Appendix 9 -- Greenhouse Gas Emissions

The City of Raleigh, City of Durham, Town of Chapel Hill, Town of Carrboro, Town of Cary, Durham County, and Orange County are members of the organization ICLEI Local Governments for Sustainability. As members, these jurisdictions have committed to reducing greenhouse gas emissions from their local government operations and in their communities. Many of the Triangle area ICLEI members have created greenhouse gas emission inventories and action plans for local government operations. Currently, the City of Durham and Durham County are the only local governments with an adopted community-wide action plan. The effort to reduce greenhouse gas emissions is currently a local effort. It is not required in the air quality conformity process. The modeling and analysis is completed separately from the air quality conformity analysis.

In September 2007, the City of Durham and Durham County completed an emissions inventory and adopted greenhouse gas emission reduction targets. One of Durham's targets is to reduce emissions by thirty percent from 2005 levels by 2030 from the community at-large. This emission target includes emissions from the transportation sector as well as the residential, commercial, industrial, and solid waste sectors. Achieving this target requires local, state, and federal actions.

The DCHC MPO used the traffic modeling results and ICLEI's Cities for Climate Protection software to create a comparison of greenhouse gas emissions from the transportation sector for the 2010 baseline year and the 2040 planning year for Durham County and the DCHC MPO. Then DCHC MPO staff isolated the emission reductions to be achieved using local action and used a methodology similar to Durham's adopted plan to set per capita emission targets for the 2040 MTP. The targets are shown below:

	Annual VMT	**Greenhouse Gases (tons equivalent CO2)**	**Per Capita Emissions (tons)**	**Percent Change from 2010 Baseline**
Durham County				
2010 Baseline	3,154,898,305	2,480,063	9.22	
2040 Projection (E+C)	5,108,838,570	4,042,424	9.35	+1.3%
Good			8.87	-3.8%
Better			8.45	-8.3%
Best			7.99	-13.4%
DCHC MPO				
2010 Baseline	4,824,405,750	3,887,090	9.63	
2040 Projection (E+C)	7,755,140,400	6,192,031	9.51	-1.2%
Good			9.03	-6.2%
Better			8.61	-10.7%
Best			8.13	-15.6%

Following development of the final MTP, DCHC MPO staff evaluated how well the plan achieved the above targets. The results are shown in the table below.

	Annual VMT	Greenhouse Gases (tons equivalent CO2)	Per Capita Emissions (tons)	Percent Change from 2010 Baseline
Durham County				
2040 Final MTP	5,132,557,000	4,023,306	9.30	+0.9%
DCHC MPO				
2040 Final MTP	7,733,557,585	6,165,851	9.47	-1.7%

While the analysis shows that the 2040 Metropolitan Transportation Plan does not meet our targeted reductions, the 2040 MTP does result in a decrease in per capita emissions as compared to the 2040 projection done using the existing plus committed network. Durham County's per capita emissions increase from 9.22 in 2010 to 9.30 in 2040. The existing plus committed projection for Durham County is 9.35. The DCHC MPO's per capita emissions decrease from 9.63 in 2010 to 9.47 in 2040. The existing plus committed projection for the DCHC MPO is 9.51. The DCHC MPO per capita figures show a decrease from 2010 to 2040. However, they do not meet the targeted reductions.

This analysis shows that the MPO is making progress towards greenhouse gas emission reductions, but needs to accelerate efforts to achieve our targets. Greenhouse gas emissions are highly dependent on vehicle miles traveled (VMT). Decreasing VMT could be done by increasing the use of public transportation, bicycle, and pedestrian modes, decreasing trip lengths, encouraging more compact development patterns, etc. Increasing fuel efficiency of vehicles and utilizing more alternative fuel vehicles could also help achieve our targets.