

## ASSIGNMENT 3

### REGIONAL OPERATION PLANNING AND ARCHITECTURE (ROPA)

#### GROUP PROJECT

#### STAGE 1

#### GETTING SMART ABOUT REGIONAL OPERATIONS PLANNING AND ARCHITECTURE (ROPA)

We will have three teams as shown below, on ROPA in three different regions.

Mexico City

Boston

Seattle

Attached is a general (non-region specific) reading resource list. Before you panic, everyone does **not** have to read everything (although I won't object if you do). There are several readings that everyone *does* have to read, marked with "#".

So, meet in your groups and split up the readings equitably.

Stage 1 involves you writing a group summary of the resource documents, due Friday, April 22.

Nominal Scale - 10 pages of reading = 1/2 page of summary

## STAGE ONE

### READINGS FOR GROUP PROJECT

#### REGIONAL OPERATIONS PLANNING AND ARCHITECTURE (ROPA)

APRIL 13, 2005

#### REGIONAL ARCHITECTURE

- \*\* 1. Daniel Rodríguez and Joseph Sussman, "Framework for Developing a Regional System Architecture for Intelligent Transportation Systems", *Transportation Research Record 1588*, National Academy Press, Washington, DC, 1997. (9)
- \* 2. Robert Parsons, "Issues in Developing and Implementing the National ITS Architecture", Chapter 19 in *Intelligent Transportation Primer*, Institute of Transportation Engineers, Washington, DC, 2000. (18) #
- \* 3. Joseph Sussman, "Regional ITS Architecture Consistency: What Should It Mean?", *Perspectives on Intelligent Transportation*, Springer, 2005: 153-156. (4)
- \*\* 4. Ian Nuttall, "Smart Neighbors: When Information Sharing Is Better than Information Control", *Traffic Technology International*, Feb/Mar 1997.
- \*\* 5. Joseph Sussman, "A Tale of Three Metropolitan Regions: Their Mobility Philosophies and 'Regional Architectures'", Interim Memo for the Mobility - ReS/SITE Research Group, Massachusetts Institute of Technology, Cambridge, MA, June 1999. (5) #
- \*\* 6. Christopher Conklin and Joseph Sussman, "Regional Architectures, Regional Strategic Transportation Planning and Organizational Strategies", ITS America 2000 Annual Meeting, Boston, MA, May 2000. (17)

## OPERATIONS/REGIONS

- \* 7. Joseph Sussman, "Transportation Operations: An Organizational and Institutional Perspective", *Perspectives on Intelligent Transportation*, Springer, 2005: 21-74. (53)
- \*\* 8. Valerie Briggs, "Operations in a Regional Transportation Organization Environment", *ITE Journal*, January 2001. (4) #
- \* 9. Joseph Sussman, "ITS Deployment and the 'Competitive Region'", *Perspectives on Intelligent Transportation*, Springer, 2005: 83-86. (4) #
- \* 10. "Regional Transportation Operations Collaboration and Coordination: A Primer for Working Together to Improve Transportation Safety, Reliability, and Security", FHWA, U.S. DOT, Washington, DC. (38)

## INSTITUTIONS/ORGANIZATIONS

- \*\* 11. Stephen C. Lockwood, "Systems Management and Operation: A Culture Shock", *ITE* 2005. (13)
- \* 12. Allan J. DeBlasio, "What Have We Learned About Cross-Cutting Institutional Issues?", Chapter 8 in "What Have We Learned About Intelligent Transportation Systems?", U.S. Department of Transportation, Washington, DC, 2000. (19)
- \*\*\*13. Jonathan L. Gifford and Odd J. Stalebrink, "Congestion and Its Discontents", George Mason University, November 2004. (15)
- \*\* 14. Alex Taft, "The Metropolitan Planning Organization (MPO) Role in Management & Operations", An Association of Metropolitan Planning Organizations (AMPO) White Paper, August 2001. (24)
- \*\* 15. Jonathan L. Gifford and Danilo Pelletiere, "New Regional Transportation Organizations", *Transportation Research Record 1812*, Transportation Research Board, Washington, DC, 2002. (6) #

## ITS AND PLANNING

- \* 16. James A. Bunch, "ITS and the Planning Process", Chapter 26 in *Intelligent Transportation Primer*, Institute of Transportation Engineers, Washington, DC, 2000. (57)

## ASSIGNMENT 3

### STAGE 2

#### APPLYING YOUR ROPA KNOWLEDGE TO YOUR REGIONS (MEXICO CITY, BOSTON, AND SEATTLE RESPECTIVELY)

Collectively, in stage one, each group has read all the general material and all members of your team have read the central papers. In Stage 2, you will apply this collective ROPA knowledge to your region's architecture and ITS plan. In addition to the Stage 1 reading, in Stage 2, we are providing you with some additional reading specific to your region (see attached package). Read as needed to support your efforts.

Here the assignments for the three regions diverge in that Boston and Seattle have developed ITS architectures and plans, while Mexico City has not.

The Stage 1 "Readings for Group Project" present a number of ways of thinking about the architecture. I give you substantial leeway in which one(s) of those to select as the basis of your work.

Phase 1 is written purposely very flexibly and is intended to give you a substantial amount of "wiggle room" in the way you respond. The correct response to this question does not begin with coming to me and asking, "what do you really want us to do on this part of the assignment?"

#### **Phase 1 - Boston and Seattle**

The first phase of stage 2 for Boston and Seattle asks those groups to respond to the following question.

Your region has particular characteristics -- economic, political, social, geographic, size, demographics, and so forth. And your region has, explicitly or implicitly, a vision for its future. That vision relates to the transportation system in general and to its plans for ITS in particular. Discuss how effectively the ITS architecture and plans relate to the region's vision and its characteristics and what improvements you would suggest.

## Phase 1 - Mexico City

The first phase of Stage 2 for the Mexico City group asks that group to do an **initial concept** for the ITS architecture and plan, considering the physical and institutional issues facing the MCMA.

**All** three groups should consider the following issues:

1. Institutional Change. As a region considers what to do in ITS and the architecture it will use, two fundamental strategies emerge. One involves using the existing organizations in the region as the basis for deploying ITS, which may also include changing the functionality of some of these organizations somewhat.

The other strategy involves developing new organizations (or perhaps a single new organization) to play a special role within the ITS context in the region. For the Mexico City group, this is a decision you have to make as you do the preliminary structuring of your architecture. For the Boston and Seattle groups, consider the decision that was made and critique it.

2. Scale -- the scale at which one plans, manages, and operates a transportation system has become more important with the advent of ITS technologies. We now have the ability to manage transportation at a much broader geographic scale than we had prior to the ITS era but there are myriad institutional problems with creating a structure that allows us to do that.

This is an issue of relevance in each of the three regions. In Mexico City, there is the question of the relationship between the Federal District and the State of Mexico and whether it is possible to manage across that boundary at the full scale of the MCMA. In Massachusetts, the decision was made to create four architectures for the Commonwealth as opposed to one statewide architecture (or possibly more than four regional architectures within the Commonwealth). In Seattle, - the architecture covers 4 counties and numerous population centers, including Seattle, Tacoma, and Bremerton and the border with Canada is nearby. Consider this issue of scale explicitly in your report, in a manner relevant to your region.

In addition, in Phase 1 the two U.S. groups should respond to the following questions (after all, you had an architecture to begin with!).

**Seattle & Boston Only** -- Part of your reading package for the group project is entitled “FHWA Rule on ITS Architecture and Standards”. This sets out the federal rules to which various regions in the United States must conform in order for their architecture to be consistent with the national ITS architecture, a necessary condition to receiving federal funds. Do you think these rules are helpful when one thinks of the goal of deploying ITS regionally but in a way that establishes national consistency for the ITS program. How might you have changed these rules in order to make them more effective to achieve that goal, as well as other goals for national ITS deployment that you might think are appropriate?

See my column in “Perspectives on ITS” entitled, “Regional ITS Architecture Consistency: What Should It Mean”.

**Seattle Only** -- “Ensor” Model -- Jeff Ensor has created a computerized model for identifying the best ways for a region to deploy Transportation Demand Management in general and congestion pricing in particular. Using his model requires you to categorize your region as well as the goals it hopes to achieve through transportation demand management/congestion pricing. Use the Ensor model as a tool to help you identify the most appropriate pricing strategies for Seattle’s highways, and integrate those findings into your report.

**Boston Only** -- Governor Romney recently published an extensive transportation strategy for the Commonwealth. It makes modest mention of ITS and virtually no mention of the ITS architecture. Remedy this flaw in Governor Romney’s plan by writing a section, in the style of that transportation plan, linking it to the concept of the various commonwealth architectures.

## Stage 2 - Phase 2

This phase is comprised of four questions

You will be expected to choose two of these:

1. Your first resource lecture for the group project was given by Josh McConnell. He discussed “providing flexibility” in transportation system design through ITS. Describe how the ITS approach allows the provision of flexibility in your region.

2. In Tom Horan’s resource lecture, he discussed the concept of “customer-centric transportation” as central to the provision of effective transportation services. Describe how the architecture (or proposed architecture) integrates the view of the customer into the design of the transportation system.

3. In “Perspectives on Intelligent Transportation Systems”, section 4 has a set of columns written on various ITS topics. These columns were intended to be short (about 750 words) opinion pieces relating to various aspects in ITS. They are supposed to be short and to the point and “punchy” in style.

Put yourself in the shoes of the manager of “public transportation” in your region and write a “column” of about 750 words intended to be published in the local newspaper with your views from the perspective of your agency on the ITS deployment in your region.

4. Accessibility vs. Mobility -- Professor Jonathan Gifford raised the question of the distinction between mobility, which is the ability to go anywhere in the region at relatively free flow speeds at any time. We know that this is an unachievable goal; nonetheless the interstate system was built around that fundamental premise. Accessibility relates land use more directly to transportation. If one considers accessibility as the driving force, and specifically concern ourselves with high-density residential and commercial development, congestion may be less important because distances are short.

Discuss how your region, through ITS, addresses the concerns of accessibility and mobility and the relative weight given to them.

### STAGE 3

#### **REPORT PREPARATION AND PRESENTATION.**

To calibrate you on the magnitude of the output, I am looking for a 12-page report, plus a PowerPoint presentation of 30 minutes in duration, to be given on May 11, the last day of class. We are planning to go over by perhaps an hour on that day. I believe that will cause a conflict for several of you (1.202, etc.). Please check in with me if you can't stay until 5 pm on that day, so I can plan around it. Thanks. (This is a make-up for the class we cancelled in February).

Good luck!