



**Projects First-Round Winner**  
Innovations Challenge

**April 2019**  
Prepared by Transportation Planning  
Missouri Department of Transportation

## Pre-Cast Concrete Block Wing Wall



### Description

The inlet side of a culvert takes a lot of abuse from water rushing through the box which can result in erosion of the dirt around the box end. In the past when this would happen we would dig out the end, build concrete forms and pour new wing walls. This takes several days' labor to build forms, pour concrete and tear down the forms. Our innovation is the use of precast concrete blocks for the replacement of damaged or missing wing walls on box culverts to prevent erosion around entrance and end of the box. The Blocks seem to be working as planned at preventing erosion and we have also received several complements on how nice the project turned out.

### Benefit

On our project, which was the new construction of a box, the cost of the precast blocks was roughly 10% of the cost of buying the precast wing walls, saving us around \$12,000. Using precast blocks saves a lot of time because all you have to do is, dig out the area, stack the blocks and back fill around the blocks. Instead of digging out an area, building concrete forms, pouring concrete, come back the next day and tear down the forms, and then back fill rock or dirt around the new concrete. The precast blocks eliminate several steps and most likely a couple days work. And, of course, any time you can eliminate time spent in traffic on the roadway you improve safety. We were extremely happy with the financial savings as well as the time savings. Since then we have made plans to use them in several other boxes where the ends have washed out or became damaged.

### Materials and Labor

Material costs for 6 foot blocks are \$75 per block (3,600 lbs.) and \$40 per half block (1,800 lbs.) 4 foot blocks are \$65 per block (2,700 lbs.) and \$36 per half block (1,350 lbs.)

### For More Information Contact:

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Additional information, photos or videos can be seen by accessing Innovations Challenge SharePoint page at: <http://sharepoint/systemdelivery/TP/Documents/InnovationsChallenge.aspx>