MEMORANDUM
November 18, 2010

To: Coordination of Cooperative Forecasting and Transportation Planning
              FY 2011 Project Files

From: Robert E. Griffiths,
              Technical Services Director, DTP

Subject: Creation of Round 8.0 Cooperative Forecasting TPB 3722 TAZ to 2191 TAZ
              Conversion Factors

The purpose of this memorandum is to document the methodology used to develop the conversion factors to translate the Round 8.0 Cooperative Forecast land activity data from the new 3722 TPB Transportation Analysis Zone (3722 TAZ) area system to the previous 2191 TPB Transportation Analysis Zone (2191 TAZ) area system.

There are 3669 internal TAZs in the new 3722 TAZ system and there are 1972 internal TAZs in the previous 2191 TAZ system. About 94% of the new 3669 internal TAZs are wholly contained within a boundary of a 2191 TAZ. About 6% of the new 3669 internal TAZs split the boundaries of two or more 2191 TAZs. (See Table 1)

The creation of the conversion factors to translate the Round 8.0 Cooperative Forecast land activity data from 3722 TAZs to 2191 TAZs was accomplished in several steps.

(1) First, household percent split conversion factors of 1.00 were assigned to the 3722 TAZs in the District of Columbia, Montgomery County, Prince George's County, Arlington County, City of the Alexandria, Fairfax County/Fairfax City/Falls Church, Loudoun County, Prince William County /Manassas/Manassas City, Frederick County/Fredrick City, Charles County, Calvert County, St Mary's County, Fauquier County, Clarke County, and Jefferson County, that were wholly contained with the geographic area of a 2191 TAZ. Household percent split conversion factors ranging between 0.0 and 1.0 were assigned to the 3722 TAZs in the District of Columbia, Montgomery County, Prince George's County, Arlington County, City of the Alexandria, Fairfax County/Fairfax City/Falls Church, Loudoun County, Prince William County /Manassas/Manassas City, Frederick County/Fredrick City, Charles County, Calvert County, St Mary's County, Fauquier County, Clarke County, and Jefferson County, that split the boundaries of two or more 2191 TAZs. The household percent split conversion factor assigned to each of the 3722 TAZs that split 2191 TAZs was determined from the proportion of 3722 TAZ households, from the 145,000 household address list developed for the 2007/2008 TPB Household Travel Survey, in each 2191 TAZ split. The household percent split conversion factors, as describe above, can be found in the **taz3722_to_taz2191_hh_pct_select_jur.csv** file.

(2) Second, employment percent split conversion factors of 1.00 were assigned to the 3722 TAZs in the District of Columbia, Montgomery County, Prince George's County, Arlington County, City of the Alexandria, Fairfax County/Fairfax City/Falls Church, Loudoun County, Prince William County /Manassas/Manassas City, Frederick County/Fredrick City, Charles

County, Calvert County, St Mary's County, Fauquier County, Clarke County, and Jefferson County, that were wholly contained with the geographic area of a 2191 TAZ. Employment percent split conversion factors ranging between 0.0 and 1.0 were assigned to the 3722 TAZs in the District of Columbia, Montgomery County, Prince George's County, Arlington County, City of the Alexandria, Fairfax County/Fairfax City/Falls Church, Loudoun County, Prince William County /Manassas/Manassas City, Frederick County/Fredrick City, Charles County, Calvert County, St Mary's County, Fauquier County, Clarke County, and Jefferson County, that split the boundaries of two or more 2191 TAZs. The employment percent split conversion factor assigned to each of the 3722 TAZs that split 2191 TAZs was determined from the proportion of 3722 TAZ employment, from the 430,000 records in the Dunn & Bradstreet 2007 employment file, in each 2191 TAZ split. The employment percent split conversion factors can be found in the t**az3722_to_taz2191_emp_pct_select_jur.csv** file.

(3) Third, for the Baltimore Metropolitan Council (BMC) jurisdictions of Anne Arundel, Howard and Carroll Counties direct conversion factors from BMC TAZs to TPB 2191 TAZs were used to translate BMC Cooperative Forecasts to TPB 2191 TAZs, as done for previous Rounds of the COG Cooperative Forecasting in developing 2191 TAZ data for the portion of the TPB Modeled Area that overlaps with the Baltimore region. Generally, TPB 2191 TAZs are simply aggregations of BMC TAZs, but there are about 10 BMC TAZs that split TPB 2191 TAZs. The direct conversion factors from BMC TAZs to TPB 2191 TAZs can be found in **BMC_to_2191.csv file**. The same conversion factors in this file are used to translate households, household population, group quarters population and employment from BMC TAZs to TPB 2191 TAZs.

(4) Next, for the George Washington Regional Council (GWRC) jurisdictions of Stafford, City of Fredericksburg, Spotsylvania, and King George County direct conversion factors from GWRC TAZs to TPB 2191 TAZs were used to translate the latest adopted GWRC Cooperative Forecasts to TPB 2191 TAZs, as done for previous Rounds of the COG Cooperative Forecasting in developing 2191 TAZ data for the portion of the TPB Modeled Area that overlaps with the Fredericksburg Area Metropolitan Planning Organization (FAMPO) planning area. All GWRC TAZs can be aggregated to TPB 2191 TAZs in this portion of the TPB Modeled Area., so there are no 2191 TAZ splits. The direct conversion factors from GWRC TAZs to TPB 2191 TAZs can be found in **GWRC_to_2191.csv file**.

(5) Next, household percent split conversion factors in the **taz3722_to_taz2191_hh_pct_select_jur.csv** file are to be applied to COG Round 8.0 Cooperative Forecasting household, household population, and group quarter population data by TPB 3722 TAZs to translate these data to the 2191 TAZs. For group quarter population data that are in split 2191 TAZs, a series of if/then override statements are applied to recode the group population to the actual 2191 TAZ the group quarter facility is located. The if/then group quarter override statements can be found in **gqs_split_overrides.txt** file.

(6) Next, employment percent split conversion factors in the **taz3722_to_taz2191_emp_pct_select_jur.csv** file are to be applied to COG Round 8.0 Cooperative Forecasting employment data by TPB 3722 TAZs to translate these data to the 2191 TAZs. The same employment percent split conversion factors are applied to each employment type.

(7) Next, BMC TAZs to TPB 2191 TAZs conversion factors are to be applied to the latest adopted BMC Cooperative Forecast household, household population, group quarter population and employment data by BMC TAZ.

(8) Next, GWRC TAZs to TPB 2191 TAZs conversion factors are to be applied to the latest adopted GWRC Cooperative Forecast household, household population, group quarter population and employment data by GWRC TAZ.

(9) Next, after all the appropriate conversion factors have been applied, the Cooperative Forecasting Data is totaled and aggregated by 2191 TAZs.

(10) Lastly, control total checks need to be run to ensure that overall Cooperative Forecasts data totals for all 2191 TAZs match overall totals by 3722 TAZs.

The Table 1 provides a listing of the percent of TPB 3722 TAZs with split two or more 2191 TAZ splits.

Table 1

Jurisdictions with Some TAZ3722 to TAZ191 Splits	3722 TAZ Count (# of TAZs)	100% in Old 2191 (# of TAZs)	Percent with 100% of Area in Old 2191	Percent with 3722 to 2191 TAZ Splits
District of Columbia	393	389	99%	1%
Montgomery County	376	323	86%	14%
Prince Georges County	635	586	92%	8%
Arlington County	141	139	99%	1%
City of Alexandria	65	62	95%	5%
Fairfax County/Cities	549	533	97%	3%
Loudoun County	282	228	81%	19%
Prince William County/Cities	376	362	96%	4%
Frederick County/City	130	110	85%	15%
Charles County	113	108	96%	4%
Calvert County	47	44	94%	6%
St Mary's County	75	73	97%	3%
Fauquier County	50	47	94%	6%
Clarke County	9	9	100%	0%
Jefferson County	13	13	100%	0%
TAZ3722 to TAZ2191 - Sub-Total	3254	3026	93%	7%
BMC TAZ to 2191	224	214	96%	4%
GWRC TAZ to 2191	191	191	100%	0%
Total	3669	3431	94%	6%