

# CONCRETE ROUNDABOUTS

## 67<sup>TH</sup> STREET CORRIDOR - RED DEER, AB



### PROJECT TEAM

#### OWNER

The City of Red Deer

#### OWNERS ENGINEER

WSP Canada Inc.

#### ENGINEERING CONSULTANT:

Tetra Tech EBA

#### GENERAL CONTRACTOR:

Proform Concrete Services Inc.

#### CONCRETE SUPPLIER:

Burnco Rock Products

### THE OPPORTUNITY

67<sup>th</sup> Street and Johnstone Drive/Orr Drive Intersection in Red Deer continues to experience challenging traffic demands due to its location as an entrance to The City of Red Deer, The Edgar Industrial Area and the Flying J Truck Stop, leading to extensive damage to the road structure with heavy traffic at high volumes demanding an extensive maintenance schedule to keep the intersection in good condition.

### THE SOLUTION

The City of Red Deer wanted to find a durable pavement solution with minimized maintenance and extended service life, therefore in their Request for Proposal (RFP) allowed Portland Cement Concrete Paving to compete with asphalt through a Life Cycle Cost Analysis basis giving the opportunity for both materials to be compared at an equal level. Portland Cement Concrete Paving with a 40+ year expected service life was selected for this project.

### ABOUT THE CEMENT ASSOCIATION OF CANADA (CAC)

The CAC is the voice of Canada's cement industry. A vital contributor to the country's economy and infrastructure, the industry provides a reliable, domestic supply of cement required to build our country's sustainable communities and is committed to the environmentally responsible manufacturing of cement and concrete products. Visit [www.cement.ca](http://www.cement.ca) for more information.

### ABOUT CONCRETE ALBERTA

Concrete Alberta represents over 93% of the concrete producers in Alberta, and is fully funded by the membership of Producers, Associates and Affiliates. Visit [www.concretealberta.ca](http://www.concretealberta.ca) for more information.

### PROJECT DETAILS:

- Traffic volumes: Average Annual Daily Traffic (AADT) through the job site were estimated at 22720 vehicles; peak hour at 10%.
- PCCP designed to 240mm thickness reinforced with Euclid Tuf-strand SF Macro Synthetic Fibers at 1.8 kg/m<sup>3</sup>.
- PCCP was supplemented with dowel baskets made with 32mm smooth epoxy coated dowels spaced at 305mm on centre under all joints. Dowels were extended into adjacent curb and gutter structures.
- Curb and gutter structures were increased in thickness to match the PCCP structure to eliminate a need for pavement edge thickening.
- The concrete for the PCCP was designed to achieve a minimum flexural strength of 4.2 MPa at 28 days.
- The colored truck apron at the traffic circle was designed to match the PCCP structure.



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