

**August 26, 2004****Memorandum**

To: TPB Technical Committee

From: Daivamani Sivasailam
Principal Transportation Engineer

Subject: Comparison of Mobile 6.2 vs. Mobile 6 emission rates

During the July TPB Technical Committee meeting staff presented comparison plots (see my memorandum dated June 29, 2004 to the Technical Committee) of analysis year 2005 Mobile 6.2 vs. Mobile 6 emissions rates and concluded they were identical for VOC and NO_x and lower for CO by about 16%. Since that time staff has prepared Mobile 6.2 rates for the remaining conformity analysis years (2015, 2025, and 2030) and performed similar comparisons.

Emissions Rate Comparison

The results of this emissions factor analysis are similar to the 2005 case. VOC and NO_x rates with M6.2 are nearly identical to the M6.0 rates, and CO rates drop noticeably. Exhibits 1 - 3 show these M6.0 vs. M6.2 comparisons for freeway running emissions rates, and Exhibits 4 - 6 show the comparisons for trip end emissions rates, using 2030 Montgomery County rates as a typical example.

In reviewing the output rates DTP and DEP staff identified some differences attributable to rounding of values for the VMT mix of the 28 vehicle types used in Mobile6. (The default VMT mix produced by the M6 model must reflect exogenous heavy duty truck percentages obtained from the travel demand model and applied for each mobile emissions milestone year; VMT mix for the 28 vehicle types must add up to 1.0000 or the Mobile model will not execute properly). This led to the development and use of a common method by DTP and DEP for rounding the percentages to ensure that VMT mix values add up to 1.0000 for all cases / jurisdictions.

Emissions Rate Trends Through Time

Exhibits 7 - 9 present VOC, NO_x and CO running emissions rates through time, again using Montgomery County rates as an example. The graphs identify significantly lower average emissions rates through time, which reflects the impacts of cleaner vehicles. Exhibits 10 - 12 show the same relationships for the trip end emissions components.

Next Steps

With the development and review of these Mobile6.2 rates, emissions factors are ready for application in the air quality conformity assessment.

Exhibits 1-12

Exhibit 1
TOTAL 2030 VOC COMPOSITE MOBILE6 RUNNING EMISSION
RATES FOR MONTGOMERY COUNTY
FREEWAY

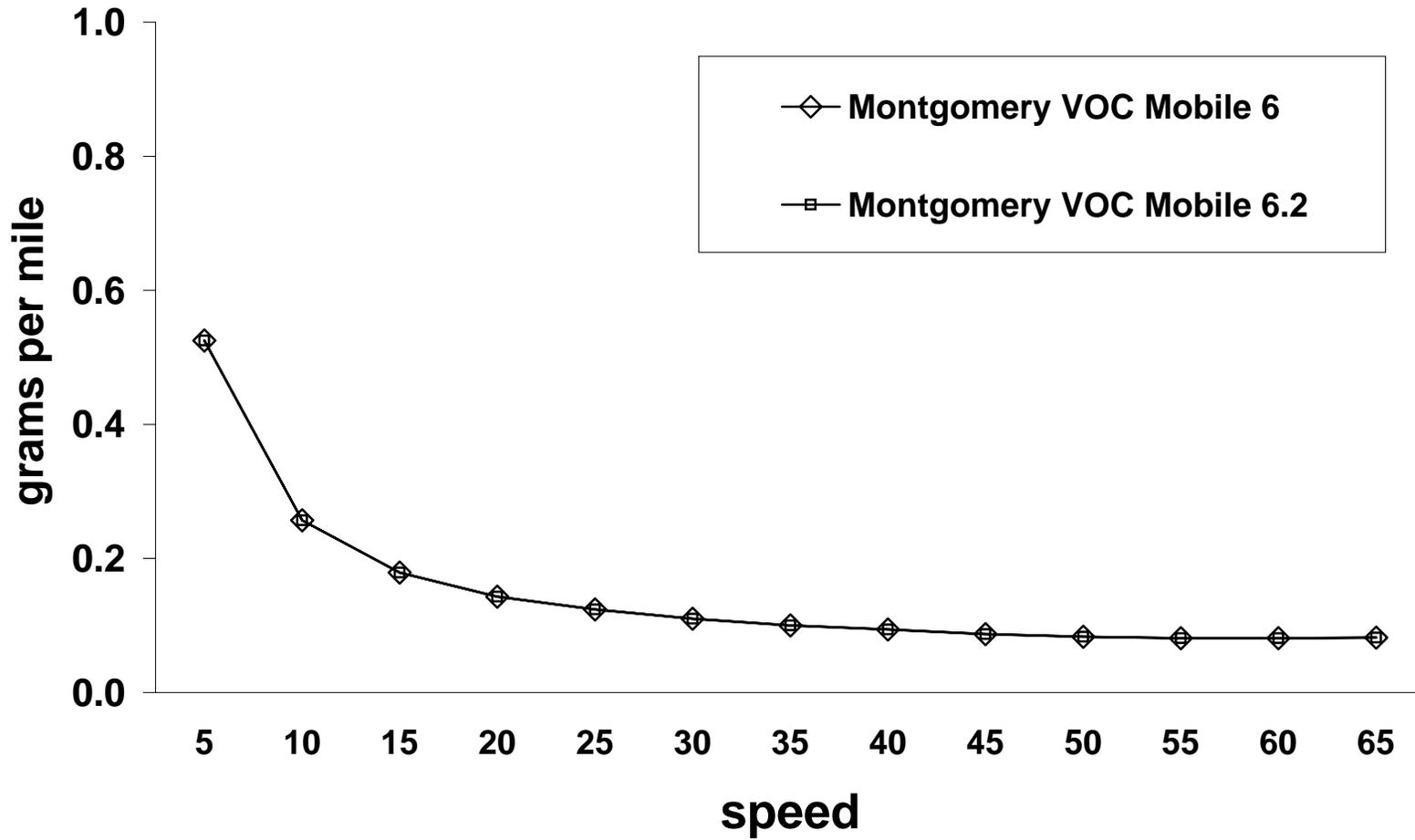


Exhibit 2
TOTAL 2030 NO_x COMPOSITE MOBILE6 RUNNING EMISSION
RATES FOR MONTGOMERY COUNTY
FREEWAY

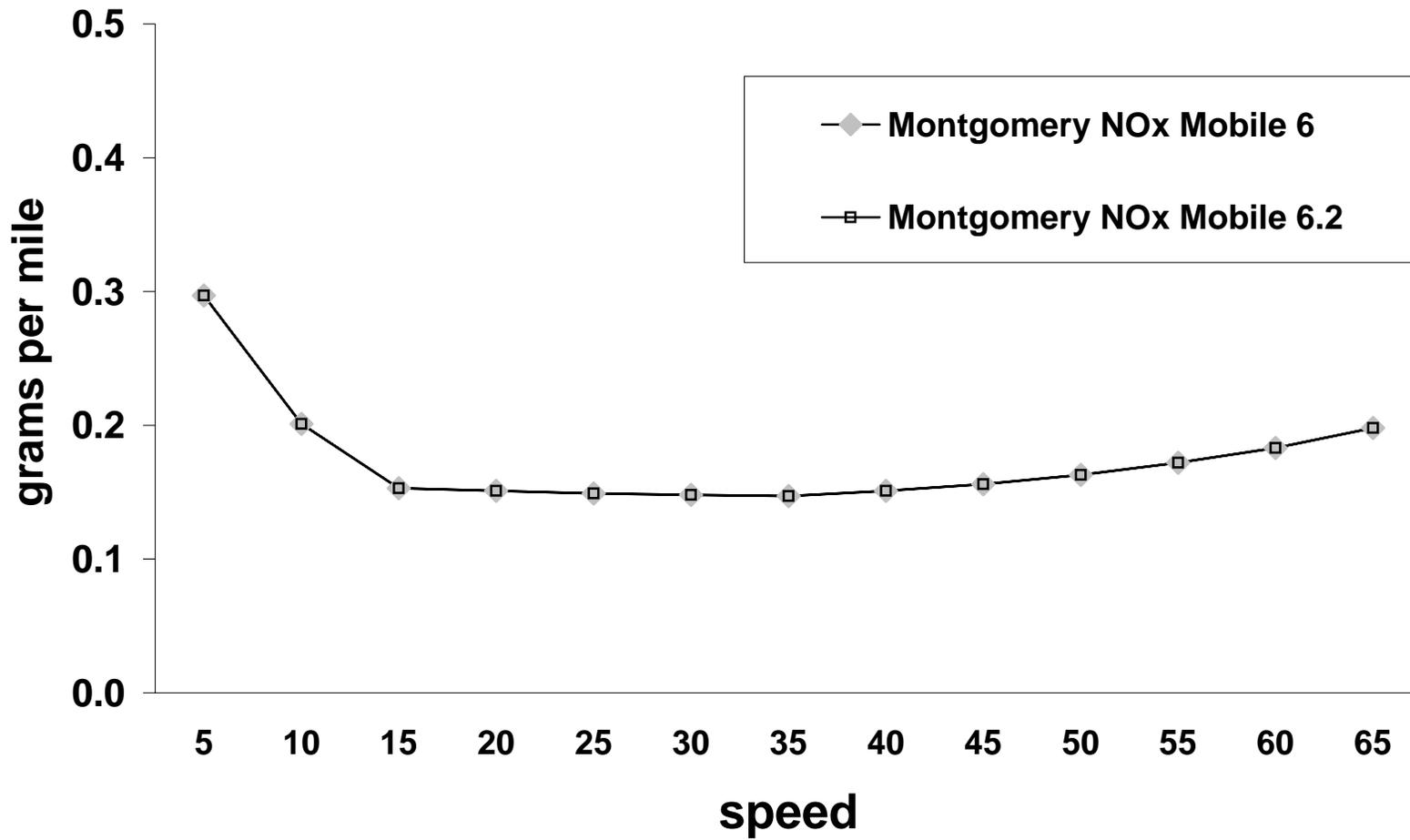


Exhibit 3
TOTAL 2030 CO COMPOSITE MOBILE6 RUNNING EMISSION
RATES FOR MONTGOMERY COUNTY
FREEWAY

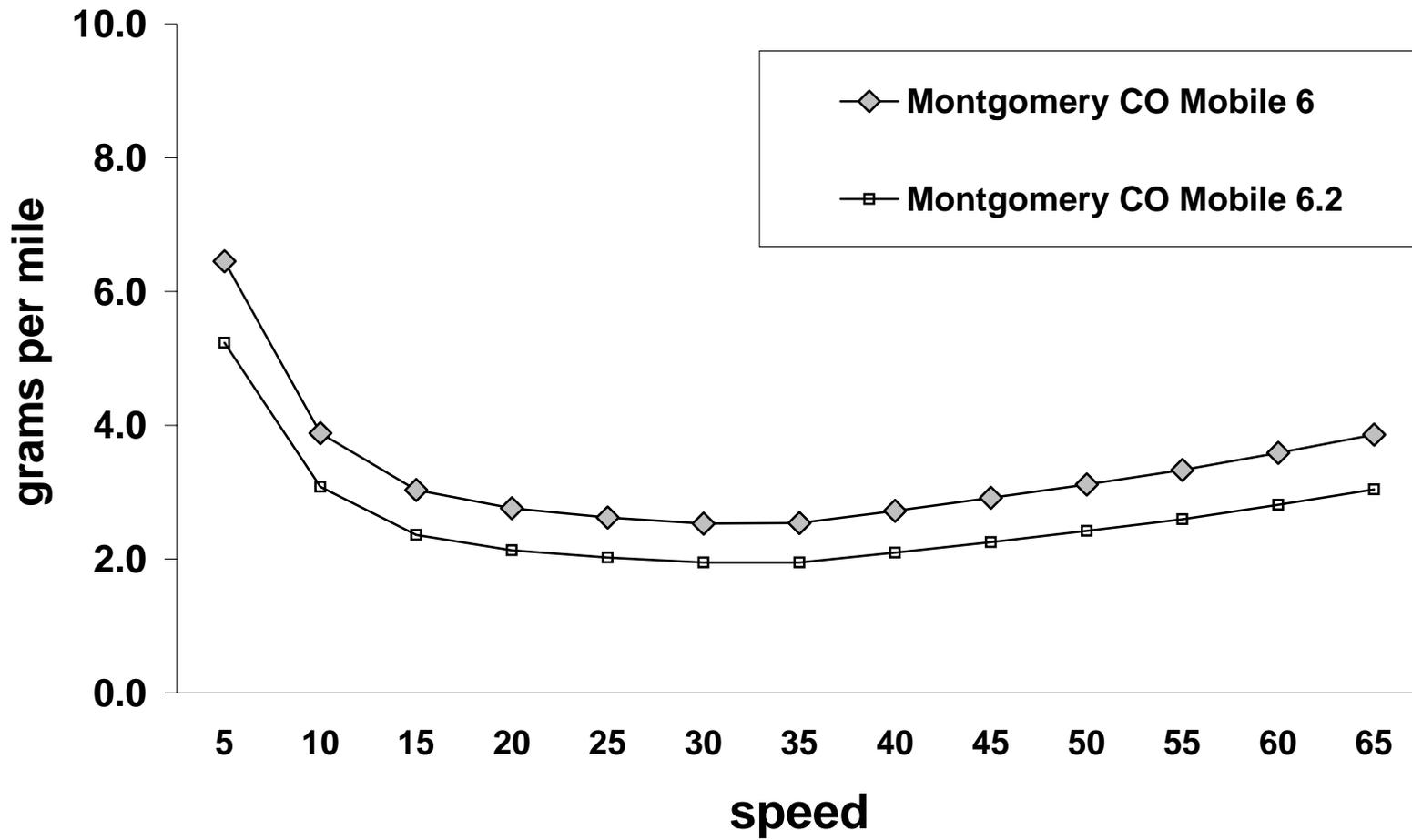


Exhibit 4
2030 MOBILE 6 VOC RATES
MONTGOMERY COUNTY

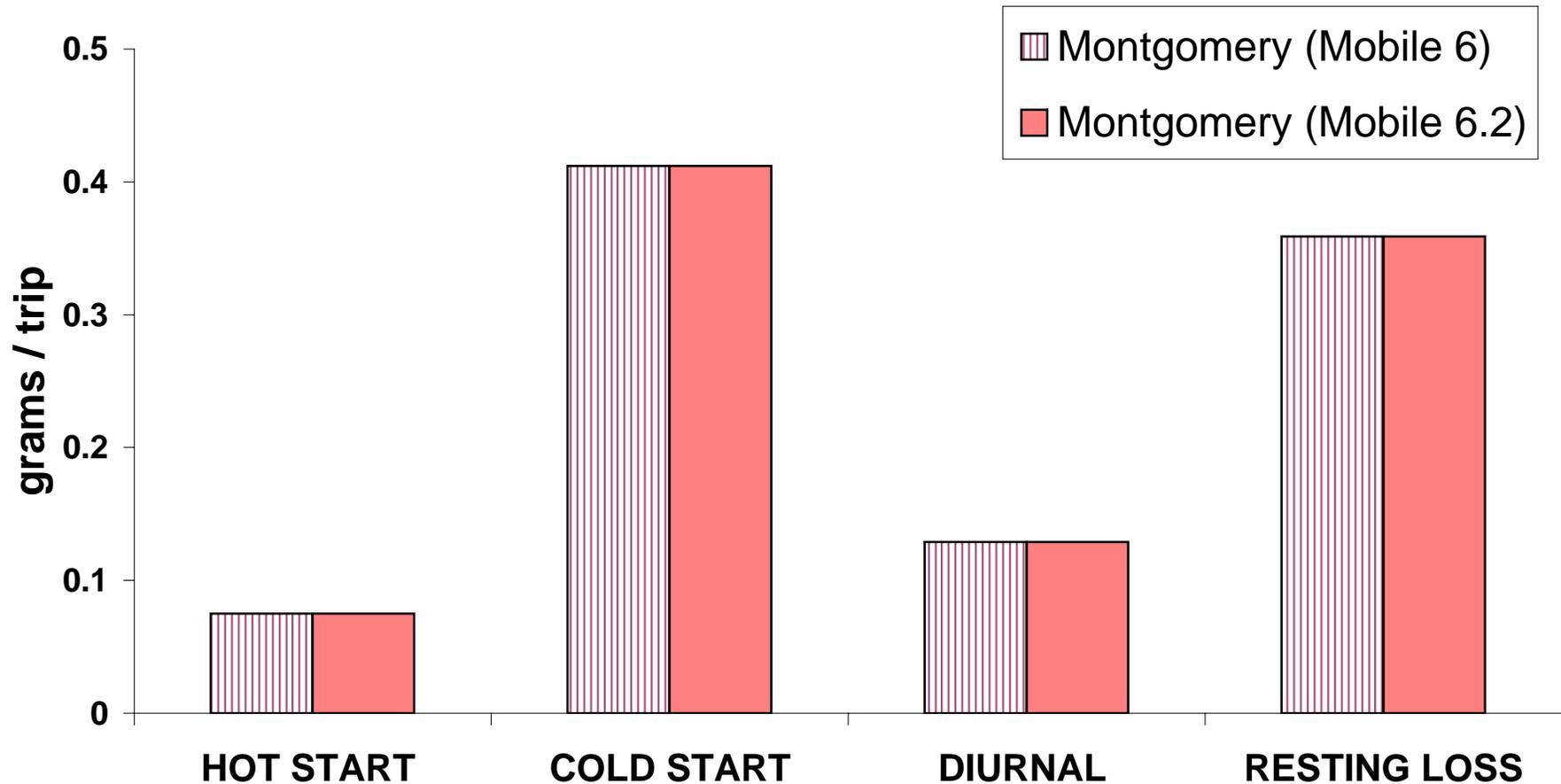


Exhibit 5 2030 MOBILE 6 NOx RATES MONTGOMERY COUNTY

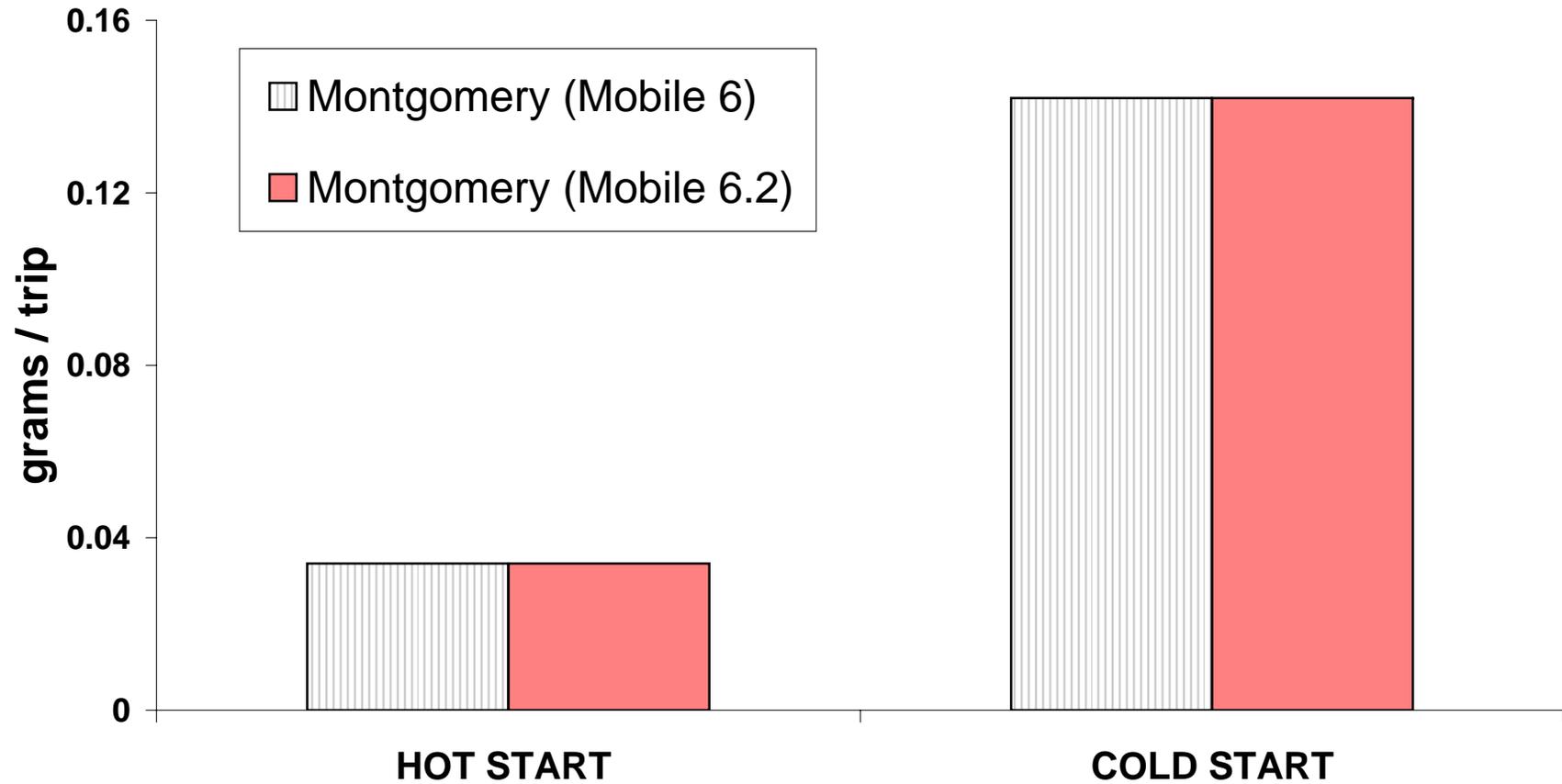


Exhibit 6
2030 MOBILE 6 CO RATES
MONTGOMERY COUNTY

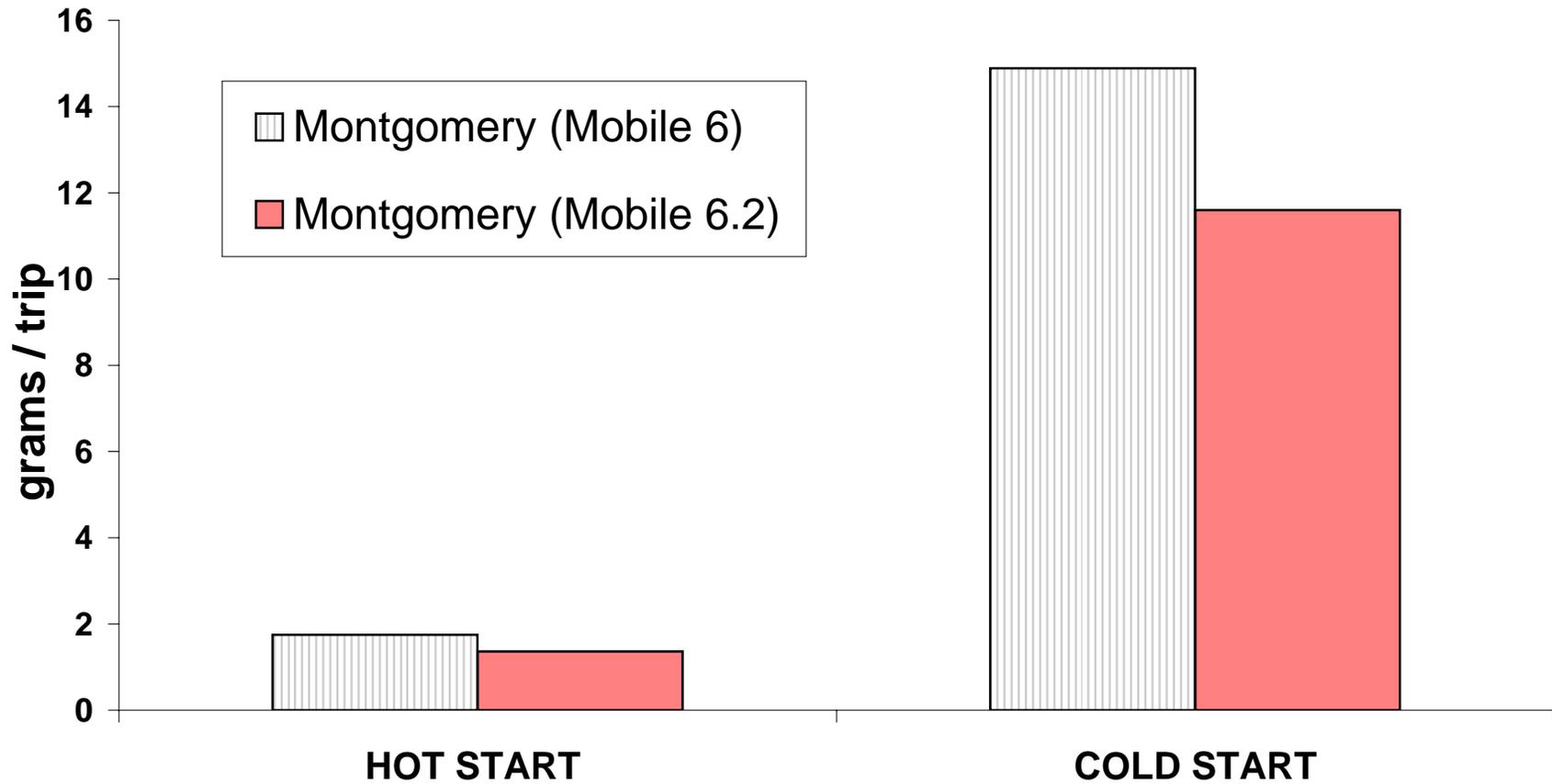


Exhibit 7
TOTAL 2000-30 VOC COMPOSITE MOBILE6 RUNNING
EMISSION RATES FOR MONTGOMERY COUNTY
FREEWAY

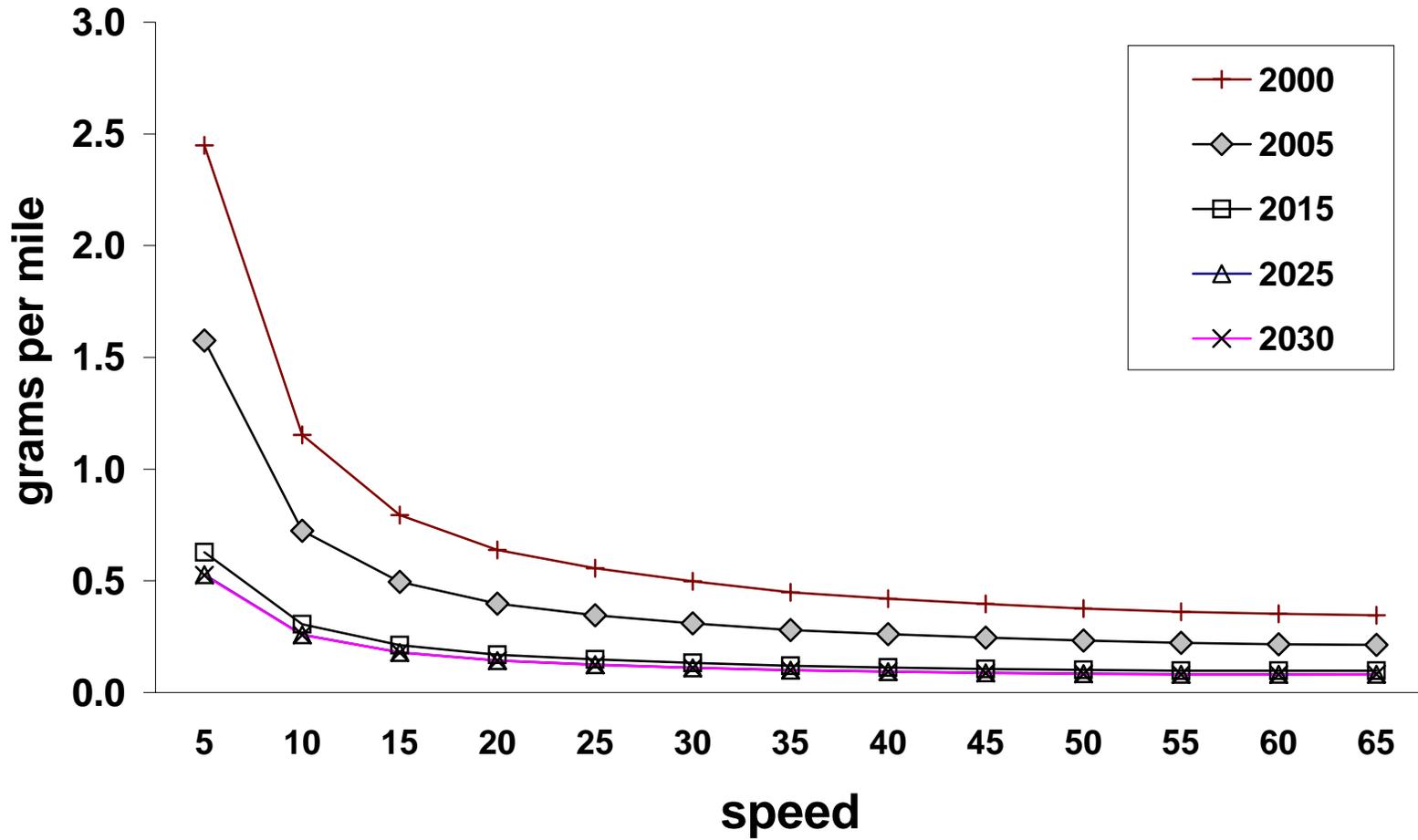


Exhibit 8
TOTAL 2000-30 NO_x COMPOSITE MOBILE6 RUNNING
EMISSION RATES FOR MONTGOMERY COUNTY
FREEWAY

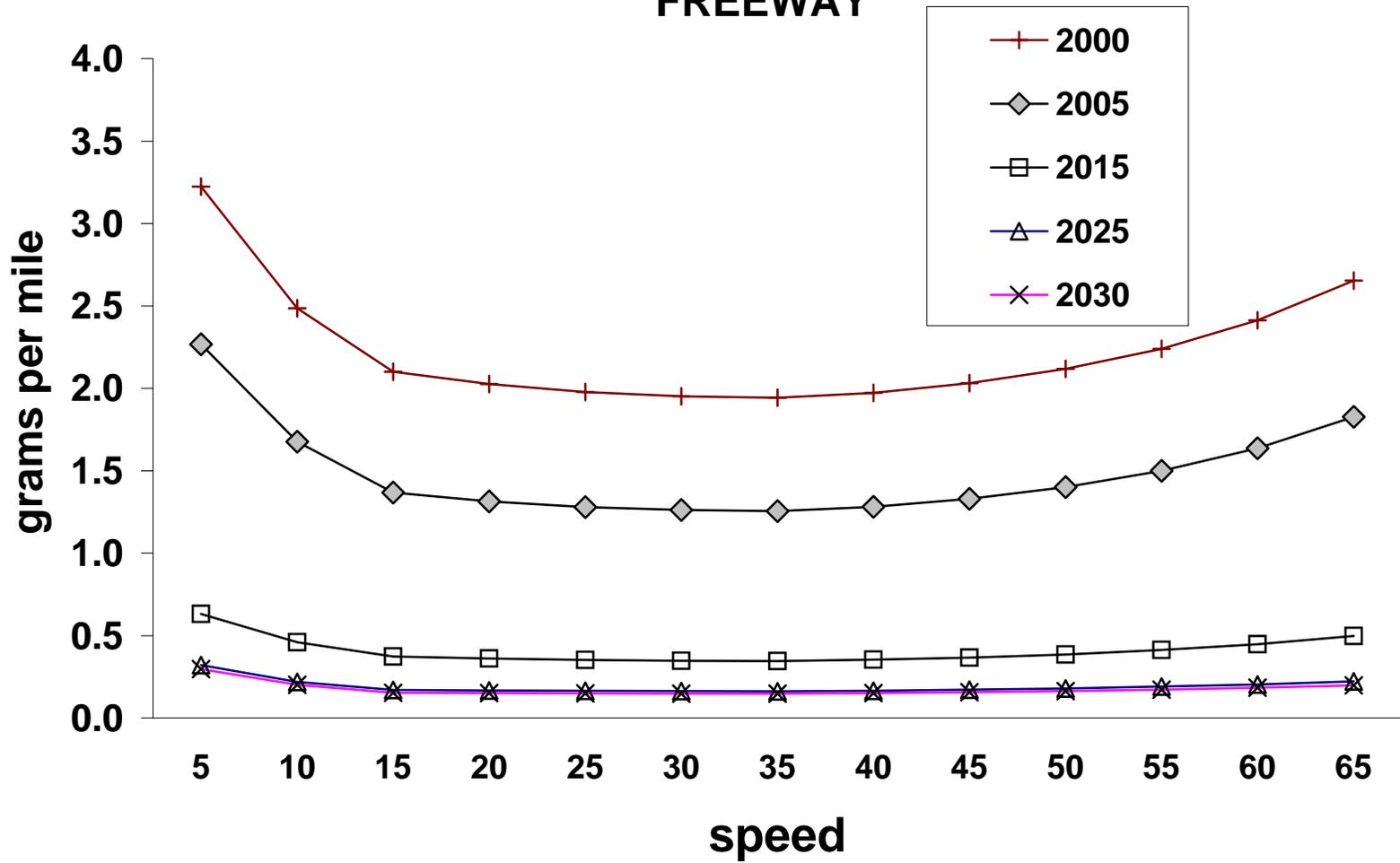


Exhibit 9
TOTAL 2000-30 CO COMPOSITE MOBILE6 RUNNING
EMISSION RATES FOR MONTGOMERY COUNTY
FREEWAY

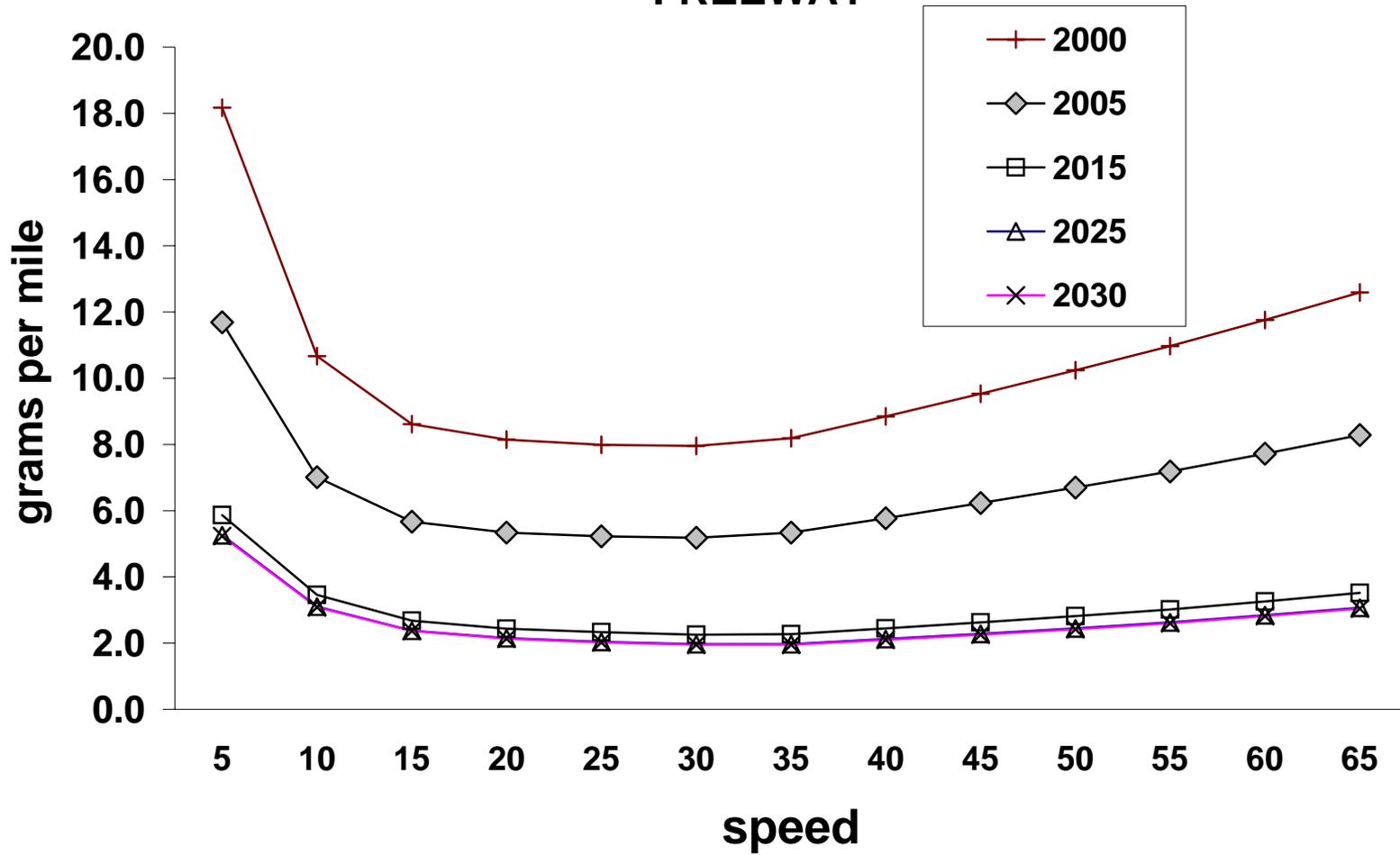


Exhibit 10

2000-30 MOBILE 6 VOC RATES

MONTGOMERY COUNTY

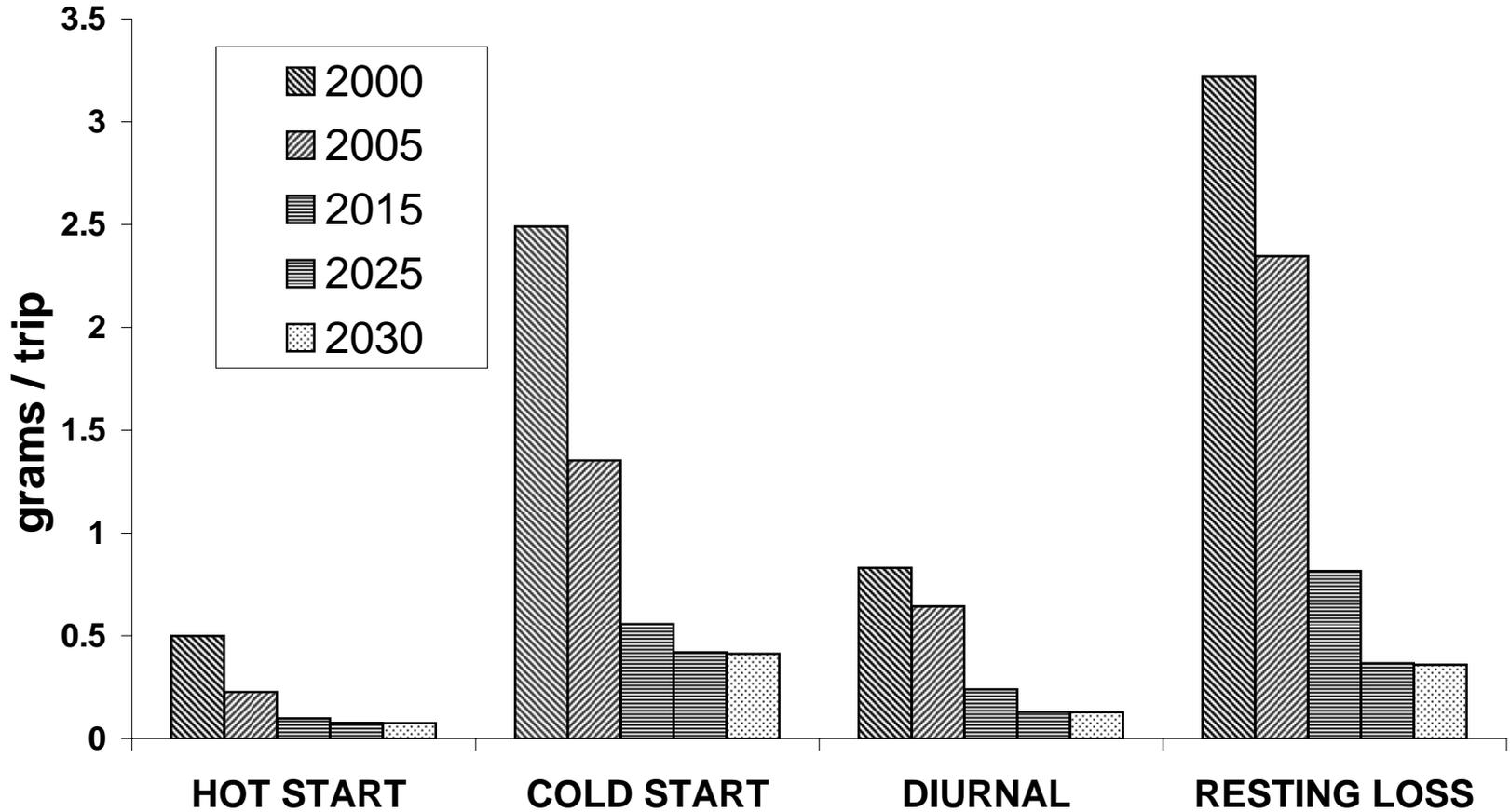


Exhibit 11
2000-30 MOBILE 6 NOx RATES
MONTGOMERY COUNTY

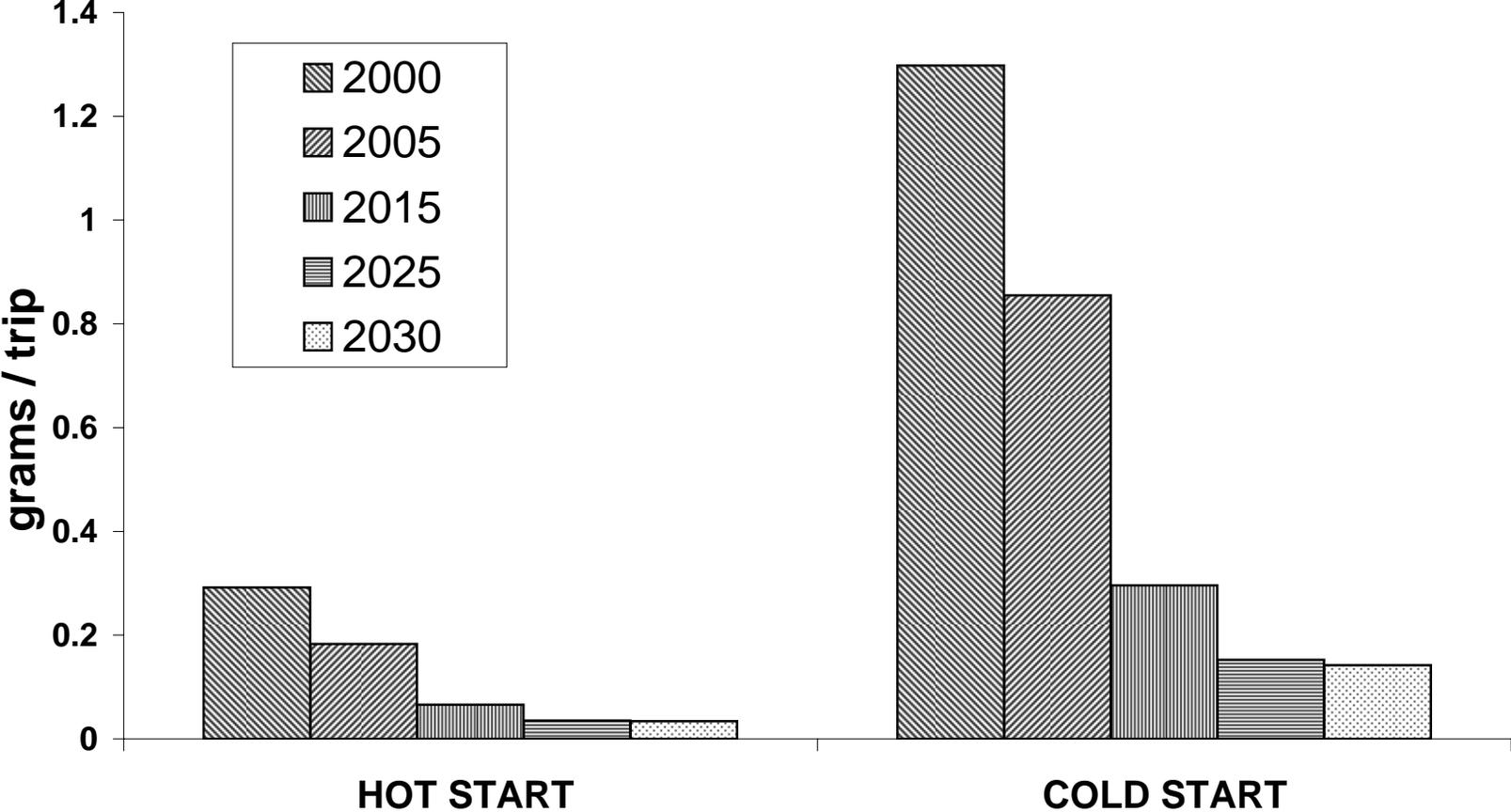


Exhibit 12

2000-30 MOBILE 6 CO RATES

MONTGOMERY COUNTY

