Council Direction:
Not Applicable

Information:
The City of Hamilton was required to perform pre and post-construction air quality monitoring of the Red Hill Valley Parkway as part of the environmental assessment and approval process. The pre-construction air quality monitoring (conducted in 1998) was mirrored for the post-construction work undertaken by Rotek Environmental over a six month time period starting May 1st and ending October 31st, 2009. The King Street interchange had been identified through modeling as the location of maximum air pollution impact; therefore both pre and post-construction monitoring were conducted at this same exact location.

Air quality has improved significantly in the vicinity of the Red Hill Valley Parkway. Compared to pre-construction monitoring (1997/1998), the percentage improvement has been as high as 67% for Carbon Monoxide (CO), 51% for Oxides of Nitrogen (NOX), 11% for Particulate Matter (PM10), 43% for Total Suspended Particulate (TSP) and 65% for Polycyclic Aromatic Hydrocarbons (PAH) (Benzo(a)Pyrene). Pre-construction modeling had predicted worsening air quality, although not enough to cause measurable health impacts.
There appear to be several reasons for the improved air quality since the pre-construction survey:

- A significant improvement in air quality has occurred across the City during the last ten years due to the concerted actions of individuals, organizations, industries, the City of Hamilton and other levels of government. Long term historical trends indicate a twenty to forty percent decline in the concentrations of some pollutants across the City.

- Improved vehicular movement has reduced transportation emissions in the area.

- There are minimal local impacts of the Parkway. The channelling effects of the valley, in combination with the southwest prevailing winds, tend to contain vehicle emissions in the valley rather than dispersing them laterally into the residential areas bordering the parkway.

- Weather patterns and reduced levels of economic activity may have contributed to the overall downward trend in emissions reduction. Some percentage of the decline in NOX levels may also be due to seasonal differences. The pre-construction survey was conducted during the home heating season, December 1997 to June 1998, while the post-construction survey took place over a time period spanning summer from May to October, 2009.

Nearly all measurements showed pollutant levels far below Ministry of Environment Ambient Air Quality Criteria (AAQC). Criteria were only exceeded on two occasions, neither attributable to the Parkway. The first instance was on August 17, 2009, when a region wide smog episode caused air monitoring stations across Hamilton and the Greater Toronto Area (GTA) to exceed the PM$_{2.5}$ criterion. The second occurrence was due to the Archmill House Inc. fire in Ancaster on August 25, 2009. Even though it was distant from the monitoring site, the fire caused the PAH levels for that day to exceed the Benzo(a)Pyrene Ambient Air Quality Criterion. There were also higher levels of PM$_{2.5}$, PM$_{10}$, CO and NOX for a short time during this episode, but the 24 hour average AAQCs were not exceeded. These exceedances cannot therefore be attributed to the influence of the Parkway.

With this report the City of Hamilton has completed its post-construction air monitoring requirements for the north-south section of the Red Hill Valley Parkway.