



MEMORANDUM

Date: April 8, 2014
To: City of Tacoma
From: Chris Breiland, Fehr & Peers
Subject: **Schuster Promenade Grant – Air Pollution Emissions Reduction Calculations**

SE13-0313

This memorandum summarizes the potential air pollution (CO, PM, and CO₂) emissions reductions that could be associated with the construction of the Schuster Promenade between Ruston Way and Downtown Tacoma.

Based on the results of the *Schuster Corridor Trail Project – Draft Final Memorandum* (February 14, 2013, Fehr & Peers), we anticipate an *additional* 217 daily bike trips to be served by the construction of the Schuster Promenade bicycle trail. These trips are on top of existing trips that use the Ruston trail, to which the Schuster Promenade would connect. In total, Fehr & Peers forecasted 385 total trips on the Shuster Promenade.

Based on this analysis, it is assumed that all 217 additional daily bike trips would be converted from auto trips. This total represents about 1% of the total vehicle trips on Shuster Parkway north of Downtown Tacoma. The assumed average trip length is 3 miles, which roughly represents a 15 minute bike ride and is consistent with the Federal Transit Administration's bike access analysis radius.

These 217 daily bike trips at 3 miles each results in a daily VMT reduction of 651 miles. Reductions in CO, PM, and CO₂ emissions were calculated using readily available emissions factors from the California Air Resources Board EMFAC 2011 model (source: *EMFAC 2011*, California Air Resources Board, San Francisco County 2012 Passenger Car and Light Truck Emissions Factor Table). The posted speed limit of 40 mph was assumed for the general travel speed for the trips that would have been made by autos.



Using these assumptions, the CO emissions factor is 2.04 grams per mile, the PM emissions factor is 0.004 grams per mile and the CO₂ emissions factor is 313.62 grams per mile. Multiplying these emissions factors by the reduced daily VMT of 651 miles yields the following results:

- Daily CO emissions reductions: **1.32 kg per day**
- Daily PM reductions: **2.6 grams per day** (0.002 kg per day)
- Daily CO₂ emissions reductions: **204 kg per day**