



## QUICKVIEW

- Cracked and fractured street in need of 1,728 square yards of new pavement
- Solution needed to provide proper repair, handle street traffic and provide economical solution due to limited construction budgets
- By using RCC, least \$29,000 was saved on the project, 30% below the cost of traditional asphalt

### CONCRETE PRODUCER:

**Casilio Concrete**

### PLACEMENT CONTRACTOR:

**Livengood Excavating**

## Roller Compacted Concrete Provides Cost-Saving Solution to Sycamore Street Project

### THE SITUATION

In Upper Nazareth Township, Pa, a segment of Sycamore Street had completely failed due to inadequate pavement strength. The road was so cracked it looked like a dried creek bed. Various repair methods were assessed, including: cold-in-place recycling (CIP); full-depth reclamation (FDR); and full-depth reconstruction using conventional asphalt pavement.

CIP was found to be technically infeasible because there was inadequate existing asphalt pavement thickness to work with. FDR was eliminated because it was found to be economically infeasible for the relatively short length of road that needed to be reconstructed – FDR requires a substantial amount of process equipment that is costly to mobilize. This left the choice of either conventional asphalt pavement or looking at alternatives. With asphalt construction costs steadily and substantially rising due to higher oil prices over the last five years or so, and with severely limited construction budgets, an alternative was necessary.

**“The township is extremely pleased with the outcome of Sycamore Street. Using RCC saved us money and the performance has been excellent. We’re so pleased with the results we’re including RCC in our 2014 road improvement program.”**

- Scott Sylvainus  
Vice Chairperson  
Upper Nazareth Township



## THE SOLUTION

Research pointed to roller compacted concrete (RCC) because of its presence in various national trade publications. RCC has been used in the Lehigh Valley by private owners for warehouse facilities and service yards subject to heavy loads. Further research concluded that savings could be at least 15% to 20% on the initial cost using RCC over asphalt. The location and functional characteristics of Sycamore Street made it a prime location to introduce this material.

RCC pavement has been around since the 1970’s when it was developed by the Canadian logging industry. It’s been used over the last decade on local roads in Ohio, including the City of Columbus, as well as other northern locations in the US and Canada where pavements are subject to freeze-thaw.

There were a number of notable advantages for using RCC rather than asphalt. For example, the overall pavement section is 10.5” using RCC as opposed to 16.5” using asphalt. This substantially reduces the amount of excavation, the number of truck trips to remove and dispose of waste material, and the amount of new material and corresponding trucks that would have to be moved back in.

For the 2012 project, the installed cost was \$39 per square yard for RCC as compared to between \$55 and \$64 per square yard for the equivalent asphalt pavement. The overall cost was about \$70,000 as opposed to \$99,000 to \$116,000 for 1,728 square yards. That’s a savings of \$29,000 to \$46,000. Even with the stone and overlay that was used, the cost using RCC came in at an estimated 30% below the cost of using asphalt.

“RCC holds the real potential to save municipalities substantial money which will free up money to do additional projects,” said Sean Dooley, Ph.D., P.E., Keystone Consulting Engineers. “I know from our own perspective serving as municipal engineers to 27 municipalities that their road programs are severely underfunded. The condition of their infrastructure is degrading because there is not enough money to keep up. In Upper Nazareth Township we should be doing four (4) miles of road surface treatments a year but we can only afford to do just over one (1) mile.”



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