

Final report of ITS Center project: N11

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Implementing 511 in Virginia and the Washington, DC Metro Area

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Abstract

On July 21, 2000, the Federal Communications Commission assigned the abbreviated dialing code 511 to be used for traveler information services. The basis for reserving 511 is that it meets the “public interest” standard for such a determination, and that use of traveler information systems increase substantially when a three-digit number is available. This study describes the current state of traveler information services in Virginia and the Washington, DC area, as well as describing the process for adopting an N11 in Virginia, Maryland and the District of Columbia. In addition, potential challenges to overcome before implementation are discussed.

Introduction

On July 21, 2000, the Federal Communications Commission (FCC) assigned the abbreviated dialing code (hereafter known as an “N11”) 511 to be used for access to traveler information services. In doing so, the FCC recognized need for traveler information as meeting the “public interest” standard used by the Commission to determine assignment of an N11, in that there are substantial benefits in doing so. Specifically, the US Department of Transportation (DOT) contends 511-related information would reduce vehicular congestion and pollution, lower fuel consumption, provide superior traffic management, and enhance roadway safety.

The Commonwealth of Virginia (in this report, “commonwealth” and “state” are used synonymously) is a major investor in Intelligent Transportation Systems (ITS), including a substantial investment in 10-digit traveler information services in various parts of the state and the Washington, DC metropolitan area. A major decision with the uniformity of access imposed by 511’s designation is whether all calls to the number within the state should be answered at a single location and transferred (“switched”) to a regional system based on the response to a menu choice (“decision tree”) or if callers within a given region will automatically be switched to the information system within that region.

Before configuration of the system can be addressed, the issue of how to enable the use of 511 in Virginia must be reconciled. Past N11 implementations, namely the Cincinnati-Northern Kentucky program discussed later in the report, provide a good outline for how this is done. An existing N11-enabled traveler information system is currently in operation. The processes for Maryland is less formal than Virginia’s, and the District of Columbia’s process is not as clearly defined at this time. While a delay in other jurisdictions’ adoption of 511 would not have an effect on its implementation in Virginia because of each state’s sovereignty over its own telephone lines, the usage of a traveler information system when an N11 is available versus the usage of the same system when accessed only by using a 7-digit number has been shown to be substantially higher (72%), resulting in more travelers equipped with the system’s information and therefore able to optimize their travel decisions (FCC Order 00-256, p. 9).

This paper consists of four parts. First, there will be a discussion of the rationale given by the FCC for assigning an N11 (511) for traveler information. Second, a brief description of traveler information services in Virginia will be described, including the Partners-In-Motion traffic information project in the Washington, DC Metro area. Third, the process of implementing an N11 in Virginia, Maryland and the District of Columbia will be described, as well as the mechanism for inter-jurisdiction cooperation, telephone carrier issues, information provision concerns, financing considerations, and the phasing in of 511 in FCC-selected “early adopter” states and the N11-enabled traveler information service currently in place in the Cincinnati/Northern Kentucky region. Finally, potential challenges, technical and institution-based, to the success of the program will be addressed.

The FCC Order

On July 21, 2000, the FCC issued order FCC 00-256 reserving 511 for traveler information services. In its justification for assigning 511, the Commission noted the significant impact of highway-related incidents each year in the United States: 6 million accidents, 42,000 deaths and 5.2 million injuries, at an approximate cost of \$200 billion annually. Building more roads is becoming more and more difficult each year both economically and politically. In an attempt to deal with these costs, Virginia and other state and local jurisdictions are spending large sums of money to equip their roadways with ITS, with the goal of providing real-time information on the status of the roads to increase safety, decrease pollution through less time spent idling in stopped traffic, and to generally allow the traveler to make better decisions on how and when to travel.

The FCC agreed with the conclusion that an N11 would result in increased use of a traveler information service, noting that in the N11-enabled service in the Cincinnati/Northern Kentucky area, during a three-month period when the N11 (211, in

this case) was enabled for wireline users in Kentucky but not in Ohio, 72% more calls were made to the N11 than to the seven-digit number (333-3333). The case of the Massachusetts Department of Transportation (MassDOT) implementation of its traveler information service found that wireline users who were required to dial a seven-digit number were far less likely to remember the number as compared to wireless users, who could dial “*1” to access the system, despite the seven-digit number being mnemonic and backed with millions of dollars in promotion. It should be noted that the regulatory regimes governing wireline and wireless telecommunications providers are different, and that the “boundariless” nature of the wireless deployment regime makes state boundary-guided policy mandates difficult to implement. This has recently been addressed by the wireless industry, and is discussed below.

The FCC also described a USDOT grant program to assist in paying for the switching function to transfer 511 calls to the 10-digit number, totaling \$50,000 to each entity granted funding. The total budget for this program is \$5,000,000. In the Request for Participation, the US DOT stated applications will be evaluated on 1) The level of coordination of the applicant with other agencies in the effected areas to reach agreement on a conversion approach for all traveler information numbers in the effected region; 2) the readiness of the applicant to convert traveler information telephone numbers in a timely fashion; and 3) the quality of the traveler information to be provided. The entire Request for Participation is included as Appendix A.

Because of the scarcity of the N11 spectrum (8 numbers total), the FCC will evaluate the use of 511 nationwide over the next five years to determine if it will remain reserved for traveler information or if it will be taken away for reassignment. The use of other abbreviated dialing codes (such as a *NN number like *69), while technically possible, is not preferred by Verizon, as they are designed to activate specific features in the Verizon system, rather than be dedicated to an external service. (Goodman, 8/25/00)

Traveler Information in Virginia Today

With the desirability of an N11 for traveler information established, the question becomes one of how best to deliver the information to the public. Currently, there are two functioning state-funded, publicly accessible traveler information systems in Virginia: *Travel Shenandoah* serving the northern Shenandoah Valley, and *SmarTraveler*, for Northern Virginia as well as suburban Maryland and the District of Columbia. The two systems are quite distinct, with *Travel Shenandoah* providing simple information via a single recorded message, while *SmarTraveler* provides a code- or decision tree-driven choice process for a large number of sections of roads throughout the DC metropolitan area, as well as commute times. A third system in the Hampton Roads area is expected to be operational in the near future. The *SmarTraveler* system is a contract administered by the Virginia Department of Transportation (VDOT), with cost sharing from the District and Maryland, and has two years remaining in its term. The contract is executed by a team composed of The Battelle Memorial Institute (Battelle), which provides the more difficult, high-end technical functions, and SmartRoutes, which operates the actual information system accessed by the traveler. After being funded mostly by the VDOT contract in its initial years of design, implementation and operation, the priority for *SmarTraveler* is now cost recovery, making *SmarTraveler* self-sufficient. To this point, results have been well below expectations, as mentioned by Battelle and VDOT representatives at recent meetings on 511. (July 28, 2000 at Metropolitan Washington

Council of Governments, August 7, 2000 at VDOT headquarters in Richmond) A statewide system, the VDOT Helpline, is in operation 24 hours per day and is designed to assist callers with information collected from the various resources within the state.

Implementing 511

Virginia

The process of assigning an N11 in Virginia is well understood. First, the number must be reserved, in this case through an FCC ruling. As noted above, this occurred on July 21, 2000. Important in this order is that the authority to award these numbers has been reserved for governmental agencies only, excluding award to for-profit or non-profit corporations. With the number reserved, the next task is for the District, Maryland and Virginia to decide which agency has the authority to administer 511. In Virginia, the following apply:

1. Should the decision be made to proceed with a traveler information number for the entire Commonwealth, it will be necessary to determine exactly what types of information will be provided. Existing telephone numbers, such as tourist information lines, could continue to operate on their own as well as being linked through a general number. Should the decision be made to provide this information as well as the traffic service, all relevant state agencies (tourism, commerce, VDOT, etc.) should be queried as to the availability, quality and quantity of the data to be provided as well as periodic updates of the information.
2. After the FCC reserves an N11 for traveler information the State Corporation Commission (SCC) must go through two steps to implement the number within the state. First, the SCC must issue an "Initial Order," in which it states the FCC has reserved the N11 for use within the state/nationwide, and invites comments from affected parties (see Appendix B for the 711 Initial Order). Affected parties in this case would be the Virginia Telephone Industry Association, local exchange carriers (local phone companies), wireless phone service providers, and payphone operators. The SCC will hold meetings with these entities to ascertain any foreseeable problems with the switching functions required for N11 to be implemented. Approximately three months after the Initial Order is issued, a Final Order may be issued to instruct phone service providers to implement the N11 by a certain date (see Appendix C for the 711 Final Order). In the case of 711 for TTY service for the deaf and hard of hearing, the Initial Order was issued in March of 2000, the Final Order was issued in June, and the switching began within a month of the final order.
3. In order to provide the service as quickly as possible, a revival of VDOT's contract with Battelle should be considered, as it is an existing infrastructure for providing traffic information. Additional options that could be added, at the state's discretion, to the service's decision tree to allow for access to information from those state agencies currently operating information lines, with the caller being redirected to other agencies' lines when selected. Should a new contract be let, the Department of Information Technology would most likely be the cognizant agency (Wickham, 2000), as it handles this type of contract (precedent: the 711 contract is administered by the DIT). According to a contract

administrator with DIT (Wilson, 2000)¹, the total procurement process would take 18-24 months, with protests, appeals and additional legal challenges adding to the implementation time. (see footnote)

It is recommended VDOT meet as soon as possible with SCC to review the assignment of agency responsibility. The steps are summarized in Figure 1.

Maryland

In Maryland, the process is similar to that of Virginia. Upon receiving a request for 511 allocation from an entity, such as the Maryland Department of Transportation, there are two ways in which the request could be handled. Based on the request, a detailed letter to the Public Services Commission's Executive Secretary, Felicia Greer, the Commission could approve or reject it administratively, in the form of a letter resulting from a weekly administrative meeting, or it could hold a hearing in which all interested parties are invited to participate. Based on this hearing and any follow-up activities deemed necessary, the PUC will make its final determination on awarding 511. According to the General Counsel of the Maryland Public Services Commission, the agency assigned 511 would then be responsible for determining how the 511 service would be provided and to administer any contracts deemed necessary. In addition, a request from a statewide agency, such as MDOT, would take precedence over a request from a city or county agency. (Miller, 2000)

District of Columbia

In a recent conversation with the District's Public Services Commission, the General Counsel's office (Hawley, August 30, 2000) noted the process for authorizing an N11 in the District is not codified, and recalled the transformation to 711 as being handled informally by the District and Verizon. This matter is being pursued by the General Counsel's office, and VDOT will be updated when the information becomes available. As of April 9, 2001, no update has occurred.

System Configuration

In a meeting with VDOT officials (August 7, 2000), a comparison between two options for providing the traveler information service were discussed. One option is to predetermine which regional service a caller will be directed to depending on their telephone number for wireline calls and, for wireless calls, the tower from which the call signal is relayed. Conversations with Verizon officials (Goodman, 8/25/00) have established that access to all regional services could be established through installation of directly connected circuits within the Verizon relay system, the second option. The cost of this would be cheaper than transferring users around the state by using toll-free

¹ During discussions with VDOT's Todd Kell and J.R. Robinson on August 7, 2000, it was thought DIT would only be responsible for administering the contract dealing with the switching function provided by Verizon, with VDOT responsible for administering the system-related contract. However, SCC and DIT (Wickham, 2000 and Wilson, 2000) believe DIT would administer the entire project.

numbers, but would be considerably more expensive than the option of connecting users to the service within their local telephone coverage area.

In a further conversation with the Verizon account manager for VDOT (Cunningham, August 29, 2000), it was mentioned that for the statewide accessibility option, it would be necessary to use an “inter-exchange carrier,” a “long distance carrier” in everyday language, because of the distance some calls would need to travel to be connected to the system. A VDOT representative (White, November 9, 2000), noted that in Northern Virginia, for example, any call traveling from Loudon County into Fairfax County must be carried by an inter-exchange carrier. This could also have implications on the cognizant agency for the program, as Virginia Department of Information Technology would then, arguably, have grounds to become involved in the project (ibid). The Commonwealth of Virginia currently has a contract with MCI to handle its long distance needs. The rate charged by MCI, according to Verizon (ibid), makes it the most cost-effective option available. Based on this information, it is recommended VDOT explore with MCI the costs involved in implementing the centralized statewide system.

In the wireless industry, by contrast, there is no such restriction on the carrying of inter-exchange calls (White, 2000). In this sense, Verizon Wireless Communications could be a superior option to the wireline portion of Verizon. Should the centralized architecture be selected, the inclusion of long distance in the provider’s pricing model could have the impact of making implementing the 511 system based on wireless access first more desirable, with wireline access added in later.

Figure 1. Virginia N11 Implementation

1. FCC reservation of an N11 (511 adopted July 21, 2000)
2. State Corporation Commission
 - a. Initial Order
 - b. Final Order
3. VDOT/DIT
 - a. Cognizant Agency for N11 contracts
 - b. Immediate recompetes of the current contract (versus incorporating into existing Battelle contract) equals significant delay because of the structure of the State of Virginia procurement process

Regional Approach for Washington, DC

Because of the large amount of interjurisdictional local and through travel in the Washington area, a traveler information system allowing access to information from the District, Maryland and Virginia using a single call to the system is desirable. In order to implement this, the model for the current Partners-in-Motion contract could be followed. The steps to implementing the N11-enabled system are described in the following section:

First, FCC allocation of the N11 is necessary (complete, July 21, 2000).

Virginia, the District and Maryland governments must go through similar assignment processes as they did for 711. In Maryland, the process was much more streamlined for 711, as the new N11 was simply applied to the existing service. There has been no response from the District government as to how N11s are implemented in DC.

Third, an agreement among the various entities (the District, Maryland and Virginia) must be reached to resolve such issues as the lead agency for the project (previously VDOT, lending credence to the contention that it be the lead agency within Virginia); and financial and administrative duties. The Metropolitan Washington Council of Governments has stated the type of agreement needed is quite simple in nature (Bosley, 2000). The agreement governing the interstate N11 project for the Ohio and Kentucky system (discussed below) is simple, covering the financial and administrative responsibilities and designating the lead agency. In this system, the N11 number (granted regionally), was working in Kentucky for a period of time before it was functioning in Ohio, with the N11-enabled northern Kentucky region handling a significantly higher number of calls than the 7-digit Ohio access number.

After the lead agency is determined for the DC-Metro system, that agency will then have the responsibility of implementing the procurement process and serving as the point of contact with Verizon, which as the Incumbent Local Exchange Carrier (ILEC) in the Washington Metropolitan Area would be the telephone service provider to switch the N11 call into the 10-digit number. For the wireless industry, negotiations with individual providers, perhaps facilitated through an industry association, would establish the 511 system.

Verizon: The Messenger

One of the main technical components to the traveler information service discussed in this report is the switching of 511 to a 10-digit number by Verizon. The idea of Verizon hosting the service in-house was mentioned to officials there but was rejected. The Verizon official emphasized that their role would be that of the messenger, and that they would expect to be paid by a single entity (the lead agency in the DC area contract, which, it is assumed, would also be the lead agency for the statewide system should it be a Virginia entity). Also discussed was the role of anti-trust law in Verizon being selected to provide the switching service rather than one of its competitors. No problems are anticipated, as Verizon's role of ILEC is undisputed. (Goodman, April 6, 2000)

A final issue relating to Verizon regarding its handling of the switching function is its relationship with the other telephone service providers, both wireline and wireless, as they would need to negotiate with each other to arrange access for their customers to the switch in Verizon's system. In the past, cooperation among wireline providers has been good, but it was mentioned that such a tradition of cooperation with the wireless community has not as yet been established. Conversations with those in the wireless industry who have attended ITS meetings indicate the industry is very interested in the issue and that the chances of cooperation are good. In the Washington, Philadelphia and Cincinnati/Kentucky regions, as a matter of fact, wireless carriers arranged for 211 to be assigned by the FCC for their customers to access SmarTraveler services quickly (www.smartraveler.com), indicating wireless providers share the belief that an N11 aids in the success of a traveler information service.

Collection and Dissemination of Traveler Information

The main issue for this part of the paper is the role of the government entity in comparison to that of the private sector. Public financing is a necessary part of the

equation, as the resources required to collect the data is currently beyond the means of private entities.(Schuman, 1999) Contractors actually install and maintain the collection and dissemination of traffic information.

The gathering of relevant information for inclusion in the system would necessarily be decentralized, as there is no one entity charged with collecting all information relevant to a traveler information system. Within the state of Virginia, system updates would come from various regional VDOT offices, based on information provided by field personnel. State and local police, emergency services personnel, news organizations and private citizens would also provide input for the statewide system that would need to be integrated at a centralized location. Of note is the Virginia Operational Information System (VOIS), an internal network for the State which compiles and disseminates information to Virginia state employees with access to the system. The system is currently being upgraded, including web-enablement, to be completed in the near future, and could be integrated as an input into the 511 system. (Kell, 2000) As discussed above, the actual configuration of the system with regard to transferability between different regional sources of information shows that a statewide service leveraging the rates afforded by the Commonwealth's telephone contract with MCI to be the more realistic option.

For a Washington Metropolitan system, input could be collected directly from relevant sources as for the statewide system, as it is with the Washington SmarTraveler system. Alternatively, the information could be forwarded to the regional system from the centralized Virginia collection point. With the current infrastructure configured to collect information directly from the decentralized units, it is recommended that this method be continued.

Financing

In an interview, Verizon officials stated that it would be unacceptable to add a monthly charge to each customer's bill, as is the practice for 911. Verizon's concern is that, given negative customer reaction to being charged monthly for 911 service, sentiment against charging automatically for a non-emergency system would be much worse (Goodman, April 6, 2000). The possibility of financing the system through a pay-per-use scheme was considered but was dismissed by Verizon because Section 228 of the Telecommunications Act of 1934 prohibits this kind of charge with the exception of directory assistance. Rather, the cognizant authority would be responsible for a monthly payment. (It should be noted that reviews of the Act by non-legal experts have found the law to not explicitly state this requirement, and it is recommended that counsel be requested to review the legal climate for per-use charge N11 systems.) According to the Kentucky Transportation Cabinet, the cost for the N11 use is approximately \$150,000-\$160,000 per year. This cost, paid to Cincinnati Bell, represents a charge of 10 cents per call with a minimum charge of \$5,000 per month. The TRW contract, which includes the procurement, installation, operation and maintenance of system components (sensors, for example) as well as the SmartRoutes subcontract, is approximately \$4 million. Various options for financing the system exist:

1. Individual phone call charges, along the lines of 900 numbers. The 900 number option is undesirable, as the laws governing this service are very different from other per-charge numbers. As discussed elsewhere, 411 is an exception to the

Telecommunications Act of 1934, which otherwise (arguably) bans per-call charges on abbreviated dialing codes.

2. Full financing by public agencies. This option raises the question of how the public sector will pay for the service. Use of gas tax proceeds is one possible source of funding, as it is a transportation-related source of revenue. In the end, however, initial funding will come from the jurisdictions' general revenues as allocated by their legislatures. (MWCOG meeting, July 28, 2000)
3. Advertising support. Advertising is accomplished in the SmarTraveler system by automatically including messages before and after requested information is received. Currently, Avis is the major advertiser for SmartRoutes systems (www.smartroutes.com). Requiring for-profit companies (hotel chains for example) to pay for being listed and/or offering "featured provider" status for a premium would be an additional source of income for the project.
4. One issue not addressed to this point is the capturability of publicly-funded information by companies other than those contracted by the lead Metro area government agency. In the Ohio-Kentucky program, they have concluded that any information gathered using public funds is public information and will be made available for acquisition by entities other than the contracted companies. To receive the information, the outside parties would be required to pay for their own links into the information systems operated under the TRW/SmartRoutes contract. There would be no charge for the information itself, and the outside party would be free to use the information without restriction.

Another issue to be addressed is the selection of types of information to be provided other than traffic and, it is assumed, transit. Technically, there is no problem with providing additional information.(Evans, 2000) While it may be decided that an area as dense as the Washington, DC metropolitan area should not include additional information, in less populated areas of Virginia and Maryland there may be justification for including it because of the possibility of increased revenue from what would otherwise be "pass-through" traffic. For public tourist attractions, there is also no problem. When addressing for-profit operations, however, the business model becomes important. Are advertisers allowed to pay a fee to be a "featured" entity and given a higher priority on the system (a la AOL), or are they listed alphabetically, randomly...? Easy accessibility for tourists would also be important (for traffic information, press 1; for transit information, press 2; for tourist attractions, press 3; for hotel information, press 4; for event information, press 5; for restaurant information, press 6). For an internet-based example of using featured providers, see www.yahoo.com and notice, for example, the online stores listed under the "Shopping" section. These stores pay to be displayed prominently on the website.

In a conversation with the TRW Project Manager for the Ohio/Kentucky project (Evans, 2000), it was noted that providing other than traffic information was possible, and that the system had been configured to allow for it to be included in the future. There should be no delay in providing traffic information should the system be configured to, first, give the traffic information option first on the decision tree listing, and second, to accept codes (akin to dialing an extension in response to the voice mail "if you know your party's extension, dial it now" prompt. Of major concern is the time elapsed from when a caller first accesses the system until they receive the information they require. As traffic

information is the most time-sensitive, it is recommended that it always be the first information available, excepting for emergency or other special announcements. Advertisements should not be included in emergency announcements, and their duration before and after the provision of non-emergency traveler information should be kept to a minimum.

Phasing in 511

As a part of the five-year evaluation period adopted by the FCC, five states have been selected as “early adopters” of 511. None of the jurisdictions in the Washington Metro area (Virginia, Maryland, the District) are part of this process. This gives the region the chance to observe how the FCC intends to handle 511 as a system without being forced to react immediately to its instructions. Rather, it may observe what happens and adapt as time allows. Of course, with the highly advanced traveler information system already in place in the National Capital region and in other parts of Virginia, the main issue will be the compatibility of the system in accordance with forthcoming federal guidelines, which are yet to be released.

As for a model for actually implementing an N11 system, the Ohio-Kentucky program provides the closest match to that proposed here:

- A regional council of governments (Ohio-Kentucky-Indiana [OKI]) conducted the original coordination and negotiation of the TRW/SmartRoutes contract.
- A bilateral state agreement between Ohio and Kentucky was signed to implement the project.
- A lead agency from one of the two jurisdictions (Kentucky Transportation Cabinet) was selected.
- The FCC was petitioned and awarded use of 211 for both Ohio and Kentucky. Each state implemented the number through their established procedures.
- A contract was let through a normal acquisition process and is being administered by the Kentucky Transportation Cabinet.
- A contractor team (TRW is the lead contractor, SmartRoutes is the subcontractor providing the traveler information system-specific systems).

For the Washington area in the two years remaining on the Partners-in-Motion contract, the agencies ultimately being awarded the ability to manage 511 (assumed to be VDOT in Virginia) could simply direct that 511 calls be switched to that system. After two years, should the contract be re-competed and awarded to another party, the 511 calls could then be directed to the new entity. The role of the Virginia Operational Information System into this regime is necessary, as is the function of the statewide VDOT Helpline.

Challenges to Success

With the knowledge of how a traveler information system would be organized from the functional and institutional viewpoints, it is also necessary to discuss possible sources of disruption in the successful implementation of a traveler information system. Two types of challenges, technical and institutional, are addressed in this section.

In the foreseeable future, budget limitations will prevent perfect traveler information from being available, and care should be taken to not imply it is perfect. The quality of

information currently available, though, is sufficiently accurate and timely to aid travelers in making informed route and mode decisions. The most important issue, therefore, is the time it takes from a relevant event occurring (for example, an accident) until the system is updated. Currently, the information is processed by humans at the SmartRoutes office and input manually into the system, causing a delay that while slight in terms of how an average person would perceive it, perhaps even a matter of a few minutes, the effectiveness of the 511 system would be greatly reduced if during that delay large numbers of travelers decided to take the route effected, as could occur during peak usage periods, increasing gridlock. Assuming a level of system usage that would be sufficient to alleviate delays when operating at a certain level of efficiency, it will be necessary to ensure all updates are input as soon as possible. Consequently, research into automatic updates and other means of quicker system updating should be conducted as soon as time and budgets allow. Additionally, the need to comply with forthcoming federal guidelines could serve to place limits on individual traveler information systems.

Ultimately, success of the 511 regime depends as well on the political and administrative actors with the states and the District of Columbia implementing the systems in an effective manner. At the institutional level in Virginia, there is some doubt as to the ultimate cognizant agency that would control 511. DIT is responsible for administering information technology-related contracts, of which 511 is an example. This contract is distinct from the Partners-in-Motion arrangement, in that the functions of information collection is not included in the set of DIT's responsibilities, but rather an overlap is created. Meetings with VDOT have established that DIT manages their telecommunications contracts, but it is possible that because DIT is responsible for managing N11 contracts in Virginia it would ultimately be able to determine to whom the 511 calls are transferred. It is therefore recommended that VDOT meet with DIT at the earliest opportunity to negotiate the decision that 511 calls will come to a VDOT-determined information source.

As mentioned above, the wireless industry operates under a different regulatory structure than that of wireline telecommunication companies. In a recent petition to the FCC requesting clarification of the order authorizing 511, the

As was seen in the Ohio/Kentucky program, the implementation process for N11s differ from state to state, and it cannot be assumed that 511 will be enabled in Virginia, Maryland and the District at the same time. As mentioned earlier, N11-enhanced access leads to a significant increase in usage, so all jurisdictions would be well advised to complete the authorization process as soon as possible to allow 511 to become as helpful as possible at the earliest possible time. In Virginia, the steps for implementation are well-known. In Maryland and the District, there is not the same level of detail available. As discussed above, the switching function for 711 was made in-house in the Maryland public utility commission and was not, it is believed, reviewed by any outside agencies nor did it go through the same initial and final order process as it did in Virginia.

Conclusion

The states of Virginia and Maryland and the District of Columbia have recognized the need for a timely, reliable traveler information system in their jurisdictions. As embodied in Virginia by the Partners-in-Motion, Travel Shenandoah and soon Hampton Roads systems, and as shown in the Ohio/Kentucky program, the only other interstate

cooperative traveler information initiative in existence at this time using an N11, there is reason to believe a regional traveler information system or the combined benefit of separate state-run systems will meet the goal of reducing congestion and decreasing fuel consumption. The steps involved in implementing 511 in each jurisdiction is different, with the process in Virginia being the best understood at this time. Should the decision be made in favor of a statewide 511 implementation, allowing access to callers in Virginia to all systems in the state through a centralized initial switching station or pre-selecting which system a caller will automatically be directed based on their location. The most efficient way to implement this type of system would be to include the program in the State's existing long distance contract with MCI. Should the decision be made to implement the regionally-based system, the model currently in place for the Cincinnati area system would be the most likely to be adopted, as the DOT grant program to enable switching 511 to a 10-digit number within the telephone system is apparently based on this system.

For the Washington metro area, the ultimate conclusion that a regional system should be adopted has not yet been reached. One unanswered question would be for determining the transition point from one metropolitan area to another, Richmond-to-DC-to-Baltimore, for example. Currently, Partners-in-Motion is providing information for all three jurisdictions, but does not enjoy the level of usage needed to truly effect congestion in the area. Continuation of a Partners-in-Motion-type arrangement is desirable, with any lessons learned from the experience either incorporated in the existing contract or at the time it is recompeted. A continuation of state and local information sources making their updated information available to the traveler information system is critical, with a possible enhancement being the ability of the officials being able to update the Partners-in-Motion system directly.

Verizon, the incumbent local carrier for the three states involved in this report's scope, is willing to be involved as the messenger for the system. Cooperation among wireless and wireline telephone service providers is not anticipated to be problematic, as #211 is currently enabled for wireless customers in the DC metro area and elsewhere. The \$50,000 grants available from the DOT are intended to pay Verizon for enabling 511 calls to be automatically switched to a regular 10-digit number.

In summary, the final recommendations are:

1. Continue to advocate recognition of 511 and traveler information services as necessary
2. Understand and coordinate implementation of 511 in Virginia and National Capital region
3. Negotiate cognizance over 511 at the earliest possible date
4. Coordinate with those responsible for negotiating telecommunications contracts and leverage their knowledge in 511 negotiations.
5. Allocate or gain funding from US DOT for switching 511 to the 10-digit number
6. Explore the option of implementing 511 as a "wireless only" service at first.

References

1. Bosley, John; Personal communication; April 7, 2000
2. Cavallo-Miller, Karen; Personal communication; July 28, 2000
3. Cunningham, Kevin; Personal communication; August 29, 2000
4. Evans, Scott; Personal communication; May 23, 2000
5. Goodman, John; Personal communication; April 6, 2000
6. Goodman, John; Personal communication; August 25, 2000
7. Hawley, Lara; Personal communication, August 30, 2000
8. Miller, Susan; Personal Communication; August 29, 2000
9. Robinson, James and Todd Kell; Personal communication; August 7, 2000
10. Schuman, Rick; "Traveler Information—What to Do and How to Do It: A Public Agency Quandary"; *ITS Quarterly*; Vol. VII, Number 2; Spring-Summer 1999; p. 13-21
11. Wickham, Alan; Personal communication; July 19, 2000
12. Wilson, Douglas; Personal communication; July 19, 2000

Appendix A

FCC Order 00-256

Appendix B

U.S. Department of Transportation, Federal Highway Administration Conversion of Traveler Information Telephone Numbers to 511: Request for Participation

Appendix C

**Virginia State Corporation Commission
711 Initial Order**

Appendix D

**Virginia State Corporation Commission
711 Final Order**