

Engineering & Right of Way Costs

Statewide, engineering costs for any given highway project are typically between 14.8% and 21.8% of the construction cost. Depending on the cost of the project. TxDOT provided the Sherman-Denison MPO with actual costs which translated to an average of 15.5% of the construction cost to estimate engineering costs. Actual engineering costs for highway projects let within the past 10 years are reasonably close to this estimate. In addition, **TxDOT has typically only funded engineering costs for projects which have sufficient funds for construction.** For these reasons, the MPO has estimated engineering costs to be 15% of the construction cost and that if sufficient funds exist for construction, then sufficient funds will exist to provide for the engineering costs.

Right of way costs, unlike engineering costs, are highly variable and dependent upon factors such as land usage, location, accessibility, and zoning. Statewide, right of way costs average 12% of the construction costs. With the small amount of right-of-way required for projects in the MTP, the MPO used an average of \$1.4m from 2005 - 2015 and \$1.7m for projects from 2016 - 2030. Similar to engineering costs, however, **TxDOT has typically only funded right of way costs for projects which have sufficient funds for construction.** For these reasons, the MPO has assumed that for federally and state funded projects, if sufficient funds exist for construction, then sufficient funds will exist to provide for the right of way costs. For locally funded projects, however, the total available revenues must also cover all necessary right of way & engineering costs.

Year of Expenditure and Total Project Cost Methodology

Total Project Cost = the project cost estimate reflects all costs including engineering, right-of-way, construction and contingencies, etc.

Year of Expenditure = total project cost is inflated to reflect cost of project in year of construction.

Sample Problem: To revise project cost to reflect Total Project Cost (TPC) and Year of Expenditure Dollar (YOE)

2007 Current Project Cost

Estimate **\$25,000,000** construction only

Total Project Cost

| | |
|------------------------|-------------------|
| \$ 3,750,000.00 | Engineering Costs |
| \$ 5,950,000.00 | Right-of-Way |
| \$25,000,000.00 | Construction |
| \$ 1,000,000.00 | Contingencies |
| \$35,700,000.00 | Total |

Year of Expenditure: $A = P(1+(i/q))^n$

A = Inflated Total Project Cost

P = Current Total Project Cost

i = interest rate Inflation Factor (3%)

n = years difference between year built and current year

$$A = \$35,700,000((1 + .03)/1)^3$$

$$A = \$35,700,000 (1 + .03)/1$$

$$A = \$35,700,000 (1.03)^3$$

$$A = \$35,700,000(1.092727)$$

$$A = \$39,010,354$$

Year of Expenditure Project Cost

Therefore, total cost to build project in 2010 is \$39,010,354.

Rate of Inflation

Calculated from 1993 through 2006

| <u>Year</u> | <u>Inflation</u> | <u>Average</u> | <u>Rounded</u> |
|-------------|------------------|----------------|----------------|
| 1993 | 3.0 | | |
| 1994 | 2.6 | | |
| 1995 | 2.8 | | |
| 1996 | 3.0 | | |
| 1997 | 2.3 | | |
| 1998 | 1.6 | | |
| 1999 | 2.2 | | |
| 2000 | 3.4 | | |
| 2001 | 2.8 | | |
| 2002 | 1.6 | | |
| 2003 | 2.3 | | |
| 2004 | 2.7 | | |
| 2005 | 3.4 | | |
| 2006 | 3.2 | | |
| | 36.9 | 2.64 | 3.0 |

Source: U.S. Bureau of Labor Statistics Consumer Price Index

Rate of Inflation

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Ave |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2007 | 2.08% | 2.42% | 2.78% | 2.57% | 2.69% | 2.69% | 2.36% | 1.97% | 2.76% | 3.54% | 4.31% | | |
| 2006 | 3.99% | 3.60% | 3.36% | 3.55% | 4.17% | 4.32% | 4.15% | 3.82% | 2.06% | 1.31% | 1.97% | 2.54% | 3.24% |
| 2005 | 2.97% | 3.01% | 3.15% | 3.51% | 2.80% | 2.53% | 3.17% | 3.64% | 4.69% | 4.35% | 3.46% | 3.42% | 3.39% |
| 2004 | 1.93% | 1.69% | 1.74% | 2.29% | 3.05% | 3.27% | 2.99% | 2.65% | 2.54% | 3.19% | 3.52% | 3.26% | 2.68% |
| 2003 | 2.60% | 2.98% | 3.02% | 2.22% | 2.06% | 2.11% | 2.11% | 2.16% | 2.32% | 2.04% | 1.77% | 1.88% | 2.27% |
| 2002 | 1.14% | 1.14% | 1.48% | 1.64% | 1.18% | 1.07% | 1.46% | 1.80% | 1.51% | 2.03% | 2.20% | 2.38% | 1.59% |
| 2001 | 3.73% | 3.53% | 2.92% | 3.27% | 3.62% | 3.25% | 2.72% | 2.72% | 2.65% | 2.13% | 1.90% | 1.55% | 2.83% |
| 2000 | 2.74% | 3.22% | 3.76% | 3.07% | 3.19% | 3.73% | 3.66% | 3.41% | 3.45% | 3.45% | 3.45% | 3.39% | 3.38% |
| 1999 | 1.67% | 1.61% | 1.73% | 2.28% | 2.09% | 1.96% | 2.14% | 2.26% | 2.63% | 2.56% | 2.62% | 2.68% | 2.19% |
| 1998 | 1.57% | 1.44% | 1.37% | 1.44% | 1.69% | 1.68% | 1.68% | 1.62% | 1.49% | 1.49% | 1.55% | 1.61% | 1.55% |
| 1997 | 3.04% | 3.03% | 2.76% | 2.50% | 2.23% | 2.30% | 2.23% | 2.23% | 2.15% | 2.08% | 1.83% | 1.70% | 2.34% |
| 1996 | 2.73% | 2.65% | 2.84% | 2.90% | 2.89% | 2.75% | 2.95% | 2.88% | 3.00% | 2.99% | 3.26% | 3.32% | 2.93% |
| 1995 | 2.80% | 2.86% | 2.85% | 3.05% | 3.19% | 3.04% | 2.76% | 2.62% | 2.54% | 2.81% | 2.61% | 2.54% | 2.81% |
| 1994 | 2.52% | 2.52% | 2.51% | 2.36% | 2.29% | 2.49% | 2.77% | 2.90% | 2.96% | 2.61% | 2.67% | 2.67% | 2.61% |
| 1993 | 3.26% | 3.25% | 3.09% | 3.23% | 3.22% | 3.00% | 2.78% | 2.77% | 2.69% | 2.75% | 2.68% | 2.75% | 2.96% |

Source: <http://inflationdata.com>