

## THE IVHS NATIONAL ARCHITECTURE DEVELOPMENT PHASE II

This paper describes the major features and timing of the second phase of the national IVHS system development activity.

Phase I of the architecture development involved four contractor teams, each of which developed competing initial architectures and preliminary evaluations. Phase II will involve one or more of these Phase I teams, whose efforts will be directed towards developing a single national IVHS architecture.

A national IVHS architecture is being developed to become the vehicle of agreement among all of the key IVHS stakeholders. As such, this agreement on architecture will become the basis for reducing the risk for buyers, sellers and other stakeholders in the national IVHS marketplace. In addition, the architecture will form the framework for ensuring national compatibility, which was a key requirement of the ISTEA Act. The IVHS architecture program is top-down in nature in that it addresses national goals and nationally applicable user services. From these, logical, physical and architecture implementations are then developed. The architecture, though, is not a USDOT architecture. The architecture is owned by the stakeholders. Both the development, the review, and the decisions are driven by the stakeholder concerns, not those of USDOT. This is appropriate because the implementation of the architecture will take place from the bottom-up. Implementation will be based upon decision made by transportation jurisdictions across the United States. IVHS technologies will have to compete with other transportation needs at this local level.

The purpose of Phase II is to complete the work begun in Phase I and to develop a single national consensus architecture. That architecture must represent a consensus agreement of those participating in the Phase II architecture development. As such, it will be a synthesis of the best of the ideas of the candidate architectures developed between Phase I and Phase II. A national consensus architecture must have the agreements of not only the architecture developers but all of the affected parties and key stakeholders. As such, continuous stakeholder participation is a key hallmark of Phase II's architecture development strategy. Within Phase II, all of the program reviews will be open session with all contract teams and other invited individuals present. It is expected that representatives of key stakeholder organizations will be invited to participate at these reviews. Within Phase II, there are a variety of stakeholder participation approaches. The actual development of the national consensus architecture will be done in a sequence of working meetings and technical workshops. These will be topic and issue oriented. Key stakeholders, involved with each of these issues, will be invited to participate with the architecture development teams. As the national architecture develops within phase II, this approach will ensure that the developing architecture is sensitive

to the needs of the stakeholder community, and secondly, that the stakeholder community understands the nature of the developing architecture. In addition to these meetings, the involvement methods of Phase I will also continue. These include meetings and presentations to the IVHS America Committee and Committee Chairman, meetings with the IVHS Architecture Development Consensus Task Force, and two series of regional meetings and forums across the nation.

Implementation and implementation planning is a key feature of the Phase II architecture development. The implementation of IVHS will take place in individual jurisdictions and regions across the United States. USDOT will not be the implementor of IVHS. However, USDOT can assist the implementation by planning activities and provision of information which can reduce the market risk of those entering into IVHS decisions. The focus on reducing risk is in four areas: (1) deployment planning support, (2) operational test, (3) research and development, (4) and standards. Within Phase II, there are four major sets of activities that the contract teams will be performing. The first is completing the work on the Phase I architecture which they had proposed and in reviewing the other three teams' architectures. It is expected that the result of that will be an updated new position on a proposed architecture which incorporates many of the strong points of the other architectures. The second major activity is the reaching of agreements on key points. This activity will be facilitated by USDOT's architecture manager. The teams will have reviewed the architectures that they and the others hold and have identified where the architectures are substantively the same, and where there are true differences. After this identification, the areas where issues need to be resolved will be identified and prioritized. Working groups will then focus on each of these issues, one at a time, for the purposes of seeking resolution or synthesis. It is within these working groups that stakeholders and other external parties will be actively involved. The third major activity is the convening of stakeholder groups to assist in resolution. It is felt that some of the issues will not be easily resolvable among the participating teams. These issues will have results which are tangible in terms of architecture implementations. These tangible results affect stakeholder groups in different ways. It will be the position of the affected stakeholder groups that will be used to assist in the final resolution of these remaining issues. The final area is documentation. One team will be responsible for creating the final documentation. This does not mean that one team will have its architecture selected over the other. At this time within Phase II, we will have already achieved a consensus on an architecture and that one team will be performing only the documentation function.

In terms of the schedule of events within Phase II, these activities previously mentioned will occur as follows. Between the date of contract award expected to be sometime in early February of calendar year '95, and the first In Progress Review (IPR) the architecture development teams will complete the definition of their proposed architectures. Each team will be producing independent deliverables but they would be reviewed by the other team. Between IPR I and IPR II the teams will participate with the USDOT architecture team in a set of working group meetings to synthesize the separate architecture elements

towards a single IVHS architecture. By IPR 2, it is expected that there will only be a limited number of items for which there will not be consensus. This is the time that the stakeholders will be involved to assist in resolving these few remaining items. Beginning with the FPR, the teams jointly will produce one set of final documentation reflecting the national architecture. Finally, there will be a national architecture review approximately seventeen months into the activity.