TECHNICAL MEMORANDUM

To: CCITS Coordinating Group

From: Chuck Dankocsik, TransCore

Subject: ITS Interconnects and Data Flows

Date: June 6th, 2006

One of the key components of an ITS architecture is the definition of the system interconnections and the associated data flows. The system interconnects describe which systems (from the ITS inventory) will be linked with each other (who's talking with whom) while the data flows describe what information is actually being passed between them (and what's being said) – the (planned and existing) integration of ITS systems.

Interconnections and data flows are so related that they are managed on the same form in Turbo. When Turbo is used to "build" the interconnections for tailoring, it is in fact generating the data flows at the same time. Further, you can create (or delete) interconnections by creating one or more (or deleting all) data flows between systems.

There is also an implementation status defined for both interconnects and data flows. The status options are the same as elsewhere in the architecture (Existing, Planned, or Programmed). You cannot directly change the status of the interconnects since they are based upon the status of their underlying (and included) data flows. It is possible that there are multiple types of data flow statuses for the same interconnection (depending upon the implementation stages of each data flow). If there are any existing data flows, the status of the interconnect should be existing.

Also, interconnections are "directionless" – two systems may be interconnected, but as far as the interconnection is concerned, it is irrelevant in what direction(s) the communications are occurring. However, direction and content are very important for the data flows. For example, for a CCTV system feeding images to a website, these systems would be included as an interconnection even though the data flow would probably just be a video feed from the CCTV to the website (and nothing in the return direction).

The National ITS Architecture includes a large set of pre-defined data flows based upon the ITS element's subsystem assignments and Market Package associations. In addition to these, new data flows can be defined if needed.

The actual tailoring process involves identifying all potential and existing ITS system interconnections and including them in the architecture. Once these are identified, the applicable data flows are included and the status for each flow is defined.

Generally, interconnections (and data flows) are within the same architecture. That is, most ITS elements that are going to be integrated have the same scope – an Agency TMC will manage its signal system or a Next Bus arrival system is linked to the local transit service. These types of interconnects (and data flows) are included under the local County project architecture.

However, not all interconnections (and data flows) are this localized. For example, that same transit bus may accept a smart card from another transit Agency in another County. These types of interconnects (and data flows) are described in the Regionally significant ITS architecture.

The CCITS Interconnections and Data Flows Reports (posted on the CCITS project website at: http://www.iteris.com/ccits-admin/html/deliverables.html by MPO) presents the Interconnections and Data Flows (respectively) for the various CCITS Agencies included in the specific MPO architecture. Each report is sorted by ITS element. (These reports are not the standard Turbo reports.)

The interconnect reports present, for each ITS element in the MPO database, a list of each system that that element is or will be connected to. The Data Flow report also presents what data is being passed and its associated implementation status.