



Gouvernement du Québec  
Ministère des  
Transports

# COMPTE RENDU

4<sup>E</sup> RENCONTRE ANNUELLE DE

*IVHS AMERICA*

17-20 AVRIL 1994

ATLANTA, GEORGIE

PAR

ANDRÉ ARÈS

CHEF DU SERVICE DE LA COORDINATION DE LA RECHERCHE

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le 13 mai 1994

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# TABLE DES MATIÈRES

1.	Introduction .....	1
2.	ISTEA: Le catalyseur du développement SIVR America .....	2
3.	Le programme de développement d'une architecture SIVR .....	4
4.	Priorité à l'implantation des systèmes .....	7

## ANNEXES

- A. Programme des sessions et des communications techniques
- B. Liste des exposants
- C. Documentations diverses
- D. Liste de projets SIVR aux États-Unis

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## 1. INTRODUCTION

Je suis très heureux d'avoir été désigné par le ministère des Transports du Québec pour le représenter à la 4<sup>e</sup> rencontre annuelle de *IVHS AMERICA* qui a eu lieu du 17 au 20 avril 1994 à Atlanta, Georgie.

Mon rôle à cette rencontre a consisté à me rendre compte de l'état d'avancement des systèmes intelligents véhicules-routes en Amérique d'abord, et également par comparaison en Europe et au Japon. Il aurait été présomptueux de ma part de tenter de rendre compte des détails techniques de plus de 300 communications réparties en 60 sessions différentes. On trouvera en annexe la liste des communications présentées alors que les textes détaillés de celles-ci seront disponibles au Centre de documentation du Ministère pour toute personne intéressée.

Sous la pression de l'approche SIVR, les systèmes de transport des personnes et des marchandises sont engagés dans un processus de transformation en profondeur et rapide qui améliorera de façon radicale la qualité et la productivité des services, optimisera le rendement au plan de la sécurité, de l'environnement et de l'énergie et finalement procurera à l'économie un potentiel concurrentiel essentiel dans le cadre du marché global.

Sous le leadership dynamique du gouvernement fédéral américain, des ressources humaines et financières considérables sont de plus en plus dégagées pour le développement, la démonstration et l'implantation de systèmes SIVR par les divers paliers de gouvernement, l'entreprise privée et les universités et centres de recherche spécialisés.

Des bénéfices espérés élevés par rapport aux coûts expliquent l'accélération rapide des investissements dans les systèmes SIVR que l'on peut observer actuellement. Selon le secrétaire américain aux Transports, monsieur Federico Peña, le gouvernement fédéral américain, suite à ses propres études, accorde une priorité très élevée aux investissements SIVR alors que les budgets alloués aux autres secteurs d'activité sont en général coupés de façon drastique.

La transformation du système de transport par l'utilisation systématique des nouvelles technologies est déjà amorcée et est irréversible. La recherche-développement fait déjà place à la phase de déploiement des systèmes. Les obstacles à l'implantation des systèmes ne sont pas d'ordre technique mais bien plus d'ordre institutionnel en raison des partages de juridiction entre les États et également entre les divers organismes à l'intérieur des États eux-mêmes. L'architecture globale SIVR qui sera retenue permettra d'accommoder les particularités et priorités légitimes de chacun tout en constituant une incitation efficace à une plus grande uniformisation des règles en matière de transport.

L'intérêt pour le ministère des Transports de participer à IVHS America est de lui permettre de prendre conscience des changements profonds qui ont actuellement lieu chez ses voisins. Partageant une partie de l'ensemble géographique et économique américain, le Québec ne peut demeurer indifférent; il doit adapter son propre système de transport à ces nouvelles réalités technologiques et profiter des opportunités industrielles et commerciales considérables qu'une nouvelle industrie de conception, de fabrication et d'exploitation de systèmes SIVR offrira.

La rencontre de IVHS America m'a confirmé de l'à-propos des propositions du plan d'intervention SIVR présenté récemment par un groupe de travail du Ministère et de l'importance d'y donner suite. Le Québec doit prendre comme ses voisins le virage technologique des systèmes SIVR et à cette fin, se doter des ressources organisationnelles et matérielles nécessaires.

## 2. ISTEA: LE CATALYSEUR DU DÉVELOPPEMENT SIVR AMERICA

Les problèmes des transports aux États-Unis sont bien connus: congestion, accidents, pollution, inefficacité énergétique, etc. Ces problèmes s'aggravent de plus en plus et coûtent annuellement à l'économie américaine des milliards de dollars que tous, particuliers, entreprises et gouvernements, doivent supporter d'une manière ou d'une autre.

Les solutions jusqu'à maintenant utilisées pour régler ces problèmes ont été la réglementation et des nouveaux investissements dans le développement de services de transport et l'agrandissement des axes routiers. À leur tour, cet accroissement de l'offre de transport suscite une redistribution des activités engendrant rapidement les mêmes problèmes de congestion, d'accidents et de pollution que l'on voulait régler initialement.

Des spécialistes et responsables américains des transports se sont réunis au cours des années 80 dans une association appelée *Mobility 2000*, pour proposer de nouvelles solutions aux problèmes de transport. Bien que très importante, cette initiative ne déboucha pas rapidement sur des réalisations tangibles capables d'entraîner un ralliement vers de nouvelles solutions. Il manquait le leadership politique capable de canaliser l'action de l'ensemble des décideurs américains.

Convaincu que les solutions du passé, compte tenu de leurs coûts financiers et sociaux astronomiques, ne constituent plus des options réalistes aux problèmes de transport, le Congrès américain opta plutôt pour une solution privilégiant le service aux usagers des systèmes de transport et l'utilisation optimale des services et infrastructures existants. Le moyen utilisé: les nouvelles technologies informatiques et de communication.

En 1991, le Congrès américain adopta le «Intermodal Surface Transportation Efficiency Act» (ISTEA). Tout en poursuivant les programmes d'aide à l'amélioration des infrastructures et des services de transport en commun, ISTEA se donne une approche intermodale et intègre des préoccupations d'efficacité, de mobilité, de sécurité, de protection de l'environnement et de services aux personnes handicapées. La Loi comprenait également comme moyen concret pour la réalisation de ces objectifs un budget de 660 millions de dollars US à être investi dans le développement de systèmes intelligents véhicules-routes.

C'est en 1991 que *Mobility 2000* s'est transformé et est devenu *IVHS America*. Son premier congrès de 1991 attira alors 500 participants. Lors de sa quatrième rencontre annuelle d'Atlanta, il y avait plus de 3 000 participants américains et étrangers, engagés dans des organismes de transport publics et privés, des industriels et des chercheurs. Également, plus de 118 exhibits sont présents et offrent des éléments de systèmes SIVR ou même des systèmes complets. On trouvera à l'annexe B la liste des exposants. *IVHS America* attend à sa 5<sup>e</sup> rencontre annuelle de 1995, qui se tiendra à Washington, de 5 à 6 000 participants, soit 10 fois plus qu'à son premier congrès.

*IVHS America* travaille en étroite collaboration avec le USDOT. Il a déjà produit un plan stratégique pour les systèmes intelligents véhicules-routes aux États-Unis. Un plan quinquennal de 5 ans, appuyé par le USDOT, sera publié en décembre 1994; il indiquera les actions requises pour mettre en oeuvre le plan stratégique en ce qui regarde particulièrement les services aux usagers. Dans les faits, *IVHS America* joue le rôle de promoteur du développement des systèmes SIVR aux États-Unis et constitue ainsi un outil efficace de réalisation des orientations du gouvernement américain.

*IVHS America* est définitivement engagé sur la voie rapide de l'implantation des systèmes. Il ne s'agit plus seulement de véhicules intelligents mais de systèmes de transport intelligents. Des progrès importants au plan de la normalisation se font au niveau international par l'intermédiaire de l'International Standards Organization (ISO). Un premier congrès international réunissant les groupes américains, japonais et européens se tiendra à Paris du 30 novembre au 2 décembre 1994 qui permettra d'enrichir l'expérience de chacun et d'assurer la coordination nécessaire.

Ce dont il s'agit vraiment, c'est d'une nouvelle approche des transports axée sur la qualité des services, la productivité et le respect de valeurs essentielles. Pour le gouvernement américain, il y a là un enjeu stratégique visant à soutenir la position concurrentielle des États-Unis dans l'économie mondiale. Il s'agit enfin de donner aux entreprises américaines une part dominante du marché de fabrication et d'exploitation des systèmes que le secrétaire d'État américain aux Transports, monsieur Federico Peña, évalue dans vingt ans à 200 milliards de dollars US.

### 3. LE PROGRAMME DE DÉVELOPPEMENT D'UNE ARCHITECTURE SIVR<sup>1</sup>

Plusieurs services SIVR font actuellement l'objet de démonstration; d'autres sont à l'état de projets. Actuellement, ces réalisations sont le résultat d'initiatives locales et il n'est pas certain qu'elles seront toutes compatibles et pourront être intégrées dans un système cohérent, efficace et efficient au plan de l'ensemble américain.

Ce qui manque actuellement, c'est une architecture globale SIVR qui pourra guider le développement des nouveaux projets et les intégrer comme éléments d'un système fonctionnel.

L'architecture d'un système définit les composantes et la façon qu'elles interagissent pour atteindre les buts globaux. Les opérations du système y sont décrites de même que les échanges d'information entre ses divers éléments.

Le USDOT a entrepris le développement d'une architecture d'un système SIVR pour les États-Unis ayant les buts globaux suivants:

- Sécurité accrue
- Congestion réduite
- Mobilité accrue et de meilleure qualité
- Impacts réduits sur l'environnement
- Efficacité énergétique augmentée
- Productivité économique augmentée
- Une industrie SIVR américaine viable

Le système est planifié de façon à pouvoir rendre les 28 services aux usagers suivants:

#### Gestion de la circulation et des déplacements

- Information avant les déplacements (Pro Info)
- Information des conducteurs en déplacements (En route )
- Information sur les services aux voyageurs

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<sup>1</sup> IVHS Architecture Development Program. Interim Status Report USDOT, April 1994.

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- Guide d'itinéraire (Route Guidance)
- Organisation des services de covoiturage
- Gestion des incidents
- Gestion de la demande de déplacements
- Contrôle de la circulation

Gestion des transports publics

- Information en route des usagers (En route Transit Information)
- Gestion des transports publics
- Services de transport en commun personnalisés
- Sécurité dans les transports en commun

Péages électroniques

- Service électronique de paiement

Opérations des véhicules commerciaux

- Contrôle électronique des véhicules commerciaux
- Contrôle routier automatique de sécurité
- Gestion des diverses obligations administratives et réglementaires
- Système embarqué de contrôle de sécurité
- Gestion de flotte

- Gestion d'incident de matières dangereuses

Gestion d'urgence

- Gestion des véhicules d'urgence
- Signalisation d'urgence et sécurité personnelle

Système avancé de sécurité des véhicules

- Évitement des collisions longitudinales
- Évitement des collisions latérales
- Évitement des collisions aux intersections
- Système de vision amélioré
- Surveillance des conditions de sécurité
- Protection des voyageurs en cas d'accident
- Conduite automatique des véhicules routiers

Le USDOT accorda en septembre 1993 le mandat à quatre consortiums différents d'élaborer chacun un concept d'architecture, lequel fera l'objet d'une évaluation comparative approfondie au cours d'un processus de consultation étroite auprès de l'ensemble des intervenants. La Table ronde canadienne SIVR de l'ATC (IVHS Canada) fera partie de cette consultation.

Les quatre projets d'architecture seront prêts en décembre 1994. Les options les plus prometteuses seront ensuite soumises pour consultation, de façon à obtenir un large consensus sur une option particulière en mai 1996.

La gestion générale du processus d'élaboration de l'architecture SIVR a été confiée au Jet Propulsion Laboratory. Les quatre consortiums qui ont été retenus suite à l'appel de propositions du USDOT furent:



- 1) Hughes Aircraft, Delco Electronics, Electronic Data Systems, General Motors, Hickling, JHK & Associates, Michigan DOT, Minnesota DOT, Sprint, University of Minnesota.
- 2) Loral, IBM, Siemens, University of Michigan, Road Commission for Oakland County, New Jersey Highway Authority, Louis Berger and Associates, Ameritect.
- 3) Rockwell International, Apogee Research, California Path, California DOT, Georges Mason University, GTE Laboratories, Honey-Well, Iowa State University.
- 4) Westinghouse Electric, Bell Atlantic Mobil Systems, Calspan, Florida DOT, University of Florida, Harris, Frederic R. Harris.

L'architecture n'obligera pas les responsables locaux et régionaux à fournir tous les services, mais il leur fournira un cadre facilitant leur réalisation en accord avec leur décision.

#### 4. PRIORITÉ À L'IMPLANTATION DES SYSTÈMES

Le USDOT a publié en mars 1994 un inventaire des projets de R-D, de démonstration ou d'implantation de systèmes SIVR aux États-Unis dans lesquels il participe financièrement. Chaque projet est décrit sommairement sur une fiche d'une page, contenue dans un document<sup>1</sup> qui fait au total 331 pages; donc, environ 300 projets y sont énumérés.

Ces projets se retrouvent dans tous les domaines des services aux usagers décrits à la section précédente. Leur coût varie beaucoup selon les projets allant de quelques centaines de milliers de dollars à plusieurs dizaines de millions de dollars.

On trouvera à l'annexe D une copie de la table des matières de ce document, donc une liste des projets SIVR aux États-Unis.

Puisque offrant des services qui débordent les frontières américaines, il est particulièrement intéressant de mentionner le niveau d'avancement des projets SIVR de contrôle des véhicules commerciaux, le I-75 et du Help-Crescent.

Le I-75 prévoit le contrôle automatique des camions sur l'Interstate 75 traversant les états américains de la Floride, de la Georgie, du Tennessee, du Kentucky, de l'Ohio et du Michigan, de même que sur l'autoroute 401 en Ontario de Détroit jusqu'à la frontière du Québec. Le coût total du projet est de 11 millions de dollars US et on prévoit que 100 stations de contrôle pourront être opérationnelles en 1996.

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<sup>1</sup> Intelligent Vehicle Highway Systems Projects. USDOT, March 1994.

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Le Help-Crescent est un projet semblable qui regroupe les états de l'Ouest américain du Texas, du Nouveau-Mexique, de l'Arizona, de la Californie, de l'Oregon, de Washington et également la Colombie-Britannique. Le projet total est évalué à 22 millions de dollars US. Une première phase d'évaluation a été réalisée au cours des années 91 à 93. Une nouvelle phase d'implantation permanente du système débute. Fait intéressant à signaler: la gestion de cette deuxième phase a été confiée à une société privée à but non lucratif, HELP inc., afin de faciliter la coordination entre les divers partenaires.

Le secrétaire américain aux Transports, monsieur Peña, a déclaré qu'il rencontrait au mois de mai 1994 ses homologues canadien et mexicain pour discuter entre autres des mesures facilitant le passage des transporteurs aux frontières, en particulier des mesures de type SIVR.

Il faut également mentionner que plusieurs des projets recensés, en particulier les projets concernant le transport urbain, consistent en l'élaboration de plans de transport. Au moins 38 grandes agglomérations américaines développent actuellement des plans de transport incorporant des systèmes SIVR. Ces plans font l'objet de large concertation auprès des groupes et populations concernés.

Finalement, il faut remarquer que les régions les plus dynamiques au plan du développement SIVR bénéficient pour la plupart de l'action dynamique de groupes d'intérêt ou d'associations de développement des transports. Agissant en véritable «IVHS America» au niveau régional ou local, ces associations contribuent à sensibiliser l'opinion publique et les décideurs politiques, ainsi qu'à amoindrir les contraintes institutionnelles provenant du morcellement des juridictions entre divers organismes de transport.

**ANNEXE A**

**PROGRAMME DES SESSIONS ET DES COMMUNICATIONS TECHNIQUES**

# PROGRAM\*

## Saturday, April 16, 1994

Technical Committee Meetings  
See Consolidated Schedule in centerfold section

## Sunday, April 17, 1994

Optional Technical Facility Tours  
See page 71 for schedule

Technical Committee Meetings  
See Consolidated Schedule in centerfold section

10:00 am  
Registration/Message Desk  
*Foyer, 2nd Floor*

- 1 - 5:00 pm
- **Coordinating Council Meeting**  
*Grand Ballroom A, 2nd Floor*
  - **Contracting Workshop**  
*Grand Ballroom West, 2nd Floor*

4:00 - 7:30 pm  
**Exhibits Open**  
*Galleria, Lower Level*

5:30 - 6:30 pm  
**Welcoming Reception in Exhibit Hall**

\* In instances where there are several co-authors, the person who will be presenting the paper is listed first.

## Monday, April 18, 1994

Optional Technical Facility Tours  
See page 71 for schedule

Technical Committee Meetings  
See Consolidated Schedule in centerfold section

7:00 am  
Registration/Message Desk  
*Foyer, 2nd Floor*

7:45 am

**1** *Grand Ballroom*  
*(All numbered sessions are located on the 2nd Floor)*

### Opening Session

• **Welcome**

Lawrence D. Dahms, Chair, 1994 Annual Meeting and Executive Director, Metropolitan Transportation Commission, Oakland, California

Frederick T. Tucker, Chair, Board of Directors and Executive Vice President and General Manager, AEIG, Motorola, Inc., Northbrook, Illinois, and

Lester P. Lamm, President, IVHS AMERICA

The Honorable Bill Campbell, Mayor, City of Atlanta

8:15 - 9:45 am

Concurrent Technical Sessions

## 2 Grand Salon D

### Public/Private Partnership: New Ways of Doing Business (Taped)

*John J. Fearnside, Senior Vice President and General Manager, Center for Advanced Aviation System Development, The MITRE Corporation, McLean, Virginia, presiding*

- **Lessons Learned in Florida**

Ben Watts, Secretary, Florida Department of Transportation, Tallahassee, Florida

- **The Federal Experience and Perspective**

Dennis Judycki, Associate Administrator for Safety and System Applications, Federal Highway Administration, Washington, D.C.

- **Industry Expectations and Contributions**

Harry W. Voccola, Senior Vice President, Lockheed IMS, Teaneck, New Jersey

- **Public/Private Partnership in the I-95 Corridor**

Stephen C. Lockwood, Vice President, Parsons Brinckerhoff/Farradyne Systems, Inc., Rockville, Maryland

## 3 Grand Salon B

### IVHS: The Atlanta Region - Present and Future (Taped)

*Larry Dreihaupt, Division Administrator, Federal Highway Administration, Atlanta, Georgia, presiding*

- **FHWA Georgia Division - Federal Highway Administration's Perspective of Georgia's IVHS Initiatives**

Karla Snyder-Petty, Engineering Systems Manager, Federal Highway Administration, Georgia Division, Atlanta, Georgia

22

- **Georgia Department of Transportation ATMS in the Atlanta Region and State of Georgia**

Steve Parks, Director of Operations, Georgia Department of Transportation, Atlanta, Georgia

- **City of Atlanta's IVHS Program**

Howard Harris, Deputy Director, Bureau of Traffic and Transportation, City of Atlanta, Atlanta, Georgia

- **MARTA's IVHS Program**

Gerald Pachucki, Director of Planning and Policy Development, Metropolitan Atlanta Rapid Transit Authority, Atlanta, Georgia

## 4 Fayette

### IVHS and the Consumer (Taped)

*Edith B. Page, Manager, Government Programs-Transportation, Bechtel Corporation, Washington, D.C., presiding*

*Panelists:*

- Patricia F. Waller, Director, Transportation Research Institute, University of Michigan, Ann Arbor, Michigan

- Thomas H. Culpepper, Managing Director of Traffic Safety, Office of Public and Government Affairs, American Automobile Association, Washington, D.C.

- William C. Wilkinson III, Executive Director, Bicycle Federation of America, Washington, D.C.

- Martin Abrams, Director, Privacy and Consumer Policy, TRW Information Systems and Services, Lyndhurst, Ohio

23

## 5 Grand Salon A

### ATMS — Simulation and Knowledge Based Systems

*Eugene E. Ofstead, Assistant Commissioner, Minnesota Department of Transportation, St. Paul, Minnesota, presiding*

- **Evaluating Traffic Control Systems Using Microsimulation: The Central Artery/Tunnel Integrated Project Control System (IPCS)\*\***  
Anthony F. Hotz, Technical Staff, Moshe Ben-Akiva, Professor, David Bernstein, A. Chachich, R. Mishalani, N.V. Jonnalagadda, and Q. Yang, Center for Transportation Studies, Massachusetts Institute of Technology, Cambridge, Massachusetts; Haris N. Koutsopoulos, Associate Professor, Carnegie Mellon University, Pittsburgh, Pennsylvania; Robert W. Brindley, D. Krechmer, and C.T. Marcus, Bechtel/Parsons Brinckerhoff, Boston, Massachusetts
- **Integrated Planning/Simulation Methodology for Analysis of Traffic Management Systems\*\***  
Vassilios Alexiadis, Senior Engineer, William R. Loudon, Vice President, and Michael J. Penic, Senior Engineer, JHK & Associates, Emeryville, California; Walter E. Gazda, Senior Economist, and Norman Rosenberg, Computer Specialist, Volpe National Transportation Systems Center, Cambridge, Massachusetts
- **Knowledge Based Advanced Traffic Management\*\***  
John Gilmore, Senior Scientist, and Rhalid Elibriary, Research Assistant, Georgia Tech, Atlanta, Georgia

## 6 Grand Salon C

### Route Guidance Technology

*C. John MacGowan, Chief, IVHS Research Division, Federal Highway Administration, McLean, Virginia, presiding*

\*\*Indicates papers to be printed in the proceedings.

- **Minimum Path Algorithms for In-Vehicle Route Guidance Systems\*\***

Laurence R. Rilett, Assistant Professor, and Fu Liping, Research Assistant, University of Alberta, Alberta, Canada; Charles W. Blumentritt, Research Scientist, Texas Transportation Institute, Dallas, Texas

- **Estimation of Link Travel Times with a Large Scale Network Flow Model for a Dynamic Route Guidance System\*\***

David E. Boyce, Director, Stanislaw Berka, and Andrzej Tarko, Research Assistant, Urban Transportation Center, University of Illinois, Chicago, Illinois

- **An Adaptive Vehicle Routing Approach for IVHS\*\***

Hong K. Lo, Assistant Research Engineer, Bin Ran, Assistant Research Engineer, and Randolph W. Hall, Manager of Systems Engineering, PATH, Institute of Transportation Studies, University of California, Richmond, California

- **An Alternative Approach to Automobile Navigation\*\***

Elaine Wu, Advanced Development Program Manager, and Douglas Welk, Engineer, Delco Electronics, Kokomo, Indiana

## 7 Grand Salon E

### TravTek Evaluation Final Results — Part 1 (Taped)

*Frank J. Mammano, Chief, Electronics Branch (ATIS/AVCS), IVHS Research Division, Federal Highway Administration, McLean, Virginia, presiding*

- **TravTek Evaluation of Driver Behavior and Performance**

Thomas A. Dingus, Senior Research Scientist, Performances & Safety Sciences, Inc., Iowa City, Iowa

- **TravTek Evaluation: Willingness to Pay and User Satisfaction Findings**  
Gary A. Golembiewski, Research Psychologist, Science Applications International Corporation, McLean, Virginia
- **TravTek Evaluation Safety Statistics**  
William A. Perez, Assistant Vice President and Division Manager, Transportation Systems Division, Science Applications International Corporation, McLean, Virginia

## 8 *Fulton*

### **Overcoming Institutional Issues: The CVO Approach** (Taped)

*C. Michael Walton, Chairman, Department of Civil Engineering, University of Texas at Austin, Austin, Texas, presiding*

- **Identifying and Surmounting Barriers to Implementing IVHS Commercial Vehicle Operations Systems\*\***  
Mark E. Hallenbeck, Director, and Jodi Koehne, Research Engineer, Washington State Transportation Center (TRAC), Seattle, Washington; David Rose, Manager, Dye Management Group, Bellevue, Washington
- **Institutional Issues — Southeast Study**  
Speaker to be announced
- **COVE Study**  
Greg Fulton, Principal Transportation Specialist, Division of Transportation Development, Colorado Department of Transportation, Denver, Colorado
- **California Study**  
John Van Berkel, HELP Program Manager, California Department of Transportation, Sacramento, California

- **Business Plans for CVO:**
  - **Single State Efforts: Oregon Strategic Plan For CVO**  
David Lutz, CVO/IVHS Plan Coordinator, Oregon Department of Transportation, Salem, Oregon
  - **Multi-State Efforts: Southeastern States Business Plan for CVO**  
Speaker to be announced

9:45 am

### **Keynote Address**

*Grand Ballroom*

- **Introduction of Speaker**  
Frederick T. Tucker, Chair, Board of Directors
- **Keynote Speaker (Taped)**  
The Honorable Federico Peña, Secretary, United States Department of Transportation, Washington, D.C.

10:30 am - 12 Noon

Concurrent Technical Sessions

## 9 *Fayette*

### **State/Regional IVHS Experiences**

*Donald G. Capelle, Vice President, Parsons Brinckerhoff, Quade and Douglas, Inc., Orange, California, presiding*

- **IVHS Ohio: A State IVHS Initiative\*\***  
Jerry L. Pittenger, IVHS Program Manager, Transportation Systems, Battelle Memorial Institute, Columbus, Ohio; George W. Saylor, Congestion Management Engineer, Ohio Department of Transportation, Columbus, Ohio; Phyllis Radlinski, Marketing Director, Transportation Research Engineer, Inc., East Liberty, Ohio; Umit Ozguner,

Professor. The Ohio State University, Columbus, Ohio; Steven A. Call, Highway Engineer, Federal Highway Administration, Columbus, Ohio

• **The Creation of IVHS Texas**

Roy L. Wilshire, Senior Vice President, Kimley-Horn & Associates, Dallas, Texas, and Katherine Turnbull, Division Head, Texas Transportation Institute, Texas A&M University, College Station, Texas

• **The IVHS Early Deployment Planning Program Obstacles to Successful Completion — The New Jersey Experience\*\***

Peter O. Sucher, Vice President, HNTB, Fairfield, New Jersey

• **A Multi-Modal IVHS Strategic Plan\*\***

Barbara Leonard, Traffic Engineer, and Glenn N. Havinovski, Senior Engineer, JHK & Associates, Norcross, Georgia; Dean Delgado, Transportation Analyst, Orange County Transportation Authority, Garden Grove, California

**10** Grand Salon D

**Overview of the National AHS Programs (Taped)**

Lyle G. Saxton, Director, Office of Safety and Traffic Operation Research and Development, Federal Highway Administration, McLean, Virginia, presiding

Panelists:

- J. Richard Bishop, AHS Program Manager, Federal Highway Administration, McLean, Virginia
- Roy Bushey, Chief, Advanced Vehicle and Infrastructure Research, California Department of Transportation, Sacramento, California
- Joseph Elias, Calspan Corporation, Buffalo, New York
- Herbert Hall, AHS Program Manager, Delco Systems Operations, Goleta, California
- Robert North, Section Chief, Honeywell Technology Center, Minneapolis, Minnesota

**11** Grand Salon B

**Education and Training**

John M. Mason, Jr., Director, Transportation Operations, Pennsylvania Transportation Institute, Pennsylvania State University, University Park, Pennsylvania, presiding

• **The Impacts of Manpower and Personnel Issues on ATMS Design Under a Design-Build-Warrant Approach\*\***

Ronald G. Hughes, Staff Associate, and Hudson B. Moore, Research Assistant, University of North Carolina, Highway Safety Research Center, Chapel Hill, North Carolina

• **Responding to IVHS Training Needs: A Curriculum for 21st Century Professional Education\*\***

Paul P. Jovanis, Associate Director, Institute of Transportation Studies, and Professor, Civil Engineering, University of California, Davis, California

• **Preparing the New Transportation Professional: IVHS and Transportation Education\*\***

Brian L. Smith, Transportation Research Scientist, Virginia Transportation Research Council, and Lester A. Hoel, Hamilton Professor, University of Virginia, Department of Civil Engineering, Charlottesville, Virginia

• **Staffing and Education Needs for IVHS**

William Hyman, Director of Transportation Studies Program, Urban Institute, Washington, D.C.



## 12 *Grand Salon A*

### **Real-Time Ridesharing and Passenger Information**

*Katherine F. Turnbull, Division Head, Texas Transportation Institute, Texas A&M University, College Station, Texas, presiding*

- **Real-Time Rideshare Matching Using GIS\*\***  
Raghu R. Kowshik, Research Assistant, Prasuna D.V.G. Reddy, Research Associate, John T. Gard, Research Assistant, and, Paul P. Jovanis, Professor of Civil Engineering and Associate Director, Institute of Transportation Studies, University of California, Davis, California; Ryuichi Kitamura, Professor, Kyoto University, Kyoto, Japan
- **Bellevue Smart Traveler: An Integrated Phone and Pager System for Downtown Dynamic Ridesharing\*\***  
Mark Haselkorn, Professor and Chair, Department of Communication, Brian Goble, Research Engineer, Jan Spyridakis, Associate Professor, and Susan Michalak, Research Assistant, University of Washington, Seattle, Washington
- **A Methodology for Analyzing the Casual Carpooling Market for Interstate 495\*\***  
John Miller, Research Assistant, Lester A. Hoel, Faculty Research Scientist, and Amy A. O'Leary, Senior Research Scientist, University of Virginia, Virginia Transportation Research Council, Charlottesville, Virginia
- **Architecture Requirements for Combining Advanced Traveler Information Systems and Advanced Public Transit Systems\*\***  
Gary Mechtel, System Engineer, Electronic Systems Group, and Rohit Patel, Director of Marketing, Communications Division, Westinghouse Electric Corporation, Baltimore, Maryland

## 13 *Fulton*

### **IVHS and the Environment: Assessing the Impacts**

*Wesley S.C. Lum, Chief, Advanced System Integration and Implementation, California Department of Transportation, Sacramento, California, presiding*

- **Emissions and Fuel Consumption Impacts of IVHS User Services: Results from a Model-Based Framework\*\***  
Cheryl D. Little, Environmental Engineer, Volpe National Transportation Systems Center, Cambridge, Massachusetts
- **Qualitative Assessment of IVHS Emission and Air Quality Impacts**  
Sarge Ostria, Senior Analyst, Jack Faucett Associates, Bethesda, Maryland
- **Planning and Modeling Data Environment (PLANMODE)\*\***  
Bruce W. Churchill, Senior Public Safety/IVHS Systems Analyst, The Titan Corporation, San Diego, California; Georgiena Vivian, Principal Planner, Valley Research and Planning Associates, Fresno, California; Don Murphy, Valley Research and Planning Associates, San Diego, California
- **Environmental Traffic Control\*\***  
Colin Wilson, Senior Associate, presenting for Fraser Sommerville, Director, and Adam Bostock, Senior Systems Analyst, Castle Rock Consultants, Nottingham, United Kingdom

## 14 *Grand Salon E*

### **International Competitiveness (Taped)**

*Robert L. French, Principal, Robert L. French & Associates, Fort Worth, Texas, presiding*

- **Comparative Study of IVHS Progress in the United States, Europe, and Japan\*\***

*Preliminary Remarks:*

- James Costantino, Executive Director, IVHS AMERICA, Washington, D.C.

*Panelists:*

- Jean-Pierre Camus, Special Projects Director, ERTICO, Brussels, Belgium
- E. Ryerson Case, Principal, E.R. Case & Associates, Ontario, Canada
- Kan Chen, Professor, Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, Michigan
- Takaaki Katoh, Director and Member of the Board, Nippondenso Company, Ltd., Aichi, Japan
- Yoshikazu Noguchi, International Fellow (JSK), IVHS AMERICA, Washington, D.C.
- Kentaro Sakamoto, International Fellow (Sumitomo Electric), IVHS AMERICA, Washington, D.C.
- Ove Svidén, Managing Director, ARISE eeig, Linköping, Sweden

**15** *Grand Salon C*

**IVHS Early Deployment (Taped)**

*W. Scott Wainwright, Assistant Chief, Montgomery County Department of Transportation, Rockville, Maryland, presiding*

- **IVHS Planning**  
Shelley Lynch, Highway Engineer, Traffic Management Systems Division, Federal Highway Administration, Washington, D.C.
- **APTS Applications**  
Denis Symes, Transportation Management Specialist, Federal Transit Administration, Washington, D.C.

• **ATMS Applications**

Leslie Jacobson, Traffic Systems Manager, Washington Department of Transportation, Seattle, Washington

*Panelists:*

- Lawrence Dahms, Executive Director, Metropolitan Transportation Commission, Oakland, California
- Michael Bolton, Executive Director, Ann Arbor Transportation Authority, Ann Arbor, Michigan
- Eugene Ofstead, Assistant Commissioner, Minnesota Department of Transportation, St. Paul, Minnesota

**12 Noon**

Box Lunch in Exhibit Hall

*Galleria, Lower Level*

**1:30 - 3:00 pm**

Concurrent Technical Sessions

**16**

*Grand Ballroom D*

**APTS Passenger Information and Vehicle Location Systems**

*Gorman Gilbert, Director, ITRE, University of North Carolina, Raleigh, North Carolina, presiding*

- **Minnesota Guidestar Project Travlink\*\***  
James L. Wright, Director, and Marthand Nookala, Project Manager, Minnesota Guidestar, Minnesota Department of Transportation, St. Paul, Minnesota; Ferrol Robinson, Principal, Strgar-Roscoe-Fausch, Inc., Minneapolis, Minnesota
- **Lessons Learned in Procurement and Implementation of Transit Vehicle Automatic Vehicle Location Management and Monitoring Systems\*\***  
Robert F. Casey, APTS Project Leader, Volpe National Transportation Systems Center.

MONDAY

Cambridge, Massachusetts; Ronald J. Baker, General Manager, Communications Implementation Task Force, Chicago Transit Authority, Chicago, Illinois; Lou Ha, Manager, Technical Support, Regional Transportation District, Denver, Colorado; Daniel Overgaard, Transit Project Coordinator, Municipality of Metropolitan Seattle, Seattle, Washington

• **Application of Artificial Neural Networks and Automatic Vehicle Location Data for Bus Transit Schedule Control\*\***

Ravi Kalaputapu, Graduate Research Assistant, and Michael J. Demetsky, Professor, Department of Civil Engineering, University of Virginia, Charlottesville, Virginia

**17** *Grand Ballroom A*

**IVHS Communications Technologies**

*Robert McNamara, Chief, Special Services Division, Private Radio Bureau, Federal Communications Commission, Washington, D.C., presiding*

• **Spread Spectrum Vehicle Communications Network\*\***

Stephen Hockaday, Professor, College of Engineering, Jeffrey Gerfen, Graduate Student, William Hartin, Graduate Student, and Brian Young, Undergraduate Student, California Polytechnic University, San Luis Obispo, California

• **Efficient Use of Narrowband Wireless Channels for Mobile Digital Communication\*\***

Michael P. Fitz, Assistant Professor, and James P. Seymour, School of Electrical Engineering, Purdue University, West Lafayette, Indiana

• **ORBCOMM: A Systems Approach to an Ubiquitous Mayday Communications System\*\***

Donald L. Thoma, Director, Transportation Services, Orbital Communications Corporation, Dulles, Virginia

• **Electronic Messaging Using Vehicle to Roadside Communications (VRC)\*\***

Mark A. Kady, Communication Systems Manager, Delco Electronics, Kokomo, Indiana, and Peter Shloss, Senior Engineer, VRC Project Engineer, Surface Systems, Hughes Aircraft Company, Fullerton, California

**18** *Grand Ballroom C*

**Regional Planning for IVHS Deployment— Part 1**

*G. Sadler Bridges, Executive Associate Director, Texas Transportation Institute, Texas A&M University, College Station, Texas, presiding*

• **The Impact of Regional Planning and ISTEA on the Implementation of IVHS: Issues and Early Field Data\*\***

Jonathan Gifford, Assistant Professor and Senior Fellow, and Scott Talkington, Research Fellow, The Institute of Public Policy, George Mason University, Fairfax, Virginia

• **San Francisco Bay Area IVHS Early Deployment Plan\*\***

Jeff Georgevich, Senior Planner, and Joel Markowitz, Manager, Advanced Systems Applications, Metropolitan Transportation Commission, Oakland, California

• **The TRANSCOM Transmit Project: A Unique Institutional Approach to a Unique Project\*\***

Philip J. Tarnoff, President, Farradyne Systems, Inc., Rockville, Maryland, and Tom Batz, Manager of Technology Development, TRANSCOM, Jersey City, New Jersey

• **A Regional Architecture for Implementing IVHS in the Boston Metropolitan Area\*\***

Louis G. Neudorff, Vice President, JHK & Associates, Hartford, Connecticut, and Stephen L. Pepin, Transportation Program Planner, Massachusetts Highway Department, Boston, Massachusetts

## 19 *Grand Salon A/B*

### **AVCS/AHS Program Activities**

*Steven E. Shladover, PATH Deputy Director, Institute of Transportation Studies, University of California, Richmond, California, presiding*

- **The United States Department of Transportation Automated Highway System Program Status\*\***

J. Richard Bishop, AHS Program Manager, and Lyle Saxton, Director, Office of Safety and Traffic Operations Research and Development, Federal Highway Administration, McLean, Virginia; William B. Stevens, Division Assistant, The MITRE Corporation, McLean, Virginia; William Leasure, Director, Office of Crash Avoidance, National Highway Traffic Safety Administration, Washington, D.C.

- **Vehicle-Based Drowsy Driver Detection: Current Status and Future Prospects\*\***

Ronald R. Knipling, Engineering Research Psychologist, National Highway Traffic Safety Administration, Washington, D.C., and Walter W. Wierwille, Director, Vehicle Analysis and Simulation Laboratory, Virginia Polytechnical Institute and State University, Blacksburg, Virginia.

- **AVCS Research at Carnegie Mellon University\*\***

Dean A. Pomerleau, Research Scientist, Charles E. Thorpe, Senior Research Scientist, Dirk Langer, Research Assistant, Julio K. Rosenblatt, Research Assistant, and Rahul Sukthanker, Research Assistant, Robotics Institute, Carnegie Mellon Institute, Pittsburgh, Pennsylvania

## 20 *Grand Salon D*

### **ATMS — Detection**

*Philip J. Tarnoff, President, Farradyne Systems, Inc., Rockville, Maryland, presiding*

36

- **Road Weather Information Systems (RWIS) for IVHS Applications and Improved Maintenance Procedures\*\***

Dwayne M. Collett presenting for Joe R. Kelley, President and Chief Executive Officer, Surface Systems, Inc., St. Louis, Missouri

- **Detection Placement for Advanced Traffic Control Strategies in Advanced Transportation Management Systems\*\***

Kenneth Vaughn, Traffic Engineer, and Patrick Wright, Traffic Engineer, Farradyne Systems Inc., Rockville, Maryland

- **San Diego SMART Call Box Field Operational Test\*\***

Bruce W. Churchill, Senior Public Safety/IVHS Systems Analyst, The Titan Corporation, San Diego, California

- **A Comparative Study of Traffic Monitoring Sensors\*\***

Gregory L. Duckworth, Divisional Scientist, Stephen D. Milligan, Principal Scientist, James Bing, Scott H. Carlson, Mark A. Hamilton, John C. Heine, Rafal Mlawski, Chris E. Reiner, S. Ritter, Leak R. Warner, D. Whittemore, and Robert H. Welsh, Jr., Bolt Beranek & Newman, Inc., Cambridge, Massachusetts

## 21 *Grand Ballroom B*

### **Evaluation of Field Operational Tests**

*Donald E. Orne, Director, Transportation Systems, TRW/ESL, Sunnyvale, California, presiding*

- **Evaluation of the Quality of Traffic Information in the TravTek System\*\***

Kevin N. Balke, Assistant Research Engineer, Texas Transportation Institute, College Station, Texas

- **FAST-TRAC as an Integrated System: Evaluation Plans and Preliminary Findings\*\***

Steven E. Underwood, Research Scientist, University of Michigan, Ann Arbor, Michigan

37

• **Evaluation of the ADVANCE System\*\***

Joseph S. Koziol, General Engineer, Volpe Transportation Systems Center, Cambridge, Massachusetts; Richard Bolczak, Member of the Technical Staff, The MITRE Corporation, Washington, D.C.; David Wagner, Research Leader, Transportation Systems, Battelle, Columbus, Ohio

**22** *Grand Salon C*

**Minority Businesses and Historically Black Colleges and Universities: Resources for IVHS Programs**

(Taped)

*Thomas Farrington, President, Input Output Computer Services, Inc., Waltham, Massachusetts, presiding*

Over the past two decades, a number of Minority-Owned Businesses (MBEs) and Historically Black Colleges and Universities (HBCUs) have gained significant expertise on defense, space and transportation projects. This session will outline some of the resources that MBEs and HBCUs can apply to IVHS projects.

*Panelists:*

- Jerry Jones, President, Sonicraft, Inc., Chicago, Illinois
- Frank Enty, Director, National Transportation Center, Morgan State University, Baltimore, Maryland
- Oliver Delk, Director, Government Relations, Morehouse College, Atlanta, Georgia

**23** *Grand Salon E*

**The National IVHS Program Plan (Taped)**

*Thomas B. Deen, Executive Director, Transportation Research Board, Washington, D.C., presiding*

A panel will present and discuss the major elements of the Draft National IVHS Program Plan, including user services, national compatibility and deployment. Input from the audience is welcome.

*Panelists:*

- H. Douglas Robertson, Director of Plans and Programs, IVHS AMERICA, Washington, D.C.
- Gary Euler, Chief, Program Management and Systems Engineering Division, Federal Highway Administration, Washington, D.C.
- Wesley S.C. Lum, Chief, Advanced System Integration and Implementation, California Department of Transportation, Sacramento, California
- Thomas A. Horan, Senior Fellow, George Mason University, Fairfax, Virginia

**3:00 pm**

Refreshment Break in Exhibit Hall

*Galleria, Lower Level*

**3:30 - 5:00 pm**

Concurrent Technical Sessions

**24** *Grand Salon D*

**ATMS Detection — Imaging**

*S. Edwin Rowe, President, S. E. Rowe and Associates, Hacienda Heights, California, presiding*

- **Development of A New Multi-Purpose Image Processing Vehicle Detector And Its Introduction in the Tokyo Metropolitan Traffic Control System\*\***

Masatoshi Matsubara, Assistant Advisor, Tokyo Metropolitan Police Department, Tokyo, Japan; Masanori Aoki, Sumitomo Electric Industries, Ltd., Osaka, Japan; Douglas A. Day, IVHS Engineer, Sumitomo Electric USA, Inc., Santa Clara, California

• **Incident Detection Trial — Glasgow, Scotland\*\***

Neil Hoose, Associate, Wooton Jeffreys Consultants, Surrey, United Kingdom, and Michael Dagleisch, Managing Director, Golden River Traffic, Inc., Oxon, United Kingdom

• **Evaluation and Trials of an Automatic License Plate Recognition System Employing Neural Network Techniques\*\***

Dave W. Tindall, Technical Manager, Racal Research Ltd., and Richard Hodgson, Technical Executive, Racal Communications Systems Ltd., Berkshire, United Kingdom

• **Field Deployment of Machine Vision in the Oakland County ATMS/ATIS Project\*\***

Panos G. Michalopoulos, Professor, University of Minnesota, Department of Civil Engineering, Minneapolis, Minnesota; Richard D. Jacobson, Technical Manager, and Craig A. Anderson, Project Manager, Image Sensing Systems, Inc., St. Paul, Minnesota; James C. Barbaresso, Director of Planning and Development, Road Commission for Oakland County, Beverly Hills, Michigan

**25** *Grand Salon C*

**Evaluating Risks and Benefits**

*Ronald C. Hefl, IVHS Architecture Manager, Jet Propulsion Laboratory, Washington, D.C., presiding*

• **Stated and Reported Diversion to Public Transportation in Response to Congestion: Implications on the Benefits of Multimodal ATIS**

Asad Jan Khattak, Research Engineer, and Emmanuel Le Colletter, Graduate Student Researcher, PATH, Institute of Transportation Studies, University of California, Richmond, California

• **Development of a Model to Assess the Safety Impacts of Implementing IVHS User Services\*\***

Shelby A. Tedesco, Transportation Engineer, Vassilios Alexiadis, Senior Transportation Engineer, and William R. Loudon, Vice President,

JHK & Associates, Emeryville, California; Richard Margoitta, SAIC, Oak Ridge, Tennessee; David Skinner, Volpe National Transportation Systems Center, Cambridge, Massachusetts

• **Suggested Methodology for Risk Assessment of IVHS Architecture\*\***

Melvyn Cheslow, Member of the Technical Staff, The MITRE Corporation, Washington, D.C.

**26** *Grand Salon E*

**Driver Information Systems — An International View**

*Zoe Ketselidou, Scientific Officer, The European Commission, Brussels, Belgium, presiding*

• **SOCRATES: Progress Towards an Integrated Road Transport Environment\*\***

Ian Catling, Partner and Richard Harris, Principal Consultant, Ian Catling Consultancy, Surrey, United Kingdom; Fred Zijderhand, Technical Project Manager, Nederlands Philips Bedrijven, Eindhoven, The Netherlands

• **Integration of Traffic Regulations in Digital Databases in Japan\*\***

Hiroyuki Okamoto, Director, Japan Traffic Management Technology Association; Haruo Matsumoto, Deputy Director, and Shingo Naitoh, Assistant Director, Traffic Management Division, Traffic Bureau, National Police Agency, Tokyo, Japan

• **Communication Systems for Cooperative Foresighted Driving\*\***

Erhard Schubert, Staff Engineer, L. Reck, and J. Graf, General Motors Europe, Russelheim, Germany

• **The Public Demonstration of VICS**

Hiroshi Kondo, Chairman, Experimental Subcommittee, VICS Promotion Council, Tokyo, Japan

## 27 *Grand Ballroom C*

### **Systems Issues in Collision Avoidance**

*Ardell S. Hoveskeland, Manager of IVHS Programs, DeLeuw, Cather & Company, Washington, D.C., presiding*

- **Intelligent Cruise Control: Performance Studies Based Upon an Operating Prototype\*\***  
Paul S. Fancher, Research Scientist, Robert D. Ervin, Research Scientist, and Zevi Bareket, Research Associate, University of Michigan Transportation Research Institute, Ann Arbor, Michigan; Manfred Trefalt, J. Tiedecke, and W. Hagleitner, Leica AG, Herbrugg, Switzerland
- **Using the REAMACS Model to Compare Rear-End Collision Warning Algorithms\*\***  
Eugene Farber, IVHS Strategy & Planning, Ford Motor Company, Dearborn, Michigan
- **Vision-Based Collision Avoidance Systems\*\***  
Ichiro Masaki, Research Scientist, Massachusetts Institute of Technology, Cambridge, Massachusetts
- **Comparative Assessment of Crash Causal Factors and IVHS Countermeasures\*\***  
Wassim G. Najm, Electronics Engineer, and Joseph S. Koziol, Accident Prevention Division, Volpe National Transportation Systems Center, Cambridge, Massachusetts; Louis Tijerina, Human Factors Transportation Center, Battelle Memorial Institute, Columbus, Ohio; John A. Pierowicz, and Donald Hendricks, Transportation Sciences Center, ARVIN/Calspan, Buffalo, New York

## 28 *Grand Salon A/B*

### **ATIS Operational Field Tests — Part 1**

*Gordon Fink, Director of Research and Technology, IVHS AMERICA, Washington, D.C. presiding*

42

### • **Progress on the ADVANCE Project\*\***

Joseph Ligas, IVHS Program Manager, Illinois Department of Transportation, Schaumburg, Illinois, and Syd Bowcott, Technical Manager, Highway Systems, De Leuw, Cather & Company, Chicago, Illinois

### • **System Integration on the ADVANCE Project\*\***

Syd Bowcott, Technical Manager, Highway Systems, De Leuw, Cather & Company, Chicago, Illinois

### • **Verification and Validation of the ADVANCE Mobile Navigation Assistant\*\***

Charles Dankocsik, Transportation Engineer, Castle Rock Consultants, Leesburg, Virginia, and Joe Ligas, IVHS Program Manager, Illinois Department of Transportation, Schaumburg, Illinois

### • **An Evaluation of the SmarTraveler ATIS Operational Test\*\***

Richard D. Juster, Manager, Systems Analysis, and Alicia Powell Wilson, Chief Planner, Central Transportation Planning Staff, Multisystems, Inc., Cambridge, Massachusetts

## 29 *Grand Ballroom A*

### **IVHS and the Information Superhighway (Taped)**

*W. Daniel Toohey, FASTOLL Program Manager, Cubic Toll Systems, Arlington, Virginia, presiding*

#### *Panelists:*

- Woody Kerkeslager, Vice President, Government Affairs, Technology/Infrastructure Group, AT&T, Washington, D.C.
- Tom Tauke, Executive Vice President, Government Affairs, NYNEX, Washington, D.C.
- Steward Personick, Assistant Vice President, Information Networking, Bell Communications Research, Inc., Morristown, New Jersey
- Robert Kelly, Partner, Kelly, Hunter, Mow and Povich, Washington, D.C.

43

**30***Grand Ballroom B***Regional Planning for IVHS Deployment — Part 2**

*Ronald F. Kirby, Director of Transportation Planning, Metropolitan Washington Council of Governments, Washington, D.C., presiding*

- **Speed-Based Traffic Monitoring — Connecticut's Experience with Radar Detectors\*\***

Michael R. Mauritz, Senior Traffic Engineer, JHK & Associates, Hartford, Connecticut, and William Stoeckert, Manager of Highway Operations, Connecticut Department of Transportation, Wethersfield, Connecticut

- **Toward a Travinfo Architecture\*\***

Dave Rolston, TravInfo Project Manager, ESL/TRW, Sunnyvale, California

- **An Open Systems Architecture for the Atlanta Regional ATMS\*\***

Hector Alicea, Farradyne Systems, Inc., Rockville, Maryland; Phillip Diaz, Manager of Software Development for Atlanta ATMS, TRW, Inc., Atlanta, Georgia; David Spinney, Software Engineer, Georgia Department of Transportation, Atlanta, Georgia; Kam Wong, DELCAN, North York, Toronto, Canada

**31***Grand Ballroom D***Moving Towards Deployment: The CVO Approach**

(Taped)

*Sally Hill Cooper, AICP, Associate Administrator of Policy, Federal Railroad Administration, Washington, D.C., presiding*

- **The CVO User Services from The National Program Plan for IVHS and the CVO Integration Plan**

Gene Bergoffen, President, National Private Truck Council, Alexandria, Virginia

**44**

- **CVO Deployment Activities:**

- **HELP, Inc.**

Richard Landis, Executive Director, HELP, Inc., Phoenix, Arizona

- **ADVANTAGE I-75**

Don Kelly, Secretary of Transportation, Transportation Cabinet, Kentucky Department of Transportation, Frankfurt, Kentucky

- **Integrating Safety in IVHS/CVO**

Steven Crane, Office of Motor Carriers, Federal Highway Administration, Washington, D.C.

- **Progress in Determining the Costs/Benefits of IVHS/CVO to the Industry**

Robert Pritchard, ATA Foundation, Rumford, Rhode Island

**5:00 pm**

Sessions Adjourn for the day

**Tuesday, April 19, 1994**

Optional Technical Facility Tours

See page 71 for schedule

Technical Committee Meetings

See Consolidated Schedule in centerfold section

**7:00 am**

Registration/Message Desk.

*Foyer, 2nd Floor*

**45****MONDAY****TUESDAY**



7:15 am

## 32 *Grand Ballroom*

### Annual Business Meeting Breakfast

*Lester P. Lamm, President, IVHS AMERICA, presiding*

- **Board of Directors Elections**  
Jack Kay, Chair. 1994 Nominating Committee, and President. JHK & Associates, Emeryville, California
- **President's Report**  
Lester P. Lamm, President
- **Executive Director's Report**  
James Costantino, Executive Director
- **Treasurer's Report**  
John J. Fearnside, Treasurer
- **Introduction of Speaker**  
Robert MacLennan, Member of IVHS AMERICA Board of Directors and General Manager, Metropolitan Transit Authority of Harris County, Houston, Texas
- **Speaker (Taped)**  
Gordon J. Linton, Administrator, Federal Transit Administration, Washington, D.C.

8:30 - 10:00 am

Concurrent Technical Sessions

## 33 *Grand Salon C*

### Standards for CVO (Taped)

*Tasos Zografos, Deputy Director, Lockheed IMS, Santa Clara, California, presiding*

- **Vehicle to Road Communications (VRC):**
  - **User Requirements for Future National CVO VRC Interoperability**  
Chester Chandler, ETTM Manager, Florida Department of Transportation, Tallahassee, Florida

46

- **Federal Highway Administration CVO VRC Initiatives**

Michael Curtis, Federal Highway Administration, Washington, D.C.

- **ASTM-Communications Protocol Standard Development**

Stanley Ciszewski, Telecommunications System Manager, New Jersey Highway Authority, Woodbridge, New Jersey

- **Weigh-in-Motion (WIM):**

- **PA/DE/MD/NJ Weigh In Motion (WIM) Technology Evaluation**

Bruce E. Littleton, Acting Chief Traffic Engineer, Delaware Department of Transportation, Dover, Delaware

- **Crescent Evaluation**

Chris Hill, Chief Operating Officer, Castle Rock Consultants, Leesburg, Virginia

- **PASS (WIM) Project**

David Lutz, CVO/IVHS Plan Coordinator, Oregon Department of Transportation, Salem, Oregon

## 34 *Grand Salon D*

### IVHS International Update (Taped)

*Randolph Doi, Vice President and Director, IVHS, Motorola, Inc., Northbrook, Illinois, presiding*

*Panelists:*

- Milton Harmelink, Director, Transportation Technology and Energy Branch, Ontario Ministry of Transportation, Downsview, Ontario, Canada
- Masaki Koshi, Professor, Department of Civil Engineering, University of Tokyo, Tokyo, Japan
- Maxwell Lay, Director, Major Projects, VIC ROADS, Kew, Victoria, Australia
- Eric Sampson, Chairman of the Supervisory Board, ERTICO, Brussels, Belgium and Deputy Chief Scientist, Department of Transport, London, United Kingdom

47

## 35 *Grand Salon E*

### ATIS Operational Field Tests — Part 2

*James H. Rillings, Research Fellow, Vehicle Systems Research Department, General Motors Corporation, Warren, Michigan, presiding*

- **Genesis Project Design and Pilot Test\*\***  
Ray A. Starr, IVHS Engineer, and James L. Wright, Program Director, Minnesota Guidestar Program, Minnesota Department of Transportation, St. Paul, Minnesota
- **Trilogy\*\***  
Richard Stehr, Director, Office of Planning, Development and Traffic, Glen Carlson, Manager, and Linda Taylor, Research Development Engineer, Metro Division, Minnesota Department of Transportation, Roseville, Minnesota
- **Preliminary Findings and Lessons Learned from the FAST-TRAC IVHS Program\*\***  
James Barbaresso, Director of Planning and Development, Road Commission for Oakland County, Beverly Hills, Michigan
- **Validating a Route Guidance Database\*\***  
Ron Bennett, Manager, Quality Assurance, and Nancy Marsh, Manager, Special Projects, Navigation Technologies, Sunnyvale, California

## 36 *Grand Salon A*

### Travel Demand and Telecommuting

*Chris Body, Senior Staff Engineer, IVHS AMERICA, Washington, D.C., presiding*

- **Pricing and Travel Demand Elasticity: A Case Study of the Golden Gate Bridge\*\***  
Jonathan Gifford, Assistant Professor and Senior Fellow, and Scott Talkington, Research Fellow, The Institute of Public Policy, George Mason University, Fairfax, Virginia

48

- **Transportation and the Implications of New Technologies\*\***

John F. Sanger, President, Tele-Commuter Resources, Inc., St. Paul, Minnesota

- **Telecommuting: How Much? How Soon?\*\*\***

Gary T. Ritter, IVHS Program Coordinator, John O'Donnell, Chief of Economic Analysis Division, and John Hopkins, Senior Analyst, Volpe National Transportation Systems Center, Cambridge, Massachusetts

## 37 *Grand Salon B*

### Privacy, Data Security and IVHS (Taped)

*D. Craig Roberts, Director of Institutional and Legal Issues, IVHS AMERICA, Washington, D.C., presiding*

- **How to Think About Privacy**  
Martin Abrams, Director, Privacy and Consumer Policy, TRW Information Systems and Services, Lyndhurst, Ohio
- **Privacy Implications Arising from Intelligent Vehicle Highway Systems**  
Robert R. Belair, Privacy and Legislative Associates, Washington, D.C.
- **Progress Report on Survey on Privacy Law and IVHS**  
Dorothy Glancy, Professor of Law, University of Santa Clara, Santa Clara, California
- **Report of the Legal Issues Committee Privacy Task Group and Presentation of Draft Privacy Principles**  
Martin Abrams, Director, Privacy and Consumer Policy, TRW Information Systems and Services, Lyndhurst, Ohio

TUESDAY

49

10:00 am

Refreshment Break in Exhibit Hall

Galleria, Lower Level

10:30 am - 12 Noon

Concurrent Technical Sessions

**38**

Grand Salon A

### ATMS — Transportation Operations Center

*Kenneth D. Schreder, Technical Director, Rockwell International Corporation, Anaheim, California, presiding*

- **Development of System Operating Strategies for Ramp Metering and Traffic Signal Coordination\*\***  
Farhad J. Pooran, Research Engineer, Farradyne Systems, Inc., Rockville, Maryland, and Henry C. Lieu, Highway Research Engineer, Federal Highway Administration, McLean, Virginia
- **SONET Communications Architectures for IVHS Backbones\*\***  
Barry L. Johnson, Technical Manager for Private Networks, AT&T Bell Labs, North Andover, Massachusetts, and Bruce Abernethy, Regional Vice President, Advanced Systems Technology, Kimley-Horn & Associates, Inc., Dallas, Texas
- **Software Architecture Design for Traffic Management Systems\*\***  
Gary D. Bennett, Manager, and Matthew Liotine, Senior Manager, AT&T Bell Laboratories, Naperville, Illinois
- **The TRANSCOM TRANSMIT Project: An Alternative Approach for Traffic Surveillance and Incident Detection\*\***  
K.R. Marshall, Traffic Engineer, Farradyne Systems, Inc., Rockville, Maryland, and Tom Batz, Manager of Technology Development, TRANSCOM, Jersey City, New Jersey

50

**39**

Grand Salon E

### IVHS and the Environment: Potential for Environmental Gain

*Charles Goodman, Transportation Specialist, Federal Highway Administration, Washington, D.C., presiding*

- **Improving Energy Efficiency and Air Quality By the Use of Routing and Scheduling Programs\*\***  
Gary L. Latshaw, Senior Program Manager, Etak, Inc., Menlo Park, California, and William G. Nulty, Vice President of Engineering, CAPS LOGISTICS, Inc., Atlanta, Georgia
- **IVHS and the Environment: New Models for Federal, State and Local Cooperation in the Application of Advanced Transportation Systems for Environmental Improvement in Urban Areas\*\***  
Lee W. Munnich, Senior Fellow, State and Local Policy Program, Candace Campbell, Fellow, Gary DeCramer, Fellow, and Barbara Rohde, Research Fellow, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota, Minneapolis, Minnesota
- **Assessment of Air Quality Impacts - IVHS Implementations in Southampton and Cologne\*\***  
Paul J. Taylor, Consultant, ATT Group, and Robert McQueen, Associate Director, Halcrow Fox, London, United Kingdom
- **The Role of ATIS in Reducing Vehicle Emissions: Experience from SmartTraveler Operation Test**  
Stephen P. Crosby, Chairman, SmartRoute Systems, Cambridge, Massachusetts

51

## 40 *Grand Salon D*

### **APTS Technology Applications: National and International (Taped)**

*Ronald J. Fisher, Director of the Office of Training, Research and Transportation, Federal Transit Administration, Washington, D.C., presiding*

- **The Ann Arbor Intelligent Transportation System**  
Michael Bolton, Executive Director, Ann Arbor Transportation Authority, Ann Arbor, Michigan
- **Implementation of the California Advanced Public Transportation Systems (CAPTS) Program**  
Robert Ratcliff, Chief, CAPTS Program Branch, California Department of Transportation, Sacramento, California
- **Smart Card Trial in Greater Manchester (United Kingdom)**  
Robert McQueen, Associate Director, Halcrow Fox Associates, London, United Kingdom
- **The Ride Tracking Project — An Update**  
Robert Tanenhaus, President, Information Management International, Inc., Bethesda, Maryland

## 41 *Grand Salon C*

### **AHS — Defining and Analyzing the System**

*Joe Elias, Calspan Corporation, Buffalo, New York, presiding*

- **Goals and Definitions of Automated Highway System Concepts\*\***  
William B. Stevens, AHS Coordinator, The MITRE Corporation, Washington, D.C.

52

- **A Functional Architecture for Automated Highway Traffic Planning\*\***

H.S. Jacob Tsao, Assistant Research Engineer, PATH, Institute of Transportation Studies, University of California, Richmond, California

- **A Snapshot of the Automated Highway Systems (AHS) Precursor Systems Analyses (PSA) Early Research Results\*\***

J. Richard Bishop, AHS Program Manager, Federal Highway Administration, McLean, Virginia; Gene M. McHale, Member of the Technical Staff, and William B. Stevens, Division Assistant, The MITRE Corporation, Washington, D.C.

- **A Preliminary Assessment of Issues and Risks for the Infrastructure Deployability of Automated Highway Systems\*\***

Mark Miller, Transportation Research Specialist, and Y.B. Yim, Research Engineer, PATH, Institute of Transportation Studies, University of California, Richmond, California

## 42 *Grand Salon B*

### **IVHS Intellectual Property: Policy and Practice (Taped)**

*Cynthia Moreland, Senior Division Counsel, Motorola, Inc., Schaumburg, Illinois, presiding*

- **Hypothetical IVHS Project and Arising Intellectual Property Issues**  
Robert Sterne, Partner, and Michael Ray, Associate, Sterne, Kessler, Goldstein & Fox, Washington, D.C.
- **Intellectual Property Rights in FHWA Funded IVHS Projects**  
Julie Dingle, Senior Attorney, Federal Highway Administration, Washington, D.C.
- **Coping with Intellectual Property Constraints: Strategies for Effective Public/Private Partnerships**  
Joseph Keene, Partner, Nossaman, Gunther, Knox & Elliott, San Francisco, California

53

TUESDAY

- **Results from the IVHS AMERICA and U.S. Department of Transportation Sponsored "Workshop on IVHS and Intellectual Property"**

Cynthia Moreland, Senior Division Counsel,  
Motorola, Schaumburg, Illinois

12 Noon

## 43 Grand Ballroom

### Awards Lunch

Lawrence Dahms, Chair,  
1994 Annual Meeting, presiding

- **Presentation of Awards**  
Frederick T. Tucker, Chair, Board of Directors  
  
Richard P. Braun, Chairman, Metropolitan  
Airports Commission, Minneapolis, Minnesota  
  
James Costantino, Executive Director
- **Introduction of Speaker**  
Lester P. Lamm, President
- **Speaker (Taped)**  
Rodney E. Slater, Administrator, Federal Highway  
Administration, Washington, D.C.

1:30 - 3:00 pm

Concurrent Technical Sessions

## 44 Grand Salon D

### Hot Topics in IVHS Standards (Taped)

James W. Bourg, Distinguished Member of the Tech-  
nical Staff, AT&T, Holmdel, New Jersey, presiding

- **IVHS Traveler Information Interchange: The State of Standards\*\***  
Jackson Wang, Ontario Ministry of  
Transportation, Downsview, Ontario, Canada, and

54

Susan Scott, Corporate Venture Development, SEI  
Technology Group, Rosemont, Illinois

- **A User Specification for AVI to Promote Future National ETTM Compatibility**  
Chester Chandler, ETTM Project Manager, Florida  
Department of Transportation, Tallahassee, Florida
- **Standard Location Referencing (SLR) System: Road Name ID Scheme\*\***  
Ramesh Ramakrishnan, Consultant, Dave Behr,  
Consultant, and Clay Collier, Technical Director,  
IVHS Group, SEI Information Technology, Park  
Ridge, Illinois

## 45 Grand Salon E

### Local Institutional Issues

Susan B. Lauffer, Acting Director, Traffic  
Management, IVHS, Federal Highway  
Administration, Washington, D.C., presiding

- **Partnership Models in Minnesota Guidestar\*\***  
James L. Wright, Program Director, Minnesota  
Guidestar, and Eugene Ofstead, Assistant  
Commissioner, Minnesota Department of  
Transportation, St. Paul, Minnesota
- **Finding the Right IVHS Partnership on a Local Level\*\***  
Michael C. Pietrzyk, Senior Research Associate,  
IVHS Program Manager, and Raymond A.  
Yettaw, Student Research Assistant, Center for  
Urban Transportation Research, University of  
South Florida, Tampa, Florida
- **An I-95 Corridor Coalition Update\*\***  
Hal Kasso, Administrator and Chairman, I-95  
Corridor Coalition, Maryland State Highway  
Administration, Baltimore, Maryland, and Steve  
Kuciemba, Chief, Advanced System  
Development, Maryland State Highway  
Administration, Hanover, Maryland

55

- **Dealing With IVHS Issues in Urban Areas\*\***  
Raman Patel, Chief of Systems Engineering, New York City Department of Transportation, Long Island City, New York

## 46 *Grand Salon C*

### **ATIS Business Issues and Driver Interfaces**

*Ivy Renga, Manager, IVHS Programs, Chrysler Corporation, Madison Heights, Michigan, presiding*

- **Traveler Information Services Within the Context of the Information Service Industry\*\***  
David R. Morehead, Technical Manager, Kenneth M. Huber, Department Head, and Raymond L. Bolduc, Interactive Information Services, AT&T Bell Laboratories, Holmdel, New Jersey
- **Speech Recognition and In-Vehicle Interface Prototype for Intelligent Vehicle-Highway Systems\*\***  
Mary T. Mock, Member of the Technical Staff, The MITRE Corporation, McLean, Virginia
- **Voice Operated Information System (VOIS) for Driver's Information System\*\***  
Prasuna Dva Reddy, Research Engineer, and Paul R. Jovanis, Professor, Institute of Transportation Studies, University of California, Davis, California; Ryuichi Kitamura, Professor, Kyoto University, Kyoto, Japan
- **Development of Toyota ATIS In-Vehicle Equipment in VICS\*\***  
Akihiko Nojima, Assistant Manager, R&D Planning Division, Hiroshi Morita, Project Manager, Yoshiro Okamoto, Shigetoshi Azuma, Manager, Electronics Laboratory, Toyota Motor Corporation, Aichi, Japan

## 47 *Grand Salon A*

### **Traffic Management Systems — An International View**

*Nobuo Yumoto, Managing Director, Sumitomo Electric Industries, Osaka, Japan, presiding*

- **Implementation of IVHS Technologies Under Brisbane's Linked Intersection Signal System (B.L.I.S.S.)\*\***  
Laurie Peterson, Senior Engineer, Traffic Operations, Traffic Planning Operations, Brisbane City Council, Brisbane, Queensland, Australia
- **Universal Traffic Management System (UTMS) in Japan\*\***  
Ken-ichi Aoyama, Assistant Director, Traffic Management and Control Division, Traffic Bureau, National Police Agency, Tokyo, Japan
- **System Design of Advanced Mobile Information System (AMIS)\*\***  
Yuji Hasegawa, Manager of Information Systems Division, and Eiji Keitoku, Senior Engineer, Matsushita Communication Industrial Company, Ltd., Yokohama, Japan; Masataka Imaizumi, Chairman, Universal Traffic Management Society of Japan, Tokyo, Japan
- **ROMANSE — A Road Management System For Europe\*\***  
Robert Mansfield, Project Manager, Hampshire County Council ROMANSE Project, Southampton, United Kingdom

# 48 *Grand Salon B*

## ATMS — Decision Support

*Walter H. Kraft, Senior Vice President, Edwards & Kelcey, Livingston, New Jersey, presiding*

- **A Consensus-Building Process for the Design of a Regional Traffic Information Center\*\***

Amy Polk, Research Associate, Center for Urban Transportation Research, University of South Florida, Tampa, Florida

- **Integrating GIS-T and IVHS: Data Sharing for Dynamic Transportation Modeling\*\***

John C. Sutton, Director, Transportation Planning, GIS/Transportation, Ltd., Cambridge, Massachusetts

- **Support Systems for Advanced Traffic Management Control Centers\*\***

Cesar Perez, Highway Research Engineer, Federal Highway Administration, McLean, Virginia; Mike Ward, Deputy Director, Business Development and Advance Programs, Gary Hall, Manager of Advanced Control Systems, Business Development and Advance Programs, and Barry Grasso, Senior Software Engineer, Loral Aerosys, Seabrook, Maryland

3:00 pm

Refreshment Break in Exhibit Hall

*Galleria, Lower Level*

3:30 - 5:00 pm

# 49 *Grand Ballroom*

## System Architecture Concepts: The First Look (Taped)

*Robert E. Parsons, Principal, Parsons Transportation Association, Walnut Creek, California, presiding*

Get a first hand account from the leaders of the IVHS Architecture Development Program on the status of the system concepts under study. This session will be the first forum in which the teams exploring the alternative architectures talk publicly about their concepts.

*Panelists:*

- **Background**

Robert E. Parsons, Principal, Parsons Transportation Association, Walnut Creek, California

- **IVHS Architecture Development Program Overview**

Lee Simmons, Program Management and Systems Engineering Division, Federal Highway Administration, Washington, D.C.

- **Alternative Architecture Concepts:**

- Donald A. Savitt, Vice President, IVHS Business Development, Hughes Transportation Management Systems, Fullerton, California

- Ronald P. Knockeart, Vice President, Siemens Automotive, Auburn Hills, Michigan

- Kenneth D. Schreder, Technical Director, Advanced Technology and Engineering, Rockwell International, Anaheim, California

- Tom Tran, Westinghouse Electric Corporation, Baltimore, Maryland

- **Looking Ahead**

Gary Euler, Chief, Program Management and Systems Engineering Division, Federal Highway Administration, Washington, D.C.

5:00 pm

Sessions Adjourn for the Day

5:30 - 6:30 pm

Reception in Exhibit Hall

*Galleria, Lower Level*

7:00 - 8:30 pm

**50**

*Grand Salon West*

### Informal IVHS Roundtable Discussions

Got something you want to talk about? Here is another opportunity to network and share experiences with your colleagues. This unique session will have numerous simultaneous roundtable discussions proceeding in the same room on various IVHS - related topics. Each roundtable will have a moderator, and participants will be free to move about from roundtable to roundtable to talk, listen and learn.

- Public/Private Partnerships
- National IVHS Program Plan
- Comparative Analysis of International IVHS Programs
- User Acceptance of IVHS
- SIP/TIP Case Studies
- USDOT's Operational Test Program
- Operational Test Evaluation
- Communication Spectrum Needs/Requirements
- IVHS and Demand Management
- IVHS and Privacy
- SDB/DBE Requirements and Opportunities
- Rural Applications of IVHS
- IVHS and Safety
- IVHS and Transit
- Automated Highway Systems

60

**51**

*Grand Salon A*

### Regional IVHS Chapters Meeting

IVHS AMERICA's Regional Chapters mark the beginning of an information exchange to coordinate IVHS activities at the state and local levels.

## Wednesday, April 20, 1994

Technical Committee Meetings

See Consolidated Schedule in centerfold section

7:00 am

Registration/Message Desk

*Foyer, 2nd Floor*

7:15 am

Continental Breakfast

*Foyer, 2nd Floor*

8:30 - 10:00 am

Concurrent Technical Sessions

**52**

*Grand Ballroom B*

### Perspectives on IVHS and the Environment - The Need for Consensus (Taped)

*Philip A. Shucet, Assistant Vice President, Michael Baker Jr., Inc., Virginia Beach, Virginia, presiding*

*Panelists:*

- Stephen C. Lockwood, Vice President, Parsons Brinckerhoff/Farradyne Systems, Inc., Rockville, Maryland

61

TUESDAY  
WEDNESDAY



- Cynthia J. Burbank, Chief, Environmental Analysis Division, Office of Environment and Planning, Federal Highway Administration, Washington, D.C.
- Michael Replogle, Co-Director, Transportation Project, Environmental Defense Fund, Washington, D.C.
- Joel Markowitz, Manager, Advanced Systems Applications, Metropolitan Transportation Commission, Oakland, California
- Yasmin Yorker, Chief, Mobile Source Planning Unit, Environmental Protection Agency – Region 4, Atlanta, Georgia

## **53** *Grand Ballroom A*

### **Where in the World are IVHS Standards (Taped)**

*Richard J. Weiland, General Manager, SEI Technology Group, Rosemont, Illinois, presiding*

- **International IVHS Standards: An ISO Update**  
Arlan Stehney, Staff Engineer, SAE International, Warrendale, Pennsylvania
- **The European Approach to Standards for Road Traffic and Transport Telematics\*\***  
Dik Van Wijk, Chairman, CEN/TC 278, Project Manager, Ministry of Transport of the Netherlands, The Hague, The Netherlands
- **The Japanese Approach to IVHS Standards**  
Hironao Kawashima, Professor, Faculty of Science and Technology, Keio University, Yokohama, Japan, and Yoshitaka Hata, General Manager, Electronics Development Department, Nissan Technical Center, Kanagawa, Japan

## **54** *Grand Salon B*

### **Human Factors and Collision Avoidance**

*George Parker, Associate Administrator for Research and Development, National Highway Traffic Safety Administration, Washington, D.C., presiding*

- **Simulation Study of the Effects of Four Route Guidance Systems on Driving Performance\*\***  
Ragharan Srinivasan, Research Assistant, Chun-Zin Yang, Research Assistant, Paul P. Jovanis, Associate Director, and Ryuichi Kitamura, Professor, Institute of Transportation Studies, University of California, Davis, California
- **The Effect of A Collision Avoidance System on Drivers' Braking Responses\*\***  
Robert Graham, Project Associate, and Steven J. Hirst, HUSAT Research Institute, Loughborough University, Loughborough, Leicestershire, United Kingdom
- **Preliminary Human Factors Guidelines for Crash Warning Devices\*\***  
Ronald D. Lyons, Manager, Human Design, Neil D. Lerner, Manager, Human Factors, and Bari Kotwal, Human Factors Associate, COMSIS Corporation, Silver Spring, Maryland
- **Essential Issues Involved in Radar Based Collision Warning Avoidance System\*\***  
Hiroshige Fukuhara, Manager, Nissan Motor Co., Ltd., Yokosuka, Japan, and Kunihiko Kurami, Principal Engineer, Nissan Research and Development, Farmington Hills, Michigan

## 55 *Grand Salon C*

### **Regional Organizations: Will They Accelerate Deployment?** (Taped)

*Richard Schuman, Director of System Integration, IVHS AMERICA, Washington, D.C., presiding*

*Panelists:*

- John Stearns, Chair, IVHS AMERICA Outreach Task Force, and President, Navigation Technologies, Sunnyvale, California
- Larry Darnes, Chief, Traffic Management Branch, Federal Highway Administration, Washington, D.C.
- John West, Division Chief of New Technical Materials Research, California Department of Transportation, Sacramento, California
- Joseph Sussman, JR East Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts
- Adrian Tentner, Director of IVHS Initiative, Argonne National Laboratory, Argonne, Illinois
- Gary Trietsch, Director of Traffic Operations, Texas Department of Transportation, Austin, Texas
- Mary D. Ameen, Assistant Chief Engineer, New Jersey Highway Authority, Woodbridge, New Jersey
- Frank Carlile, IVHS Florida Executive Committee Chair, and Assistant Secretary of Transportation Policy, Florida Department of Transportation, Tallahassee, Florida
- Phyllis Radlinski, Marketing Director, Transportation Research Engineer, Inc., East Liberty, Ohio

## 56 *Grand Salon E*

### **ATMS — Lessons Learned**

*Sheldon Strickland, Chief, Traffic Management Division, Federal Highway Administration, Washington, D.C., presiding*

- **JFK Airport Integrated Transportation System\*\***  
K.K. Saxena, Vice President, Kimley-Horn and Associates, Inc., Miami, Florida, and Paul Carris, Director, IVHS Programs, New Jersey Department of Transportation, Trenton, New Jersey
- **Traffic Information and Driver Behavior in Paris Region\*\***  
Yves Durand-Raucher, Director, Inter-County Directorate for Traffic Operations, Creteil, France
- **Rapid Deployment of Traffic Management Systems\*\***  
Richard Stehr, Director, Office of Planning Development and Traffic, and Glen Carlson, Manager, Minnesota Department of Transportation, Roseville, Minnesota
- **The Development of New York City's Regional Traffic Management Center\*\***  
Robert G. Rausch, Vice President, JHK & Associates, Norcross, Georgia, and Raman K. Patel, Chief, Systems Engineering, New York City Department of Transportation, Long Island City, New York

## 57 *Grand Salon D*

### **IVHS Communication Technology Applications**

*Frank J. Mammano, Chief, Electronic Systems Branch, Federal Highway Administration, McLean, Virginia, presiding*

- **Cellular Based Traffic Surveillance — The Washington D.C. Area Operational Test\*\***  
Roy Sumner, Vice President, Farradyne Systems, Inc., Rockville, Maryland; R. Smith, General Manager, Marketing Applications, Bell Atlantic Mobile Systems, Bedminster, New Jersey; J. Kennedy, Engineering Research Associates, Vienna, Virginia; J. Robinson, Urban Mobility Engineer, Federal Highway Administration, Baltimore, Maryland
- **A Commercial Product Advancing the State of the Arts: Intelligent Mobile Data Network (IMDNs)\*\***  
Charles L. Taylor, President, Pinpoint Communications, Inc., Dallas, Texas
- **Electromagnetic Compatibility (EMC) for the IVHS from System Architecture to Component Level\*\***  
J.L. Norman Violette, President, and P.J. Mondin, Consultant in EMC, Violette Engineering Corporation, Falls Church, Virginia

## 58 *Grand Ballroom C*

### **ATIS User Issues**

*Lawrence L. Schulman, Associate Administrator, Technical Assistance, Federal Transit Administration, Washington, D.C., presiding*

- **The Demand for and the Change in Commuting Behavior Attributed to the Use of a Corridor Specific ATIS Pre-Trip Incident Alert System\*\***  
W. Patrick Beaton, Professor, Center for Transportation Studies and Research, and Amit

Sadana, Research Assistant, New Jersey Institute of Technology, Newark, New Jersey

- **Impact of Traffic Information on Commuters' Behavior: Empirical Results from Southern California and their Implications for ATIS\*\***

Paul P. Jovanis, Associate Director and Professor of Civil Engineering, Mohamed A. Abdel-Aty, Post-Graduate Research Engineer, Kenneth M. Vaughn, Post-Graduate Research Engineer, and Ryuichi Kitamura, Professor, Institute of Transportation Studies, University of California, Davis, California; Fred L. Mannering, Professor, Department of Civil Engineering, University of Washington, Seattle, Washington

- **A Combined Traveler Behavior and System Performance Model with ATIS**

Asad Jan Khattak, Research Engineer, and Paramsothy Thananjeyan, PATH, Institute for Transportation Studies, University of California, Richmond, California; Haitham Al-Deek, Department of Civil and Environmental Engineering, University of Central Florida, Orlando, Florida

- **The Emergence of Smart Traveler Kiosks and the User Interface Requirements for their Successful Deployment\*\***

J.L. Schroeder, Technical Specialist, SEI Information Technology/IVHS Group, Park Ridge, Illinois, and Jeff Green, Director, Advanced Product Development, American Automobile Association, Heathrow, Florida

MONDAY

## 59 *Grand Salon A*

### **Advanced Rural Transportation Systems**

*Donna C. Nelson, Senior Staff Engineer, IVHS AMERICA, Washington, D.C., presiding*

- **Rural IVHS Outreach: Stimulating Local Agency Interest and Involvement\*\***

Barbara McClure Schroeder, Manager, Transportation Department, De Leuw, Cather & Company, Denver, Colorado, and Stephen S. Clinger, Highway Engineer, Office of Traffic Management and IVHS, Federal Highway Administration, Washington, D.C.

- **Recreational Applications of IVHS in New Jersey\*\***

Jeffrey P. Arch, Lead Transportation Engineer, Parsons Brinkerhoff - FG, Inc., West Trenton, New Jersey

- **Rural ATIS: Assessment of User Needs and Technologies\*\***

Mohsen Zarean, Senior Engineer, JHK & Associates, Norcross, Georgia; R. Sivanandan, Virginia Tech, University Center for Transportation Research, Blacksburg, Virginia; Davey Warren, Federal Highway Administration, McLean, Virginia

## 60 *Grand Ballroom D*

### **TravTek Evaluation Final Results — Part 2 (Taped)**

*Joseph I. Peters, Assistant Vice President and Director, Human Performance Technology Department, Science Applications International Corporation, McLean, Virginia, presiding*

- **TravTek System Architecture Evaluation Findings**

Charles W. Blumentritt, Research Scientist, Advanced Systems Program Manager, Texas Transportation Institute, Dallas, Texas

- **TravTek Trip and Network Efficiency Evaluation Findings**

Vaughan W. Inman, Deputy Division Manager, Science Applications International Corporation, Orlando, Florida

- **Projected Direct and Indirect Benefits of TravTek**

Michel Van Aerde, Associate Professor, Department of Civil Engineering, Queen's University, Kingston, Ontario, Canada

**10:00 am**

Refreshment Break

*Foyer, 2nd Floor*

**10:30 am - 12:30 pm**

## 61 *Grand Ballroom*

### **Visions for IVHS — Blue Ribbon Panel**

*William Spreitzer, Technical Director, GM IVHS program Office, General Motors Corporation, Warren, Michigan, presiding*

*Panelists:*

- Lawrence D. Dahms, Executive Director, Metropolitan Transportation Commission, Oakland, California
- Mortimer L. Downey, Deputy Secretary, United States Department of Transportation, Washington, D.C.
- John Giroto, President, Collins Commercial Avionics Division, Rockwell International Corporation, Cedar Rapids, Iowa
- Richard P. Braun, Chairman, Metropolitan Airports Commission, Minneapolis, Minnesota

**12:30 pm**

Meeting Adjourns

**1:30 - 5:00 pm**

Board of Director's Meeting

*Grand Salon E, 2nd Floor*

## **Thursday, April 21, 1994**

Technical Committee Meetings

See Consolidated Schedule in centerfold section

**8:30 am - 4:00 pm**

### **System Architecture Forum**

To involve stakeholders in the IVHS Architecture Development Program, U.S. DOT and IVHS AMERICA are conducting a series of regional forums. This forum is the first in the series.

**8:00 am** Registration

**8:30 am** Welcoming/Opening Remarks

**8:45 am** Background (Video Primer, User Services, Implications)

**12:15 pm** Lunch On Your Own

**1:30 pm** Team Presentations

**4:15 pm** Where Do We Go From Here?

*(Program subject to minor modification)*

**ANNEXE B**

**LISTE DES EXPOSANTS**

AB Volvo  
AGS Group  
Alliedsignal Technical Services Corp.  
American Electronic Sign  
American Signal  
Amtech Systems Corporation  
Andrew Corporation  
AT/Comm  
AT&T - IVHS  
Automotive Engineering (SAE)  
Axyal

Battelle  
Bell Atlantic  
Booz-Allen & Hamilton Inc.  
Burle Industries Inc.

California Path  
Calspan Corporation  
Carlson Telecom Systems  
Castle Rock Consultants  
C-Cor/ Electronics Inc.  
Cohu Electronics Division  
Construction Interface  
Coryphaeus Software Inc.  
Cylink

Daktronics Inc.  
Delco Electronics Corporation  
Deleuw Cather & Company  
Detection Systems & Engineering  
Differential Corrections Inc.  
Dowling College - National Aviation Transportation Center

Econolite Control Products  
E.I.S. Electronic Integrated Systems Inc.  
E-Lite Limited  
Engineering News-Record  
E-Systems  
Etak Inc.

Farradyne Systems Inc.  
Fiberoptic Display Systems Inc.  
Fischbach and Moore, Traffic Systems Group

George-Ingraham Corp.  
Georgia Tech Student Chapter  
Global Vehicule Tracking Systems  
GPS World  
Graphic Data Systems Corp.  
Grumman  
GTE Government Systems

HNTB  
Hughes Aircraft Company

IBI Group  
IBM and the Federal Systems Company  
ICON Networks Inc.  
International Fiber Systems Inc.  
IVHS America

Javelin Electronics  
JHK & Associates

Kimley-Horn and Associates  
Kinesix  
KLD Associates Inc.  
KSI Inc.

Lockheed IMS  
Loral Aerosys  
Lotus Development Corp.

Magellan Systems Corporation  
Mark IV Transportation Products Group  
Math Associates Inc.  
Matrix Corporation  
MFS Network Technologies  
Microware Systems Corporation  
Microwave Sensors Inc.  
Mil-Lektron  
Minnesota Guidestar  
Motorola

Navigation Technologies  
Network Construction Services Inc.  
NSI  
Nynex  
Nys Department of Transportation



Omni  
Opcom  
Optelecom Inc.

Pactel Teletrac (AirTouch Teletrac)  
Pat Traffic Control Corp. (PTCC)  
Peek Traffic Systems  
Prefomed Line Products

Qualcomm Incorporated

Racal Radio Ltd  
Road Commission for Oakland County  
Rockwell

Schwartz Electro-Optics Inc.  
SEI Information Technology  
Sicor Corporation  
Siemens Automotive  
Skyline Products Inc.  
SL Corporation  
Southwest Microwave Inc.  
Spectra Systems Inc.  
Sumitomo Electric Industries Inc.  
Surface Systems Inc.

3M Traffic Control Systems  
Talarian Corporation  
Terrapin Corporation  
Trafficmaster PLC  
Transportation Research Center Inc.  
TRW

University Transportation Centers Program  
U.S. Department of Transportation

Vaisala Inc.  
Vikimatic Sales Inc.  
Virtual Prototypes

Waters Information Services  
West & Associates  
Westinghouse Electric Corp.  
Whelen Engineering Company

## **ANNEXE C**

### **DOCUMENTATIONS DIVERSES**

Certains documents de cette annexe sont intégrés à la collection, les autres sont classés dans le dossier "Systèmes intelligents véhicules-routes".

1) INFORMATION GÉNÉRALE. POLITIQUE ET PROGRAMMES

- IVHS America Fourth Annual Meeting. Pre-Registered Attendee List.
- 1993 Annual Report. Intelligent Vehicule-Highway Society of America.
- Intelligent Vehicule Highway Systems Projects. March 1994, USDOT.
- IVHS Architecture Development Program. April 1994, USDOT / IVHS America.
- University Transportation Centers Program. 1988-1993 VTCP Report.
- Intelligent Vehicule Highway Systems Institutional and Legal Issues Program. April 1994, USDOT.
- Advanced Public Transportation Systems. USDOT.
- National Transit Geographic Information System. A component of the National Transportation System, USDOT.
- Advanced Public Transportation Systems Program APTS. USDOT.

2) ÉTUDES ET RECHERCHES. REVUES

- Institutional Barriers and Opportunities for IVHS in Commercial Vehicule Operations: an IOWA Case Study. February 1992, Midwest Transportation Center.
- Loading and Unloading Practices Related to Lumping: Status and Implications for Motor Carriers, Shippers and other Parties. Executive Summary. Iowa State University.
- Electronic Toll and Traffic Management (ETTM) User Requirements for Future National Interoperability. April 1994. ETTM User Group.
- Feature Shock - Data Fusion and System Integration for Advanced Public Transit Systems by M.P. Kushner. Westinghouse Electronics Systems Corporation.

- The Intelligent Highway. European Transport Telematics Update. April 1995.
- Inside. IVHS Update. April 1994.
- GPS World. News and Applications of the Global Positioning System. April 1994.
- IVHS Special Report on Innovative Financing. April 1994. ENR.

3) **PROJETS**

- The Houston Intelligent Transportation System Metro.
- Bay Area Advanced Traveler Information System.
- California PATH.
- Minnesota Guidestar.
- Strategic Plan IVHS / CVO in Oregon.
- New-York Moves through IVHS.
- Propect Northstar.
- The Advance Project. Illinois.
- H.E.L.P. Inc. A Non-Profit Corporation.
- COVE Project (CVO). Colorado.
- Loral-IBM IVHS Architecture. LORAL.
- Virginia Tech. IVHS is the Wave of the Future.
- Georgia Tech. Advanced Transportation Technologies and Research.

4) OFFRE DE SERVICE

- Integrated Solutions for Advanced Public Transportation Systems.
- TRW Advanced Traffic Management Systems. TRW.
- Smart Track. Vehicule Management System. Westinghouse.
- TRW in Vehicule System.
- IVHS. IBI Group.
- IVHS. Kinley-Storn and Associates.
- Advanced Traffic Management System. Advanced Traveller Information Systems. Allied Signal Aerospace.
- Dallas Area Rapid Transit. Graphic Data System Corporation. Guides.
- Dayton T. Brown Inc. Testing and Engineering Laboratories.
- Grumman Products.
- Real Time Works. Talarian.
- Mass Transit Systems. Accutrans. E-Systems.
- Real Drive Simulator. In-Mar-Tech.
- Javelin Video Traffic Management. Javelin Electronics.
- 3M Lighted Guidance Tube. 3M.
- Variable Message Sign Systems. Sylvia. FDS Fiberoptic. Display Systems.
- Beatrics Radar Sensors for Traffic Monitoring and Incident Detection. Thomson, CSF.

- Sightline. Delco Electronics.
- Telepath 100. Delco Electronics.
- Car Navigation and Information System. Sunutomo Electric.
- Economical Flut Management Systems. Global Vehicule Tracking GVT Systems.
- EDRA. European Digital Road Map Association.
- Smart Solutions. HNTB. Surface Transportation Services.
- IVHS. The Intelligent Way to Turn Transportation Problems into Profitable Opportunities.

**ANNEXE D**

**LISTE DE PROJETS SIVR AUX ÉTATS-UNIS**

## INTRODUCTION

The Intelligent Vehicle Highway Systems (IVHS) program applies advanced and emerging technologies in such fields as information processing, communications, control, and electronics to surface transportation needs. If these technologies can be effectively stimulated, integrated, and deployed, the public will be able to more efficiently use the Nation's highway infrastructure and energy resources by making more informed choices about travel and route alternatives. Successful deployment of IVHS services and systems will achieve improvements in safety, mobility, and productivity, and reduce harmful environmental impacts, particularly those caused by traffic congestion.

As described in the National IVHS Program Plan, the IVHS program is focused on the development and deployment of a collection of user services. Twenty eight inter-related user services have been defined to date as part of the national program planning process. User services are defined, not along lines of common technologies, but based upon the services or benefits that various users might receive. The services are in various stages of maturity; some are available today, others will require significant research, development, testing, and advances in technology applications before they are ready for deployment.

Deployment of these user services will help to attain the goals defined for the national IVHS program by creating safer and better informed travelers, improved traffic control systems, and more efficient transit and commercial vehicle operations. Because of their interdependencies, it is likely that individual user services will not be deployed independently. For example, a fully functioning Route Guidance service will require real-time traffic information that is collected and processed by the Traffic Control service. Thus, user services have been grouped into "bundles," based on likely deployment scenarios. The bundles of user services are shown in the table on the following page.



TABLE OF CONTENTS

I. INTRODUCTION ..... 1

II. IVHS USER SERVICES

    A. Travel and Traffic Management ..... 3

Research and Development

            Additional Prototype Development (RTTASC) ..... 10

            Advanced Computing Architectures for Advanced Traffic Management  
                Systems (ATMS) ..... 11

            Advanced Traveler Information Systems (ATIS) Communications  
                Alternatives Test and Evaluation ..... 12

            Analysis of Travelers' Preference for Routing ..... 13

            Assessment of the Effects of In-Vehicle Navigation Systems on Driver  
                Performance ..... 14

            Coordinated Operation of Ramp Metering and Signal Control ..... 15

            Databases for Traffic Model Verification and Validation ..... 16

            Design of Support Systems for Advanced Traffic Management Systems  
                (ATMS) Control Centers ..... 17

            Detection Technology for IVHS ..... 18

            Development and Laboratory Testing of New Detection Technologies  
                and Surveillance Concepts ..... 19

            Dynamic Traffic Assessment (DTA) & Synthetic Origin and  
                Destination (O-D) Matrices ..... 20

            Electronic Traffic Control Device Communications Standard Protocol ... 21

            Encoding Scheme for ATMS/ATIS Data Fusion ..... 22

            Evaluation of Real-Time Traffic Adaptive Signal Control (RTTASC)  
                Prototypes ..... 23

            FM/SCA Prototype for Traffic Information Broadcast ..... 24

            Graphics-Based Input Data Generator from FRESIM ..... 25

            Human Factors in Advanced Traffic Management Systems (ATMS) ..... 26

            Human Factors in Advanced Traveler Information System (ATIS) and  
                Commercial Vehicle Operations (CVO) Design Evolution ..... 27

            In-Vehicle Advisory and Warning Systems ..... 28

            In-Vehicle Signing ..... 29

            Incident Detection Issues ..... 30

            Integration of Traffic Operations and Traffic Data Collections ..... 31

            Models to Simulate IVHS Operations ..... 32

            Motorist Aid System Assessment ..... 33

            Network-Wide Optimization ..... 34

            North Seattle Advanced Traffic Management System (ATMS) ..... 35

## TABLE OF CONTENTS

### A. Travel and Traffic Management (cont.)

#### Research and Development (cont.)

Operational Evaluation of SCOOT in Southern California . . . . .	36
Real-Time Traffic Adaptive Control for IVHS . . . . .	37
Responsive Multi-Modal Transportation Management Strategies . . . . .	38
Revised Planning Methodology for Signalized Intersection and Operations . . . . .	39
Rural Applications of Advanced Traveler Information Systems . . . . .	40
Traffic Engineering Information Databases . . . . .	41
Traffic Management Laboratory . . . . .	42
Traffic Management Laboratory and R&D Support for the IVHS . . . . .	43
Traffic Management Technical Design Reviews and Workshops . . . . .	44
Traffic Modeling to Support Advanced Traveler Information Systems . . . . .	45
Traffic Models for Testing Real-Time, Traffic-Adaptive Signal Control Logic: Phase 1 . . . . .	46
Wide Area Surveillance Systems . . . . .	47

#### Operational Tests

ADVANCE . . . . .	50
Advanced Ridesharing and Traveler Information System . . . . .	51
Bellevue Smart Traveler . . . . .	53
Borman Expressway Advanced Traffic Management Systems . . . . .	55
Boston Smart Traveler . . . . .	56
California Smart Traveler . . . . .	57
"Capital" - Washington, D.C. Area Operational Test . . . . .	59
Connecticut Freeway Advanced Traffic Management System . . . . .	61
DIRECT . . . . .	62
Dynamic Truck Speed Warning for Long Downgrades . . . . .	63
Electronic Toll and Traffic Management . . . . .	64
FAST-TRAC . . . . .	65
Genesis . . . . .	66
Houston Smart Commuter . . . . .	67
Idaho Storm Warning System . . . . .	68
Incident Management, Minneapolis, Minnesota . . . . .	70
Incident Management, Seattle, Washington . . . . .	71
Integrated Corridor Management . . . . .	72
Integrated Ramp Metering/Adaptive Signal Control . . . . .	73
Minnesota Guidestar Program . . . . .	74
Mobile Communications System . . . . .	76

**TABLE OF CONTENTS**

**A. Travel and Traffic Management (cont.)**

**Operational Tests (cont.)**

Multi-Jurisdictional Live Aerial Video Surveillance System, I . . . . .	77
Multi-Jurisdictional Live Aerial Video Surveillance System, II . . . . .	78
North Seattle ATMS (Integrated Traffic Control Network) . . . . .	79
Pathfinder . . . . .	80
San Antonio Advanced Traffic Management System Test (Texas) . . . . .	81
Satellite Communications Feasibility . . . . .	83
SCOOT Adaptive Traffic Control System . . . . .	84
Smart Call Box . . . . .	85
Spread Spectrum Radio Traffic Interconnect . . . . .	86
TRANSCOM Congestion Management Program . . . . .	87
TRANSMIT . . . . .	89
Travel-Aid . . . . .	90
TravInfo . . . . .	92
TravLink . . . . .	93
TravTek . . . . .	94

**IVHS Deployment**

Integrated Traffic Management System . . . . .	96
SMART Corridor . . . . .	97

**B. Public Transportation Management . . . . . 99**

**Research and Development**

Portland Smart Bus . . . . .	104
Traffic Management Information and Fleet Operation Coordination . . . . .	105
Transit Network Route Decision Aid . . . . .	106
Transit Technology Research . . . . .	107

**Operational Tests**

Alternate Bus Routing . . . . .	110
Ann Arbor Smart Bus . . . . .	111
CTA (Chicago) Smart Bus Intermodal . . . . .	113
Dallas Smart Bus Evaluation . . . . .	115
Delaware County Ridetracking . . . . .	116

TABLE OF CONTENTS

**B. Public Transportation Management (cont.)**

Operational Tests (cont.)

Denver, Colorado Rapid Transit District (RTD) Passenger Information Display System . . . . .	117
Detroit Transportation Center Transit Information . . . . .	118
Metropolitan Transportation Center, Detroit: Advanced Public Transportation System (APTS) Project Information . . . . .	119
Milwaukee Smart Bus . . . . .	120
MTA (Baltimore) Smart Bus . . . . .	121
Norfolk Mobility Manager . . . . .	122
Rogue Valley Mobility Manager . . . . .	123
RTD (Denver) Smart Bus . . . . .	125
Suburban Mobility Authority for Regional Transportation (SMART) Project . . . . .	126

**C. Electronic Payment . . . . . 127**

Research and Development

Advanced Fare Payment Media, I . . . . .	132
Advanced Fare Payment Media, II . . . . .	133

Operational Tests

Chattanooga Smart Card . . . . .	136
Twin Cities Smart Traveler . . . . .	137

**D. Commercial Vehicle Operations . . . . . 139**

Research and Development

Commercial Vehicle Fleet Management and Information Systems . . . . .	144
Commercial Vehicle Safety Systems . . . . .	145
Electronic Commercial Vehicle Credential System Architecture . . . . .	146
Systems Planning for Automated Commercial Vehicle Licensing and Permitting Systems . . . . .	147

## TABLE OF CONTENTS

### **D. Commercial Vehicle Operations (cont.)**

#### **Operational Tests**

Advantage I-75 . . . . .	150
Detroit and St. Clair Rivers International Border Crossing Study . . . . .	151
HELP/Crescent . . . . .	152
On-Board Automated Mileage Test . . . . .	154
PASS . . . . .	155

### **E. Emergency Management . . . . . 157**

#### **Operational Tests**

Performance Specifications: Systems to Enhance Emergency Medical Service Response . . . . .	162
---	-----

### **F. Advanced Vehicle Safety Systems . . . . . 163**

#### **Research and Development**

Advanced Vehicle Control System (AVCS) Infrastructure and Traffic Impacts . . . . .	168
Advanced (Vision-Based) Vehicle Control System, Phase I . . . . .	169
Advanced (Vision-Based) Vehicle Control System, Phase II . . . . .	170
Analysis of Existing Accident Databases . . . . .	171
Automated Highway System (Precursor Systems Analyses) . . . . .	172
Automated Highway System Consortium . . . . .	174
Crash Avoidance and the Older Driver . . . . .	175
Design Driver Database . . . . .	176
Develop an Analytical Modeling Framework/Collision Avoidance System . . . . .	177
Direct Psychophysiological Monitoring of Driver Alertness and Attention Focus . . . . .	178
Driver Status/Performance Monitoring . . . . .	179
Driver Workload Assessment . . . . .	180
Evaluation of Potential Health Hazards from Wide-Spread Use of Anti-Collision Technologies . . . . .	181
Human Factors Design of Automated Highway Systems . . . . .	182
In-Vehicle Crash Avoidance Warning Systems: Human Factors Considerations . . . . .	183
National Advanced Driving Simulator (NADS) . . . . .	184
PATH . . . . .	185

## TABLE OF CONTENTS

### F. Advanced Vehicle Safety Systems (cont.)

#### Research and Development (cont.)

Performance Specifications: Countermeasures Against Intersection Collisions .....	187
Performance Specifications: Countermeasures Against Lane Change, Merging and Backing Collisions .....	188
Performance Specifications: Countermeasures Against Rear-End Collisions .....	189
Performance Specifications: Countermeasures Against Roadway Departure Collisions .....	190
Performance Specifications: Vision Enhancement System for Nighttime and Inclement Weather .....	191
Portable Data Acquisition System for Crash Avoidance Research, Phase I: System Design .....	192
Portable Data Acquisition System for Crash Avoidance Research, Phase II: System Prototype Development .....	193
Problem Definition and Analysis of Target Crashes and IVHS/Countermeasure Action .....	194
Quantitative Characterization of Vehicle Motion Environment: System Applications .....	195
Quantitative Characterization of Vehicle Motion Environment: System Design .....	196
Safety Assessment of the Prototype Automated Vehicle-Highway System .....	197
Standardized Driving Simulation Tasks and Scenarios .....	198
Studies of Infrastructure and Traffic Impacts of Advanced Vehicle Control System Concepts .....	199
Test and Evaluation of IVHS Hardware and Systems .....	200
Variable Dynamics Test Vehicle .....	201

#### Operational Tests

Roadway Powered Electric Vehicle (RPEV) .....	204
---	-----

G. Priority Corridors .....	205
-----------------------------	-----

TABLE OF CONTENTS

<b>III. NATIONAL COMPATIBILITY PLANNING</b> .....	211
Commercial Vehicle Short Range Communication .....	214
Commercial Vehicle System Design .....	215
Development of a National AVI Standard .....	216
Electromagnetic Compatibility Testing for IVHS .....	217
Global Positioning System (GPS) Augmentation .....	218
Global Positioning Systems .....	219
IVHS Radio Frequency Spectrum Planning .....	220
Link Identification Format and Map Database Requirements .....	221
System Architecture Consensus Building .....	222
System Architecture Development .....	223
System Architecture Manager .....	225
<b>IV. DEPLOYMENT</b> .....	227
Atlanta, Georgia Areawide Early Deployment Planning Study .....	230
Austin, Texas Early Deployment Planning Study .....	231
Birmingham, Alabama Areawide Early Deployment Planning Study .....	232
Boston, Massachusetts Areawide Early Deployment Planning Study .....	233
Buffalo/Niagara Falls, New York Areawide Early Deployment Planning Study .....	234
Charleston, South Carolina Areawide Early Deployment Planning Study . . .	236
Charlotte, North Carolina Areawide Early Deployment Planning Study . . .	237
Cleveland, Ohio Areawide Early Deployment Planning Study .....	238
Dallas, Texas Areawide Early Deployment Planning Study .....	239
Denver, Colorado Areawide Early Deployment Planning Study .....	241
Denver, Colorado Preliminary Engineering Early Deployment Planning Study .....	242
Detroit, Michigan Areawide Early Deployment Planning Study .....	243
Greensboro, North Carolina Corridor Early Deployment Planning Study . . .	245
Greenville, South Carolina Areawide Early Deployment Planning Study . . .	246
Hampton Roads, Virginia Areawide Early Deployment Planning Study . . .	247
I-70 Denver, Colorado Corridor Early Deployment Planning Study .....	248
Kansas City, Missouri-Kansas Areawide Early Deployment Planning Study .	249
Las Vegas, Nevada Areawide Early Deployment Planning Study .....	250
Los Angeles/San Diego, Calif. Corridor Early Deployment Planning Study .	251
Louisville, Kentucky Areawide Early Deployment Planning Study .....	252
New Orleans, Louisiana Areawide Early Deployment Planning Study .....	253
Northern Virginia/Washington, D.C. Areawide Early Deployment Planning Study .....	254
Omaha, Nebraska Areawide Early Deployment Planning Study .....	255

## TABLE OF CONTENTS

### IV. DEPLOYMENT (cont.)

Orange County, California Early Deployment Project .....	256
Pennsylvania Turnpike Corridor Early Deployment Planning Study .....	257
Pittsburgh, Pennsylvania Areawide Early Deployment Planning Study .....	258
Portland, Oregon Areawide Early Deployment Planning Study .....	259
Providence, Rhode Island Areawide Early Deployment Planning Study .....	261
Raleigh/Durham/Chapel Hill, North Carolina Areawide Early Deployment Planning Study .....	262
Rochester, New York Areawide Early Deployment Planning Study .....	263
Sacramento, California Early Deployment Planning Study .....	264
St. Louis, Missouri Areawide Early Deployment Planning Study .....	265
Salt Lake City, Utah Areawide Early Deployment Planning Study .....	266
San Francisco Bay Area Early Deployment Planning Study .....	267
San Juan, Puerto Rico Areawide Early Deployment Planning Study .....	268
Seattle, Washington to Portland, Oregon Early Deployment Planning Study .....	269
Tampa, Florida Areawide Early Deployment Planning Study .....	270
Tucson, Arizona Early Deployment Planning Study .....	271

### V. DEPLOYMENT SUPPORT .....

273

Analysis of Federal and State Privacy Law and Development of Strategies to Address Privacy Concerns .....	276
CARAT .....	277
Commercial Vehicle Operations (CVO) Institutional Issues Studies .....	278
Exploration of Alternative Procurement Models for IVHS Technologies .....	279
Identification of Legal Issues .....	280
Institutional and Legal Innovative Projects in Operational Tests and Deployment Projects .....	281
Interdisciplinary IVHS Contracting Course .....	283
IVHS and the Environment in Urban Areas .....	284
IVHS Energy and Environmental Impacts .....	285
IVHS Institutional Issues: George Mason University .....	286
IVHS Staffing and Educational Needs .....	287
IVHS User Acceptance Research .....	288
IVHS User Acceptance Research Support .....	289
Legal Constraints and Fair Access Issues Related to Franchising of In-Ground Communications Technologies Along Highway Rights of Way .....	290



## TABLE OF CONTENTS

### V. DEPLOYMENT SUPPORT (cont.)

Lessons from Other Technologies: Overcoming Barriers to IVHS	
Deployment .....	291
Liability Conference .....	292
Metropolitan Traffic Management .....	293
Non-Technical Constraints Report .....	294
Operational Test Case Studies .....	295
Operational Test Solicitation on Small Business, Consortia	
Opportunities .....	296
Public Acceptance of IVHS Technologies and Services .....	297
Public-Private Partnerships and Their Relationship to IVHS and Enhanced	
Traffic Engineering .....	298
Societal Impact Study of Transportation and Advanced Technology .....	299
Technology Transfer .....	300

### VI. PROGRAM ASSESSMENT .....

301

Advanced Public Transportation System (APTS) Operational Test	
Evaluations .....	304
An IVHS Benefits Assessment Framework .....	305
Evaluation Support for Operational Tests .....	306
Fuel Consumption and Emission Values for Traffic Models .....	307
Guidelines for IVHS Operational Test Evaluation Plans: ATIS and ATMS ..	308
Measuring User Response at Operational Tests .....	309
Qualitative Assessment of IVHS Emission and Air Quality Impacts .....	310
Reference on Internal Institutional Evaluation of Operational Tests .....	311
Safety Evaluations of DOT IVHS Operational Tests .....	312

### VII. OTHER RELATED PROJECTS .....

313

#### Research and Development

IVHS Idea Program .....	316
IVHS Research Centers of Excellence .....	317
Research and Analysis for the IVHS Program .....	318

TABLE OF CONTENTS

**VII. OTHER RELATED PROJECTS (cont.)**

Other Projects

Golden Glades Interchange . . . . .	320
Intelligent Corridor System . . . . .	321
MAGIC . . . . .	322
Maryland - Chart Strategic Plan . . . . .	323
New Jersey Signal Computerization . . . . .	324
Southern State Parkway . . . . .	325

<b>VIII. INDEX . . . . .</b>	<b>327</b>
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QTR A 045 233