**ARC’s Activity-Based Model Development and Implementation**

In preparation for The Region’s Plan major update in the end of 2015, ARC switched from its 4-step trip-based aggregate regional travel demand model to its newly developed, and recently calibrated disaggregate activity-based model (ABM). The ABM now serves as the major travel forecasting tool in the ARC region. This model has been developed to ensure that the regional transportation planning process can rely on forecasting tools that will be adequate for new socioeconomic environments and emerging planning challenges. It is equally suitable for conventional highway projects, transit projects, and various policy studies such as highway pricing and HOV / HOT analysis. The ARC ABM is based on the CT-RAMP (Coordinated Travel Regional Activity-Based Modeling Platform) family of Activity-Based Models. This model system is an advanced, but operational, ABM that fits the needs and planning processes of ARC.

The ABM has been tailored specifically to meet ARC planning needs, considering current and future projects and policies and also taking into account the special market segments that exist in the Atlanta region. The model system addresses requirements of the metropolitan planning process, relevant federal requirements, and provides support to ARC member agencies and other stakeholders.

The ABM has been calibrated to the year 2010, with some 2015 interim validations and benchmarking. The roadway network represent the current conditions on the ground in the region as of 2015. Future model years rely on the existing project listings prepared by ARC for use in long-range transportation planning. All projects determined by the Interagency Coordination Committee to be regionally significant are directly included in the ABM networks. Other roadways are accounted for through local travel links (centroid connectors) and through vehicle miles traveled (VMT) adjustment factors applied to the modeled output. These adjustments feed directly into the emissions modeling process.

Likewise, the transit network represents the existing transit system in the Atlanta region as of 2015. Transit routes are updated to reflect current operating plans by regional transit providers. Transit modeling is calibrated to data from ARC’s regional Transit On-Board Survey conducted in 2009-2010. Like with roadways, all future year transit networks are built off the planned programs and projects in the ARC regional plan. Fares are based on information provided by local operators. The base year for transit fares is 2010. Future fares are adjusted using the consumer price index.

For model scenarios before the year 2015, ARC staff back casted projects and socio-economic data prior to model runs. These steps ensure that the model accurately reflects existing conditions prior to its 2015 initialization.