## APPENDIX L

**CARBON EMISSIONS ANALYSIS** 

Montgomery County enacted a law (Bill 32-07) in 2008 to require the formulation of a plan to stop increasing greenhouse gas (GHG) emissions by the year 2010 and reduce emissions to 20 percent of 2005 levels by the year 2050. A subsequent Montgomery County law (Bill 34-07) requires the Planning Board to estimate the carbon footprint of master plan recommendations and to make recommendations for carbon emissions reductions.

In June 2017, Montgomery County reaffirmed its commitment to meeting the goals of the 2016 Paris climate agreement. In addition, the county endorsed the goals of the Under 2° MOU, a memorandum of understanding signed by 12 jurisdictions in 2015. The county's action aims to reduce greenhouse gas emissions 80 to 95 percent below 1990 levels or limit emissions to less than two metric tons per capita by 2050 (Montgomery County Council Resolution 18-846).

In December 2017, Montgomery County adopted Resolution 18-974 to accelerate the county's efforts to decrease greenhouse gas emissions by committing to a reduction of 80 percent by 2027 and reaching 100 percent elimination by 2035. The resolution initiates large-scale efforts to remove excess carbon from the atmosphere. The primary emission of interest is carbon dioxide.

Planning Department staff evaluated the peak-hour carbon emissions reductions from vehicle transportation generated resulting from the implementation of the Bicycle Master Plan, compared against a no-build scenario in which the Bicycle Master Plan is not implemented. Vehicle miles traveled reduction estimates were converted to gallons of gasoline burned and carbon dioxide equivalent amounts (CO2e) based on factors used in the King County, Washington Greenhouse Gas Emissions Worksheet version 1.7. This model has been adapted by the Planning Department to estimate GHG emissions for its master plan work.

Based on this model, implementation of the Bicycle Master Plan over the next two decades will reduce vehicle miles traveled and the emissions associated with them. Staff estimates that total GHG emissions from vehicle transportation in Montgomery County will be reduced by approximately 1.5 to 2 percent per year by 2040, when compared to development without implementation of the Bicycle Master Plan.

While this small percentage may not seem like a significant reduction, every increment of GHG emissions reduction is crucial to meeting Montgomery County's overall carbon reduction commitments. The total calculated yearly reduction in emissions as a result of the implementation of the Bicycle Master Plan is between approximately 15,500 and 33,000 metric tons of CO2e, which is equivalent to removing between approximately 3,300 and 7,000 cars from the roads each year. Based on our technical judgment, we believe the reductions are closer to the higher end of the range.