

Technical Memorandum Update

Appendix 4 Air Quality Assessment

Since the completion of the Air Quality Assessment Technical Memorandum in November 2006 (see Appendix 4 of the 2007 Approved Documented CE on attached CD), the proposed transit corridor has been modified along Segment E. Whereas the previous two-way transit alignment followed Clark and Bell Streets, the modified alignment is a one-way pair with southbound service along Clark and Bell Streets and northbound service along Crystal Drive between 26th Street and 15th Street. Note that the project alignment for the entire corridor is shown in Figure 1: Modified Alignment and CCPY Improvements (Appendix 1 of the current CE Update). Attachment Part A of the Documented CE Update document is a detailed description of the transit alignment in each segment.

Several regulatory changes have occurred related to new pollutant standards since the approval of the 2007 Documented CE. However, none of these changes affects the results of the original analysis. The recent regulatory changes include the following pollutant standards:

- Ozone (O₃)
 - The 8-hour standard was revised to 0.075 ppm (parts per million) from 0.08 ppm on May 27, 2008; and,
 - The 1-hour standard of 0.12 ppm was eliminated in all areas.
- Nitrogen Dioxide (NO₂)
 - A new 1-hour standard of 100 ppb (parts per billion) was added on April 12, 2010; and,
 - The official 8-hour standard remains unchanged at 0.053 ppm but may be documented as 53 ppb for a clearer comparison with the new 1-hour standard.
- Particulate Matter (PM_{2.5})
 - The 24-hour standard was revised to 35 µg/m³ from 65 µg/m³ on December 17, 2006.
- Particulate Matter (PM₁₀)
 - The annual standard of 50 µg/m³ was eliminated.

As shown in **Table 1**, the measured concentrations for local pollutants (such as CO and PM_{2.5}) in the vicinity of the project area (at the closest VDEQ monitoring station located South 18th and Hayes Street) demonstrate a downward trend between 2005 and 2008. Regional pollutants such as ozone, which are influenced from emission sources far outside the region, are less influenced by local changes in traffic.

Table 1: Recent Trend of Ambient Concentrations Monitored in the Vicinity of the Project

Year	Ozone (8-hour)	CO (8-hour)	PM _{2.5} (24-hour) ¹
2005	0.090	1.6	34.2
2006	0.097	2.3	32.5
2007	0.088	1.5	29.5
2008	0.093	1.1	23.4

¹Refers to the third maximum reported ambient concentration recorded for the PM_{2.5} 24-hour standard.

The attainment status for Arlington County has not changed since 2006 as the region is still in non-attainment for ozone and PM_{2.5}. The region also continues to be a maintenance area for CO due to violations before 1996.

For the original analysis, a hot spot analysis was conducted to determine maximum pollutant concentrations of carbon monoxide (CO) at the most congested intersections in the project study area. Based on this analysis, maximum 1- and 8-hour concentrations of CO were predicted to be well below the National Ambient Air Quality Standards (NAAQS) of 35 and 9 ppm, respectively. The hot spot analysis evaluated two intersections each in Arlington County and the City of Alexandria.

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The modified transit corridor will operate in Arlington County along a one-way route northbound along Crystal Drive. The updated traffic analysis indicates that several intersections are predicted to operate at level-of-service (LOS) D, E or F indicating potentially adverse air quality conditions. Since the LOS at these intersections are comparable or better than when previously analyzed, the results of the original hot spot analysis suggest that the pollutant concentrations from the new most-congested intersections would be comparable or lower than the most-congested intersections previously analyzed. For example, based on the recent downward trend of pollutant concentrations of CO, the background concentration in 2010 would also be lower than the background level used in the 2006 analysis resulting in even lower overall concentration levels.

The project is not expected to cause or exacerbate a violation of the applicable NAAQS as a result of the proposed modifications to the transit alignment. With respect to regional emissions and conformity, the project has been shown to conform to the SIP by not exceeding the NAAQS. No mitigation measures are necessary with respect to compliance with the transportation conformity requirements.