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WIRELESS COMMUNICATION APPLICATIONS FOR TRANSPORTATION: USER BOON OR BOOBY TRAP?

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I. INTRODUCTION

As wireless telecommunication technologies have moved into the mainstream, a main area of application has been transportation. Cellular telephones gained their first market as car tele-

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phones, and while the mobile telephone is now able to leave the car, the car remains a major area of mobile telephone use.¹ Given that new applications are developing for mobile phones, and that these applications can also be directly installed into automobiles, it becomes obvious that the integration of wireless telecommunications and transportation will not stop with plain old telephone service ("POTS").

The greatest selling points for this continued integration are improved traveler safety and increased access to information. With these benefits, however, many applications also require information about the user, raising potential privacy issues. These issues present conflicting interests to both the state and the individual. The state is concerned with improving transportation safety for all users versus protecting the privacy of consumers, while the individual faces a trade-off between gaining increased safety and convenience at the expense of their own perceived personal privacy.

In some applications, these benefits will far outweigh the costs of lost privacy, and many users will probably welcome the increased contact with the world outside of their vehicle.² However, other applications could allow the collector or user of the data to act in a manner far different and more invasive than what we are used to today.³ As a result, the legislature ought to carefully scrutinize proposed developments in wireless applications to transportation, and should consider creating new legal protections that would restrict access to and use of the data collected.

1. While mobile telephone technologies have been around since the 1940s, commercial licenses were not granted until 1983, and the service had ten million subscribers by 1992. Cellular Telecommunications Industry Association, *The History of Wireless*, at http://www.wowcom.com/consumer/faqs/faq_history.cfm (last visited Jan. 23, 2001). Since then, however, subscribership has grown enormously, to more than 86 million by December 31, 1999. *Id.*

2. In this article, while the term "vehicle" will often refer to a private automobile, it could also be a commercial truck, bus, train car, bicycle or even traveling on foot. Where a distinction is necessary, the specific mode will be identified.

3. An example of how the costs can quickly become more burdensome than the benefits occurred in a suburb of Dallas, Texas in the mid-1960s. The town had installed a camera-based automatic speed detection and enforcement system, which took a picture of the license plate, the driver, and any passengers in the front seat of a vehicle breaking a speed limit. "One of the first violators was the mayor of the city, who, upon receiving the photo of himself and his female companion attached to a speeding ticket in the mail, promptly ordered the device removed from the city's streets." Bruce Abernethy & Andrew Kolcz, *I Saw What You Did*, TRAFFIC TECH. INT'L., Aug./Sept. 2000, at 62. While the technology is somewhat different in this example, the data that could be collected is quite similar, and potentially more invasive.

This article will briefly discuss the legal landscape in Minnesota for in-vehicle privacy, present the general transportation safety issues raised by the introduction of wireless technologies, present five emerging transportation applications that are enabled by wireless technologies and discuss some of the trade-offs individuals and governments may face as these are implemented. Finally, the article will discuss the policy options available for addressing these issues and attempt to clarify areas in which the state may wish to act before deployment becomes widespread.

II. THE LEGAL LANDSCAPE FOR IN-VEHICLE PRIVACY IN MINNESOTA

A. *Communications Privacy—Government Access To Wireless Communications*

The federal Electronic Communications Privacy Act (“ECPA”)⁴ covers when the government may collect and use data, and when it may not. The ECPA extends Title III protection to e-mail, cellular telephones and computer transmissions. Specifically, the ECPA states:

Contents of Electronic Communications in Electronic Storage.—A governmental entity may require the disclosure by a provider of electronic communication service of the contents of an electronic communication, that is in electronic storage in an electronic communications system for one hundred and eighty days or less, only pursuant to a warrant issued under the Federal Rules of Criminal Procedure or equivalent State warrant.⁵

In other words, the government cannot access the contents of an electronic communication, including one made by wireless devices, without a warrant. However, it should be noted that the communication event itself is not protected. As a result, the time of the communication and the place from which the call took place is available to law enforcement and other government entities. Minnesota codified the ECPA into state law,⁶ but extended the protection of the content of the communications to include protection from private actors as well.⁷

4. 18 U.S.C. § 2510 (2000).

5. *Id.* § 2703(a).

6. MINN. STAT. § 626A.28 (2000).

7. *Id.* § 626A.27.

B. *Communications Privacy—Access To Mobile Communications Data*

Beyond protecting the content of a wireless communication, however, protection for other data related to mobile communications, or communications from moving vehicles in particular, is not as broad as one might expect.⁸ While Congress did declare location information to be Customer Proprietary Network Information (“CPNI”) when it passed the Wireless Communications and Public Safety Act (“WCPSA”) in October 1999, the exact limits imposed by this designation are not clear. On one hand, while the 1996 Telecommunications Act limits use of all CPNI,¹⁰ the WCPSA further limits use of location CPNI by prohibiting its use or disclosure “without express authorization.”¹¹ However, this prohibition only applies to companies that the 1996 Telecommunications Act and the WCPSA define as “telecommunications carriers,”¹² and the law does not state what would constitute “express authorization.” Authorization may be as formal as written consent, or as passive as providing electronic consent in a “click-through” format.¹³

Congress did pass the Driver’s Privacy Protection Act¹⁴ with the intent of prohibiting a state from disclosing “personal information

8. In terms of a “right to privacy,” as might be assumed when one is in a moving vehicle, many laws speak to the contrary: data is generally presumed to be in the public domain. *E.g.*, Minnesota Data Practices Act, MINN. STAT. § 13.01, subd. 3 (2000) (stating data is presumed to be public); Sandra Byrd Petersen, Note, *Your Life As An Open Book: Has Technology Rendered Personal Privacy Virtually Obsolete?*, 48 FED. COMM. L.J. 163, 163 (1995) (discussing the limits of current legislation in protecting privacy).

9. Wireless Communications and Public Safety Act of 1999, Oct. 26, 1999, Pub. L. No. 106-81, § 2, 113 Stat. 1286 (codified as 47 U.S.C. § 222 (2000)).

10. 47 U.S.C. § 222(c) (2000).

11. *Id.* § 222(f).

12. *Id.* § 222(a). One commentator even notes that some “in the industry claim that a wireless carrier that derives location information from mobile web access, as opposed to telephony, can disclose that information to others without first obtaining prior affirmative consent.” Daniel Sovocool & Daniel Ventrelle, *Wireless Telematics Systems: Driver Distraction and Location Privacy Issues*, at n.5, available at http://www.thelenreid.com/articles/article/art_77.htm (last visited Feb. 22, 2001).

13. The FCC released rules on consent in 1998, but the tenth circuit ruled the rules on consent to be unconstitutional in 1999, and the FCC has not issued new rules since that time. Sovocool & Ventrelle, *supra* note 12; see also Petition of the Cellular Telecommunications Industry Association for a Rulemaking to Establish Fair Location Information Practices, Nov. 22, 2000 (citing *US West v. FCC*, 182 F.3d 1224 (10th Cir. 1999), cert. denied, 120 S. Ct. 2215 (2000)) [hereinafter CTIA Petition].

14. 18 U.S.C. § 2721 (2000).

about any individual obtained by the department in connection with a motor vehicle record,"¹⁵ but, similar to the ECPA, numerous loopholes exist. Most of these exceptions lie within the definition of "personal information," which does not include information about accidents, driving violations and driver's status.¹⁶ Another loophole is that departments of motor vehicles can disclose additional information to outside entities, so long as drivers are given "clear and conspicuous notice" of possible disclosures on license renewal forms, vehicle registrations and titles and identification cards.¹⁷ Minnesota codified this act and made it applicable to state actions by the Department of Transportation and the Department of Public Safety.¹⁸

III. SAFETY ISSUES

The use of wireless technologies to promote traveler safety is more of a state interest than a personal one. While individuals certainly benefit from technology that will improve their safety, individuals may also decide to adopt technologies that decrease their safety, or endanger the safety of others. On the other hand, rarely is it in the interest of the state to promote innovations that decrease the safety of its citizens.

Mobile telephones provide the perfect example of the trade-

15. *Id.*

16. *Id.* § 2725(3). The full text reads:

'[P]ersonal information' means information that identifies an individual, including an individual's photograph, social security number, driver identification number, name, address (but not the 5 -digit zip code), telephone number, and medical or disability information, but does not include information on vehicular accidents, driving violations, and driver's status.

Id.

17. *Id.* § 2721(d). The department can disclose any information it receives, so long as it establishes:

[P]rocedures under which the department or its agents, upon receiving a request for personal information ... may mail a copy of the request to the individual about whom the information was requested, informing such individual of the request, together with a statement to the effect that the information will not be released unless the individual waives such individual's right to privacy under this section.

Id.

18. MINN. STAT. § 171.12, subd. 7 (2000). "Minnesota now includes this disclosure on its license renewal forms because the state statute goes one step further, requiring the applicant to specifically request that personal information be withheld." *Id.*

offs individuals face. Telephones became popular not only because they increased access and convenience, but also because they were perceived as a method of increasing personal travel safety. Drivers with cellular phones were able to immediately call to report accidents or medical emergencies and they could also call for directions without getting out of their car in an unfamiliar area.¹⁹ On the other hand, mobile phone use directly contributes to the problem of distracted drivers. The National Highway Transportation Safety Administration ("NHTSA") has determined that cellular telephone use while driving does increase the risk of a crash.²⁰

The technologies discussed in the next section will push this dichotomy further. While the ability to communicate increases in each instance, the result may be increased safety for all involved and increased safety of the user, but also potentially increased danger for others or increased danger for all involved because of the new risks presented by providing new information to new actors. The state government should be aware of these trade-offs before the technologies become as widespread as mobile telephones. These issues will be reviewed one more time after the technologies are presented.

IV. DESCRIPTION OF DEVELOPING TECHNOLOGIES

A. Telematics

The area of wireless transportation technologies that will likely see the greatest growth is telematics. This group of technologies can be defined as in-vehicle wireless systems and services that use advanced location tracking and communication technologies.²¹

19. This benefit has been recognized many times. *E.g.*, Patrick Hook, *Playing It Safe?*, TRAFFIC TECH. INT'L., June/July 2000, at 33; 11 INNOVATION BRIEFS 5, Sept./Oct. 2000.

20. National Highway Traffic Safety Administration, *An Investigation Of The Safety Implications of Wireless Communications in Vehicles*, DOT HS 808 635, Nov. 1997, available at <http://www.nhtsa.dot.gov/people/injury/research/wireless> (last visited Feb. 22, 2001) [hereinafter NHTSA Investigation]. Other articles have made even stronger statements about the relationship between safety and cell phone use. *E.g.*, Hook, *supra* note 19 ("Academic research has shown that the use of a mobile telephone by a driver increases his reaction time by between half and one and a half seconds"); Kenneth Orski, *Slow Burn*, TRAFFIC TECH. INT'L., Aug./Sept. 2000, at 17-18 (citing 1997 *New England Journal of Medicine* study that concluded "hands-free cell phones offered no safety advantage over hand-held units, and that the overall use of a cell phone quadrupled the risk of a collision").

21. Orski, *supra* note 20, at 17. Orski also cites growth projections for telematics, starting with five million users by 2005, growing to thirty million by 2008. *Id.* One telematics provider describes telematics this way:

The early deployment of these technologies was to improve traveler safety, particularly on rural roads. In Minnesota, this has taken the form of the “Mayday Plus” project, which utilizes global positioning systems (“GPS”), in-vehicle sensors, satellite and cellular telephone technology and emergency response systems to provide automatic notification of a crash location and severity.²² In other words, if a telematics-equipped vehicle is involved in an accident, the driver, or even the vehicle, can notify a dispatcher of the location and severity of the crash, which could save enormous amounts of time if the accident occurs in a remote area.

Telematics can have other applications, however. They can provide navigation aid, directing a driver through an unfamiliar area, and can also provide commercial information.²³ It is in these areas that the individual interests in increased information and convenience may conflict with state interests of privacy and safety.

In order for these applications to work, users must provide their location information to a private entity, which then provides directions or information about nearby businesses. From the privacy point of view, the state and individual may be interested in limiting how this information is used, and when.²⁴ Certain drivers, for

Integrate one of the current locations-based technologies (satellite or network based) with a wireless communication system. Combine these technologies with a call-center response operation that can match latitude-longitude readings with various informational databases (i.e. emergency response agencies, roadside assistance providers, hotels, restaurants, etc.).

ATX Technologies, *What is Telematics?*, available at <http://www.atxtechnologies.com/telematics/whatis.asp> (last visited Jan. 23, 2001) [hereinafter *What Is Telematics?*].

22. Minnesota Department of Transportation, *Mayday Plus Project Description*, available at <http://www.dot.state.mn.us/guidestar/maydayproj.html> (last visited Jan. 23, 2001).

23. Hook, *supra* note 19, at 34; Orski, *supra* note 20, at 18; *What Is Telematics?*, *supra* note 21. Regarding navigation, Hook points out that the “shortest” and “quickest” options should be supplemented by a “safest” option. Hook, *supra* note 19, at 34.

24. As noted above, telecommunications providers are restricted in their use of location information, including the sale of it, without user consent. *Supra* notes 9-13 and accompanying text (regarding WCPSA). However, one vision for telematics suggests that users would consent to give up their privacy in exchange for security. “If customers agree to commercialize their location, granting permission for specific types of advertisers to access their vehicle and wireless devices, they get security free.” ATX Technologies, *A Vision for Telematics*, available at <http://www.atxtechnologies.com/telematics/future.asp> (last visited Jan. 23, 2001). It is this individual trade-off that, when aggregated, could raise significant issues for the state.

example, may not want their favorite coffee shop, or other more private establishments, advertising their specials to other drivers or occupants of that car. Similarly, from a safety perspective, telematics greatly increases the information directed to the driver, begging the question, "how much information is too much for the driver to process?"²⁵

B. *Electronic Driver Licenses And License Plates*

Potentially more invasive than telematics are electronic driver licenses and license plates. The driver licenses would be equipped with computer chips and act as ignition keys. These could prevent a person from operating a vehicle for any number of reasons. These reasons range from simple safety reasons, such as the car will not start unless the operator has an acceptable license (for example, when the operator is the owner), to reasons that significantly reduce the actions to which most drivers are accustomed.²⁶ The license plates could perform similar functions, but the information would be tied to the vehicle, rather than the operator. Specific applications include the apparently benign, such as route guidance and stolen car retrieval, to the potentially invasive, such as automatically slowing speeding vehicles or tracking and logging the use of commercial vehicles.²⁷

These technologies provide numerous potential benefits to the state in that the state could provide improved safety through inci-

25. NHTSA points out:

[W]ith the addition of new technologies and available services, there will likely be an associated increase in driver workload. Such an increase may itself create new safety concerns and make voice communications even more challenging. NHTSA is particularly concerned about possible synergistic effects of using multiple technologies that may increase workload beyond acceptable levels.

NHTSA Investigation, *supra* note 20, at 121.

26. Hook, *supra* note 19, at 34. These reasons include alcohol interlock systems that would prevent inebriated people from operating the vehicle, limiting available speed when younger drivers are operating the vehicle and commercial haulers restricting the speed and driving time of their operators. *Id.*

27. These applications have been tested in Europe, with favorable results from the law enforcement community. Jan Malenstein, *Something To Think About*, TRAFFIC TECH. INT'L., June/July 2000, at 98; Pat Opdam, *Web-enabling Vehicles ...*, TRAFFIC TECH. INT'L., June/July 2000, at 21. However, these technologies, especially the license plates, create a significant legal issue in that the enforcement community is inclined to believe that someone with the tracking device turned off has something to hide. Pat Opdam, *The Long Arm Of ITS*, TRAFFIC TECH. INT'L., Aug./Sept. 2000, at 12.

dent detection, vehicle counts, speed control and improved data for understanding traffic patterns.²⁸ However, these technologies also provide a large amount of information to the state, the use of which is not currently regulated. Law enforcement agencies could have considerably more control over drivers than they have at any time in the past.

C. Road Pricing

GPS and wireless technologies also provide an opportunity to change the current methods of transportation financing by replacing gasoline and other taxes with a mileage based fee. A number of states are investigating a method where the existing GPS satellite network would provide real-time information about a vehicle's position which would be stored on-board the vehicle. This travel data would be based on geographic information systems technology, although it would not be necessary to include information on exactly which road was traveled or at what time of day. Billing would result from when the data is downloaded, with revenue being transferred to jurisdictions within which the travel occurred.²⁹ Obviously, the use of GPS and GIS technologies provides an opportunity for navigation assistance as well.

The financial innovation proposed by this application provides a considerable advantage to the state as traditional funding mechanisms develop increased problems.³⁰ The proposal raises similar issues as telematics, however, in that the data collected is not currently restricted as to its distribution. While this issue is being investigated along with the technological issues,³¹ it does create a means for discovering one's travel patterns without the traveler be-

28. A test of electronic license plates on Dutch motorways resulted in a twenty-five percent reduction in traffic fatalities. Malenstein, *supra* note 27, at 98.

29. Professor David Forkenbrock, Address at the Value Pricing Conference, in Minneapolis, MN (Nov. 29, 2000).

30. *Satellites Could Track Vehicles, Collect Fees*, ST. PAUL PIONEER PRESS, Nov. 15, 2000, at 1A, 8A. This article quotes Former Senator Carol Flynn, DFL-Minneapolis, who states "we're wearing out roads faster but raising less money to cover the cost," referring to the existing gas tax and other financing mechanisms. *Id.*

31. Forkenbrock has suggested that states could set additional restrictions in the laws authorizing this system, such as prohibiting the information from being used for anything other than tax bills. Larry Sandler, *Tax Man May Someday Ride With You*, MILWAUKEE J. SENTINEL, Nov. 18, 2000, at 1A, available at <http://www.jsonline.com/news/State/nov00/drive19111800a.asp> (last visited Feb. 1, 2001).

ing aware.

D. 511 Traveler Information

The final transportation application for wireless technologies is the deployment of a three-digit number for traveler information. Through this program, a driver will be able to dial 511 and get real-time traveler information for public transportation schedules, road and weather conditions, construction information and traffic congestion.³² Obviously, this application can improve the performance of many different transportation modes since a user with a wireless telephone is not tied to a car and could be interested in transit, walking, or biking. This service is on track for deployment. It is easily understandable to users because it emulates calling 911 for emergencies. Further, many of the laws and regulations in place for 911 would apply to 511, lending a clear direction to dealing with privacy issues. Finally, the FCC has indicated this service should increase overall safety because the "highest and best" uses of these "N11" numbers are those uses that have the potential to save lives.³³

V. POLICY OPTIONS AND CONCLUSION

These new transportation applications of wireless and GPS technology demonstrate that new ground needs to be covered in transportation and communication data regulation. The current open nature of transportation data regulation creates an opportunity for the collection and distribution of data on a large scale without discussion of the costs and benefits of such a development. Since these applications can improve traveler safety, convenience and access to information, and at the same time improve overall system safety and performance, asking questions about privacy and hidden factors that could actually make travel less safe may seem like simple obstructionism. However, this examination of the applications and the current regulatory environment shows just how important it is to ask these questions now, and begin a discussion of how they should best be answered.

To begin the discussion, this article proposes three methods: industry self-regulation, user education and responsibility, or gov-

32. ITS MINN., Summer 2000 at 1.

33. Paul Najarian, *Fifth Element 511*, TRAFFIC TECH. INT'L., Aug./Sept. 2000, at 19-20.

ernment regulation and sanctions. Industry self-regulation would appear to be the most attractive solution because it would require minimal governmental expenditure and have those that developed the applications looking for and catching the weaknesses before they are on the market.³⁴ However, it must be asked if this kind of regulation is consistent with the profit motive that exists in the private sector. Given that the issue of distracted drivers was not fleshed out until cellular telephones were commonplace in cars, self-regulation should be viewed with some skepticism. On the other hand, 511 providers could be well positioned to regulate themselves. The data they provide is public information, and a provider that does a poor job of getting this information out would more likely lose customers and go out of business before any weakness becomes part of the long term operation.

User education and responsibility is also attractive. The well-informed user is thus positioned to make the best use of the new technology, and is likely to avoid uses detrimental to their well-being. However, the world does not supply perfect information and it would seem likely that providers of telematics, electronic driver licenses and other data gathering technologies would be inclined to minimize information about costs to the user in terms of lost privacy. Full disclosure in the marketplace often depends upon government requirement.

Finally, government regulation and sanction has its problems as well. While the simplicity of stating what providers can and cannot do is an attractive solution, government has many of the same lack-of-full-information problems that consumers face, and attempts to regulate could actually nip an emerging market in the bud. Further, the experience of cellular telephones also demonstrates the difficulty of agreeing on appropriate regulatory measures. Despite the increased evidence of decreased safety from cell phone use while driving, no state has succeeded in developing a law to curtail the practice. Consequently, creation of state regulations should be done only after thorough investigation. In light of the importance of privacy expectations and the uncertainty that industry self-regulation and consumer education alone are adequate

34. The Cellular Telecommunications Industry Association has proposed the following wireless privacy guidelines: (1) inform consumers that location information is being collected; (2) consumers have an opportunity to opt-in to location services; (3) location information be kept secure; and (4) when appropriate, provide consumer access to their own information. CTIA Petition, *supra* note 13.

protections, public policy makers should develop a clearer understanding of the appropriate role of possible state regulation.