Session #12

INCORPORATING IMPLEMENTATION OF ITS TECHNOLOGIES INTO LOCAL PLANNING PROCESSES

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ABSTRACT

What is the prevailing level of understanding of ITS methods, technology and benefits within communities about to become the recipient of those technologies? Given that the average citizen, as well as the average user, knows little of the beneficial aspects of ITS technology, what is the best way to approach informing private citizens, as well as potential system users?

Develop an organized process for promoting integration of ITS technologies and methodologies into existing, and future, border-related planning and project development activities. The process should include both public and private entities with interests at the Western Washington border with British Columbia, Canada.

Complete the necessary steps to update the region's Metropolitan and Regional Transportation Plans to include the ITS concept, potential applications, and implications for the region.

Develop a set of tools to educate the public about value-added aspects of avoiding costs of facility construction through the use of technology.

And, finally, Review Washington State Growth Management Act (GMA) comprehensive plans of the region's jurisdictions and recommend, where appropriate, adding language to identify the advantages and rationale of incorporating ITS options and benefits into those plans.

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In December, 1996 FHWA sponsored a symposium: *Linking Regional Planning and Operations For Effective ITS Deployment*. The intent of the symposium was to formulate recommendations for future research, and develop policy, legislation, and administrative actions to be considered in the interest of implementing ITS in a regional setting. The symposium also addressed how to best incorporate ITS deployment into standard regional and /or statewide planning procedures, processes and practices. Additionally, there was attention to "important linkages between regional transportation planning and operations of proposed and existing systems to enhance interagency and interjurisdictional information sharing."

Findings of the symposium included the following:

- A significant gulf exists between the traditional planning process and ITS deployment.
- ITS deployment initiatives offer opportunities to recast the planning and operations relationship.
- ITS is one of many developments that fundamentally affect how surface transportation systems are planned, managed, and financed.
- ITS and other developments will challenge regions and Metropolitan Planning Organizations (MPOs) to reinvent their process, and to better define the roles of planning and operating agencies.

Peter Briglia, project manager for the Washington State Department of Transportation Advanced Technology Branch, admits that "It's hard for a lot of us who built careers laying concrete and asphalt to just sort of give up and not believe that we can still build our way out of these problems." His statement provides insight into the very essence of why implementing ITS technologies, particularly in medium and small sized areas, may be more difficult than one would imagine.

Just as Mr. Briglia finds difficulty in giving up old perceptions, the public finds accommodating new technological advances even more daunting. Pete Briglia leads an effort in Washington State to implement ITS technology yet he, too, reflects the reluctance with which we leave familiar patterns behind. Philosophically speaking, there are two non-technical impediments to human acceptance of implementation of ITS technologies. The first is fear and suspicion associated with activity monitoring, fear of technology itself, and fear of some involuntary authoritarian control of the American driving habit that we have so clearly demonstrated a reluctance to give up. Some call this phenomenon the "Big Brother" syndrome.

The second is uncertainty that implementing ITS technology is the best use for public funds. The fact that technological advancement comes at a cost is not lost to most citizens. Whether it is worth the investment may well be a bigger question in the minds of citizens in more rural areas. Incorporating ITS implementation into local planning processes in a meaningful way will require a broad education and marketing process aimed at the perceptions of the audience. Many of us

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rely on computers and other technology every day. We should not lose sight of the fact that only 40% of U.S. households have computers.

Generally ITS technology provides choices, saves time, reduces congestion and pollution, and makes both passenger and freight operations flow more smoothly in a number of ways. Information enables shippers to make modal choices, enables manufacturers to make inventory decisions, and enables border enforcement agencies to reduce time spent per visitor and make decisions regarding candidates for additional scrutiny. ITS technology allows improved and more efficient traffic management, traffic controls, vehicle safety, enables vehicle location, provides route guidance and substantial other driver information. ITS promotes equity across modes by enabling both commercial and passenger car access to system efficiencies and congestion avoidance. The benefits of ITS technology are well-understood by professionals with involvement in the many facets of intelligent transportation systems.

The much more difficult task, however, is to create a shift in the way transportation infrastructure and operational decisions are made at the local level, and change the way potential transportation solutions are viewed.

At the local level, every transportation decision should be considered in the light of how ITS or other technologies might offer economies and/or efficiencies. Theoretically, every state, county, and municipality should filter their transportation decisions through all possible ITS/technological solutions prior to making commitments for expenditure of hard-won traditional transportation dollars.

In some cases, it is possible to completely avoid infrastructure development or improvement costs by using ITS technology. Traditional roadway improvements, such as queuing lanes, capacity improvements, and turning lanes may be replaced by early warning through highway information systems, timed release of shipments and freeway on-ramp metering. These relatively low-cost investments have potential to accomplish the same net result as infrastructure-based capacity improvement. Some projects may benefit from a blend of traditional roadway engineering and ITS technology. Revised traditional thinking and methods that include preliminary assessments of ITS viability for projects, on a case-by-case basis, can lead to significant benefits.

Short- and long-range transportation plans of all a region's agencies should include reference to the cost savings and efficiencies offered through implementation of ITS technologies. Regional and metropolitan transportation plans as well as land use plans and transportation improvement programs (TIPs) should contain references to ITS technology and its benefits, require preliminary assessments of applicability, and call for implementation where use of the technology is found feasible and economical. Regional planning agencies, such as councils of government, regional transportation councils, metropolitan transportation organizations, and other similar coordinating bodies should work with states, counties, cities and ports to review existing plans of local jurisdictions. Plans should be reviewed to ensure they include references and preferences for inclusion of ITS technologies wherever and whenever feasible and desirable. They should develop guidance regarding the planning, integration, deployment, and continuing operational support of ITS at the local level.

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Often, ITS is not represented as an option within the range of other transportation strategies and programs. This has resulted in a lack of information and clarity at the local level as to the potential long term benefits of ITS. ITS does fit in with other transportation projects and programs.

Three principal contexts are described in the ITS Handbook for ITS planning. Within that overall process are transportation improvement programs (TIPs), corridor, and sub-area plans. Additionally, however, statewide planning efforts such as those required under the growth management act of any state, as well as bi-national planing efforts should include these same provisions for consideration of IT technologies. The transportation plan prepared for a state or metropolitan area is a comprehensive, coordinated look at transportation requirements extending over at least a 20-year period. Corridor and sub-area transportation studies, including major investment studies and environmental studies relate to specific areal issues and offer opportunities for inclusion of technology assessment. Additionally, many decisions on appropriate transportation strategies are made at the corridor/sub-area level. Strategic assessments of ITS have been given various names in certain states or metropolitan areas, such as ITS strategic planning efforts, ITS strategic studies, or ITS early deployment planning studies.

For the Whatcom region these plans are characterized by multiple layers of plans and documents created through several separate and discreet planning efforts, all involving separate public involvement processes.

1991 Growth Management Act Comprehensive Plan Transportation Element

Under a 1991 Washington State Growth Management Act, rapidly growing and populous counties, along with their cities, are required to develop multi-element plans preparing for that growth. These “Comprehensive Plans” are to be written while accommodating early and frequent public participation while meeting goals of eliminating sprawl, protecting the natural environment, and providing adequate infrastructure to support growth. Comprehensive Plans must consist of specific chapters addressing the goals of the act. Among these requirements is a specific transportation chapter, or “element.” Transportation considerations required for the plan include consistency with the land use chapter; and additionally, facility and service needs such as existing facilities, level of service (LOS) standards, actions needed to meet LOS standards, traffic forecasts, and most significantly for this treatise, identification of system expansion needs and transportation system management needs to meet both current and future demands.

The 1991 Washington State Growth Management Act (GMA) has been challenged through every available venue including civil suits from both opponents and those finding fault with adequacy of GMA planning. Three Growth Management Hearings Boards, East, West, and Central Puget Sound, have reviewed submitted plans and found a full range of compliance from complete to nil. Whatcom County recently prevailed in a Washington State Supreme Court suit against the Western Growth Management Hearings Board where the court found determinations made by the board to be inappropriate. Through all the strife invoked by the GMA planning requirements;

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transportation aspects of planning seemed to be least problematic. Regional Transportation Plans (RTPs) have been written and adopted, and accepted by the State.

These GMA Comprehensive Plan chapters, however, contain little reference to ITS. Further, the GMA itself, while alluding to demand management strategies, such as "increased public transportation service, ride sharing programs, demand management, and other transportation systems management strategies," does not directly address utilization of ITS in any way. This rather amazing short-coming is most likely the result of the newness of ITS technologies. Many of the methodologies and efficiencies included under the ITS umbrella are not any newer than Washington State growth management legislation. This is an unfortunate oversight. While retrospect is so often clear, more complete and effective plans would have resulted from including ITS evaluation as part of all new or large-scale construction or preservation project actions.

County and city comprehensive plan transportation chapters should be reviewed and where appropriate revisions made to accommodate assessment of ITS technologies.

Metropolitan Transportation Plan

The Intermodal Transportation Efficiency Act of 1991 establishes requirements for transportation planning by Metropolitan Planning Organizations (MPOs) including developing a Metropolitan Transportation Plan. A set of sixteen planning factors must be addressed within the plan. TEA-21, the Transportation Equity Act for the Twenty First Century, reduced the planning factors that must be addressed down to seven. Each of these pertinent factors, however should meet a technology test in that ITS should be considered as an alternative wherever and whenerver feasible.

Regional Transportation Plan, and local Transportation Improvement Programs

The Regional Transportation Plan, required as part of the planning activities associated with the Washington State Growth Management Act consists of a set of Guiding Principles and Policies to lead jurisdictions through transportation decision-making processes. The RTP should be reviewed for incorporation of ITS technology assessment.

There are roadblocks to incorporating such sweeping changes into planning and operational processes at the local level. Incorporating ITS technologies into traditional transportation thinking must occur at several levels before it can begin to realize its true efficiencies and cost savings potential. Education efforts should begin with agency (jurisdictional including state) interests. Those applying, or evaluating ITS technologies as a substitute for construction must believe in the effectiveness of replacing asphalt with technological efficiencies. Next in order are those that make and enforce jurisdictional policy. This would include the state legislature, county commissioners and council members, and city council members.

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In most parts of the country, constrained budgets are more the norm than the exception. In testament to today's environment of minimizing taxes and opposition to new or added taxation, those agencies responsible for moving people and goods generally face considerable public scrutiny to maintain tight budgets. At least in the near future, lean times can be expected to continue if not increase. One way to trim transportation costs, while serving accumulating needs is to evaluate ITS technology as an alternative to more traditional types of transportation fixes.

Education is the key to successful broad-based application of Intelligent Transportation Systems. No economically- or politically-formulated transportation decision should be made without considering economies offered by ITS. The contemporary municipal atmosphere is charged with public opinion. Informing and educating the public about ITS can strongly affect transportation outcomes and the efficacy of implementing smart versus asphalt solutions.

The public should be educated, students should be educated, and educators should be informed. Educational goals should include a fundamental understanding of the intrinsic value of ITS technology, for a broad range of interests,

Actions should be taken to inform and educate.

Jurisdictions must communicate with other agencies using and applying technology, and publicize cost-saving attributes of that technology.

According to the Federal Highway Administration's Office of Traffic Management and ITS Applications, ITS is "the application of advanced sensor, computer, electronics, and communication technologies and management strategies - in an integrated manner – to increase the safety and efficiency of the surface transportation system."

The fundamental basis for future use of ITS technologies will be in how well they are received by users including passenger cars and commercial vehicle operations. For passenger operations, convenience, time savings, security, economics, and safety are among the most compelling reasons to find the use of ITS technologies desirable. Commercial vehicle operators, and drivers, have many of the same concerns, but economics is arguably the most often-cited reason for supporting ITS. Overall transportation system efficiency, safety and reduced time spent on regulatory issues are among the more important motivators for commercial operators. Commercial vehicle operations incur administrative burdens at a cost of $5 billion every year for the private sector alone. ITS technology offers solutions to all these negative aspects of travel for both people and goods.

ITS is structured around a set of " user services." There are currently about 30 user services defined for the ITS program. The purpose of defining user services is to relate ITS strategies (ITS projects and programs such as automatic vehicle location systems for transit) and technologies (hardware and software used to implement strategies) to specific user needs. User services represent a customer orientation rather than a facility or technology orientation. One of the difficulties with incorporating ITS into the planning process is that, often, ITS has been

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represented as merely a collection of support technologies rather than a set of transportation strategies with specific objectives. Achieving public understanding of the benefits of ITS, its practicality and the everyday applicability of its benefits is a necessary component of public education.

Public education must consider that there are appreciable differences in the perception of the public based on their age or "generation." For purposes of discussion, the population of any given region may be divided into five groups or generations, each with its own character:

- Generation one is 75-80 years old. It's your mom or your grandma to whom technology is all a black box; mysterious and remote. She just does not get it and does not want to get it. She does, however, admire those who do.

- Generation two is 53-58 years old and is deeply and firmly ensconced in his professional life. He is afraid of, and perhaps embarrassed by, his lack of understanding of technology. He either just gets by, has expended effort to learn, or avoids technology all together. Like others unwilling to change, the analog addict finds excuses in unending supply. He has huge anxiety, is conservative, and is not in favor of technological solutions.

- Generation three is 31-36 years old and soaked in technology; understands it, uses it, wants it, needs it, and does not understand a world without it. Dr. DOS.

- Generation four is 9 to 14 years old. Almost any technology is a pop tart springing out of the toaster… its automatic, it's a convenience store with a key board, a natural part of life, a given.

- Generation five is 8 or less and destined to be the recipient of what happens today. These digital descendants will inherit the good, the bad, and the ugly. Our efforts today to build smart and fully use technology will pay dividends for this generation.

All the five generations must be treated and educated differently regarding the benefits, advantages, and "whys" of ITS technology.

The approach for educating the public must be tuned to the audience ("generation") and include recognizable advantages. This may be accomplished through the use of an audio-visual, multi-media "road show," along with more conservative presentation styles. Presentations will be made to any audiences available through service organizations, business clubs, unions, and other organized entities. Again, the program must be adjusted for the audience. The goal of these presentations is to inform a broad spectrum of the local public about the benefits of ITS technology in ways that make sense to them. Well informed citizens provide better input at public hearings.

The next phase of education is more difficult. Institutional education for local and state legislators with emphasis to local elected officials requires substantial effort. Most transportation plans referenced earlier in this paper require, in some form, approval or adoption by local elected

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officials. Their clear understanding of ITS principles is a necessary predecessor of informed votes. Educating the users, at all levels is the key to effective and efficient integration of ITS technologies into local planning processes.

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