PORTLAND DPW FORMULA FOR CALCULATION OF VOLITILE ORGANIC COMPOUNDS (VOCs AND NITROGEN OXIDE (NOX) BY THE STEVENS AVENUE TRAFFIC CALMING PROJECT

Estimated impact on VOC emissions:

Estimated impact due to reduction in average travel speed:

Pre Project Average Speed of 35 mph = 2.3 grams/mile/vehicle

Post Project Average Speed of 21 mph = 2.9 grams/mile/vehicle

These emission factors were determined by averaging the MeDEP graphs for January and July.

Volume of traffic which would occur without the project:

11,382 AADT + 0 (pedestrian increase)+ 0(bicycle increase)= 11,382

Volume of traffic which is occurring with the project:

11,382 AADT

The base AADT traffic was taken as the same for both pre and post conditions to negate the influence of diverted trips. Trips diverted from Stevens Avenue which are estimated to be 1,252 vpd on average based on this study have reduced emissions on Stevens, but these emissions have been displaced to other areas resulting in no net improvement.

Pre Project VOC emissions:

13,193 vpd x 2.3 grams/mile/vehicle (35 mph) x 1.2 miles = 36,413 grams of VOC

Post Project VOC emissions:

11,382 vpd x 3.9 grams/mile/vehicle (21 mph) x 1.2 miles = 53,268 grams of VOC

Thus the project shows an increase in VOCs.

Estimated impact on **NOx emissions:**

Pre Project N Ox emissions:

13,193 vpd x 3.0 grams/mile/vehicle (35 mph) x 1.2 miles = 47,495 grams of NOx

Post Project NOx emissions:

11,382 vpd x 2.9 grams/mile/vehicle (21 mph) x 1.2 miles = 39,609 grams of NOx

Thus the project shows a decrease in NOx.

As previously pointed out, these estimates do not consider the potential effect of accelerating and braking associated with the raised crosswalks. A comparison of the speed profile through the project area for both pre project and post project conditions was previously discussed in this report under the speed discussion. Examination of this Figure shows that the overall speed along the corridor has decreased from pre to post conditions.