

# CONSTRUCTION ENGINEERING PERCENTAGES & CONTINGENCIES

Contingency percentages are set up to handle unforeseen changes in a project. Changes such as additional work, quantity over-runs, and additional items are some of the contingencies that maybe expected in a project. **Currently for all WSDOT contracts, contingencies are limited to 4% of the total contract amount.** Please contact the Program Management office for guidance on using a Contingency percentage greater than 4%.

For local agency projects administered by WSDOT off the State Highway system no contingencies percentage will be set up.

Engineering percentages are the amount of monies set up in each contract for administration of the project. These percentages will vary by type of work and total dollar amount of the contract. On an average, the department has been running around 15% engineering on all projects in the improvement and preservation programs.

When beginning an estimate enter this 15% average as a beginning\* point for Construction Engineering. Prior to the final PS&E submittal, this percentage may be adjusted up or down using the figures in the tables included here.

The Region Program Development/Management staff, based on appropriate justification, can approve any changes in the construction engineering percentages for a project different from the rates listed.

Copies of the approved justification letter shall be submitted with the final PS&E turn in for advertisement.

**\* Please use the Charts on Pages B2 & B3 to Calculate Engineering Percentages**

# Engineering Percentages for Highway Projects

To use the following tables :

Once the Program and sub-programs have been identified, go appropriate table and find the dollar range that covers the total Construction cost (construction costs will include any below the line items that has Engineering applied to them, such as utility agreements and work by state forces other than WSDOT). Record the corresponding percentage in your estimate.

## Preservation Projects

### P1 Roadway

(PA) Paving projects.

### P2 Structures

(PB) New construction, updating existing structures projects.

(PC) Seismic retrofits.

### P3 Other Facilities

(PD) Refurbish existing rest areas to extend service life and improve safety.

(PF) Construct weigh facilities.

(PH) Major Refurbishments of electrical systems, electronics, mechanical systems and major Drainage rehabilitation or replacement projects

(PE) Slope stabilization Projects.

| Program P Highway Preservation    |                              |                                |
|-----------------------------------|------------------------------|--------------------------------|
| P 1 - Roadway                     | P 2 - Structure              | P 3 - Other Facility           |
| P A - Paving / Safety Restoration | P B - Preservation           | P D - Rest Area                |
|                                   | P C - Catastrophic Reduction | P E - Unstable Slope           |
|                                   |                              | P F - Weigh Station            |
|                                   |                              | P G - Program Support          |
|                                   |                              | P H - Major Drain / Electrical |

| Preservation Projects      |     |     |     |     |     |     |     |     |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
|                            | P1  | P2  |     | P3  |     |     |     |     |
|                            | PA  | PB  | PC  | PD  | PE  | PF  | PG  | PH  |
| \$0 - 250,000              | 20% | 20% | 24% | 18% | 18% | 23% | 14% | 21% |
| \$250,000 - \$500,000      | 18% | 18% | 24% | 16% | 16% | 20% | 12% | 18% |
| \$500,000 - \$1,000,000    | 16% | 16% | 22% | 16% | 12% | 18% | 10% | 16% |
| \$1,000,000 - \$2,000,000  | 14% | 14% | 20% | 14% | 10% | 16% | 10% | 16% |
| \$2,000,000 - \$5,000,000  | 12% | 12% | 20% | 14% | 8%  | 14% | 8%  | 14% |
| \$5,000,000 - \$10,000,000 | 10% | 10% | 18% | 14% | 6%  | 14% | 8%  | 14% |
| \$10,000,000 +             | 8%  | 8%  | 18% | 14% | 6%  | 14% | 8%  | 14% |

*Highlighted percentages indicate that there were not enough projects for an accurate example*

## Projects with Multiple Programs

Example: **\$3,750,000** Total Construction project costs with:

**\$2,225,000** under Preservation P1 paving (PA) and

**\$1,525,000** under Improvement I2 collision reduction (ID)

Percentages From Tables

[ P1 ~ PA = 12 % ] [ I2 ~ ID = 18 % ]

$$(2,225,000 \times .12) + (1,525,000 \times .18) = 14\%$$

**3,750,000**

## Improvement Projects

### I1 Mobility — Improve mobility within congested highway corridors.

(IA) Congestion Relief Projects Urban

(IB) Congestion Relief Projects Rural

(IC) Bicycle projects

(IQ) High Occupancy Vehicle projects

### I2 Safety — Provide the safest possible highways within available resources.

(ID) Accident reduction projects

(IE) Projects that improve roadway geometrics, eliminate at-grade intersections, install signals / channelization at intersections

### I3 Economic Initiatives — Support efficient and reliable freight movement on state highways.

#### Support tourism development and other Washington industries.

(IF) Freight and Goods improvement to all weather surfaces

(IG) Projects providing four-lane limited access facilities on a trunk system

(IH) Constructing Rest areas

(II) Replacing or modifying structures on the Interstate System with, restricted vertical clearances and limited overload capacities

(IJ) Scenic Byway Projects

(IR) Bicycle rural road shoulder widening projects

### I4 Environmental Retrofit — Retrofit state highway facilities as appropriate to reduce existing environmental impacts.

(IK) Reconstruct storm water discharge facilities

(IL) Projects removing fish passage barriers

(IM) Projects including Noise walls, berms, and noise mitigation measures.

(IN) Projects for air quality

| Program I Improvement           |                            |                                |                            |
|---------------------------------|----------------------------|--------------------------------|----------------------------|
| I 1 - Mobility                  | I 2 - Safety               | I 3 - Econ Initiative          | I 4 - Environ Retrofit     |
| IA -Urban                       | ID - Collision Reduction   | IF - All Weather Highway       | IK - Stormwater Runoff     |
| IB - Rural                      | IE Collision Prevention    | IG - Trunk System Completion   | IL - Fish Barrier Removal  |
| IC - Urban Bike Connection      |                            | IH - New Safety Rest Area      | IM - Noise Reduction       |
| IQ - HOV Lane                   |                            | II - Bridge Restriction        | IN - Air Quality           |
|                                 |                            | IJ - Scenic Highway            | IO - Wetland Monitoring    |
| <b>I6 - Sound Transit</b>       | <b>I7 - Tacoma Narrows</b> | IR - Bike Touring Route        | IP - Policy Implementation |
| IT - Regional Transit Authority | IU - Tacoma Narrows        | IS - Avalanche / Flood Control |                            |

| Improvement Projects       |     |     |     |     |     |     |     |     |     |     |     |     |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                            | I1  |     |     |     | I2  |     | I3  |     |     |     | I4  |     |
|                            | IA  | IB  | IC  | IQ  | ID  | IE  | IF  | IG  | IH  | II  | IK  | IL  |
| \$0 - 250,000              | 26% | 18% | 22% | 22% | 24% | 22% | 22% | 20% | 12% | 12% | 18% | 22% |
| \$250,000 - \$500,000      | 23% | 17% | 22% | 20% | 22% | 20% | 20% | 20% | 12% | 12% | 18% | 22% |
| \$500,000 - \$1,000,000    | 20% | 16% | 20% | 20% | 20% | 18% | 20% | 18% | 12% | 12% | 18% | 22% |
| \$1,000,000 - \$2,000,000  | 17% | 15% | 20% | 18% | 18% | 16% | 18% | 16% | 12% | 12% | 18% | 22% |
| \$2,000,000 - \$5,000,000  | 14% | 14% | 18% | 16% | 15% | 14% | 16% | 14% | 12% | 12% | 18% | 22% |
| \$5,000,000 - \$10,000,000 | 12% | 13% | 16% | 14% | 13% | 12% | 14% | 12% | 12% | 12% | 18% | 22% |
| \$10,000,000 +             | 10% | 10% | 14% | 12% | 10% | 10% | 14% | 10% | 12% | 12% | 18% | 22% |

*Highlighted percentages indicate that there were not enough projects for an accurate example*