employment</td>
<td>5,157</td>
<td>21,665</td>
<td>35,893</td>
</tr>
<tr>
<td>Induced FTE Employment</td>
<td>1,571</td>
<td>8,416</td>
<td>13,976</td>
</tr>
<tr>
<td>Total FTE Employment</td>
<td>6,910</td>
<td>30,744</td>
<td>50,451</td>
</tr>
<tr>
<td><strong>Operating Period</strong></td>
<td>13</td>
<td>46</td>
<td>41</td>
</tr>
</tbody>
</table>

Sources: IMPLAN v3; *The Brattle Group* 2011

Notes:
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### County Level FTE Employment Impacts of 3,000 cfs All Tunnel Option

<table>
<thead>
<tr>
<th></th>
<th>Contra Costa County</th>
<th>Sacramento County</th>
<th>San Joaquin County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Period</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct FTE Employment</td>
<td>102</td>
<td>373</td>
<td>328</td>
</tr>
<tr>
<td>Indirect FTE Employment</td>
<td>3,236</td>
<td>13,705</td>
<td>19,070</td>
</tr>
<tr>
<td>Induced FTE Employment</td>
<td>975</td>
<td>5,256</td>
<td>7,425</td>
</tr>
<tr>
<td>Total FTE Employment</td>
<td>4,314</td>
<td>19,334</td>
<td>26,823</td>
</tr>
<tr>
<td><strong>Operating Period</strong></td>
<td>10</td>
<td>35</td>
<td>31</td>
</tr>
</tbody>
</table>

Sources: IMPLAN v3; *The Brattle Group* 2011

Notes:
- All impacts are based on cost estimates in 2010 dollars.
- Construction period employment is given for the entire 7.5 year construction phase while operating period employment is given on an annual basis.
- FTE or full-time equivalent is defined as the number of total hours worked divided by the maximum number of compensable hours in a work year as defined by law. For example, an FTE of 1.0 means that the position is equivalent to 1 full time worker, while an FTE of 0.5 means the position is equivalent to a half time worker.
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Limitations
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♦ Actual employment will depend on the capital mix
♦ In addition, our estimate
  • Does not account for technological changes that might arise prior to or during construction phase
  • Does not include jobs related to other activities such as habitat restoration
  • Does not explicitly account for transactions related to land acquisition
  • Does not account for lost income to households as a result of interest payments on bond financing of this project