

SUSTAINABILITY

Benefits of improved water quality in North Clear Creek were not quantified, but are described qualitatively in the grant application.

Carbon Dioxide Reductions from Reduced Congestion. CDOT's congestion model for the TEAMS Project uses data on the average daily traffic on these roads, number of closures, average closure time, number of crashes, average delay times and periods of peak traffic activity were used as inputs. The model's outputs include a calculation of the annual number of metric tons of CO₂ emissions eliminated as a result of the reduction in congestion related to closures, crashes or heavy traffic in peak periods. The calculations of reduced CO₂ emissions are based on EPA's MOBILE 6.2 emissions model. Federal Register Docket No. OST-2009-0115 and US DOT's *Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks*, March 2009 indicate that a value of \$33 per metric ton should be applied to CO₂ emissions reductions. That \$33 dollar value was inflated by 2.4 percent per year to account for inflation, based on guidance provided in US DOT's *Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks*, March 2009. The inflated values were applied to the annual CO₂ reductions due to the TEAMS Project.

Reduced Fuel Consumption from Reduced Congestion. Fuel consumption savings were estimated using the total number of avoided hours of delay and avoided number of vehicles delayed from CDOT's congestion model. Research by the Ohio Air Quality Development Authority states that one idling car uses an average of 0.156 gallons of gas per hour. That consumption rate was applied to the congestion model data to calculate the total gallons of gas saved annually from reduced congestion due to the TEAMS Project. A price of \$3.33 per gallon was applied to the annual gallons of gas saved, per the US DOT's *Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks*, March 2009.

Avoided Carbon Dioxide Emissions and Fuel Consumption. Without TEAMS Project activities, South Main Street would need to be resurfaced in about the year 2020. The longer service life of products used as part of the TEAMS Project makes that future resurfacing unnecessary, avoiding the fuel consumption and carbon emissions that would have occurred. Avoided carbon emissions were valued at \$33 per metric ton, inflated by 2.4 percent per year to account for inflation, based on guidance provided in US DOT's *Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks*, March 2009. Avoided fuel consumption was valued at \$3.33 per gallon according to that same document.