

**INTELLIGENT VEHICLE HIGHWAY SYSTEMS
AND STATE SOVEREIGN IMMUNITY FOR TORTS**

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1. INTRODUCTION

In contrast to the modern technical wizardry of Intelligent Vehicle Highway Systems (IVHS), sovereign immunity is a doctrine of common law which literally dates from the days when kings ruled. The sovereign, formerly the king or queen, is now in this country the federal, state and local government. The doctrine generally holds that the sovereign may not be sued or that the sovereign may not be held liable if it is sued. Over the years the doctrine has been modified by statutes and constitutional enactments, as well as by judicial decisions developing the common law and interpreting the statutory and constitutional provisions.

IVHS is a general name for a collection of technologies which combine developments from many fields to advance both highway and motor vehicle design. The states will be important to the development of IVHS in numerous ways. They are the developers of many highways, bridges and other transportation facilities, and they also carry out federal highway programs. Local governments in the states, to which the doctrine of state sovereign immunity also is applicable, themselves build many roads and transportation facilities. In addition, the state and local governments will be key players in addressing today's transportation problems, including congestion, safety, fuel consumption, cost and others.

The sovereign immunity of these state and local governments for torts is an important issue for their advancement of IVHS. Highways and motor vehicles are, of course, one of the major sources of injuries to people in this country and give rise to overwhelming numbers of lawsuits. States, local governments and private parties are often held liable for their negligence or, primarily as to private parties, as a result of doctrines of strict liability. Any new product or design will naturally create concern that it will result in potential liability for its developer or user. Consequently, the degree to which the state and local governments (or perhaps private parties derivatively) will be able to protect themselves from suit or liability though the doctrine of state sovereign immunity is important. The availability of the doctrine may make it more or less feasible to use new technologies, as the costs of possible tort liability are added to the other costs of the product design.

This leads to a fundamental policy issue which should be kept in view during the following discussion. While state and local governments may wish to protect themselves or their contractors from unwanted suits and tort liability, they also have an interest in providing justice to their citizens who have been injured. Any decision to utilize sovereign immunity or expand its scope to encourage IVHS development has as a counterweight the issue of reimbursing individuals who have been injured on roads or in vehicles using IVHS technologies. In the end, that is a judgment call for those who make the policy and this paper can only point out the considerations to be balanced.

There is one enormous barrier to performing a national survey of state sovereign immunity doctrine: the nature, extent and use of and exceptions to the doctrine vary state by state. In the space limitations of this paper, it is impossible to

discuss the full parameters of the doctrine in each state. Rather, the following analysis will discuss the general rules of the doctrine and give examples of varying approaches in different states where that is applicable.

Like the states, the federal government has sovereign immunity. That topic is being discussed in separate papers and not here. However, one should bear in mind that any IVHS development program or roadbuilding which involves both federal and state participation, for example the building of roads by states using federal funds, must take into account the nature and extent of both types of immunity. Similarly, separate papers are studying the traditional rules which define the bases for and the extent of tort liability: negligence, strict liability, etc. However, these subjects cannot be divorced entirely from the topic of sovereign immunity since the same policy bases are often used by the courts to say that sovereign immunity should not apply as are used to support an underlying decision that there should be tort liability.^{1/}

II. NATURE OF IVHS TECHNOLOGY^{2/}

A. Advanced Traffic Management Systems (ATMS)

ATMS (Advanced Traffic Management Systems) will utilize existing and developing technology in traffic management to monitor, control and respond to dynamic traffic conditions. The purpose of ATMS is to improve the efficiency and use of the highways by increasing traffic throughput.^{3/}

Present methods include the use of existing vehicle detectors, communications, computers and various types of ramp signals to meter and control traffic conditions. ATMS represents a critical step in the development of IVHS because it acts as the communication link between the "smart highways" and the "smart vehicles."^{4/} With the use of large scale surveillance and detection systems for the collection of real time traffic data, the dissemination of transportation information to motorists, freeway metering devices, traffic demand management, automated toll collection, arterial signal control and collaborative transportation management by various agencies across multiple jurisdictions, ATMS seeks to optimize the flow of traffic.^{5/}

ATMS will implement advanced detection devices such as video imaging, infrared rays and microwave detectors to monitor traffic density in conjunction with data

1/ For example, the use of reasonable design standards, discussed in section III F, infra.

2/ Additional information on possible IVHS uses may be found in the National Program Plan for Intelligent Vehicle-Highway Systems (IVHS) October 15, 1993 Draft.

3/ IVHS America, Strategic Plan For *Intelligent Vehicle-Highway Systems in the United States*, Report No. IVHS-AMER-92-3,III-8: Transportation Research Board, *Special Report 232 Advanced Vehicle and Highway Technologies*, 21 (1991); P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs*, CRS 5-6 (February 18, 1992).

4/ Id.

5/ R. Maki, D. DeVaughn, *Guidelines For Implementing Advanced Traffic Management Systems (ATMS)*, IVHS America Annual Meeting, 635 (1992).

from other sources, (e.g. police reports, drivers, and automated surveillance), and incident detection technology that will supply data to a computerized traffic management center.^{6/} From the information supplied through the various monitoring locations the traffic management center will then employ traffic-adaptive logic to control the surface street signals and freeway ramp metering, and coordinate transit and emergency vehicle response.^{7/} In addition, ATMS will communicate to motorists the present traffic conditions and possible alternative routes through highway advisory radio, changeable message signs, kiosks and teletext.^{8/}

Other monitoring and informational devices will be applied to commercial vehicle operations (CVO) and advanced public transportation systems (APTS). The technology for CVOs will encompass automated vehicle identification, classification and weigh-in-motion devices. APTS will include mass transit and ride sharing information and services, preferential traffic signal timing and separate lanes for high occupancy vehicles, and advanced fare payment devices to facilitate an increase in the on-loading and off-loading of passengers.^{9/} APTS vehicles may also serve as probes for supplying and updating traffic data that is being input into the traffic management system with the use of video imaging, sensors and on-board computers.^{10/}

Presently a number of ATMS models are either operational or in the developmental stages. INFORM in Long Island, New York, TRANSCOM from New Jersey into the metropolitan New York area and the SMART corridors in Los Angeles are just three of these ATMS projects.^{11/}

B. Advanced Traveler Information Systems (ATIS)

ATIS (Advanced Traveler Information Systems) technologies are intended to provide the motorist with navigational and routing assistance based upon real-time traffic data supplied by the ATMS system, using audio or visual equipment in the vehicle.^{12/} ATIS may have computer databases that will supply the traveler with

6/ IVHS America, *Strategic Plan For Intelligent Vehicle-Highway Systems* at III 9-10; M. Cheslow, S. Hatcher, *A Comparative Evaluation of Alternative ATMS/ATIS Architectures for Intelligent Vehicle Highway Systems*, Transportation Research Board Annual Meeting (1993); P. Michalopoulos, R. Jacobson, C. Anderson, J. Baresso, *Integration of Machine Vision And Adaptive Control In The Fast-Trac IVHS Program*, Transportation Research Board Annual Meeting (1993).

7/ Id.; A. Santiago, *ATMS Technology What We Know and What We Don't Know*, IVHS America Annual Meeting, 654 (1992); C. Seidel, T. Dayharsh, *The Traffic Operations Center Of The future*, IVHS America Annual Meeting, 672 (1992).

8/ Id.

9/ IVHS America, *Strategic Plan For Intelligent Vehicle-Highway Systems* at III 13, III 44-68; P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs* at CRS 7-1 2.

10/ Id.

11/ P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints and Federal Programs*, Appendix I.

12/ IVHS America *Strategic Plan For Intelligent Vehicle-Highway Systems in the United States*, Report No. IVHS-Amer-92-3 (May 20, 1992); P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs*, CRS Report for Congress (February 18,

entertainment, restaurant, hotel and parking availability.^{13/} Additionally, ATIS will be able to notify the driver of current road conditions and alternate route selection based upon that information.

ATIS will employ various informational technologies such as in-vehicle video displays, auditory advisories through voice synthesizers, radio, or heads-up displays which are projected onto the windshield of the vehicle. The Japanese AMTICS system uses on-board navigational devices and roadside beacons with low data rate transmission for traffic advisories and semi-microwave beacons for high speed data transmission bursts for individual and business communications such as facsimile transmissions.^{14/} The ATIS system will inform the driver of present location, traffic, road and environmental conditions, and provide alternative routes, directions, mass transit, and parking availability based upon input received from the ATMS.^{15/}

ATIS will also provide AVL (advanced vehicle location) and AVI (advanced vehicle identification) technology for private, commercial (CVO) and public transit vehicles (APTS) for better traffic management, enforcement and emergency response.^{16/} Present methods of vehicle location are based upon dead-reckoning and map-matching through the use of an on-board microcomputer, but may be supplemented by land or satellite-based location and identification systems such as Global Position Satellites, LORAN-C transmitters, proprietary satellites along with cellular communications or land based radio and sophisticated triangulation techniques to determine vehicle locations.^{17/} In the United States several ATIS operational tests are either planned or under way. These include Pathfinder in the SMART Corridor of Los Angeles, Travtek in Orlando and ADVANCE in Chicago.^{18/}

C. Advanced Vehicle Control Systems (AVCS)

AVCS (Advanced Vehicle Control Systems) is a long term goal for many IVHS programs. Some of the products already exist, including anti-lock brakes, traction control, active suspension and four wheel steering.^{19/} AVCS combines sensors,

1992); Transportation Research Board, Special Report 232 *Advanced Vehicle and Highway Technologies*, 22-23 (1991).

13/ Id.

14/ *Special Report 232 Advanced Vehicle and Highway Technologies* Appendix A, 74.

15/ IVHS America, *Strategic Plan For Intelligent Vehicle Highway Systems* at III-21; P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges Constraints, and Federal Programs at CRS 6-8*; M. Cheslow and S. Hatcher, *A Comparative Evaluation of Alternative ATMS/ATIS Architectures for Intelligent Vehicle Highway Systems* (1993).

16/ Id.

17/ K. Chen, F. Stafford, *A Sociotechnological Perspective on Public-Private Partnership for IVHS Infrastructures*, IVHS Technical Report #92-01,8-9 (March 1992); IVHS America, *Strategic Plans for Intelligent-Vehicle Highway Systems* at W-25.

18/ P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs*, Appendix I.

19/ IVHS America, *Strategic Plan For Intelligent Vehicle Highway Systems in the United States*, Report No. IVHS-AMER-92-3 III-3240 (May 20, 1992); P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs*, CRS Report for Congress

computers and control systems within vehicles to warn, assist or intervene in the driving process. This is accomplished by different types of advanced technology. One is perceptual enhancement through the use of sensors, video or infrared projection and vision enhancement during inclement weather and in areas of low visibility. Another is automated controls that are faster, more precise and more reliable than human reactions. Some examples include automated steering, braking and accelerating, with future technological advancements to include completely automated control of the vehicle.^{20/}

With respect to perceptual enhancement, various types of technology are in development or available in the market place. Proposed technology includes front, rear or peripheral radar or advanced sensors which would detect and warn the driver of the approach of vehicles, making lane changes or approaching from the rear, or the potential threat of impact from a head on collision.^{21/} Greyhound Bus Lines is already using Vorad, a radar based technology, on their buses to augment existing visual devices used by the drivers.^{22/}

The Japanese, in the Personal Vehicle Systems Project being developed by Fujitsu and Nissan, are investigating on-board obstacle recognition and avoidance systems.^{23/} These controls, due to the increased reaction speed, would theoretically diminish the number of accidents on the road and facilitate the maximization of traffic throughput.

Other types of technology under development include the use of video displays that increase rear and side visibility, while reducing the reflective glare of the headlights, to augment conventional rear and side view mirrors.^{24/} In conjunction with the sensors or radar devices, the next step in the technology would be to incorporate advanced vehicle controls that would perform braking, acceleration, automatic cruise control and steering functions for the driver.^{25/} Sensors embedded in the roadway would trigger the controls within the vehicle that either supplement or override the corrective actions of the driver in potentially hazardous situations.^{26/}

The ultimate vision for the AVCS is to create a system that totally removes the control of the vehicle from the driver.^{27/} The types of technology that are presently

(February 18, 1992); Transportation Research Board, *Special Report 232 Advanced Vehicle and Highway Technologies* (1991).

20/ Id.

21/ Id.; United States General Accounting Office, *SMART HIGHWAYS: An Assessment of Their Potential to Improve Travel*, Report to the Chairman, Subcommittee on Appropriations, U.S. Senate (May 1991).

22/ P. Einstein, *Consortium To Spend \$40 Mil On 'Smart Cars'*, *Investor's Daily* (February 26, 1993).

23/ *Special Report 232 Advanced Vehicle and Highway Technologies* at 75.

24/ A. Adler, *Microchip Technology May Eliminate Auto Mirrors*, Associated Press (March 3, 1993).

25/ IVHS America, *Strategic Plan For Intelligent-Vehicle Highway Systems*, III-32-III-41; *Special Report 232 Advanced Vehicle and Highway Technologies* at 23, 38-40; P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs*, at CRS-12-CRS-13.

26/ Id.

27/ Id.

being investigated include infrared triangulation ranging systems, ultrasonic microphones with signal processing circuitry and an on chip gyroscope which would assist in vehicle control.^{28/} Other proposed systems have focused on fully automated electric automobiles, such as TEMPO, which would utilize a light rail system that would supply the individual car with power to drive the on-board electric engine and systems through the guiding calipers mounted to the under-carriage of the car.^{29/}

Other types of technology being tested have included the use of video imaging that traces the edge of the road to direct the path of the vehicle,^{30/} or sensors embedded in the pavement used in conjunction with on-board vehicle controls that maintain the lateral positioning of the vehicle while on the highway.^{31/} One automaker is presently researching a fully autonomous vehicle utilizing computer vision, artificial intelligence and automation technologies as a means of autonomous control of the vehicle.^{32/}

Inherent in much AVCS technology is a method of “platooning” vehicles. With the use of advanced controls the automobiles would travel more closely together, at a higher rate of speed, thus increasing the density of vehicles through the traffic corridors.^{33/} The TEMPO model also includes vertically stacked dedicated light-rail lanes in conjunction with platooning to increase the amount of available area for the highway systems while increasing the number of vehicles traveling in those corridors.^{34/} Other programs have suggested dedicated AVCS lanes for passenger, CVOs and APTS vehicles, with advanced controls and sensors to maximize the throughput of the AVCS traffic while still allowing for access and use by non-AVCS vehicles.^{35/}

D. Possible Injury From IVHS Technology

One of the goals of IVHS development is to improve the safety of travelers. Yet, ironically, the use of new technological devices, if not accomplished properly, perhaps holds the potential for greater injury than current highway and vehicle conditions and therefore greater liability for those designing, building and operating these new systems. Government and private parties may wish to limit the liability exposure involved in developing such technologies to provide an environment in which they will be encouraged to be innovative. Yet total protection from liability might destroy

28/ S. Shladover, *California Path Research on AVCS: Recent Accomplishments And Future Plans*, IVHS America Annual Meeting (1993).

29/ P. Nobileau, *The TEMPO Alternative: A Case for Immediate Achievement of IVHS Goals Using a Compound (Mechanical/Electrical) Solution*, IVHS America Annual Meeting (1992).

30/ Cox News Service, *Self-Driving Car Could be a Reality in 10 Years*, Star Tribune (November 7, 1993).

31/ P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs* at CRS 12-1 3.

32/ *Special Report 232 Advanced Vehicle and Highway Technologies* at 75.

33/ IVHS America, *Strategic Plan For Intelligent Vehicle-Highway Systems* at III-37; GAO, *SMART HIGHWAYS: An Assessment of Their Potential to Improve Travel* at 33; P. Rothberg, *Intelligent Vehicle Highway Systems (IVHS): Challenges, Constraints, and Federal Programs* at CRS-13; *Special Report 232 Advanced Vehicle and Highway Technologies* at 23.

34/ P. Nobileau, *The TEMPO Alternative* at 477.

35/ *Id.*; IVHS America, *Strategic Plan For Intelligent Vehicle Highway Systems* at III-35.

traditional legal incentives to design, build and operate these systems with the appropriate degree of care. Following are a few of the possible injury threats from these technologies.

ATMS technologies present perhaps the least danger of injury to motorists, although they do present some danger. ATMS seeks to manage traffic. The managers of such traffic will be making decisions which cause drivers to do something different in their travels. Anyone who is injured as a result has a potential for claiming that a design, manufacture or operational malfunction of the ATMS technologies was at least one cause. Routing a motorist into a dangerous traffic condition is the most obvious example.

Using ATIS, drivers will be making decisions based upon information supplied by the system's operators. They similarly might make claims if they believe a design, manufacture or operational defect caused them to have an accident. In addition, ATIS needs a means of delivering information, and improvident lack of attention to driving conditions while dealing with an ATIS device could cause accidents.

AVCS is the most obvious candidate for liability problems. One need only imagine the ultimate scenario of the driver ceding total control of his or her car to AVCS technology to identify the targets of lawsuits if something goes wrong. Since the driver had no control over the car, the liable party in that injured person's view will necessarily be someone who designed, manufactured or operated the AVCS system which did have control. Even AVCS systems which do not take total control will nevertheless have some element of transfer of normal human control to technology, whether the technology replaces or enhances human senses or takes decisions out of the drivers' hands.

E. The Parties Involved In IVHS Development

IVHS research and development will reach across many boundaries of federal, state and local government, as well as private business, educational and consulting entities. The federal government will play a leading role in determining policy and possibly funding. It may be able to encourage IVHS development by passing laws and regulations, or conditioning the use of federal funds, to modify the way in which state tort liability principles would normally operate. Freedom from some of the more onerous threats of potential liability might increase the efforts of those who would otherwise be enervated by such liability exposure. Finally, the federal government may be the owner of military or other technologies which will be adapted to IVHS use.

As the builders and operators of their own highways and the implementers of many federal transportation programs, the states are also at the center of IVHS development. Moreover, it is at the state constitutional, statutory and judicial level that most development of the doctrine of state sovereign immunity takes place. Unless the federal government preempts the state's role in this regard, the determination of whether a state or local government can be sued for liability when IVHS designs fail will be subject to separate rules in each of the 50 states.

Local governments, many of which also derive protection from the doctrine of state sovereign immunity, engage in the building of roads and other transportation facilities. While they may play a lesser role in advancing IVHS technologies in the individual automobiles, they will use the technologies that generally apply to the building of roads and related transportation facilities.

Finally, numerous private firms, consultants and institutions are involved in research and development. In fact, many companies who previously worked on military projects are expected to turn the technology to civilian uses in developing ATMS, ATIS and AVCS applications. They can benefit both directly and indirectly from favorable application of state sovereign immunity doctrine. Directly, as contractors for or consultants to state and local governmental agencies, they may be able derivatively to enjoy some of the same protection. But even if they cannot obtain that protection, they will benefit indirectly from the ability of state and local entities to fund IVHS research and development.

III. NATURE OF THE DOCTRINE OF SOVEREIGN IMMUNITY IN GENERAL

A. Procedural Sovereign Immunity

Initially a distinction must be drawn which will be helpful in understanding the doctrine of state sovereign immunity: the difference between procedural and substantive. Procedural sovereign immunity is the freedom of a government from being sued. Even where states have given up their sovereign right not to be sued, they normally hold they will nevertheless be immune from liability for certain types of acts, under certain types of circumstances. This type of immunity may be called substantive.

The distinction can become blurred since all states to one degree or another have lost their right not to be sued, whether through judicial development of the doctrine in common law, or waiver in constitutional enactment or statute.^{36/} Most of this paper is concerned with the substantive limitations on liability. Nevertheless, the distinction is of some benefit because it frames the outer edges of what a state could do to assert sovereign immunity and also raises one matter of state/federal relationship which may be important to government IVHS development.^{37/}

To begin, a state could, depending upon the structure of its law, change its constitution or statutes in order to prevent suits being brought against the state on IVHS matters, either entirely or in part. That would be a difficult policy decision for most states since generally they have all permitted themselves to be sued, in court or through administrative proceedings, for torts on highway matters. Balanced against such a decision would be a concern for citizens who were injured by IVHS products, who might not have the ability otherwise to seek redress. It would be much easier for a state to adjust its rules of liability (substantive immunity) than to forbid suit altogether.

36/ See subsection I, *infra*. which discusses state tort claim statutes.

37/ Note that by its terms sovereign immunity is not limited to tort issues. It is tort liability issues which are the primary threat to developers of IVHS and the focus of this paper.

There is one important procedural immunity issue for all states: the Eleventh Amendment to the United States Constitution. That Amendment refuses to extend the federal judicial power to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state.” Thus, if a citizen of Minnesota is injured as a result of a defective IVHS system operated by the State of Florida, that individual will be limited to a suit under the tort claims statutes of Florida if he or she wishes to seek redress. The Eleventh Amendment is not applicable if the state consents to suit.^{38/} Further, even though on its face the Eleventh Amendment does not plainly prohibit suits against a state by its own citizens, it has been construed by the Supreme Court to do so, again unless the state consents.^{39/}

The Eleventh Amendment may not bar suits against local governmental agencies, because they are usually not, strictly speaking, the “state.”^{40/} Thus, if there is a local government agency which is engaging in IVHS work, it will not be immune from suit in federal court unless it is clearly acting as a branch of state government. Such a question would be decided on a case-by-case basis and would turn on such matters as whether the state would pay any damage award.^{41/} State transportation agencies have often been immune from suit in federal court, but not always.^{42/}

Several states may wish to set up a joint agency for IVHS development. However, such joint state entities have been held not to be immune from suit in federal court under the Eleventh Amendment.^{43/} States may be able to protect themselves in this regard by taking care in the manner by which they establish or participate in the joint agency.^{44/}

A plaintiff injured by an IVHS product may seek to sue a state employee involved in its operation. For example, the Minnesota motorist in Florida might try to claim in federal court in Minnesota that the operation of an ATIS or ATMS device by a Florida state official created a hazardous traffic condition which caused an accident. However, if the action is essentially against the State of Florida and the named individual is only a nominal party, the individual will be immune from federal suit under the Eleventh Amendment.^{45/} On the other hand, if the action truly is seeking damage because of some conduct of the employee individually, it will not be barred in federal court.^{46/}

38/ Welch v. Texas *Department of Highways*, 483 U.S. 468, 107 S.Ct. 2941, 97 L.Ed.2d. 389 (1987).

39/ Id.

40/ Owen v. *City of Independence*, 445 U.S. 622,100 S.Ct. 1398, 63 L.Ed.2d 623 (1980).

41/ *Miller-Davis Co. v. Illinois State Toll Highway Authority*, 567 F.2d 323 (7th Cir. 1977).

42/ *Compare Fireman’s Fund Ins. v. Dept. of Transportation and Development*, 792 F.2d 1373 (5th Cir. 1986) with *Miller-Davis*, 567 F.2d 323, *supra*, n.41.

43/ *Lake County Estates, Inc. v. Tahoe Regional Planning Agency*, 440 U.S. 391,99 S.Ct. 1171, 59 L.Ed.2d 401 (1979).

44/ *Id.*; see also *Stephans v. Nevada*, 685 F.Supp. 217 (D. Nev. 1988).

45/ *E.g.*, *Hobbs v. Georgia Department of Transportation*, 785 F.Supp. 980 (D. Ga. 1991) *aff’d in part, vacated in part*, 999 F.2d 1526, 93 Lexis 22404 (11th Cir. 1993).

46/ *E.g.*, *Duckworth v. Franzen*, 780 F.2d 645 (7th Cir. 1985), cert. *denied*, 479 U.S. 816, 107 S.Ct. 71, 93 L.Ed.2d 28 (1986).

There is some debate about whether Congress, in exercise of its Commerce Powers, may partially abrogate the Eleventh Amendment and permit suits against the states.^{47/} Thus, should Congress pass a law expressly providing that states may be sued in federal court on IVHS matters, there would likely be substantial litigation to resolve the issue.^{48/} A federal statute which is silent on the issue would not change the traditional rules. Presumably most states would oppose any statute which detracted in this fashion from their sovereign immunity and would instead prefer the option to waive immunity.

While this section has not explored all of the nuances of the Eleventh Amendment, it does lead to a few conclusions pertinent to IVHS. States can generally make decisions themselves about whether they are willing to be sued in federal court and therefore can prevail in such suits by not waiving their Eleventh Amendment immunity. The federal government can avoid the possibility of abrogating Eleventh Amendment immunity by not passing legislation which contains language doing so. In the end, however, it does not seem that Eleventh Amendment issues should have much effect one way or another on IVHS development. Even if a state cannot be sued in federal court, it will likely allow suit through its own courts or designated administrative bodies. The more important question, in terms of cost to an IVHS developer, is whether it can be sued at all, the choice between federal and state court having only a marginal economic impact. Thus, tinkering with the law which has evolved around the Eleventh Amendment is not likely to have much impact on AVCS, ATMS or ATIS.

B. Substantive Sovereign Immunity In General

The concept of substantive sovereign immunity refers not to whether the state can be sued, but rather to the extent it can be held liable if it is sued. As noted earlier, all states have provided a forum in which tort claims against the state may be heard. However, they vary widely in the degree to which they may be held liable. The issue is an old one in common law and statutory development. In highway matters, it dates back to the early part of this century.^{49/}

Basically each state's laws select specific items to be granted immunity, or items to be excluded from the general immunity. Those items are usually identified in the states' constitutions and tort claim statutes. Some are the result of judicial decisions. The following sections identify the most common immunities granted; the tort claims statutes in each state are summarized in subsection I.

C. Suits in Sister States

In general, a state may not be sued in a sister state because of the doctrine of sovereign immunity. However, if one state chooses to do business in a

47/ See, e.g., *Welch v. State Department Of Highways & Public Trans.*, 780 F.2d 1268 (5th Cir. 1986), *aff'd* 483 U.S. 107 S.Ct. 2941, 97 L.Ed.2d 389 468, (1987)

48/ *Id.*

49/ See, e.g., *Perrotti v. Bennett*, 94 Conn. 533, 109 A. 890 (1920).

sister state, the immunity might not apply.^{50/} Consequently, a state entity involved in development of IVHS may not have the doctrine of sovereign immunity available to it under these circumstances. Care would have to be taken by any state engaging in interstate development efforts.

D. Immunity as Defined By Type of Entity: State Agencies and Political Subdivision of States

Because the application and scope of the immunity afforded in connection with tort liability may be different for state agencies than for local governmental bodies,⁷ the two are examined separately here.

1. State Agencies

As a general rule, state highway departments, commissions, authorities, and similar bodies have traditionally been found to be entitled to sovereign immunity as agencies of the state, so that, in the absence of a waiver of such immunity, an action for negligence will not lie.^{51/} However, to the extent that an agency's operations are either legislatively unauthorized or performed in an excessive or unreasonable manner, the agency may lose its sovereign immunity.^{52/} In addition, if the agency can be characterized as a separate entity with an independent financial structure, immunity may be lost. Thus in some states it has been held that a constitutional prohibition of suits against the state does not necessarily preclude suits against the highway commission.^{53/}

Over the past twenty years there has been a substantial erosion of the sovereign immunity doctrine in all but a handful of states. Indeed, a number of jurisdictions in relatively recent decisions have found the immunity from suit not to extend to state highway authorities.^{54/} There is considerable variation among the

50/ *Hall v. University of Nevada*, 8 Cal. 3d 522, 105 Cal.Rptr. 355, 503 P.2d 1363 (1972), cert. denied, 414 U.S. 820, 94 S.Ct. 114, 38 L.Ed.2d 52 (1973); *People v. Streeper*, 12 Ill.2d 204, 145 N.E.2d 625 (1957).

51/ See, e.g., *Bettencourt v. California Toll Bridge Authority*, 123 Cal.App.2d 943,266 P.2d 205 (1954); *Lucero v. New Mexico State Highway Dept.*, 55 N.M. 157,228 P.2d 945 (1951); *Tounsel v. State Highway Dept.*, 180 Ga. 112,178 S.E. 285 (1935); *Pipkin v. Department of Highways and Transp.*, 316 A.2d 236 (Del. 1979).

52/ E.g., *Foss v. Maine Turnpike Authority*, 309 A.2d 339 (Me. 1973), holding that to the extent the snow removal operation was performed in unreasonable or excessive manner, the agency would be liable for invasion of or interference with private property in same manner as private party.

53/ See, e.g., *People v. Illinois State Toll Highway Corn.* 3 Ill.2d 218, 120 N.E.2d 35 (1954). See also, *McCabe v. New Jersey Turnpike Authority*, 35 N.J. 26, 170 A.2d 810 (1961), finding that, because the New Jersey Turnpike Authority is an independent corporate entity exercising powers to issue revenue bonds, hold and dispose of real property, exercise the power of eminent domain, fix tolls, and sue and be sued, it was regarded as an independent body which was subject to suit for negligence.

54/ See, e.g., *Specter v. Commonwealth*, 462 Pa. 474,341 A.2d 461 (1975), holding that immunity enjoyed by Commonwealth does not extend to Commonwealth Turnpike Commission; *Christo v. Dotson* 151 W.Va. 696, 155 S.E.2d 571 (1967), holding that W. Virginia Turnpike Commission is not an agent of the state so as to be immune from being sued in courts of law; *Moldovan V. State*,

states as to the breadth of the waiver of immunity, and the types of activities for which a state agency may be subject to liability. A number of courts have held that even an express waiver by the state of the highway department's immunity from suit would not amount to a waiver of immunity from liability in carrying out governmental functions.^{55/}

While the functions of a state highway department or commission have traditionally been regarded as "governmental" (and therefore immune), there has been considerable erosion of that principle in many jurisdictions, particularly with respect to functions other than design and planning of highways and traffic controls. For example, once an agency has actual or constructive knowledge of an unsafe or hazardous condition, the failure to remedy such condition may subject the agency to liability.^{56/} In addition, as discussed below, some jurisdictions have created a statutory exception to immunity in connection with the duty to maintain reasonably safe streets and roads, while others have excluded from immunity governmental maintenance of roadways and traffic control devices (as opposed to planning and design) by categorizing such maintenance as a proprietary function to which the immunity does not apply.^{57/} Even the initial decision concerning installation of traffic control devices such as signs and guardrails, an area generally afforded immunity, has been held in some states to subject highway authorities to liability.^{58/}

It appears that, in general, existing state immunities are more likely to be available to state agencies involved in planning or design of IVHS systems than those responsible for maintenance of the systems. The analogy to existing traffic devices and controls is particularly applicable to ATMS. These subjects will be developed more fully later.

2. Counties, Municipalities and Other Political Subdivisions

It is generally held with reference to political subdivisions of the state such as counties, towns, municipalities and road districts, that they are entitled to immunity in connection with the performance of discretionary governmental functions, such as design of streets and highways, unless liability is imposed by statute.^{59/} Similarly, in the absence of statute, the design and placement of traffic control devices, as well as

829 P.2d 481 (Colo. App. 1991), *aff'd.*, 842 P.2d 220 (Colo. 1992) holding that state highway department was not immune from suit based on failure to maintain highway right-of-way.

55/ See, e.g., *Manion v. State Highway Comr.* 303 Mich. 1,5 N.W.2d 527, cert. *denied*, 317 U.S. 677, S.Ct. 159, 87 L.Ed.543 63 (1942). finding state highway commissioner not liable for alleged negligence in operation of ferry, this being the performance of a governmental function: *fonseca v. State*, 297 S.W.2d 199 (Tex. Civ. App. 1956); *Sanders v. State Highway Commission*, 211 Kan. 776, 508 P.2d 981 (1973).

56/ See, e.g., *Barnes v. Liberty Mut. Ins. Co.*, 350 So.2d 288 (La.App. 1977); *Santana v. New York State Thruway Authority*, 92 Misc.2d 1,399 N.Y.S.2d 395 (1977).

57/ *Hicks v. State*, 88 N.M. 588,544 P.2d 1153 (1975); *Commercial Carrier Corp. v. Indian River County*, 371 So.2d 1010 (Fla. 1979)

58/ See, e.g., *Rogers v. State*, 51 Haw. 293,459 P.2d 378 (1969).

59/ See, e.g., *El Paso v. Ayoub*, 787 S.W.2d 553 (Tex.App. 1990), holding that design of overpass on arterial street was exercise of governmental function for which city had no liability; *Tomassi v. Union*, 46 N.Y.2d 91,412 N.Y.S.2d 842,385 N.E.2d 581 (1978); *Ramirez v. City of Redondo Beach*, 192 Cal.App.3d 515, 237 Cal.Rptr. 505 (1987).

the initial decision as to whether to install such devices, has generally been held to involve matters of governmental discretion to which the immunity is applicable.⁶⁶¹ There are, however, some cases in which local highway authorities have been subject to liability in connection with such activities.^{61/}

Street and highway maintenance, as distinguished from design and planning, has generally been found to be a proprietary or non-governmental function for which the local authority is not entitled to immunity.^{62/} There is a split of authority with regard to maintenance and repair of traffic signals,^{63/} and there are a number of recent decisions indicating that liability may be imposed on the basis of "public duty,"^{64/} or a "special relationship."^{65/} In addition, liability may be imposed where there was prior notice of a defective traffic control device.^{66/} Finally, as discussed below, the imposition of a statutory maintenance duty may also provide a basis for liability.

Since the ATMS and ATIS technology incorporates elements of highway conditions and traffic controls, it is likely that similar results will obtain with regard to the application of immunity to local public entities. They will usually be immune as to design, but not as to operation.

3. Statutory Waiver Of Immunity

Statutes creating state highway departments, commissions or authorities often provide that such agencies may "sue and be sued." Such statutes have generally been held to authorize only such actions as are necessary in carrying out the business of the agency, and not to authorize negligence actions.^{67/} However, in at least one jurisdiction, the state constitution's "sue and be sued" provisions have been found to be a general waiver of the highway department's immunity from suit.^{68/} Liability has also been imposed pursuant to a statutory duty relating to the maintenance of highway curves in winter,^{69/} breach of the duty to exercise reasonable care in designing, constructing, and maintaining highways,^{70/} statutory waiver of immunity for failure to

60/ *Gonzales v. Hollins*, 386 N.W.2d 842 (Minn. App. 1986); *Atkinson v. County of Oneida*, 77 A.D.2d 257,432 N.Y.S.2d 970 (1980); *McFadden v. County of Orange*, 499 So.2d 920 (Fla. App. 1986), applying governmental immunity in connection with design of traffic signals.

61/ See, e.g., *Johnson v. County of Nicollet*, 387 N.W.2d 209 (Minn.App. 1986), holding that decision on whether to install guardrail is not discretionary.

62/ *Taylor v. City of Newport News*, 214 Va.9, 197 S.E.2d 209 (1973); *Whittaker v. Franklinville*, 265 N.Y. 11,191 N.E. 716 (1934).

63/ See, e.g., *Lorig v. Mission*, 629 S.W.2d 699 (Tex. 1982); *Transportation, Inc. v. Falls Church*, 219 Va. 1004,254 S.E.2d 62 (1979) (entitled to immunity); *contra*, *Commercial Carrier Corp. v. Indian River County*, 371 So.2d 1010 (Fla. 1979).

64/ *Christensen v. City of Tekamah*, 201 Neb. 344,268 N.W.2d 93 (1978); *Whittaker v. Franklinville*, 265 N.Y. 11,191 N.E. 716 (1934).

65/ *Appleton v. Town of Hudson*, 397 Mass. 812,494 N.E.2d 10 (1986).

66/ *Houston v. Stoddard*, 675 S.W.2d 280 (Tex.App. 1984); *Kelson v. Buckley*, 429 So.2d 477 (La.App. 1983).

67/ See, e.g., *Nelson v. Maine Turnpike Authority*, 170 A.2d 810 (Me. 1961); *Fatzer v. Kansas Turnpike Authority*, 176 Kan. 683,273 P.2d 198 (1954).

68/ *Herrin v. Perry*, 254 La. 933,228 So.2d 649 (1969).

69/ *State v. Abbott*, 498 P.2d 712 (Alaska 1972).

70/ *Indiana State Highway Comm. v. Clark*, 175 Ind.App. 358,371 N.E.Pd 1323 (1978).

keep highways in a safe condition,^{71/} and statutory creation of an independent body with power to issue revenue bonds, fix tolls, acquire, hold and dispose of real property, and the power to “sue and be sued.”^{72/}

Statutes imposing liability on other political subdivisions, such as counties, towns or municipalities, have traditionally been regarded as being in derogation of Ehe common law and, hence, strictly construed.^{73/} However, as indicated above, there has been substantial erosion of the sovereign immunity protection in most jurisdictions and a significant number of states have recognized the statutory maintenance duties of local highway authorities such as counties and municipalities as a basis for the imposition of tort liability.^{74/} In at least one jurisdiction, statutory strict liability for defects in things within the custody or under the control of public bodies has been imposed in connection with malfunctioning traffic lights.^{75/} In fact, most jurisdictions, whether by statutory imposition of liability for maintenance, or by recognition of maintenance as a proprietary function in the absence of statute, have eliminated maintenance of public streets and roads (including, in some cases, traffic control devices) from the immunity protection.

E. Responsibility For Employee Acts

1. State Employees Or Officers

Generally, the doctrine of *respondeat superior* is not applicable with respect to the actions of state employees or officers in the performance of governmental functions falling within the immunity of the state.^{76/} In the absence of statutory waiver of immunity, the decisions of highway commissioners exercising governmental functions in connection with the planning or construction of highways or related operations have been afforded immunity from liability for negligence.^{77/} However, decisions made by employees in connection with highway maintenance or remedial action have been held

71/ *Detroit Bank & Trust Co. v. State Dept. of State Highways*, 55 Mich.App. 131,222 N.W.2d 59 (1974).

72/ *McCabe v. New Jersey Turnpike Authority*, 35 N.J. 26, 170 A.2d 810; see also, *McCormick v. State*, 51 A.D.2d 28, 38 N.Y.S.2d 991 (1976), *affd*, 44 N.Y.2d 774,406 N.Y.S.2d 37,377 N.E.2d. 481 (1978) holding that the Parkway Authority was an autonomous public corporation independent from the State and with the power to sue and be sued, and could be held liable for its negligence in maintenance and operation of the highway.

73/ *E.g.*, *Seelye v. State*, 178 Misc. 278,34 N.Y.S.2d 205 (1942), *aff'd*, 267 A.D. 941,47 N.Y.S.2d 618 (194-4); *Goodrich v. Kalamazoo County*, 304 Mich. 442,8 N.W.2d. 130 (1943).

74/ See, *e.g.* *Howard County Comr's. v. Leaf*, 177 Md. 82, 8 A.2d 756 (1939); *DeLeo v. Orlando*, 29 Conn.Supp. 107,273 A.2d 725 (1971).

75/ *Ross v. Noble*, 442 So.2d 1180 (La.App. 1983).

76/ See, *e.g.*, *Tounsel v. State Highway Dept.*, 50 Ga.App. 520, 179 S.E. 167 (1934), holding that an action would not lie against the state highway department for the negligence of one of its employees in the construction of a bridge: *Smith v. Cooper*, 256 Or. 485,475 P.2d 78 (1970); *Keene v. Bierman*, 184 Ill.App.3d 87, 132 Ill. Dec. 600, 540 N.E.2d 16 (1989). A separate question and one which is beyond the scope of this review, is under what circumstances an employee may be subject to personal liability for actions within the scope of his or her employment.

77/ See, *e.g.*, *Manion v. State Highway Comr.*, 303 Mich. 1,5 N.W.2d 527 (1942), *cert. denied*, 317 U.S. 677, 63 S.Ct. 159,87 L.Ed.2d 543 (1942), finding operation of a ferry to be a governmental function.

in some cases to fall outside the state's immunity. For example, a state road supervisor's decision to use earth berms as the sole method of advising the public that a section of highway had been abandoned was found not to be a governmental policy-level decision entitled to immunity in *Carroll v. State*.^{78/} Similarly, the decision not to remove debris from bridge piers was found not to be part of the discretionary governmental function entitling the state to immunity from liability.^{79/}

The determination as to what actions fall within the immunity privilege is essentially the same for acts taken by employees as for those more generally taken by the states themselves, as states can only act through their agents, officers or employees. Thus, the principles applicable to the determination of immunity in general, as discussed throughout this paper, will be equally applicable in the context of a state's liability or immunity in connection with particular acts of employees within the scope of their employment. The tort claims statutes enacted in a number of states contain specific exclusions for acts of employees or officers in performance of a discretionary function.

2. Independent Contractors

In general, the immunity enjoyed by the state or its agencies does not extend to private contractors who have contracted with public authorities for the construction or improvement of streets, highways and bridges.^{80/} Such contractors are subject to liability for their own negligence in performing the contract work.^{81/} However, a contractor may not be subject to liability resulting as a necessary incident to the project when the work is completed without negligence.^{82/} Subsection J, below, develops more fully the possibility of transferring state immunity to its independent contractors.

F. Immunity As Defined By the Nature Of the Work: Design And Planning

1. Design and Planning of Highways

Traditionally, the doctrine of sovereign immunity has been applied to cases involving the design and planning of highways, which are generally viewed as

78/ 27 Utah 2d 384,496 P2d 888 (1972).

79/ *Lanning v. State Highway Corn.*, 15 Ore.App.310.515 P.2d 1355 (1973). See also, *Daugherty v. Oregon State Highway Corn.*, 270 Ore. 144,526 P.2d 1005 (1974) holding that commission was not liable in the absence of evidence that employees knew or should have known that bridge was icy, or that they had sufficient time to take remedial action.

80/ *Folkins v. Johnston*, 124 Cal.App. 169, 12 P.2d 153 (1932); *Finchem v. Oman*, 18 Tenn.App.40, 72 S.W.2d 564 (1934); but see, *Vanchieri v. N.J. Sports and Expo.Auth.*, 104 N.J. 80,514 A.2d 1323 (1986), finding that, while independent contractors are not considered "employees" within the meaning of tort claims statute, they do share to a limited extent the immunity of public entities with which they contract.

81/ See, e.g., *Taylor v. Westerfield*, 233 Ky. 619.26 S.W.2d 557 (1930); *Gay v. Engebretsen*, 158 Cal. 21,109 P. 876 (1910).

82/ See section III J, below.

governmental or legislative functions and the exercise of discretionary powers.^{83/} The rationale underlying the general principle in such cases appears to be that the decisions relating to design and planning of highways often involve the evaluation of technical data and complex financing issues better left to the discretion of competent experts, so long as acceptable engineering and safety standards have been duly considered.^{84/} This rationale would appear to be as applicable to the design and planning of IVHS systems as to highways themselves.

An exception to the general rule of immunity for highway design and planning has been recognized in cases where the defect or fault is considered so great as to be held dangerous, hazardous or defective as a matter of law.^{85/} Similarly, the degree of negligence involved when a design or plan was obviously or inherently dangerous when adopted has been found to limit the applicability of the rule of immunity.^{86/}

In an increasing number of jurisdictions, where immunity principles are less controlling, courts have imposed on governmental authorities a duty of reasonable care with respect to the design of streets and highways.^{87/} In such cases, where principles of general negligence rather than those of sovereign immunity have been applied, the duty of care is generally satisfied by compliance with accepted engineering standards and practices in effect at the time of design approval.^{88/} Similarly, statutory exceptions from liability in connection with highway design have been conditioned upon conformity with recognized standards.^{89/}

2. Design and Installation of Traffic Control Devices

The design and planning of traffic control devices, as well as the initial determination of whether a particular device is necessary, have traditionally been held to involve the exercise of a discretionary governmental function, thus entitling the state

83/ See, e.g., *Mason v. Hillsdale Highway Dist*, 65 Idaho 833, 154 P.2d 490 (1944); *Ingham v. State Dept. of Transp.*, 419 So.Pd 1081 (Fla. 1982); *Dodds v. West Liberty*, 225 Iowa 506,281 N.W. 476 (1938); and *Cameron v. State of California*, 7 Cal.3d 318, 102 CalRptr. 305 497 P.2d 777 (1972).

84/ See, e.g., *Donnelly v. Ives*, 159 Conn. 163,268 A.2d 406 (1970); *Louisville v. Redmon*, 265 Ky. 300, 96 S.W.2d 866 (1936); and *Hughes v. County of Burlington*, 99 N.J. Super. 405,240 A.2d 177 (1968).

85/ See, e.g., *Swain v. Nashville*, 170 Tenn. 99, 92 S.W.2d 405 (1936); *Nashville v. Brown*, 25 Tenn. App. 340,157 S.W.2d 612 (1941).

86/ See, e.g., *Paul v. Fancy*, 228 Minn. 264, 37 N.W.2d 427 (1949), finding exception to immunity for design defect for which there was no reasonable necessity and which is so obviously dangerous that no reasonably prudent person would approve its adoption; and *Department of Transp v. Neilson*, 419 So2d 1071 (Fla. 1982), while finding in favor of immunity in that case, court recognized that governmental entity may be liable for design defect which creates known dangerous condition.

87/ *Phoenix v. Lopez*, 77 Ariz. 146,268 P2d 323 (1954); *Tomassi v. Union*, 46 N.Y.2d 91,412 N.Y.S.2d 842 (1978); *Johnson v. State*, 636 P.2d 47 (Alaska 1981).

88/ See, e.g., *Kaufman v. State*, 27 A.D.2d 587,275 N.Y.S.2d 757 (1966); *Usry v. Louisiana Dept Of Highways*, 402 SoPd 240 (La.App. 1981)

89/ See, e.g., Ariz. Rev. Stat. Ann. § 12-820.03; Iowa Code Ann. § 669.14.

or its agency to immunity from tort liability.^{90/} However, exceptions to this general rule have been recognized where it can be established that there was notice of a dangerous condition,^{91/} notice that a particular control device was confusing^{92/} or inadequate to maintain the safety of the roadway,^{93/} or where a statutory or common law duty has been imposed with regard to traffic control systems or devices.^{94/} In addition, some states have simply found that the discretionary function is confined to basic policy making decisions and does not include the design of a traffic control mechanism.^{95/} As discussed below, a few jurisdictions view design, construction and maintenance of traffic control systems and devices as all within the governmental or discretionary arena to which the doctrine of sovereign immunity applies, while most others view the maintenance of such systems or devices as proprietary or operational duties for which tort liability may be imposed.

To the extent that ATIS and ATMS technologies can be likened to traffic control devices (e.g., freeway ramp metering, control of traffic signals, etc.), the design and installation of such systems should be afforded the same general governmental immunities. While some elements of the technology may be viewed as part of the road or highway itself (e.g., imbedded traffic sensors), the doctrine of governmental immunity is applicable to highway design as well as to the design and installation of traffic control devices; that is, both areas have traditionally been viewed as involving the exercise of discretionary powers. (See cases cited, supra, at notes 83 and 90.) Although the scope of governmental immunity has grown considerably narrower in recent years, there are still a significant number of states in which highway design and the design and installation of traffic control systems would appear to be regarded as discretionary functions entitled to immunity.

3. Standards Of Engineering Practice

In jurisdictions with statutory exceptions to liability for the design and planning of highways or traffic control devices, as well as in other states where immunity is not controlling and general negligence principles are applied, compliance with

90/ See, e.g., *Perry v. Santa Monica*, 130 Cal.App.2d 370,279 P.2d 92 (1955); *Prell v Wood*, 386 N.W.2d 89 (Iowa 1986); and *Gleave v Denver & R.G. W.R. Co.* 49 P.2d 660 (Utah 1988); Cf. *Bigelow v. Ingersoll*, 618 P.2d 50 (Utah 1980).

91/ See, e.g., *Besecker v. Seminole County*, 421 So.2d 1082 (Fla App. 1982). while holding against plaintiff, recognized that knowledge of dangerous intersection would demonstrate such clear need for traffic control device that decision would become operational rather than planning level; *Gonzales v Hollins* 386 N.W.2d 842 (Minn.App. 1986), absent proof that city had notice of dangerous condition, decision as to type of traffic control device at intersection was discretionary.

92/ *Sparkman v. Maxwell*, 519 S.W.2d 852 (Tex. 1975).

93/ *Atkinson v. County of Oneida*, 77 A.D.2d 257,432 N.Y.S.2d 970 (1980).

94/ See, e.g., *A.L. Lewis Elementary School v Metropolitan Dade County*, 376 So2d 32 (Fla.App. 1979), where statute imposed duty to establish and maintain traffic control system in school areas, installation of devices was mandatory and removed from governmental discretion; *Foley v. Rena*, 100 Nev. 307,680 P.2d 975 (1984), while construction of crosswalk was discretionary, city thereby became obligated to make the intersection reasonably safe by installation of traffic signal; *Atkinson v County of Oneida*, 77 A.D.2d 257,432 N.Y.S.2d 970 (1980), county was under continuing obligation to maintain safety of highways.

95/ See, e.g., *Bigelow v. Ingersol*, 618 P.2d 50 (Utah 1980).

accepted engineering practices can be critical in avoiding liability. As noted earlier, such questions blur the line between deciding whether a state has immunity and deciding, if it does not, whether it was negligent. However, in general, compliance with standards existing at the time the plan or design was adopted will shield authorities from liability for negligence even though the highway may not be considered properly structured according to modern standards.^{96/}

Where a division of expert opinion exists, it has been held that the decision of public highway authorities is properly made on the basis of opinions and results of experiments and studies then available, even though later testing and experimentation show the favorability of a different design.^{97/} In a case involving the application of statutory design immunity, a California court found the evidence sufficient to warrant such application where engineering experts were of the opinion that all established design criteria and safe engineering practices had been satisfied.^{98/}

Since IVHS technology is a newly-developing area, it may be difficult to identify any accepted engineering standards, particularly for the more advanced forms of technology. However, in view of the importance of such standards in connection with avoiding liability for negligence, the establishment of objective standards applicable to IVHS technology should be a priority and the focus of a coordinated effort between governmental authorities and private developers if they wish to provide an immunity shield.

4. Requirement Of Active Government Supervision Or Approval

In a number of cases involving alleged defects in highway design or planning, the courts have upheld the principle of governmental immunity but declined to apply it in situations where there was no affirmative consideration and approval of the design element at issue by the appropriate public authority.^{99/} Design immunity provision is sometimes expressly conditioned upon prior approval of the design by the appropriate public body or officer exercising discretionary authority, and a finding of substantial evidence of the design's reasonableness.^{100/}

Inasmuch as immunity from design liability may be lost through lack of affirmative prior review and approval, it will be important, in the context of IVHS development, to document the appropriate design approvals, particularly where there are cooperative development ventures between the public and private sectors.

96/ *Warda v. State*, 45 Misc.2d 385,256 N.Y.S.2d 1007 (1964); *McKee v. Michigan Dept. of Transp.*, 132 N.W.2d 798 Mich.App. 714,349 (1984).

97/ *Natina v. Westchester County Park Corn.*, 49 Misc.2d 573,268 N.Y.S.2d 414 (1966).

98/ *Hefner v. County of Sacramento*, 197 Cal.App.2d 1007,243 Cal.Rptr. 291 (1988).

99/ See, e.g., *Gould v. Topeka*, 32 Kan. 485.4 P. 822 (1884); *Nashville v. Brown*, 25 Tenn.App. 340, 157 S.W.2d 612 (1941); *Johnston v. County of Yolo*, 274 Cal.App.2d 46, 79 Cal.Rptr 33 (1969). finding approval by legislative body or officer exercising discretionary authority to be a vital precondition to application of statutory design immunity; *Bingham v. Idaho Dept. of Transp.*, 117 Idaho 147,786 P.2d 538 (1989).

100/ E.g., Cal. Gov't. Code § 830.6; *Johnston v. County of Yolo*, 274 Cal.App.2d 46,79 Cal.Rptr. 33, (1969).

5. Changing Design

While the design of a highway or traffic control device is generally judged in accordance with the standards in effect when the plan or design was approved, subsequent design changes, if known to create a dangerous condition, may result in the loss of design immunity. In one case,^{101/} the state highway department lost its statutory design immunity through failure to undertake prompt corrective action after notice that design changes had resulted in an unreasonably dangerous intersection.

In the context of IVHS development, this could mean that highways or traffic control systems modified through the addition of IVHS components could theoretically lose their original design immunity, to the extent that such components were found to create a dangerous condition.

G. **Immunity As Defined By The Nature Of The Work: Suits Against A Governmental Entity Acting In Proprietary Capacity**

Immunity from tort liability in connection with highways and traffic control systems has traditionally been afforded to acts performed in a “governmental,” as distinguished from a “proprietary,” capacity. Thus, decisions which involve basic policy or the exercise of governmental discretion are entitled to immunity, while those of a more operational or proprietary nature are not.^{102/} A governmental activity may be found to be of a proprietary nature when it competes with industry or labor,^{103/} or is of a sort usually carried on by individual persons or companies.^{104/} For example, the operation of a railroad enterprise has been held to be an industrial or proprietary function,^{105/} as has the activity of leasing an area adjacent to a state park for excavation of gravel, although the activities in operation and maintenance of the park itself were found to be governmental.^{106/}

In recent years, a number of cases have clearly rejected the distinction between proprietary and governmental functions as the test in determining whether a

101/ *Bane v. California*, 208 Cal.App3d 860,256 Cal.Rptr. 468 (1989).

102/ See, e.g., *Manion v. State Highway Comr.*, 303 Mich. 1,5 N.W.2d 527 (1942), cert. denied, 317 U.S. 677, 63 S.Ct. 159, 87 L.Ed. 543 (1942), operation of ferry as part of state highway system was “governmental” function; *Fonseca v. State*, 297 S.W.2d 199 (Tex. Civ. App. 1956), holding that construction and maintenance of highway is governmental function; *Atchison, T. & S.F.R Co. v. Texas State Dept. of Highways & Public Transp.*, 783 S.W.2d 646 (Tex.App. 1989), construction and maintenance of state highways is governmental function; *City of St Petersburg v. Collom*, 419 So.2d 1082 (Fla. 1982), finding that while highway design was entitled to immunity, there was an operational level duty to warn that curve could not be negotiated at more than 25 m.p.h.; *Taylor v. City of Newport News*, 214 Va. 9, 197 S.E.2d 209 (1973), holding street maintenance to be a proprietary function for which liability could be imposed.

103/ E.g., *Muses v. Housing Authority of San Francisco*, 83 Cal.App.2d 489,189 P.2d 305 (1948).

104/ E.g., *Western & A. R. Road Co. v. Car/ton*, 28 Ga. 180 (1859); *Ranells v. City of Cleveland*, 41 Ohio St.2d 1,321 N.E.2d 885 (1975), city water department found to be proprietary, based in part on charging of fees.

105/ *Brooks v. State*, 68 S.W.2d 534 (Tex.Civ. App. 1934); *Rauschan v. State Compensation Ins. Fund*, 80 Cal.App. 754,253 P. 173 (1927).

106/ *Radloff v. State*, 116 Mich. App. 745,323 N.W.2d 541 (1982).

state may be subject to tort liability.^{107/} The statutory waiver of a state's common law immunity has also been held to have abrogated the distinction between governmental and proprietary functions.^{108/} However, the tort claims statutes, many of which are applicable to both local and state governmental entities, have generally excepted from liability those activities involving the performance of a discretionary duty or function.^{109/} Thus, as a practical matter, immunity is still afforded for basic policy level decisions or acts, notwithstanding the elimination of a formal designation of functions as governmental or proprietary.

In contrast to the planning and design of highways and traffic control systems, for which governmental bodies have traditionally been afforded a greater degree of immunity from liability, maintenance and repair of streets and roadways, as well as traffic control devices, have frequently been viewed as falling outside the sovereign immunity shield. In some cases, the distinction is based upon the characterization of maintenance and repair as proprietary or operational, rather than governmental or discretionary, in nature.^{110/} Often, however, the recognition of liability rests upon a statutorily imposed duty to maintain roadways in reasonably safe condition.^{111/} In some cases, the statutes condition the imposition of liability upon notice of and failure to correct the dangerous condition.^{112/}

While a few jurisdictions still apparently view the maintenance of traffic control devices as a governmental function to which the doctrine of immunity applies,^{113/} the majority have either imposed a statutory duty with regard to maintaining reasonably safe roadways, or have judicially categorized maintenance as a non-

107/ See, e.g., *Green v. Commonwealth*, 13 Mass.App. 524,435 N.E.2d 362 (1982), *appeal denied*, 386 Mass. 1104,440 N.E.2d 1177 (1982); *Stone v. Arizona Highway Corn.*, 93 Ariz. 384,381 P.2d 107 (1963), holding that rule of governmental immunity from tort liability must be discarded altogether.

108/ *Simon v. New York*, 53 Misc.2d 622,279 N.Y.S.2d 223 (1967); *Gay/e v. State*, 135 Misc.2d 570, 515 N.Y.S.2d 962 (1987).

109/ See, e.g., *Nev.Rev.Stat.* § 41.032; *N.J. Stat. Ann.* §59:2-1; *Ind. Code Ann.* § 34416.53.

110/ See, e.g., *Foley v. State Dept. of Transp.*, 422 So.2d 978 (Fla. 1982); *Romero v. State*, 112 N.M. 332,815 P.2d 628 (1991), state highway department entitled to design immunity, but not to immunity for maintenance defects; and *Crucil v. Carson City*, 95 Nev. 583,600 P.2d 216 (1979), city's initial decision to provide traffic control was discretionary, but maintenance duty was operational and not covered by governmental immunity.

111/ See, e.g., *Moldovan v. State*, 829 P.2d 481 (Colo. 1991), *aff'd.*, 842 P.2d 220 (Colo. 1992), failure to maintain right-of-way fence along highway fell within tort immunity exception applicable to failure to maintain roadside to avoid unreasonable hazards to motorists; *McKee v. Michigan Dept. of Transportation*, 132 Mich.App. 714, 349 N.W.2d 798 (1984); *Fretwell v. Chaffin*, 652 S.W.2d 755 (Tenn. 1983), statutory exception to governmental immunity for injury caused by defective, unsafe or dangerous condition of highway or street applicable to action involving maintenance of stop sign; *Blackburn v. State*, 98 N.M. 34, 644 P.2d 548 (1982), failure to provide left turn signal on stop light deemed to be in area of maintenance, which was statutorily removed from immunity.

112/ See, e.g., *Tex. Civ. Prac. & Rem. Code Ann.* § 101.060(2); *Lawson v. Estate of McDonald*, 524 S.W.2d 351 (Tex.Civ.App. 1975).

113/ See, e.g., *Barnett v. Albany*, 149 Ga.App. 331,254 S.E.2d 481 (1979); *Davies v. Kansas City*, 557 F.Supp. 1321 (W.D. Mo. 1983), *dism'd. without op.*, 716 F.2d 907 (8th Cir. 1983) (applying Missouri law); see also, *Del. Code Ann. tit. 10, § 4011 (b)(6)* excluding governmental liability for defect or lack of repair of highway, including traffic lights and controls.

discretionary function not entitled to immunity. Accordingly, while there may be some realistic expectation of immunity in connection with IVHS design and the basic policy level decision to implement such technology, in the absence of special legislation concerning the operation of IVHS systems, states or their agencies are unlikely to be afforded immunity for actual operation and maintenance of such systems under existing law in a significant number of states.

H. Other Grounds For Immunity

Immunity statutes and cases carve out various other niches of immunity. Following are some examples.

One immunity of importance is that states normally are not held liable on the basis of strict liability; rather, where other grounds for immunity do not apply, the state may be immune if a claim is based upon strict liability, rather than negligence.^{114/} On the other hand at least one state, Louisiana, has permitted recovery on a strict liability theory.^{115/}

Other statutes limit the amounts of recovery. Most of the tort claims statutes listed in the following subsection contain some sort of monetary limitation. Elsewhere, punitive damages are made a matter of immunity.^{116/}

One form of negligence for which a private party may be held responsible is failing to fulfill a duty to warn of a hazard. Some immunity statutes provide immunity for design defect and immunity for failure to erect traffic signals, but nevertheless do not grant immunity if the hazard would not have been apparent to the motorist.^{117/}

The bases for immunity discussed in the foregoing section of the paper are not exhaustive of the vast number of variations in the states. A researcher would have to examine each state's tort claim law and all of its judicial authority to make that comparative list. The following subsection identifies some important tort claim laws in each of the states.

I. State Tort Claims Statutes and Constitutional Provisions

Every state has, to some degree, consented to give up its immunity from tort liability. Naturally, there is a great deal of variation among the states as to the degree to which the immunity has been waived, and the methods established for bringing claims against the state and other governmental bodies. Speaking very generally, however, the states can be divided roughly into the following groups.

First, several states, while technically retaining immunity from suit in a court of law, have established administrative agencies to hear claims against the state

114/ E.g., § Wyo.Colo. Rev. Stat. 24-10-106; Stat. §1-39-102.

115/ Ross v. *Noble*, 442 So.2d 1180 (La.App. 1983).

116/ E.g., Md. Cts. & Jud. Proc. Code § S-403.

117/ E.g., Cal. Gov't Code § 830.8; *Camera v. State of California*, 7 Cal.3d 318, 102 Cal.Rptr. 305, 497 P.2d 777 (1972).

and/or its political subdivisions.^{118/} The agencies are generally empowered to grant relief comparable to that which would be available against a private party, subject to the dollar limitations imposed by the statutes.

The second group is composed of several states which have waived the governmental tort immunity for a specific class of cases, such as those in which the state (or its agency or subdivision) has purchased liability insurance that will cover a given claim, or those arising out of the government's ownership or operation of a motor vehicle or other tangible property.^{119/}

Finally, the majority of states have waived the immunity in a substantial or general way, while retaining immunity for discretionary functions, as well as certain other enumerated areas.^{120/} A number of the statutes in this group contain a specific waiver pertaining to dangerous conditions of roads or highways.^{121/} In general, the liability of states in this group approximates that of the federal government under the federal tort claims law.

Nearly all of the statutes (in all three groups) contain a dollar limitation on the amount recoverable, and require that notice of the claim be provided within a relatively short time after the injury. The following is a synopsis of basic statutory and/or state constitutional provisions governing general state tort claims liability.^{122/}

ALABAMA

Ala. Const. art. 1, § 14; prohibits suit against state and its agencies, including state highway commission and state highway department for tort liability; highway department may "sue and be sued" in contract; Ala. Code § 41-9-47 et seq.; provides administrative procedure for compensation of certain claims.

- Ala. Code § 11-93-1 et seq. provides for tort claims against county, municipality, or their agencies.

118/ Alabama, Arkansas, Kentucky, North Carolina, and West Virginia.

119/ Connecticut, Delaware, Georgia, Maryland, Missouri, New Hampshire, North Dakota, South Dakota, Tennessee and Texas.

120/ Alaska, Arizona, California, Colorado, Florida, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Massachusetts, Minnesota, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Utah, Virginia, Washington, Wyoming; Michigan may also be included.

121/ See, e.g., Colo.Rev.Stat. § 24-10-106(1)(d).

122/ The survey is only a very general one. Further, it should be noted that governmental immunity may also be impacted by separate statutes dealing with particular areas such as highway construction and maintenance, or local tort claims statutes and ordinances, as well as judicial interpretations of all these statutes, which are beyond the scope of this review. Therefore the reader concerned with the applicability of the laws of a specific jurisdiction will have to research that state's law beyond the general review in this paper.

ALASKA

Alaska Stat. § 0950.250; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary function.

- applies to state and its agencies.

ARIZONA

Ariz. Rev. Stat. Ann. § 12-820 et seq.; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary governmental function; specific statutory exclusion for plan or design for construction, maintenance or improvement of highways, roads, streets, if performed in accordance with accepted engineering or design standards; requires adequate warnings as to unreasonably dangerous hazards.

- applies to state, agencies and political subdivisions.

ARKANSAS

Ark. Const. art. 5, § 20; prohibits suit against state, including state highway commission; Ark. Stats. Ann. § 19-10-201 et seq. provides for administrative claims procedure.

- applies to state and its agencies

CALIFORNIA

Cal. Gov't Code § 810, et seq.; waiver of immunity, with exceptions for, *inter alia*, discretionary acts.

- applicable to state, agencies and political subdivisions.

COLORADO

Colo. Rev. Stat. § 24-10-101 et seq.; waiver of immunity interpreted to exclude, *inter alia*, discretionary acts; immunity expressly waived for dangerous condition of road or highway (not including design defect).

- applies to state, agencies and political subdivisions (but immunity retained as to county roads).

CONNECTICUT

Conn. Gen. Stat. Ann. § 4-141 et seq.; administrative procedure established for claims; waives immunity to suits authorized by Claims Commissioner.

- applies to state and its agencies.

DELAWARE

Del. Code Ann. tit. 10, § 4001 et seq.; limited waiver of immunity for maintenance or use of motor vehicle, and ownership or operation of public building; immunity expressly retained for defect or lack of repair for highway and traffic controls.

- applies to state, agencies and political subdivisions.

FLORIDA

Fla. Stat. Ann. § 768.28 et seq.; waiver of immunity, with exceptions for, *inter alia*, discretionary “planning” functions.

- applies to state, agencies and political subdivisions.

GEORGIA

Ga. Const. art. 1, § 2-209; waiver of immunity to the extent insurance coverage is provided for activity in question.

- applies to state, agencies and political subdivisions.

HAWAII

Haw. Rev. Stat. §662-21 et seq.; waiver of immunity, with exceptions for, *inter alia*, exercise of discretionary function.

- applies to state and its agencies.

IDAHO

Idaho Code § 6-902 et seq.; waiver of immunity, with exceptions for, *inter alia*, exercise of discretionary function, and highway design or plan in conformance with engineering standards or approved by appropriate agency or body.

- applies to state, agencies and political subdivisions.

ILLINOIS

Ill. Comp. Stat. Ann. ch. 745, § 5/1 et seq.; prohibits suits against the state except in Court of Claims created for the purpose of adjudicating such claims; ch. 705, § 505/1 et seq. establishes Court of Claims and applicable procedures.

- applies to state and its agencies.

INDIANA

Ind. Code § 34-4-16.5-1 et seq.; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary function.

- applies to state, agencies and political subdivisions.

IOWA

Iowa Code Ann. § 669.1 *et seq.*; waiver of immunity for claims following administrative appeal; exceptions for, *inter alia*, discretionary function, highway design and construction in accordance with engineering standards.

- applies to state and agencies; municipalities covered by § 670.1 *et seq.*: waiver of immunity, subject to similar exceptions as set forth above.

KANSAS

Kan. Stat Ann. § 75-610-1 *et seq.*; waiver of immunity; exceptions for *inter alia*, legislative or discretionary functions and for plan or design, provided there is advance approval and conformity with prevailing standards.

- applies to state, agencies and political subdivisions.

KENTUCKY

Ky. Rev. Stat. Ann. § 44.070 *et seq.*; creates Board of Claims with exclusive jurisdiction over all claims for negligent performance of ministerial duty; sovereign immunity retained for, *inter alia*, discretionary and governmental acts.

- applies to state agencies; also applies to municipalities in connection with maintenance of state-owned traffic control devices; claims against local governments otherwise governed by Ky.Rev.Stat. Ann. § 65.200 *et seq.*, exempting discretionary function from liability.

LOUISIANA

La. Const. art. 12,§ 10; waiver of immunity for state, agencies and political subdivisions; La.Rev.Stat. Ann. § 13:5101 *et seq.*, establishes procedures for actions against public bodies.

MAINE

Me.Rev.Stat.Ann. tit. 14, § 8101 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, discretionary functions, and defect or lack of repair of highways, including street signs and traffic lights.

- applies to state, agencies and political subdivisions.

MARYLAND

Md. State Gov't Code Ann. § 12-10-1 *et seq.*; limited waiver of immunity, to the extent of insurance coverage.

- applies to state and agencies; separate provisions for political subdivisions: Md. Cts. & Jud. Proc. Code Ann. § 5-401 *et seq.*; waiver of immunity interpreted as excluding governmental function.

MASSACHUSETTS

Mass.Gen.Laws Ann. ch. 258, § 1 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, discretionary acts.

- applies to state, agencies and political subdivisions: separate waiver for defects in highway, Mass. Gen. Laws Ann. ch. 81, § 18 (interpreted to include design defect, failure to correct or warn).

MICHIGAN

Mich. Comp.Laws Ann. § 691.1401 *et seq.*; waiver of immunity, limited to proprietary function (for state only); specific waiver of immunity for defective highway (in connection with maintenance of highway by responsible agency) and knowledge (or imputed knowledge) of defect.

- applies to state, agencies and political subdivisions.

MINNESOTA

Minn. Stat. Ann. § 3.735 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, discretionary function.

- applies to state and agencies.

MISSISSIPPI

Miss. Code Ann. § 11-45-1 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary function, and plan or design for construction or improvements to public property including highways, streets, etc., in accordance with engineering standards and approval by governing authority.

- applies to state, agencies and political subdivisions.

MISSOURI

Mo. Ann. Stat. § 537.600; waiver of immunity limited to: (1) negligence of public employee in operation of motor vehicle within scope of employment; and (2) dangerous condition of public property, either created by negligence of public employee, or of which there was actual or constructive notice; exception for defective design of highway constructed prior to 9/12/77 in accordance with accepted design standards.

- applies to state, agencies and political subdivisions.

MONTANA

Mont Code Ann. § 2-9-101 *et seq.*; waiver of immunity following administrative appeal; exceptions for, *inter alia*, legislative and judicial acts.

- applies to state, agencies and other political subdivisions.

NEBRASKA

Neb. Rev. Stat. § 81-8,209 *et seq.*; waiver of immunity following administrative appeal; exceptions for, *inter alia*, performance of discretionary function or duty, malfunction of traffic control or warning device (unless not corrected after notice), and plan or design for construction or improvement of highway (with advance approval by discretionary authority).

- applies to state and its agencies; other political subdivisions governed by Neb. Rev. Stat. § 23-2,410 *et seq.*, with provisions similar to those set forth above.

NEVADA

Nev. Rev. Stat. § 41.0305 *et. seq.*; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary function or duty.

- applies to state, agencies and other political subdivisions.

NEW HAMPSHIRE

N.H. Rev. Stat. Ann. § 541 -B:1 *et seq.*; waiver of immunity; exceptions for, *inter alia*, performance of discretionary executive or planning function or duty, and intentional torts; concurrent jurisdiction between superior court and board of claims for claims under \$50,000.

- applies to state and agencies.

NEW JERSEY

N.J. Stat. Ann. § 59:1-1 *et seq.*; waiver of immunity; exceptions for, *inter alia*, discretionary activities.

- applies to state, agencies, and political subdivisions.

NEW MEXICO

N.M. Stat. Ann. § 41-4-1 *et seq.*; waiver of immunity including, *inter alia*, construction and maintenance of street or highway, but excluding defect in plan or design.

- applies to state, agencies, and political subdivisions.

NEW YORK

N.Y. Ct. Cl. Act § 8; waiver of immunity, with certain limitations on state's liability for highway defects under the Highway Law, and exceptions for discretionary function.

- applies to state, agencies, and political subdivisions.

NORTH CAROLINA

N.C. Gen. Stat. § 143-291 *et seq.*; establishes Industrial Commission for tort claims against state and agencies, including Highway Commission.

- applies to state and agencies.

NORTH DAKOTA

N.D. Cent. Code § 32-12-01 *et seq.*: waiver of immunity limited to actions in contract or title to property.

- applies to state and agencies; liability of political subdivisions addressed separately, § 32-12.1-01 *et seq.*; waiver of immunity; exceptions for, *inter alia*, performance of discretionary function.

OHIO

Ohio Rev. Code Ann. § 2743.01 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary functions; Court of Claims established.

- applies to state and agencies; political subdivisions governed by § 2744.01 *et seq.*; waiver of immunity for, *inter alia*, negligent performance of proprietary function, failure to keep streets and highways free from nuisance.

OKLAHOMA

Okla. Stat. Ann. tit. 51, § 151 *et seq.*; waiver of immunity; exceptions for, *inter alia*, performance of discretionary act, absence or malfunction of traffic or road signal or warning device (unless not corrected after notice), and maintenance of state highway system (except for failure to warn of unsafe condition caused by state).

- applies to state, agencies, and other political subdivisions.

OREGON

Or. Rev. Stat. § 30.260 *et seq.*; waiver of immunity; exceptions for, *inter alia*, performance of discretionary function or duty.

- applies to state, agencies, and political subdivisions.

PENNSYLVANIA

42 Pa. Cons. Stat. Ann. § 8521 *et seq.*; waiver of immunity for, *inter alia*, dangerous condition of property owned or controlled by state, or highways under state jurisdiction.

- applies to state and agencies: local governmental bodies governed by § 8541 *et seq.*; waiver of immunity for, *inter alia*, property owned or controlled by local entity, dangerous condition of traffic controls or streets, if not corrected after notice.

RHODE ISLAND

R.I. Gen. Laws § 9-31-1 *et seq.*; waiver of immunity, including Eleventh Amendment immunity, and including immunity for governmental function, subject to \$100,000 limit.

- applies to state, agencies, and all political subdivisions.

SOUTH CAROLINA

S.C. Code Ann. § 15-78-10 *et seq.*; waiver of immunity with exceptions for, *inter alia*, performance of discretionary function and absence or malfunction of signal or warning device unless not corrected after notice.

- applies to state, agencies, and political subdivisions.

SOUTH DAKOTA

S.D. Codified Laws Ann. § 3-21-1 *et seq.* and § 21-32-1 *et seq.*; administrative procedure established for tort claims, funded by “public entity pool for liability”; waiver of immunity only to the extent of insurance coverage or risk sharing pool.

- applies to all public entities (interpreted as excluding bodies such as water districts which function more like a proprietary business enterprise).

TENNESSEE

Tenn. Code Ann. § 29-20-101 *et seq.*; waiver of immunity for, *inter alia*, defective or dangerous condition of highway, if not corrected after notice; no waiver for performance of discretionary function.

- applies to state, agencies, and all political subdivisions.

TEXAS

Tex. Civ. Prac. & Rem. Code Ann. § 101 .001 *et seq.*: waiver of immunity limited to claims arising from 1) government's negligent use or operation of motor vehicle, or 2) condition of property owned or controlled by government; excludes failure to place traffic control or warning device (if discretionary), malfunction of traffic control or warning device, unless not corrected after notice.

- applies to state and agencies; political subdivisions governed by § 101.021 *et seq.*: waives immunity for governmental duties imposed by law on municipalities including, *inter alia*, regulation of traffic, warning signals, and transportation systems; no immunity for proprietary functions of municipality.

UTAH

Utah Code Ann. § 63-30-1 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, exercise of governmental function, performance of discretionary function; specific waiver for defective or dangerous condition of street or highway.

- applies to state, agencies and political subdivisions.

VERMONT

Vt. Stat. Ann. tit. 12, § 5601 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, performance of discretionary function or duty.

- applies to state and agencies; Vt. Stat. Ann. tit. 29, § 1403 waives immunity of municipal corporation to the extent it procures liability insurance coverage.

VIRGINIA

Va. Code Ann. § 8.01-195.3 *et seq.*; waiver of immunity, with exceptions for, *inter alia*, any acts of transportation district commission or employees acting in official capacity.

- applies to state, agencies and transportation districts.
- express retention of immunity in connection with local transportation districts (§ 33.1-421), or multi-county transportation improvement districts (§ 15.1-1372.12).

WASHINGTON

Wash. Rev. Code Ann. § 4.92.090 *et seq.*; waiver of immunity, interpreted as excluding, *inter alia*, discretionary policy decisions or acts.

- applies to state and agencies; political subdivisions governed by § 4.96.010 *et seq.*: waiver of immunity, interpreted as excluding, *inter alia*, discretionary policy decisions or acts.

WEST VIRGINIA

W. Va. Code § 29-12-1 *et seq.*; administrative procedure established for tort claims, waiver of immunity limited to extent of insurance coverage.

- applies to state and agencies; political subdivisions governed by § 29-12A-1 *et seq.*: waiver of immunity with exceptions for, *inter alia*, legislative, quasi-legislative, judicial, and quasi-judicial functions; immunity expressly waived for maintenance of roads, streets and highways.

WISCONSIN

Wis. Stat. Ann. § 893.80 *et seq.*; waiver of immunity applicable to political subdivisions, not state; interpreted as excluding discretionary function or duty; also § 81.15, waiver of immunity of local government for highway maintenance defects.

WYOMING

Wyo. Stat. § 1-39-1 01, *et seq.*; waiver of immunity for specific activities, including *inter alia*, operation of motor vehicles, operation or maintenance of public buildings, parks, airports, and public utilities.

- applies to state, agencies and political subdivisions.

J. Transfer Of Immunity To Private Entities.

With nothing more, a private party engaging in the design, manufacture or operation of IVHS technology will not enjoy any sovereign immunity because it is not the State, the sovereign. However, when private parties are working with state government, they may be able to enjoy some of the states' immunity derivatively.

Normally, a private party working under contract with the government will be immune from liability to the extent it is merely carrying out the instructions or plans and specifications of the government, without being negligent.^{123/} Thus, if a State Department of Transportation were to contract with a construction contractor to construct highways and install IVHS devices, the contractor would likely be immune from liability if the plans and specifications the state provided were defective.

On the other hand, if the fault lies with the private party rather than the government, as when the contractor commits negligence in carrying out the government's plans and specifications, courts in most states would find there is no

123/ *Simmons v. Tri-State Construction Company*, 33 Wash.App.315, 655 P.2d 703 (1982); *Cobb v. Waddington*, 154NJ.Super.11,380A.2dd1145 (1977). cert..denied, 76N.J.235, 386 A.2d 859 (1978).

immunity.^{124/} Moreover, a consultant performing services for a government agency may be said to owe a duty to third parties such as the users of highways.^{125/} Thus, even though a government body may enjoy state sovereign immunity under some circumstances where its conduct might be said to be negligent, a private party working with the state will not likely enjoy equal immunity.

This is problematical for private parties in the IVHS area because much of the innovative work which they will pursue will likely not fall within the ambit of immunity. For example, a private firm may design a control device for the guidance of autos and then contract with the government to install it on highways. Having designed the technology in the first place, it cannot say it is merely carrying out plans and specifications of the governmental entity. On the other hand, if a private entity is retained to provide traffic management services, so long as it carries out the instructions of the state without negligence, it could be held immune should the ATIS system cause injury. These would be borderline issues in many cases. The difficulty is that innovation in design, rather than the operation, is the facet of IVHS development that would most benefit from immunity and is in need of encouragement.

Private parties will seek by contract with each state to transfer the full benefit of the immunity of that state to the private party. However, inasmuch as the immunity any state has to offer a contracting party is based upon the parameters set forth in its constitution (e.g., Alabama, Arkansas and Georgia),^{126/} tort claims statutes, and judicial interpretations, a contractual provision alone might not afford shared immunity which was not authorized under the law of the state. Thus, changes on the constitution or statutes of the particular state might be reached to accomplish the desired result. Nevertheless, a private party which carefully crafts its relationship should, in most states, be able to argue it has some protection. If, for example, its designs go through the proper review process it may be able to argue its work fits under the government's design immunity discussed earlier.

IV. METHODS OF ENCOURAGING IVHS TECHNOLOGY RELATED TO THE DOCTRINE OF SOVEREIGN IMMUNITY

As one can see from the foregoing discussion, the doctrine of sovereign immunity is a hodgepodge of common law, constitutional provisions, state tort claim acts, other statutes and judicial interpretations, with variances and nuances in each jurisdiction. The problem of using the doctrine to create an environment conducive to IVHS technological advancement is really 50 problems. Even where there are some principles which are common to a large majority of states there are exceptions -- even the states in the majority have minor variations. Thus IVHS developers cannot say with certainty that "this is the law of sovereign immunity throughout the United States and I will rely upon it in making my estimates for costs of development of my IVHS product."

124/ *E.g., Transcon lines Corp. v. Comell Construction Co.*, 539 P.2d 1372 (Okla. 1975).

125/ *Ingram v. Howard-Needles-Tammer & Bergdendorf*, 234 Kan. 289,672 P.2d 1003 (1983).

126/ See section III (I), *supra*.

To some degree, each state will have to examine its own unique tort claims structure to determine whether a change should be made to enhance IVHS development. Yet there are some consistent principles that might be exercised and there is a role which the federal government can play if it wishes. The following considers some of the approaches which might be taken.

A Preemption

The most apparent means of providing consistency in the law of state sovereign immunity is federal preemption. While it is beyond the scope of this paper to study the law of preemption, it generally appears that Congress would have the power to pass a law expressly preempting the laws of the states in the sphere of IVHS development. Obviously there are competing policy considerations. A principal one is the possible desire to encourage development of IVHS technologies by limiting the liability of public or private developers. A variation is the need for consistency: even if preemption did not materially alter the availability of sovereign immunity, but did make the rules consistent, that might in and of itself be a benefit. Those who are developing technologies could make decisions more easily if the possibilities of liability and its potential costs are more predictable. It would make it easier to purchase insurance against those eventualities.

Balanced against these possible policy arguments is the need to treat the victims of accidents fairly. There are people who will be injured by errors in the design of this new technology, or negligence in its construction and operation. Generally our states have provided redress for these injuries by waiving to varying degrees their sovereign immunity. It is hard to imagine any system, even if federal law preempted, which would not present some avenue for compensation for those injured. Another source of opposition to preemption might be states who simply did not wish to lose control over their own laws in this manner.

Note that federal preemption would likely deal not only with sovereign immunity, but also with the underlying tort issues. The distinction between what is a tort rule and what is grounds for immunity are often blurred. For example, a state which follows reasonable engineering practices in design might enjoy immunity, but even if it did not it might escape liability on the grounds those reasonable engineering practices demonstrated it was not negligent. In the same fashion a private contractor with the state might enjoy immunity by carrying out the state's plans and specifications without negligence, but, even if not immune, if it had not committed negligence it might not be liable anyway. Thus any general system of preemption would likely address both areas.

B. Partial Preemption

Even if the federal government did not wish to preempt state law completely, it might take partial steps which would go a long way in limiting liability or at least making it more predictable. For example, it could establish rules providing immunity for certain types of damages, or extend immunity consistently to design of IVHS products, if not their construction and operation.

C. Conditioning Of The Use Of Funds

Results similar to a partial preemption might be obtained through the conditioning of the use of federal funds for IVHS and transportation development or the building of highways. This could accomplish some of the same goals as the partial preemption of state law. For example, the federal government could insist the state not implement a federally funded IVHS procedure unless the state goes through a specific design review process which would help qualify the design for immunity in most jurisdictions.

D. Design Standards

In addition, the federal government might take a role in causing the formation of groups which would identify standards of engineering practice in the IVHS area.^{127/} This is a difficult task to accomplish since, by definition, a developing technology may not yet have identified standard engineering practices; some standards could stifle innovation. Yet standards can provide the basis for states and private parties to establish their own immunity by showing they followed reasonable practices. To the extent the federal government is engaging in IVHS activities itself, its own specifications may help define standard engineering practices. In this regard the most fruitful avenue would be formulating safety standards.

E. Changes In State Law

Obviously each state now has control of its own state law and can alter the rules of design immunity. In many cases this will require changes in the state constitution and in others just statutory law.

F. Extending Immunity To Private Parties

Private parties can seek to take as much advantage as possible of state sovereign immunity laws when contracting with the government. This is more likely to be of benefit to those building or operating IVHS systems since they will be relying more on specifications, designs and instructions given them by the government, whereas original designers or products, if they commit negligence, will be doing so in the context of performing the design.

^{127/} While not impossible, private parties have difficult forming groups on their own to formulate standards because of antitrust laws. A government role may alleviate some of the antitrust problems.

APPENDIX: TABLE OF IMPORTANT STATE LAWS

<u>STATE</u>	<u>CITATION(S)</u>
ALABAMA	Ala. Const. art. 1, § 14; Ala. Code § 11-93-1 et seq. and § 41-9-47 et seq.
ALASKA	Alaska Stat. § 09.50.250
ARIZONA	Ariz. Rev. Stat. Ann. § 12-820 et seq.
ARKANSAS	Ark. Const. art. 5, § 20; Ark. Stat. Ann. § 19-10-201 et seq.
CALIFORNIA	Cal. Gov't Code § 810 et seq.
COLORADO	Colo. Rev. Stat. § 24-10-101 et seq.
CONNECTICUT	Conn. Gen. Stat. Ann. § 4-141 et seq.
DELAWARE	Del. Code Ann. tit. 10, § 4001 et seq.
FLORIDA	Fla. Stat. Ann. § 768.28 et seq.
GEORGIA	Ga. Const. art. I, § 2-209
HAWAII	Haw. Rev. Stat. § 662-21 et seq.
IDAHO	Idaho Code § 6-902 et seq.
ILLINOIS	Ill. Comp. Stat. Ann. ch. 745, § 5/1 et seq. and ch. 705, § 505/1 et seq.
INDIANA	Ind. Code Ann. § 34-4-16.5-1 et seq.
IOWA	Iowa Code Ann. § 669.1 et seq.
KANSAS	Kan. Stat. Ann. § 75-6101 et seq.
KENTUCKY	Ky. Rev. Stat. Ann. § 44.070 et seq. and § 65.200 et seq.
LOUISIANA	La. Const. art. 12, § 10; La. Rev. Stat. Ann. § 13:5101 et seq.
MAINE	Me. Rev. Stat. Ann. tit. 14, § 8101 et seq.
MARYLAND	Md. State Gov't Code Ann. § 12-101 et seq.; Md. Cts. & Jud. Proc. Code Ann. § 5-401 et seq.
MASSACHUSETTS	Mass.Gen.Laws Ann. ch. 258, § 1 et seq.; Mass. Gen. Laws Ann. ch. 81, § 18

<u>STATE</u>	<u>CITATION(S)</u>
MICHIGAN	Mich. Comp. Laws Ann. §691 .1 401 et seq.
MINNESOTA	Minn. Stat. Ann. § 3.735 et seq.
MISSISSIPPI	Miss. Code Ann. § 11-45-1 et seq.
MISSOURI	Mo. Ann. Stat. § 537.600
MONTANA	Mont. Code Ann. § 2-9-101 et seq.
NEBRASKA	Neb. Rev. Stat. § 81-8,209 et seq. and §23-2,410 et seq.
NEVADA	Nev. Rev. Stat. § 41.0305 et. seq.
NEW HAMPSHIRE	N.H. Rev. Stat. Ann. § 541-8:1 et seq.
NEW JERSEY	N.J. Stat. Ann. § 59:1-1 et seq.
NEW MEXICO	N.M. Stat. Ann. § 41-4-1 et seq.
NEW YORK	N.Y. <i>Ct. Cl.</i> Act § 8
NORTH CAROLINA	N.C. Gen. Stat. § 143-291 et seq.
NORTH DAKOTA	N.D. Cent. Code § 32-12-01 et seq.
OHIO	Ohio Rev. Code Ann. § 2743.01 et seq.
OKLAHOMA	Okla. Stat. Ann. tit. 51, § 151 et seq.
OREGON	Or. Rev. Stat. § 30.260 et seq.
PENNSYLVANIA	Pa. Cons. Stat. Ann. tit. 42, § 8521 et seq.
RHODE ISLAND	R.I. Gen. Laws § 9-31-1 et seq.
SOUTH CAROLINA	S.C. Code Ann. § 15-78-10 et seq.
SOUTH DAKOTA	S.D. Codified Laws Ann. § 3-21-1 et seq. and § 21-32-i et seq.
TENNESSEE	Tenn. Code Ann. § 29-20-101 et seq.
TEXAS	Tex. Civ. Prac. & Rem. Code Ann. § 101 .001 et seq.

<u>STATE</u>	<u>CITATION(S)</u>
UTAH	Utah Code Ann. § 63-30-1 et seq.
VERMONT	Vt. Stat. Ann. tit. 12, § 5601 et seq. and tit. 29, § 1403
VIRGINIA	Va. Code Ann. § 8.01-195.3 et seq., § 33.1-421, and § 15.1-1372.12
WASHINGTON	Wash. Rev. Code Ann. § 4.92.090 et seq.
WEST VIRGINIA	W. Va. Code § 29-12-1 et seq.
WISCONSIN	Wis. Stat. Ann. § 893.80 et seq. and § 81 .15
WYOMING	Wyo. Stat. § 1-39-101 et seq.